

Volume 1

Access to public sector information: law, technology & policy



Edited by Brian Fitzgerald

ACCESS TO PUBLIC
SECTOR
INFORMATION: LAW,
TECHNOLOGY &
POLICY

Volume 1

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FOREWORD

Improved access to and use of public sector information is of major importance for all economies. It has increasingly taken centre stage from being a somewhat peripheral issue often confused with freedom of information. The OECD has undertaken extensive work analysing and providing policy principles for the development and use of public sector information. This information ranges from weather and map information generated by governments through to public sector broadcasting archives, museums and art repositories where the information is held by governments. Free access to public sector information has been a cornerstone of US policy and this has been strengthened with the 2009 release of the US open government directive based on principles of transparency, participation, and collaboration. The 2003 EC Directive on the re-use of public sector information has been designed and implemented to expand and improve use.

The OECD Recommendation on public sector information provides policy guidelines designed to improve access and increase use of public sector information through greater transparency, enhanced competition and more competitive pricing. This was adopted by the OECD Council on 30 April 2008 and is reproduced in Chapter 25 of this book. This work was based on principles for enhanced access and more effective use for public and private sectors to increase total returns on public investments and economic and social benefits through more efficient distribution, enhanced innovation, development of new uses, and market-based competition.

It was based on findings that there were barriers and difficulties in the development and commercial and non-commercial re-use of public sector information and content. Continuing obstacles include: restrictive or unclear rules governing access and conditions of re-use; discouraging, unclear and inconsistent pricing of information when re-use of information is chargeable; complex and lengthy licensing procedures; inefficient distribution to final users; barriers to development of international markets; and the role of public sector organisations as collectors, producers and disseminators of public sector information is not always clear, particularly in competitive market areas.

FOREWORD

The Recommendation framework is underpinned by a set of general principles that are common to most approaches to improving access to public sector information. These include that the principles, e.g. on openness and re-use, apply to a different extent to different categories of information and content. They take account of: legal requirements and restrictions, including IPRs and trade secrets; privacy, confidentiality, and national security concerns; democracy, human rights, and freedom of information. They encourage greater access and use regardless of IP ownership. And finally strengthening the role of non-public sectors in producing, developing and disseminating information and content may require changes in legislation, organisation and budgets.

The four accession countries to the OECD (Chile, Estonia, Israel and Slovenia) have all formally accepted the Recommendation following review of their PSI policies. In general they have made considerable progress towards making public sector information more widely and transparently available and access more competitive, uniform and well-known.

Taking into account the economic and social importance of this area, and the need for greater transparency and improved mechanisms for enhancing access to and use of public sector Information, the analysis and discussion in this book is a very welcome addition to the growing literature tackling this important subject.

Dr Graham Vickery
Head, Information Economy Group,
Information, Computer and Communications Policy Division
Directorate for Science, Technology and Industry
OECD Paris
17 February 2010

PREFACE

This book has been inspired by my involvement in advocating for and implementing better access to and re-use of public sector information (PSI) in Australia.

From 2004 I have worked closely with my sister Professor Anne Fitzgerald and Mr Neale Hooper of the Queensland Government on a project that has in more recent times been known as the Government Information Licensing Framework (GILF) project. Having been involved in the establishment of the Creative Commons (CC) Licensing project in Australia it became obvious to me that much of the confusion and frustration around copyright licensing of public sector information (PSI) could be resolved through the use of CC licences.

This realisation meshed with the long held aspirations of people to provide better and more efficient access to PSI in the areas of statistical and spatial information

A group of like-minded people emerged. Dr Peter Crossman (Assistant Under Treasurer and Government Statistician, Office of Economic and Statistical Research, Queensland Treasury), Mr Tim Barker (Assistant Government Statistician, Office of Economic and Statistical Research, Queensland Treasury and Queensland Spatial Information Office) and a team of people working with them (Dr John Cook, Jenny Bopp, Carla Simpson, Trish Santin-Dore and David Torpie) joined forces with Anne, Neale and I to make GILF a reality and a leading-edge project that has attracted worldwide attention. We were one of the first groups to connect the broader access to PSI movement with the CC movement.

Over the last three years we have been active in organising and attending conferences on PSI in order to explain our work and to learn from others. In late 2007 through the good will of Chris Corbin the coordinator of the ePSI Plus Network (a European Network funded by the European Commission) we were able to attend an important conference in Bratislava in Slovakia and then to travel to London to meet with leading people in the access to PSI area such as Carol Tullo (Director of the Office of Public Sector Information [OPSI]), Jim Wretham (Head of Information Policy, OPSI) and Michael Nicholson of Locus.

In July 2007 and then in March 2008 we organised two conferences – Summits on Access to PSI.¹ Many of the papers in Volume 1 were presented at those conferences. Carol Tullo and Chris Corbin travelled from the UK to be involved in the March 2008 events and Professor Fiona Stanley (Director, Telethon Institute for Child Health Research) was instrumental in us formulating the Stanley Declaration (extracted on the back cover of Volume 1 of this book) at the July 2008 event. Terry Cutler (Cutler & Co, and CSIRO Board member) who has been an untiring supporter from the start, John Wilbanks (Science Commons), Keitha Booth of the State Services Commission in New Zealand, Paul Uhler of the National Academies in Washington DC, Susan Linacre, Steve Matheson and Wayne Richards of the Australian Bureau of Statistics (ABS), Ben Searle of the Office of Spatial Data Management (OSDM) Michael Easton (ASIBA) John Cook (Queensland Government/QUT) Emily Whitten (AGIMO), Dr Nicholas Gruen (Lateral Economics, Chair of the Government 2.0 Taskforce) and Professor Mary O’Kane (Chief Scientist of NSW) also participated in the Summits on Access to PSI.

Since that time the Australian Bureau of Statistics (ABS)² Geoscience Australia (GA)³ and the Australian Bureau of Meteorology (BOM)⁴ have endorsed the application of Creative Commons licences to PSI. Similar examples have emerged in other countries such as Spain⁵ and currently the UK is considering the application of CC like licences to its PSI.⁶ President Obama moved on the first day of his administration to license copyright material on the www.whitehouse.gov website under a CC licence.⁷ How times change. This is an

-
- 1 See GILF Resources – Presentations www.gilf.gov.au/gilf-resources#presentations.
 - 2 ABS, ‘Creative Commons Licensing’ www.abs.gov.au/websitedbs/D3310114.nsf/4a256353001af3ed4b2562bb00121564/8b2bdbc1d45a10b1ca25751d000d9b03?opendocument?.
 - 3 www.ga.gov.au.
 - 4 See the testimony of Dr Minty (BOM) to the EDIC of the Victorian Parliament (8 September 2008): www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/transcripts/EDIC_080908_BOM.pdf.
 - 5 Jordi Graells, Joana Soteras and Betlem Verdejo, ‘The Use of Creative Commons Licenses in the Ministry of Justice of the Government of Catalonia’ communia-project.eu/node/111. See also Ministry of the Environment New Zealand, ‘New licence improves access to environmental data’ (2009) www.mfe.govt.nz/.
 - 6 Power of Information Advisory Taskforce, *Power of Information Advisory Taskforce Report* powerofinformation.wordpress.com; ‘OPSI’s new licensing model – taking the licensing of government content to the next level’ perspectives.opsi.gov.uk/2009/06/opsis-new-licensing-model-taking-the-licensing-of-government-content-to-the-next-level.html. See further ‘Licensing and data.gov.uk Launch’ perspectives.opsi.gov.uk/2010/01/licensing-and-datagovuk-launch.html.

idea whose time has come.

During 2008 and 2009 our team led by Professor Anne Fitzgerald undertook a comprehensive Literature Review on the Policy and Principles⁸ relating to PSI a brief summary of which appears in this volume. In 2009 we also saw the release of an influential report by the Economic Development and Infrastructure Committee of the Victorian Parliament titled *Inquiry into Improving Access to Victorian Public Sector Information and Data* (2009)⁹ which recommends the use of CC licensing and the establishment of more sensible policy outcomes in this area. We also saw the announcement on the 22 June 2009 of the Government 2.0 Taskforce by the Australian Government (of which I was proud to be a member) and the release of its final report *Engage – Getting on With Government 2.0*.¹⁰

We would like to thank all of the contributors to this book, all of the people that helped to organise, presented at and attended the various conferences we convened on these topics and most importantly the community of people that have worked with us to put access to PSI on the national and international agenda. Special thanks go to Professor Anne Fitzgerald, Neale Hooper, Niall Collins, Dr Annie Connell, Baden Appleyard, Kylie Pappalardo, Cheryl Foong and Steve Gething for their help in requesting, formatting and reviewing material for this book and to Graham Vickery of the OECD who has provided guidance and a helping hand on a number of occasions.

Nothing can be achieved without collaboration. My greatest joy in all of this has been working with committed and passionate people in government and elsewhere who have been pioneers in implementing new thoughts, policies and approaches in their own domain.

Professor Brian Fitzgerald, QUT Law Faculty
Brisbane, February 2010

7 See the www.whitehouse.gov Copyright Policy www.whitehouse.gov/copyright. See also creativecommons.org/weblog/entry/12267.

8 www.aupsi.org/publications/reports.jsp.

9 www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/default.htm.

10 gov2.net.au. See also the Public Sphere 2: Government 2.0 initiative of Senator Kate Lundy at www.katelundy.com.au/2009/05/29/public-sphere-2-open-government-policy-and-practice/.

CHAPTER ONE

ACCESS TO AND RE-USE OF PUBLIC SECTOR INFORMA- TION

Brian Fitzgerald

On the back of the growing capacity of networked digital information technologies to process and visualise large amounts of information in a timely, efficient and user driven manner we have seen an increasing demand for better access to and re-use of public sector information (PSI). The story is not a new one. Share knowledge and together we can do great things; limit access and we reduce the potential for opportunity.

For much of this decade policymakers, consumers, industry representatives and scholars all over the world have been attempting to highlight the importance of better access to and re-use of PSI. Every domain we inhabit is impacted by this issue, yet questions of life and death – health, the environment (climate change and water) and emergency services – have made it much more obvious in the eyes of politicians. In Australia devastating natural disasters such as cyclones and bushfires have made it clear to policymakers that in the Internet age the ability to access and re-use PSI is now a key ingredient of information management.

During 2007, 2008 and 2009 we have seen a significant push towards a global information policy that promotes better access to and re-use of PSI. While we are still short of an international treaty on the issue the OECD's *Declaration on the Future of the Internet Economy* and its associated *Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information*¹ represent a strong international consensus. These have since been supported in principle by the policies and practices of President Obama,² the Cutler Review of the Australia National Innovation System in its report titled *Venturous*

1 www.oecd.org/dataoecd/0/27/40826024.pdf.

2 See for example: *Memorandum for the Heads of Executive Departments and Agencies: Transparency and Open Government* (January 2009) www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment. See also the Open Government Initiative (OGI) www.whitehouse.gov/open, and the Open Government Directive www.whitehouse.gov/open/documents/open-government-directive.

Australia – building strength in innovation,³ the Power of Information Advisory Taskforce in the UK,⁴ the Economic Development and Infrastructure Committee (EDIC) of the Victorian Parliament’s report *Inquiry into Improving*

Access to Victorian Public Sector Information and Data (2009)⁵ and the Australian Government 2.0 Taskforce’s report *Engage – Getting on with Government 2.0*.⁶

The two volumes of this book seek to explain and analyse this global shift in the way we manage public sector information. In doing so they collect and present papers, reports and submissions on the topic by the leading authors and institutions from across the world. These in turn will provide people tasked with mapping out and implementing information policy with reference material and practical guidance.

Volume 1 draws together papers on the topic by policymakers, academics and practitioners while Volume 2 presents a selection of the key reports and submissions that have been presented over the last few years.

A key conclusion that emerges from much of this literature – and is succinctly stated in the OECD PSI principles – is that, as a default rule, public sector information should be made available through technical formats and licences that promote access and re-use under transparent and sensible pricing mechanisms. For many this means that PSI should be:

- (subject to legal and any other appropriate considerations) made public
- priced as close as possible to zero
- licensed under generic/standard and Internet-enabled open content licences such as Creative Commons
- accessible in raw form and presented in re-usable (and open) technical for-

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- 3 www.innovation.gov.au/innovationreview/Pages/home.aspx. See further Commonwealth of Australia, ‘Powering Ideas: an innovation agenda for the 21st century’ www.innovation.gov.au/innovationreview/Pages/home.aspx; Minister Kim Carr ‘There is More than One Way to Innovate’ 7 Feb 2008 minister.industry.gov.au/SenatortheHonKimCarr/Pages; Minister Kim Carr ‘Launch of the Review of the National Innovation System Report – *Venturous Australia*’ www.melbourne.org.au/media-centre/in-the-news/post/speech-by-senator-the-hon-kim-carr-review-of-the-national-innovation-system-report-venturous-australia; K Dearne, ‘Tanner eyes web 2.0 tools’, *Australian IT*, 4 November 2008 www.australianit.news.com.au/story/0,27574,24601440-15306,00.html.
- 4 powerofinformation.wordpress.com. By way of background see: T Steinberg and E Mayo, *Power of Information Review* www.opsi.gov.uk/advice/poi/index.
- 5 www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/default.htm.
- 6 www.gov2.net.au.

mats.

Yet, as much of the literature in this book highlights, to achieve the goal of greater openness, access and re-use we need to build and implement information policies (and where necessary laws) to support and promote the requirements listed above. Therefore, while the end game may have become clearer much work remains to be done in embedding access to PSI in our everyday lives. The best practice principles and projects that are outlined and examined in this book provide guidance on how we might sensibly set about and fulfil this task in an ever changing world.

CHAPTER TWO

INNOVATION AND OPEN ACCESS TO PUBLIC SECTOR INFORMATION

*Terry Cutler*¹

Most speakers at this summit have been looking at open access from the supply side, presenting the points of view of custodians of government information. What might we lob over the fence to whoever is on the other side? So far we have not paid much attention to this demand side – the potential beneficiaries of changed information policies. So I see it as my task to address what I believe is the core rationale for this policy initiative, which is the promotion of innovation and creativity. My perspective on the topic brings together my deep interest in the whole matter of innovation, and my long involvement with the digital content industries.

Why do we need to act on this possible policy initiative? I will try to put the question in the context of some conceptual frameworks and models of innovation, and of business models for information and content production. My premise is that data and information – content – is the currency of creativity and innovation. Information is what energises our national innovation system. Governments produce and hold a wealth of information and data.

Both creativity and innovation have become somewhat fuzzy terms. This leads me to begin with two texts for today, one secular and one sacred (in the interests of balance and even-handedness). My first text comes from the venerable Henry Fowler's *Modern English Usage*, where he writes:

1 Principal, Cutler & Co. This chapter is an extended version of speaking notes from the Australian National Summit on Open Access to Public Sector Information convened by the Law Faculty of Queensland University of Technology and supported by the Queensland Spatial Information Council. The Summit was held in Brisbane, Australia, on 13 July 2007, the day following the Legal Framework for e-Research Conference. I have taken the opportunity to elaborate upon my presentation in the interests of clarity. This paper draws on other work in progress, and my 2006 submission to the Productivity Commission's Inquiry into Public Support for Research and Innovation. First published in B. Fitzgerald (Ed), *Legal Framework for e-Research: Realising the Potential* (2008), pp. 25–39.

creative is a term of praise much affected by the critics. It is presumably intended to mean something original, or something like that, but is preferred because it is more vague and less usual (cf. Seminal). It has been aptly called a ‘luscious, round, meaningless word’, and said to be ‘so much in honour that it is the clinching term of approval from the schoolroom to the advertiser’s studio’.

In other words, Fowler finds our use of the term ‘creative’ just a little bit vacuous. It’s probably fortunate he died before the word ‘innovative’ became the new ‘clinching term of approval’. Now many of those working on this open information initiative are lawyers, and what I like and respect about lawyers is their precision about words and terminology. The construction of language is at the core of their craft, and we can usefully apply this rigour to the reconstruction of meaning around innovation and creativity.

I take my second text from *Genesis*, and the account of the destruction of the tower of Babel. The Tower of Babel provides us with a splendid metaphor for the creation of a perfect market in information. For those who may have forgotten how the story goes, let me remind you of the text and try to draw out the lessons for today.

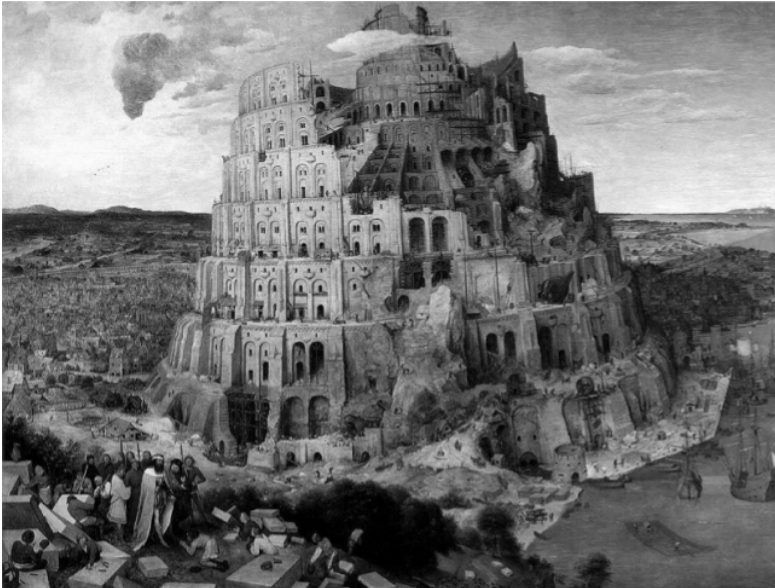


Image of Babel – Artist: Pieter Brueghel c. 1525/30. Source: Wikipedia, en.wikipedia.org/wiki/Image:Brueghel-tower-of-babel.jpg This image is in the public domain because its copyright has expired.

Chapter 11 of *Genesis* (11:1–9) begins with a vision of an information paradise (and a vision of ‘whole of government’ coherence) – ‘one language and one speech’.

1 And the whole earth was of one language, and of one speech.

2 And it came to pass, as they journeyed from the east, that they found a plain in the land of Shinar; and they dwelt there.

3 And they said one to another, Go to, let us make brick, and burn them thoroughly. And they had brick for stone, and slime had they for mortar.

4 And they said, Go to, let us build us a city and a tower, whose top may reach unto heaven; and let us make us a name, lest we be scattered abroad upon the face of the whole earth.

5 And the Lord came down to see the city and the tower, which the children builded.

6 And the Lord said, Behold, the people is one, and they have all one language; and this they begin to do: and now nothing will be restrained from them, which they have imagined to do.

7 Go to, let us go down, and there confound their language, that they may not understand one another’s speech.

8 So the Lord scattered them abroad from thence upon the face of all the earth: and they left off to build the city.

9 Therefore is the name of it called Babel (confusion); because the Lord did there confound the language of all the earth: and from thence did the Lord scatter them abroad upon the face of all the earth.

Verse 6 reminds us of the power of a common infrastructure and shared knowledge. But suddenly, in the following verse, what I will render as *Adam Smith’s curse* descends on us. All that ‘which they have imagined to do’ is struck down through the specialisation of labour, the segmentation of academic disciplines and discourse, and the bureaucratisation of governance. Fragmentation and confusion ensues.

But, at the end, there is hope. An unintended consequence of the destruction of the Tower of Babel is the creation of diversity. And diversity is widely recognised as a pre-condition for creativity and innovation.

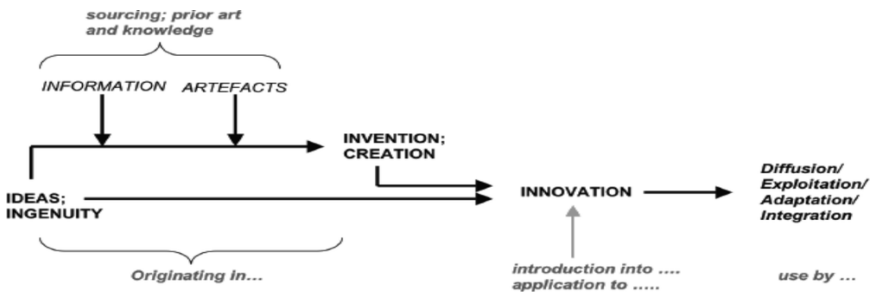
I will labour the point about the importance of precise language and clarity about concepts like innovation and creativity because, otherwise, these terms do not serve as reliable guides to action. We also need to remind ourselves regularly of just why being innovative is so important.

Innovation is critical to the competitiveness and sustainability of our econ-

omy and society. Yet, for all the fuzzy talk about it, and for all the platitudinous reports and business school prescripts, it is rarely the subject of rigorous examination and critical thinking. It is difficult to find a coherent, comprehensive account of innovation. You will find it difficult to unearth the term in standard economic textbooks. The reason for this is because neo-classical economics works predominately with closed models of the market: equilibrium models. Innovation, however, is all about change and economic development: disequilibrium and the breakthrough thinking from which we learn and build our stock of knowledge and, hopefully, of wisdom.

To set out an account of innovation I need to begin with a taxonomy of the terms involved, and the related concepts. With such building blocks we can begin to explore the dynamics of innovation as a change and learning process.

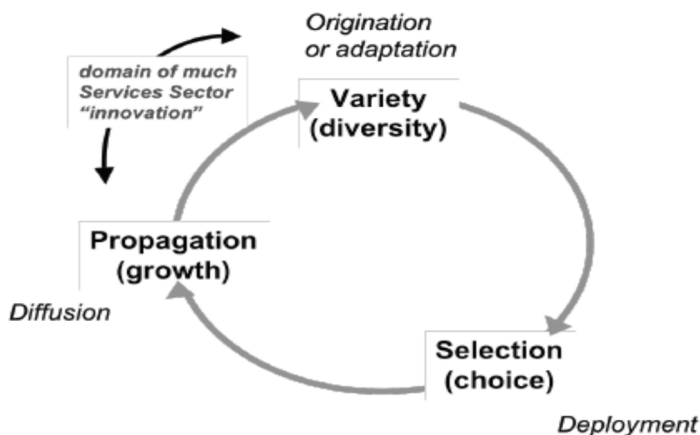
Figure 1: Innovation – a taxonomy of terms and related concepts



Source: Terry Cutler, *Submission to the Productivity Commission Inquiry into Public Support for Science and Innovation*, July 2006, p. 7, available at www.pc.gov.au/_data/assets/pdf_file/0006/37662/sub043.pdf

Simply linking these terms and then sequencing them according to the underlying grammar – analogous to a DNA sequence – we can begin to derive a theory of innovation.

Figure 2: Innovation as an Open System



Source: Terry Cutler, *Submission to the Productivity Commission Inquiry into Public Support for Science and Innovation*, July 2006, p. 11, available at www.pc.gov.au/_data/assets/pdf_file/0006/37662/sub043.pdf

This is an open model – as distinct from the closed models of neo-classical economics – which is comparable to and, indeed, refers to the open models we find in the life and physical sciences.²

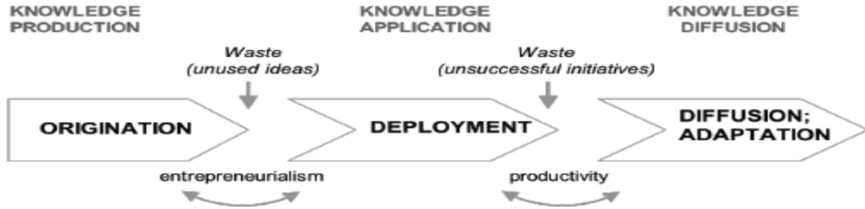
The energy in this open system of innovation is creativity: the ideas and insights which produce the options for doing something differently. The accumulation of such thinking is a pool of options for future development. Without new ideas, this pool is not refreshed and becomes stagnant.³ The value of ideas and inventions only comes into play when they are applied to problems or opportunities in markets or the community. The value is only fully realised when the innovation is taken up and used widely. In the process of adopting an innovation, moreover,

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- 2 As an elaboration – beyond the confines of a short speech – this theoretical model resonates with Darwinian exposition and the language of thermodynamics and negative entropy. It is worth observing that Adam Smith himself would not be alarmed; Smith's whole opus shows an acute awareness of historical progression and tipping points. His successor, Alfred Marshall, notably regretted never returning to the bigger picture of the dynamics of political economy after his excursion into the domain of abstracted and closed economic models. Schumpeter famously took up the challenge, but never quite got there.
 - 3 This insight is about how we actually can go backwards, as the history of many cultures demonstrates. This is the entropy of knowledge.

adaptations and improvements will occur. This is because adoption will normally require adaptation to the context of the use. Thus the open-ended cycle of change and renewal will continue.

To elaborate this model into a more fully rounded theory of innovation we need resort to a Mercator-like projection of the schematic.

Figure 3: The Mercator projection of innovation theory



There are five points I want to draw out from this schematic.

The first is that creativity and fresh thinking is invoked within each of the sub-systems or elements of the innovation process, and at the points of intersection between them.

Secondly, we need to look carefully at the entrepreneurial process of matching a capability with a need or opportunity. This is a purposeful process of selection, not a linear progression of ideas simply walking out of the laboratory or study into the marketplace. It is more productive to seek solutions to a need or opportunity than to hawk solutions in the search for a problem. This observation is, of course, at odds with contemporary cargo cults about the commercialisation of research.

Thirdly, productivity arises from the successful deployment of innovations, not from the innovation per se.

Fourth, information and data is the basic currency across this whole ecosystem.

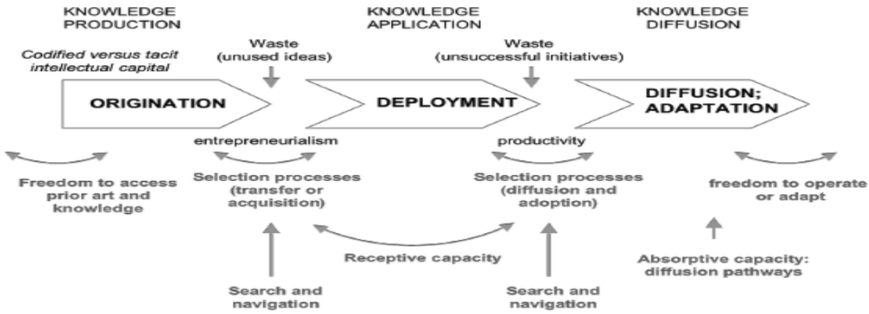
Fifth, there is waste in the system, whether unused ideas – including possibilities stored away for revisiting later or ideas whose time has not yet come – or failed ventures, including situations where a venture may fail for reasons other than the merit of the innovation.

These last two points are highly relevant to considerations around access to public sector information. The originator, owner or custodian of information or data may not be best placed to understand the possible uses or potential future uses of the information or data they hold. Waste and the destruction of value may occur because government sets rules of access to information which fail to recognise the requirements of unforeseen users and uses. Furthermore, the rules of engagement between government and the initial agent – the immediate user or use – may unintentionally constrain the beneficial use by third parties or eventual

end-users in the process of the diffusion of knowledge or innovation.⁴

While information is the currency of innovation, informational and content sources play different roles within different parts of the innovation system.

Figure 4: Access issues around information and knowledge



Knowledge builds on knowledge. This has some important implications for innovation, and for considerations of access to public sector information.

First, even when an entrepreneur sees an opportunity, they need certain skills and domain knowledge to be able to understand the potential of new ideas and knowledge and to act on the opportunity. The existence of such skills will affect the capacity to form effective collaborations, whether as a firm or a project. The innovation process will falter in the absence of effective partners or collaborators. We talk about this as the receptive capacity of an industry or body politic. There may often be a public policy interest in improving this receptive capacity. Without it, innovation will be constrained.

Secondly, the wider diffusion and take-up of an innovation depends on the absorptive capacity of the community. For example, the take-up and sustainability of certain information technologies requires particular skill levels within the user population. Data sets are meaningless without the requisite analytical skills. Thus the education and skill levels of the general population become important considerations for everyone.

Thirdly, certain freedoms are essential to creativity and innovation.⁵ The first is the freedom to access and use prior art and knowledge in the exploration and development of new knowledge and insights. It is obvious that open access underpins this freedom. Equally important, however, is the freedom to operate and

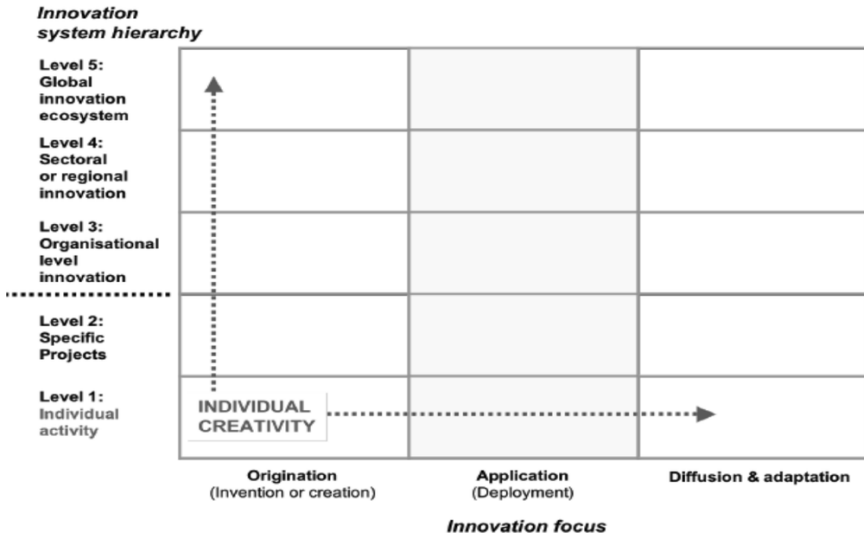
4 Examples are pricing models or the processes of access, including technological requirements. Restrictions on 'primary data' or source code may inhibit useability and re-use.
 5 Works of both Karl Popper and Amartya Sen should be essential reading for any naysayer.

adapt in the process of deployment and diffusion. The extent of this freedom will depend on what rules and conditions are imposed by the owners of an innovation. The terms of access to information and data will dictate the extent of further experimentation and development. This becomes particularly important when an innovation can usefully be packaged or integrated with other products or services. Systems integration is an increasingly significant platform for innovation, especially in the services sector.

My final point about innovation is that it is a complex system. Innovation functions at multiple, interdependent levels. At the heart of the matter is the individual person: call them artist, scientist, technician, knowledge worker or whatever. Individual people fuel the whole innovation system. We also talk a lot about collaborations between people, but for all the rhetoric we know that in practice it is hard.

The following matrix identifies five levels within an innovation system, each with discrete issues but all are highly interdependent. For each level there are discrete and distinctive institutional and human capital issues to be taken into account with each element of the innovation process (of origination, deployment, diffusion and adaptation).

Figure 5: The matrix of interactions within the innovation system



Source: Terry Cutler, *Submission to the Productivity Commission Inquiry into Public Support for Science and Innovation*, July 2006, p. 18, available at www.pc.gov.au/_data/assets/pdf_file/0006/37662/sub043.pdf

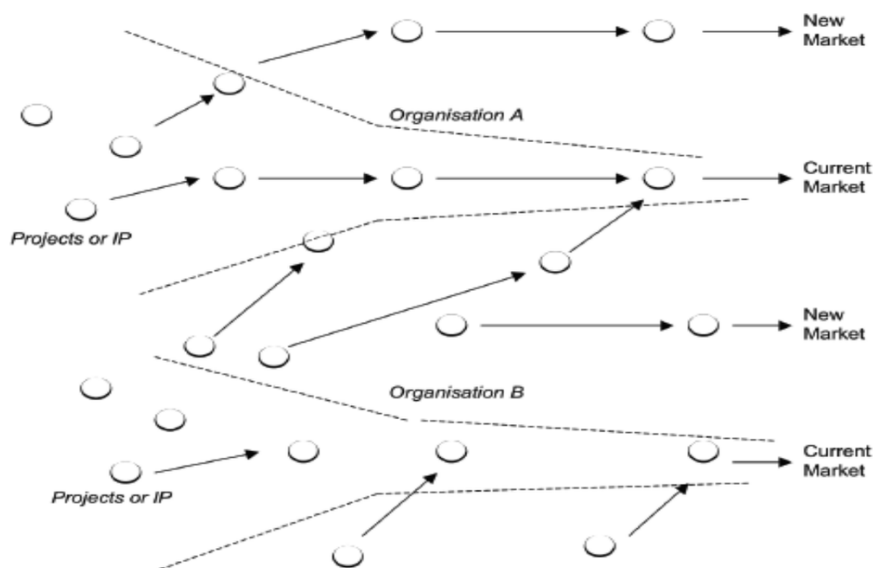
Issues around access to information and content, and the role of public sector

information, will vary across this matrix, both horizontally and vertically. It is arguable that simple and flexible digital content architectures will maximise the utility of public sector information and data sets across the variety of user environments implied by this matrix. The principle should be to empower the greatest possible range of uses, known and unforeseen.

I have argued that innovation is an open system. This resonates with industrial firms who increasingly are paying attention to the flow of knowledge and intellectual capital across organisational boundaries.

For most of the 20th century firms pursued a model of in-house, proprietary research and development to sustain their innovation. With globalisation and the deconstruction of supply chains this model has become unsustainable. The dominant model of innovation has changed to an open model drawing on multiple internal and external sources of ideas and channels to market. This open innovation model emphasises *knowledge flows* rather than knowledge creation as a driver of innovation.

Figure 6: The knowledge landscape in the open innovation paradigm



From Open Innovation: The New Imperative for Creating and Profiting from Technology by William Henry Chesbrough, pp 47. Copyright © 2003 by the Harvard Business School Publishing Corporation; All rights reserved. Reprinted with permission of Harvard Business School Press.

Open innovation models recognise that one person's trash is another person's treasure. There is an inbuilt asymmetry between the owners or custodians of in-

formation, and potential users in terms of the uses of information and the value of those uses.

At the Legal Framework for e-Research Conference, Dr Chris Greer from the National Science Foundation in the US spoke of cyberinfrastructure as a new fifth dimension and shared space. In thinking about such information and collaboration infrastructures, it struck me that many of the access issues we are debating around digital information have already been addressed in other domains, especially around open access to physical infrastructure. There are clearly lessons to be learned from the principles established for access to and the interconnection of deregulated telecommunications networks, and other forms of networked infrastructure.⁶

Access regulation for telecommunications networks is based on two major premises:

1. The utility and benefits of networks are promoted by ‘any to any’ connectivity (interoperability)
2. Dominant players should not be able to create ‘bottlenecks’ to access.

A number of access principles⁷ follow from these premises and include:

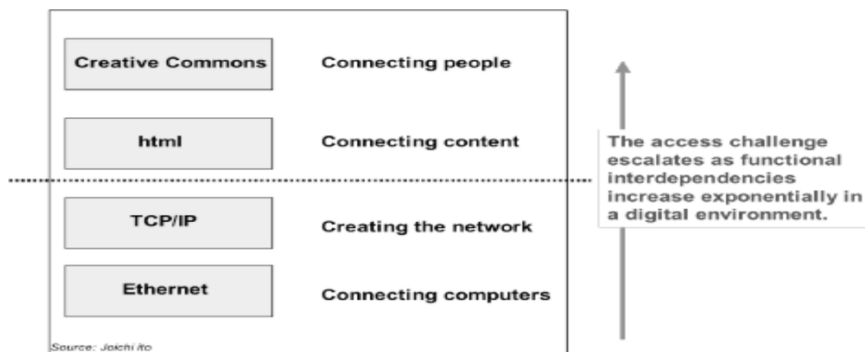
- Arrangements should promote efficiency
- There should be reciprocity in rights and obligations
- The economics of arrangements should be clear and unbundled, promoting:
 - The desired level of investment in infrastructure (without wasteful duplication)
 - The lowest possible transaction costs
- Obstacles to users accessing services should be minimised
- Redundancy should be supported.

Network ‘interconnection and access’ principles are clearly applicable to information infrastructures and content networks. Content is the new access bottleneck. The access challenge escalates as functional interdependencies increase massively in a digital environment. As a principle, networked information flows should aim to support ‘any to any’ connectivity. This seems especially apposite in the case of public sector information.

6 I was personally involved in the early debates on these issues during the liberalisation of telecommunications markets in Australia and Asia in the early 1990s. Much of the clarity and sharpness of the principles then established has been eroded over time.

7 Australian Telecommunications Authority (AUSTEL), *Study of Arrangements and Charges for Interconnection and Equal Access*, AUSTEL, 1991.

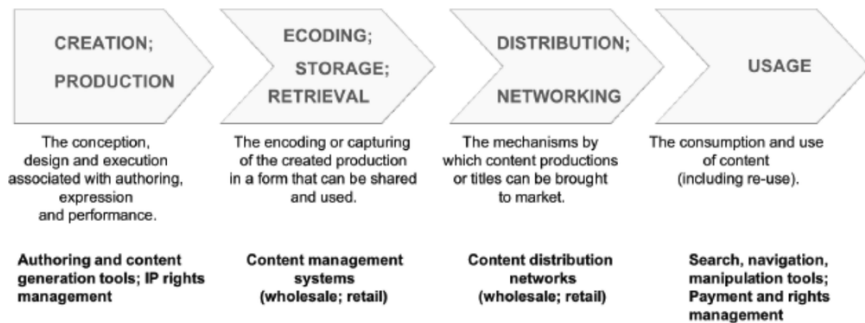
Figure 7: Content and information are the new areas of access bottlenecks



Source: Joi Ito (2006)

Developing policies on access to information requires attention to the whole business system of content and information production. In a digital environment, the business system of content revolves around bit creation, bit storage, bit distribution, and bit use and re-use. A model I developed around this in 1994 still seems to stand up:

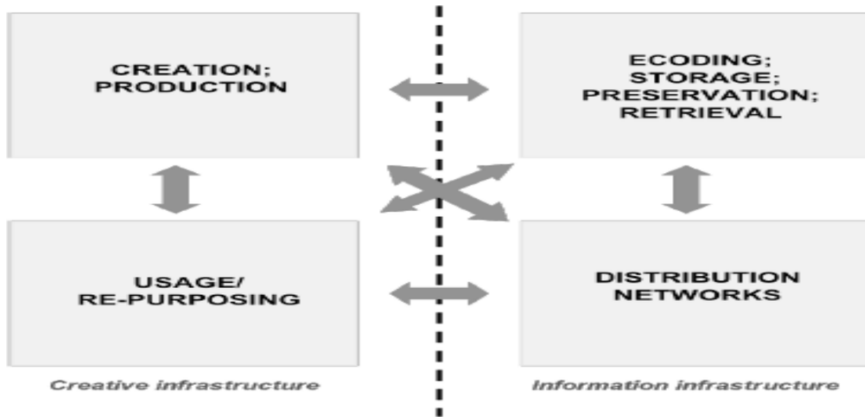
Figure 8: The business of digital content



Source: Cutler & Company (1994). *Commerce in Content*, available at: www.nla.gov.au/misc/cutler/cutlercp.html

In management jargon, digital content (information) production is more of a ‘value net’ than a serial value chain. This is because of the functional interdependencies within a digital ecosystem. The ‘freedom to operate’ and create within the producer or user environment – include the re-purposing of information – will be facilitated or constrained by the functionality of the supporting information infrastructure and its architecture. Policies for open access need to minimise the obstacles which may arise from these functional interdependencies.

Figure 9: The digital content ecosystem



Source: Cutler & Company (1994). *Commerce in Content*, available at: www.nla.gov.au/misc/cutler/cutlercp.html

Why is open access to public sector information important for innovation? I have argued that it is important because knowledge and information flows underpin creativity and innovation. It is especially important in a small country economy like Australia because of the relative scope and scale of public sector information. The public sector is a major – even the dominant – producer and custodian of information. Furthermore, only government and the public sector have the critical mass to create inclusive public platforms and saleable repositories.

Ironically, open access policies could also help resolve the chronic problems with ‘silo’ barriers to information sharing *within* government – promoting greater ‘whole of government’ effectiveness.

CONCLUSION

Information infrastructure and information architectures are crucial in an information society. Government information policies should promote:

- ‘freedoms to operate’ – ‘unfreedoms’ are the enemy of development and innovation
- open, end-to-end access as a fundamental premise of infrastructure.

The wise administration of public sector information can create significant economic benefits through strengthening the national innovation system. By its own

practice, governments can help shape the rules and conduct of wider information markets. As with most things, however, the devil is in the detail. The utility of public information to users will be determined by the terms of access, including the efficacy of arrangements for such things as:

- information exclusions – open access should be the default setting
- searchability and discovery
- transparency of language and code
- transaction costs
- the preservation of information and its long-run accumulation.

Good outcomes will require us to approach the principles of access from the perspective of prospective users, and with a keen regard to the potential obstacles and bottlenecks to the effective use of public sector information.

CHAPTER THREE

THE ECONOMICS OF PUBLIC SECTOR INFORMATION

*Rufus Pollock*¹

1 INTRODUCTION

This paper examines the economics of ‘public sector information’ (PSI). Public sector information is information held by a public sector organisation, for example a government department or, more generally, any entity which is majority owned and/or controlled by government.² To have a convenient term we label the entity holding or providing the information the ‘public sector information holder’ (PSIH).³ Classic examples, of public sector information in most countries would include, among many others (see Table 1 for a more substantial list): geospatial data, meteorological information and official statistics.

With the development of the ‘knowledge’ economy, driven largely by the advance of digital technology, data plays an increasingly prominent role within our societies, both commercially and otherwise. Large and growing businesses have been built on collecting, organising, and analysing data.⁴ Furthermore, al-

¹ *Some portions of this chapter are based on Pollock et al., Models of Public Sector Information Provision via Trading Funds, 2008, which was commissioned by HM Treasury and BERR and authored in collaboration with David Newbery and Lionel Bently. This chapter was previously published as Cambridge Working Paper in Economics, No. 0920.*

- ² In the UK, for example, several of the major providers of PSI are ‘Trading Funds’. These have a quasi-autonomous position but are 100% owned by government and have a ‘parent’ government department.
- ³ It is perfectly possible, in fact frequently the case, that the holder of information does *not* make it available. It is for this reason that we foreground the ‘holding’ aspect over the ‘provision’ aspect in our terminology. It is also possible that one entity may hold the data while the other makes it available. In this case take the PSIH as denoting the combined entities.
- ⁴ Search engines, today among the most well-known and most profitable enterprises on the planet, would fit squarely within this category.

most all businesses, especially those in the services sector, increasingly utilise, and require, a wide variety of data sources to conduct their activities. At the same time, citizens and others have come to depend on, and indeed expect, access to a wide-range of information – be it for planning journeys or keeping up to date with the activities of their governments.

While much data is supplied from outside the public sector, compared to other parts of the economy, the public sector plays an unusually prominent role. In many key areas, a public sector organisation may be the only, or one among very few, sources of the particular information it provides (e.g. for geospatial and meteorological information). As such the policies adopted regarding maintenance, access and re-use of PSI can have a very significant impact on the economy and society more widely.⁵

The potential importance of (public sector) information can also be gauged from a simple but significant analogy: just as the supply of basic physical infrastructure – power, transport, telecommunications – is essential to the traditional economy, so the supply of basic information ‘infrastructure’ – core datasets in the major areas of geography, weather, transport etc. – is essential to the ‘information’ economy. Not only does this comparison provide an indicator of the likely importance of public sector information but it is also illuminating in other ways.

First, core information providers and existing utilities often have similar cost structures where large fixed costs are combined with low marginal costs. Relatedly, many utilities, at least in some areas of their activities, have ‘natural’ monopolies just as PSIHs may do in some areas of their business. Second, utilities are usually providing ‘essential’ infrastructure which, if not directly essential to government, is essential to the general economy. Third, precisely because of the factors just mentioned, many utilities are regulated and have been for some time. It seems likely that these regulatory experiences can provide useful analogies when considering the situation of PSIHs (few, if any, of which have any independent regulation at the present time).

Even from this brief introduction, it should be evident that the operation of public sector information provision raises a variety of questions – empirical and theoretical; social and economic; regulatory and otherwise. Here, we address many, though not all, of them. We begin with a basic overview of public sector information, what it is, its salient features from an economic point of view, and some important terminology. The next sections then focus on the central issues of funding and regulatory structure. That is: who should pay to maintain PSI and what regulatory structure should be put in place to support this. In particular, we ask a) which of the three possible groups – users, updaters and government – should bear the burden of paying for the production and maintenance of public

5 Quite apart from the immediate competition issues raised by the existence of a government controlled (and often government-mandated) monopoly.

sector information; and b) how can a policymaker best manage the commitment, incentive and efficiency issues that will necessarily arise.

1.1 WHAT PUBLIC SECTOR INFORMATION DO WE CONSIDER?

We impose three important restrictions on the types of PSI we consider in this paper. First, we restrict ourselves to digital information, that is information which can be made available in digital form (note this does not mean the data was originally collected in digital form, simply that it can be made available in digital form). This assumption ensures that we are always dealing with material whose marginal cost of production/dissemination may be taken to be zero.

Second, we restrict our attention to the provision of non-personal information, that is PSI which either contains no personal information or does so at a level of aggregation and anonymisation such that personal (private) information cannot be identified. This excludes datasets such as individual tax records or health data but does not exclude items such as data on property ownership (traditionally publicly available) or even information on vehicle registration if suitably anonymised. As such, non-personal data still includes the great bulk of (socially and commercially) important information. A non-exhaustive list of the types of material we are considering is provided in Table 1.

Third, public sector information can be taken to include any piece of ‘information’ produced or held within the public sector. However, here we wish to focus on relatively large and coherent information sets rather than the average memo, pamphlet or webpage.

Table 1: Examples of public sector information and their providers in the UK

Type	PSIH	Comments
Company Information	Companies House	Company registrations, returns etc.
Vehicle Registration	DVLA	Statistical summaries suitably anonymised.
Physical Property	HM Land Registry	Ownership, boundaries, charges etc.
Intellectual ‘Property’	IP Office	Patents, Trademarks etc.
Meteorological Data	Meteorological Office	All forms of weather and climate related information.

Geospatial Information	Ordnance Survey	Traditional ‘mapping’ data but also route and aerial information.
Hydrographic Information	Hydrographic Office	Marine charts etc.
Socioeconomic Statistics	Statistics Authority	GDP, Unemployment, Population etc.
Environmental Data	Environment Agency	Widely varying but including standard pollution and ecological data.
Official Gazettes	OPSI and others	Official notices etc.
Transport statistics	Department of Transport	Journey and planning statistics, public transport information etc.

1.2 KEY FEATURES OF PSI AND PSIHS

There are a few key facts central to any analysis of the maintenance and provision of public sector information. These are, in no particular order: the nonrivalrous nature of public sector information, its associated cost structure (high fixed costs, very low marginal costs), its high potential for use and re-use, and, lastly, the two-sided nature of those who hold and maintain the information. We discuss each of these in turn.

1.2.1 Nonrivalry (Zero Marginal Cost)

One person’s use of a piece of information does not exclude another from doing so. This equates to the fact that it is (approximately) costless to reproduce a piece of (digital) information once the first ‘copy’ is made. This contrasts with ‘normal’ physical goods: if you are using my car I cannot also use it at the same time. However, if one shares a piece of information another gains without any corresponding loss to oneself. Formally, we can also state this as the good having (approximately) zero marginal cost of production.⁶

6 Production includes copying the data and distributing it to a new user. At the present time, both may have some cost. However, even for large datasets the cost of temporary storage and bandwidth is likely to be very small – and certainly tiny relative to any other cost involving in managing that data.

1.2.2 High Fixed Costs

Collecting, processing and storing data often have substantial fixed costs. Fixed costs are in some ways the ‘flip-side’ of the nonrivalry of information goods: while they cost nothing to reproduce once you have the first copy producing that first copy may be expensive.

1.2.3 High Potential for Use and Re-use

Public sector information, like much other information, has the important feature that there are many heterogeneous ways in which it can be used and re-used. This potential, especially for re-use in other products and services, relates to the ease with which information can be copied and modified, and it is also a major factor distinguishing it from other goods. For example, once a piece of steel has been used to make a car there is no easy way for it to be re-used elsewhere. However, using a piece of geodata in one particular way in one application does not prevent it being used in a very different way elsewhere. Furthermore if modifications made to the data for one particular use prove valuable elsewhere those changes can be easily, and almost costlessly, shared.

1.2.4 Two-sided Nature of PSIHs

Any information holder can be seen as having two sides to their operation: the input (write/update) and the output (read/use) side. For example, a registrar of companies must collect the data for its register (input/write) and then may supply this information to third parties (output/read). Similarly, a manager of geospatial information makes changes to their database in response to surveys and changes in the environment (input) and then supplies this data to third parties (output). This fact – that all datasets involve both read and write operations – has important implications for policy as it means that: *charges can be made on both sides*.

That is, the revenue needed to create, update and maintain datasets can be levied (in most cases) on *both* the read and write side of the Holder’s operations. That is, *both* those seeking to write (for example register a company) and those seeking to read (get a copy of the dataset or some portion thereof) can be charged. Thus, a policymaker seeking to fund the production and maintenance of a dataset (or datasets) has three possible options (not mutually exclusive):

- Government funding: fund from general government revenues
- Updater funding: charge those who make changes to the dataset(s)
- User funding: charge those who use the dataset(s).

Which of these should/can be used will depend on the social, technological and political circumstances. In particular, option two is not always possible because there are no ‘updaters’ to charge – as with meteorological data for example. For

this reason, when discussing funding options we will focus on comparing the first and third options – government funding versus user funding – as these methods are always available. However, in many cases, option two is also feasible. This is important because *politically* it may be easier to alter the balance between ‘read’ versus ‘write’ funding than to move to direct payments from government (central or local), particularly if the immediate costs would be significant. We therefore return to a discussion of this particular option at the end of 3.4.

1.3 UPSTREAM AND DOWNSTREAM

One of the primary qualities of information is that the same item can be presented, and re-used, in a variety of different forms. For example, the same piece of geodata (perhaps describing the roads and features in a particular neighbourhood) may be available both as part of a large comprehensive dataset or in a printed or digital map. Importantly, while many people, once given access to the basic data, may be able to produce the maps there may be only one source for the original, basic, data (the PSIH). As this distinction will be very important for regulating pricing it is valuable to formalise it. Thus, we say a particular dataset held by a PSIH is:⁷

- Upstream: if it cannot be substituted directly from other sources
- Downstream: if it could be provided by another organisation should that organisation have access to the relevant upstream information.

Thus, downstream information supplied by a PSIH can be seen as being, at least potentially, in competition with information from other suppliers. By contrast, for upstream information the PSIH is the sole source and faces no significant competition in its supply.⁸ For this reason we largely focus on upstream public sector

7 This definition is closely related to the OFT’s definition of ‘unrefined’ and ‘refined’ data in Office of Fair Trading (2006, p. 5, para. 1.5). In fact, in meaning the two sets of terms are essentially identical. However, we prefer the ‘upstream/downstream’ distinction for several reasons. First, this is more usual terminology within the competition literature. Second, ‘unrefined/refined’ has some unfortunate connotations. Specifically ‘refining’ has obvious suggestions of ‘processing’ or ‘distilling’. But for PSIH data, while, in general, one would expect ‘unrefined’ data to be fairly ‘unprocessed’ this need not necessarily be so (after all, almost all data has been processed to some degree to get it into a usable form). ‘Upstream/downstream’ terminology does not suffer from this defect yet still preserves the underlying meaning.

8 Note that it is possible that the PSIH is still the sole supplier of downstream information – as long as it would be possible for another organisation to supply that

information on the assumption that a) downstream depends on upstream b) if upstream is correctly managed downstream will, thanks to competition, take care of itself.⁹

1.4 FUNDING: CHARGING AND USAGE POLICIES

Section 1.2.4 discussed the three major sources of funding for a PSIH: government, updaters and users. These options naturally translate into charging policies – that is prices charged to (external) users and updaters.¹⁰ There are three basic data charging policies for a policymaker to choose from:

- setting prices to maximise profit given the demand faced by the PSIH.¹¹ Where the product being supplied does not face competition then this will naturally result in monopoly pricing. Here, the usual assumption is that the PSIH will be (more than) fully funded from its revenues and so will require any direct¹² government funding – in fact, as a public sector organisation, the PSIH will be returning any profits it makes to the government.
- setting prices equal to average long-run costs (including, for example, all fixed costs related to data production).¹³ As with profit-maximisation, under this ap-

information it should be classified as downstream. This highlights the importance of having a ‘level playing field’, in particular any other organisation should have access to upstream information on the same terms as the PSIH itself and there should be no cross-subsidy between upstream and downstream in the PSIH’s operations.

- 9 Competition is not, of course, always a panacea. However, it is clear that upstream must be the first area to be addressed. If, even after upstream has been dealt with, there remain downstream issues these can then be addressed in their turn.
- 10 In most cases a given charging policy can be applied independently to users and updaters.
- 11 There is occasional reference to ‘market-based pricing’. It is not entirely clear what this means since several of these pricing strategies involve attention to the structure of the demand curve (that is the price/demand trade-off displayed by the market). However our interpretation is that is intended to indicate that the PSIH behaves as any other ‘normal’ market participant would and sets a price to maximise profits given the underlying demand curve.
- 12 Note, however, that as the government may well be a (large) customer of the PSIH this does not mean the government does not make payments to the PSIH – just that these payments are made like ‘any’ other customer (see Section 2 on Regulation for more discussion of this issue).
- 13 There are a various subtleties as to what exactly cost-recovery entails which are discussed further below. See the discussion in the corresponding section of Pollock et al. (2008).

- proach it is assumed that the PSIH will not require direct government funding.
- setting prices equal to the short-run marginal cost, that is the cost of supplying data to an extra user. Note that, as we are considering digital data, this cost is essentially zero and marginal cost and zero cost pricing are identical. In this case the PSIHs revenues from maintaining and supplying information will fall below its costs and the PSIH will depend on direct government funding (a ‘subsidy’) to continue its information operations.

When considering the supply of information, price is not the only consideration: in addition one must specify what those who acquire the information can do, in particular, what restrictions there are on re-use and redistribution. In general, and for obvious reasons,¹⁴ profit-maximising and average-cost pricing to users are associated with the PSIH retaining strong control over re-use and redistribution – in particular the ability to impose any conditions on re-use and redistribution of its data permitted by the underlying intellectual property rights existing in that material.

For marginal cost pricing, by contrast, it would be natural for the PSIH to make the data ‘openly’ available so that anyone who acquired data would be free to re-use or redistribute in any way they saw fit.¹⁵

2 REGULATION: COMMITMENT, INCENTIVES AND EFFICIENCY

2.1 INTRODUCTION

This section considers how best to address the major regulatory questions raised

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- 14 If free redistribution and/or re-use any user would immediately be able to compete with the original supplier thereby undermining their ability to charge. It is this logic that lies behind the grant of most IP rights.
 - 15 Note that this would not exclude the imposition of conditions entirely. For example, the PSIH might wish to impose ‘integrity’ conditions so that where its data was supplied by others it was clearly marked as only coming indirectly from the original source and therefore potentially no longer having the same reliability (such a provision already exists with the PSI ‘click-use’ license in the UK). PSIHs might also wish to make certain ‘public-interest’ restrictions. For example, the Land Registry in the UK already prohibits usage of its data for unsolicited mail-shots. Going even further PSIHs could utilise share-alike type licenses of the sort popular in open-source and open-knowledge communities. Here, material is made freely available for use, re-use and redistribution but with the ‘share-alike’ proviso that any derivative work is distributed under the same ‘open’ terms as the original material.

by public sector information, particularly those related to commitment, incentives and efficiency. As discussed in the previous section, there are close analogies between PSIHs (especially the major ones) and traditional utilities, particularly in regard of their cost structures and the role they play in their particular sectors of the economy, and these analogies, and the existing regulatory experience in other areas, will necessarily inform our discussion here.

At the same time, we should note some important differences. Most significant is that, compared with many other ‘regulated’ industries, government takes multiple roles in relation to PSIHs. In particular, government often acts as shareholder, regulator/parent, and customer. Furthermore government’s customer role is far more prominent in relation to PSIHs than in relation to any other ‘utility’ – government is sometimes by far the largest customer for PSIH data and in some cases may account for over 50% of ‘sales’.¹⁶

This close relationship is reflected in the status of PSIHs which are either fully inside ‘government’ or, even when quasi-autonomous, have no separate legal identity. This means, for example, that while PSIHs can draft detailed ‘Memorandums of Understanding’ or ‘Customer Supplier Agreements’ with (other parts of) government it is not clear whether these are legally enforceable contracts – after all, it is not possible for a government to sue itself. This problem is made worse by the fact that the government-to-PSIH relationship is frequently rather opaque, with it being unclear what a given PSIH can and cannot do in relation to product supply, charging etc.

To give a concrete example, one of the advantages often cited of average-cost or profit-maximising charging policies for a PSIH is the greater freedom and certainty it gives PSIHs because they need no longer be dependent on direct government funding (discussed further below). However, in many cases (other parts of) government are the major purchaser of data from a PSIH. In this case it is entirely possible for the government to use its role as a monopsonist to reduce suddenly its payments in lean years (just as the government might choose to reduce a subsidy). Conversely, it is not clear what would necessarily prevent a PSIH using its position as a sole supplier of some data products to raise charges to government very sharply. Obviously, in practice, neither of these outcomes are particularly likely, precisely because of the close connection between PSIHs and government. This connection is clearly very important but is, as yet, largely un-

16 For example, in the UK the Met Office income from government whether via sales or subsidy is over 80% of revenue. Even for Ordnance Survey where the proportion of revenue coming from government has been falling the proportion is close to 50% and for particular product ranges may be well over that. At the same time, for some other PSIHs, especially those which are registration-based, the proportion of income from government is very low (approximately zero in the case of the Land Registry, for example).

formalised in most countries.

Finally, a crucial point to bear in mind is that many of the PSIHs enjoy a near-monopoly on at least some of their data, a monopoly, furthermore, made possible or strengthened by government activity. For example, in the UK, for ‘registration-based’ PSIHs such as Companies House, the Land Registry or the DVLA it is a statutory requirement to deposit data with them. In the case of the Met Office, in addition to the natural monopoly afforded by the high fixed costs of data collection, the government provides substantial funding for the PWS (Public Weather Service).¹⁷ Furthermore, in most cases the data marketplace in which PSIHs operate have a clear upstream/downstream structure with the PSIH ‘monopoly’ most prominent in the upstream market. This presents a whole raft of competition issues, particularly in relation to tying, exclusionary dealing, predatory pricing and the like. As a result it would seem clear that some form of price/access regulation would be necessary if abuses of market power were to be avoided, and adequate competition and innovation be encouraged (at least downstream). It would also make it extremely difficult to permit PSIHs to pursue a profit-maximisation (monopoly-pricing) strategy in the absence of some form of regulatory oversight.

2.2 COMMITMENT

In most analysis of funding structures, including that below, it is explicitly assumed that government would provide any necessary subsidy to maintain PSIH income at a level sufficient to maintain the relevant dataset (should a charging policy be chosen that resulted in PSIHs income dropping below costs). This *implicitly* assumes an ability for government to *commit* to payments both now and in the future. Such ability cannot be taken for granted. Governments around the world have frequently demonstrated the difficulty of making such commitments and the impact of political considerations on infrastructure investment.¹⁸ Sudden fluctuations, or simply reductions, in the level of subsidy would be likely to have substantial negative effects on the ability of PSIHs to maintain both the range and

17 The Met Office have sought to address some of the problems these may cause from a competition perspective by maintaining a clear division between their ‘wholesale’ and ‘retail’ arms with the same access terms applied to all, including their own retail division, when purchasing data from the ‘wholesale’ arm.

18 For example, in 1991, the UK government promised an extra 750 million pounds to the Tube to do renovation work only to have to reverse this commitment a year later due to sudden pressure on the national finances. (*London Review Books*, 27: 9, 5 May 2005). See also the discussion of the Land Registry’s experience in the early 1990s below.

quality of their information. Clearly, the issue of commitment is an important one to consider.

The issue of commitment is not solely confined to the case where subsidies are being provided. Consider, for example, the hypothetical situation where a PSIH is following a policy of profit-maximisation but still retains its current institutional set-up where it sits within the public sector. Suppose then that the PSIH decides that one obvious way to increase profits is to increase charges to central and local government, perhaps to the extent that some subsections are no longer able to purchase the data. In this case there might be substantial pressure brought to bear by government on the PSIH to price more ‘reasonably’, or government might consider amending the PSIHs charging policy. In either case the government would have reversed its ‘commitment’ to allow the PSIH to pursue a policy of profit-maximisation. Thus it should also be clear that while the ‘commitment’ issue may be most prominent in the case where government is providing funds it arises in relation to all of the possible pricing policies. In fact, as discussed further below, the commitment issue relates more to the institutional and regulatory structure in which PSIHs operate than to the chosen charging policy.¹⁹

2.3 INCENTIVES AND EFFICIENCY

In addition to the basic commitment issues it is also the case that different charging policies, and the associated different relationships with central government, might result in different incentives faced by PSIHs. In particular charging policy could affect incentives for responsiveness, innovation (development of new products), cost reduction and general performance.

For example, a PSIH which has been mandated to price data products at marginal cost may have reduced incentives to develop new products as it will not be able to reap any particular benefits from doing so.²⁰ Conversely, if marginal cost pricing was combined with some kind of per unit output subsidy this could result in incentives for *over-investment* in quality and capacity improvements because, by over-investing, the PSIH stimulates demand and obtains a larger subsidy.

In terms of responsiveness an organisation operating a more ‘commercial’ pricing policy (e.g. profit-maximising) might lead a PSIH to be more customer oriented – more responsive to complaints and more concerned about general service quality.

Similarly, wherever a PSIH is regulated (i.e. in all cases except profit-

19 See also the discussion of the government’s multiple roles above.

20 The same could be true in theory from average cost pricing though this depends somewhat on the degree to which the organisation engages in cost recovery at the organisational rather than the per product level.

maximisation) it may lack adequate incentives to reduce costs – because any reduction in costs may be partially appropriated by the regulator (either in the form of a lower subsidy or lower prices).

2.4 INFORMATION AND ENFORCEMENT

All of the charging policies considered with the exception of profit-maximisation require some form of regulation (by government or otherwise) to ensure compliance. Even in the case of profit-maximisation the government's role as sole shareholder would necessitate some form of oversight.

One might assume that marginal cost (and zero-cost) pricing would require more information (and more effort on the regulator's part) than average cost pricing. In particular as it is unlikely that the level of investment is constant over time there will be important questions as to how subsidies (and price regulation) were allowed to change over time to reflect these needs.

However, as already alluded to above, under cost-recovery managers may have an incentive to 'over-invest' since higher costs can be covered by increasing revenues ('gold-plating'). Additionally, with the ability to set prices in at least some areas PSIHs could also behave inefficiently, for example, by investing in poor projects, while still complying with cost-recovery at the organisational level since losses could be made up by raising prices or cross-subsidies from other parts of the business. The information needed by a regulator to avoid these outcomes is similar to that required when monitoring a marginal-cost or zero-cost regime – in particular the regulator will need to monitor investments in order to ensure that they are at the efficient level.

Leaving aside these investment questions it is certainly true that different pricing regimes provide different information about the demand curve (and therefore implicitly about surplus).²¹ Specifically, if the given pricing policy is being pursued at the per-product level, then profit-maximisation and average-cost both have the advantage that they guarantee that a given product is only produced if the surplus from doing so is positive. By contrast under marginal cost pricing it is possible for a product to be produced (and subsidised) whose net surplus is negative. However it should be noted that this particular point can be taken both ways. A profit-maximisation or average-cost regime ensures that a product is produced if and only if the producer surplus is positive (i.e. revenues are larger than costs). Thus there may be products whose total (consumer plus producer) surplus is positive – and therefore worth producing – but whose producer surplus is negative. These then are products which might well be produced under a marginal

21 This will also be discussed below, see Figure 1 in particular.

cost regime but would not be under an average cost or profit-maximising regime.

2.5 DISCUSSION

The main points of the previous sections are drawn together in Table 2. One important possibility to bear in mind when reading this, and when considering these issues in general, is the likelihood that any given charging rate might be applied selectively. For example, different charging policies could be applied to upstream and downstream data – say, marginal cost for upstream and average cost, or profit maximisation, for downstream.

Table 2: Charging policies and regulatory/governance issues

Issue	Profit Max.	Avg. Cost	Marginal/Zero Cost
Commitment	Good. ^a	Largely dependent on regulatory / governance structure.	Largely dependent on regulatory / governance structure. ^b
Incentives	Optimal for PSIH though likely non-optimal for other market participants (see next item).	Risk of over-investment and inefficiency (costs too high). Monitoring required of investment, quality and costs.	Risk of either over or under performance depending on subsidy function. Monitoring required of investment, quality and costs.
Distortion of Competition	Upstream: major issue given dominant position of PSIHs. Downstream: minor as long as cross-subsidy is	Significant issue if PSIH provides internal access to upstream material on different terms to external firms (esp. if cost allocation between upstream and downstream is opaque). ^c	Minor. ^d

	limited.		
Information	Not relevant as no regulation.	Single point on demand curve where revenue covers costs. ^c At aggregate level know PSIH covers total costs.	Single point on demand curve where price equals marginal cost.

- a Though could depend on relationship of government and PSIH – particularly risk that profits are ex-post ‘appropriated’.
- b Could be a greater issue than under ‘average-cost’ because here the government may be providing subsidies.
- c Oversight would still be required here to prevent the use of discriminatory tariffs. For example, a PSIH could set a tariff consisting of a one-off, but very large, fee for all its data. This might then exclude external users who only need a small part of that data. Similarly without transparent cost allocation under average cost pricing a PSIH might have an incentive to overcharge for upstream access to exclude downstream entrants – a problem familiar from the telecommunications literature, see e.g. Farrell (2003).
- d Though the provision of subsidy may retard entrants who wish to compete directly with the PSIH in the provision of data. However, as long as the marginal cost of data provision was largely confined to those datasets of which the PSIH was sole provider this would not become an issue.
- e Though where a PSIH performs cost-recovery only at the aggregate level the exact relation of revenue to costs for a given product may be unclear.

Thus rather than situating a PSIH in a single column it is important to keep in mind that it could be ‘spread’ across several, with different parts of a PSIH’s operations under different charging policies. The table attempts to reflect this, at least to some extent, by explicitly noting where a particular point relates only to data with particular properties.

There are two major lessons to take from all of this. First: there is no direct linkage of charging policy to governance issues – in fact governance questions are best seen as orthogonal to pricing ones. In particular, all policies require some form of regulation to function well. Second, and relatedly: charging policy is not the central issue when considering problems such as commitment and incentives which are the primary determinants of performance in terms of data quality, investment and efficiency. Rather, charging policy is best seen as secondary, and dependent upon, the primary matter of the regulatory/governance structures under which data provision (and collection) by PSIHs occurs.

2.5.1 Commitment

To illustrate, consider a concrete example provided by the Land Registry, one of

the major UK Trading Funds. In the late 1980s and early 1990s just prior to becoming a Trading Fund, the Land Registry operated a cost-recovery regime in which charges were set to cover costs. However, it did not control its revenues but rather returned them to central government. The Land Registry management would then go ‘cap in hand’ to negotiate their budget for the next financial year. According to them, in the late 1980s this resulted in a degree of underfunding, which made it impossible to deal with the level of applications they were receiving. As a result a large backlog of applications built up.

In 1993 they became a Trading Fund, in part because of the problems that had been encountered. Since then this sort of problem has not recurred and, in their opinion, the greater autonomy provided by being a Trading Fund means that investment can be planned better and they are less subject to the vagaries of ‘vote-funding’.²² Note that throughout the basic charging policy was unchanged with cost-recovery both before and after Trading Fund status was obtained. Hence, here it would seem clear that if the improvements in service quality were due to anything, they were due to changes in the regulatory environment, in particular the greater certainty and autonomy provided by the Trading Fund structure.

To take this point further, whenever PSIH funding is directly controlled by government, there will be potential commitment issues under all pricing regimes (see discussion above). Moving to a different regulatory structure could improve this. For example, if PSIHs were more legally independent it would permit the creation of arm’s length legally-binding contracts regarding both subsidies and purchases. Combined with independent and transparent regulation this sort of structure would go a long way to eliminating concerns about the ability of government to deliver on subsidy and purchase promises and eliminate fears about the effects of such risks on the quality and availability of PSIH data.

In particular, it should be emphasised that a change in charging policy, for example to use marginal cost pricing for some part of a PSIH’s products, does *not* require removing a PSIH’s independence or a reversion to ‘vote-funding’. In fact, as just suggested, such a change would optimally be combined with improvements in the independence and transparency of the governance structures to

22 Though interestingly all of their fees are still set by government through fees orders (more precisely the fees are set by the Lord Chancellor and then approved by HM Treasury). Thus government still largely controls their year to year revenues (and hence, one would imagine, their investment levels and incentives). This suggests that, in this case, the major benefit of Trading Fund status was not to reduce the level of (central) government control but to reduce the risk that government would, especially in ‘difficult times’, take too great a share of Land Registry revenues for other purposes leaving the Land Registry with insufficient funds to carry on its operations. In this sense Trading Fund status could be seen as a form of ‘ring-fencing’ in relation to the Land Registry budget.

provide PSIHs (and government) with *more* certainty, clarity and independence than they currently have.²³

2.5.2 Incentives and Efficiency

Coming to the question of incentives and performance, the differences between charging regimes are, if anything, even less significant than when considering commitment. As already discussed, without adequate regulatory/governance structures in place, all charging regimes can result in poor incentives, inefficiency and overall poor performance.²⁴ Conversely with a good regulatory/governance structure in place any of the charging policies could be implemented without jeopardising the incentives, efficiency, and performance of a PSIH.

Consider the current situation in many jurisdictions for some of the larger PSIHs, which roughly approximates to capital-based regulation – a PSIH is expected to cover costs and make some specified return on capital. As is well known, this approach has significant incentive and efficiency problems. First, and most obviously, the organisation no longer has incentives to minimise costs but rather seeks to match costs to revenue. Furthermore, given the market power PSIHs have, at least in some markets, overspending can always be addressed by raising prices and increasing revenue.

Second, and relatedly, the organisation now seeks to equate average costs and average revenue rather than marginal costs and marginal revenue. As a result there can be ‘gold-plating’ and over-investment in quality.²⁵ Third, and more

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- 23 An obvious example in this respect is provided by the case of the Train Operating Companies (TOCs) formed in the UK post-privatisation of British Rail. Here the government has been able to agree subsidies as well as payments for long-term investment. While PSIHs obviously differ from the TOCs in several respects, notably by not being privately owned companies, it would not be very difficult to design mechanisms for PSIHs which that could provide a similar degree of certainty.
- 24 If the PSIH is still government owned profit-maximisation here is no different since the monitoring role usually played by shareholders and the market is now the responsibility of government.
- 25 This is distinct from the previous point in that, for any given project, the costs may be at their, optimal, minimal level for the quality chosen, but that quality will be at inefficiently high level. To put this in terms of a simple example, suppose a purchase of a computer system is being considered. There are two manufacturers M and N and both offer a high and medium quality system. The two manufacturer’s systems are equally good but N’s one costs more. In addition, M’s high quality system just breaks even (revenues equal costs) while the medium quality system results in a profit (revenues exceed costs). Here then, inefficiency in the first sense would be to choose the N system over the M system resulting in simple overpayment. Inefficiency in the second sense would be choosing the high quality system – profits

subtly, this pricing policy provides incentives to over-invest in order to extend (inefficiently) the capital base since this then allows an increase in revenues.

These are all fairly serious issues. Thus, the government, in its role as owner and regulator of a PSIH, needs to exert a substantial degree of effort to try and reduce or eliminate these risks. In particular, to correct these potential biases in a PSIH's behaviour it would likely need both to put in place some form of incentive scheme, and associated monitoring mechanisms. This has been the approach in other areas. For example, Network Rail (which replaced the privately owned RailTrack in the UK), though run as a not-for-profit company limited by guarantee has put in place a fairly complex incentives package for managers and is also monitored by the Office of Rail Regulation.

A similar approach could also be taken if a marginal cost pricing regime were adopted. Just as with average-cost pricing, the regulator (be that government or an independent entity) would need to think carefully about providing incentives for (efficient) reduction in costs (while keeping investment at the optimal level). To put this in more concrete terms, for those products priced at marginal cost the regulator would need to be setting a subsidy level. This subsidy would likely be tied to (previous and expected) output and expenditure in some manner. One option would be to set the subsidy to equal fixed costs in the last period. However, for obvious reasons, this is likely to result in poor incentives to lower costs. Similarly setting a straight per output subsidy might lead to over-investment. Nevertheless, something combining these two different options is likely a reasonable middle way. By choosing a middle way, and by exerting reasonable oversight.

For example, a regulator could estimate fixed costs based on previous periods' (multiplied perhaps by a deflator to allow for efficiency improvements and technological advance). This could then be combined with an estimate of the value of usage to set the subsidy per unit of utilisation. Incorporating output measures, the PSIH has incentives to increase usage of their data while also making it easier to allow for the introduction of new data products – which is an important factor to consider when managing marginal cost pricing.²⁶

are zero in this case but would have been higher with the medium quality system.

26 There are other ways to address this. For example one could follow a system used by the TOCs who present a 'shopping-list' to government of possible capital improvement projects which government then chooses from. Alternatively one could provide some way for users to feed back requirements to PSIH regarding new datasets to collect. This is also a major advantage to having a PSIH retain a 'Retail' arm in addition to any marginal cost 'Wholesale' arm as 'Retail' can pass on feedback regarding their requirements to 'Wholesale' (in fact, the UK Met Office stated that something like this already occurs with their 'Retail' division passing back feedback to 'Wholesale' as to what new kinds of data would be useful in the provision of their own products and services).

This example, though obviously very lacking in detail, should be sufficient to demonstrate that the problems are not insurmountable, and are, in many ways, little different from the issues confronting government when a cost-recovery approach is used.²⁷ What is clear in both cases is that the incentive questions must be addressed. If they are not, there would most likely be serious detrimental impacts on efficiency and general performance. However as long as reasonable thought and effort are put into dealing with these issues, in particular by designing a robust governance/regulatory regime, these negative consequences can be avoided.

2.6 CONCLUSION

Much of the concern about the impact of a change in charging policy (particularly to marginal cost or zero cost) is based on a misidentification of charging policy with regulatory structure. Having a PSIH dependent on year-to-year ‘vote-funding’ for its activities might well have substantial negative impacts – but it would do so whatever charging policy was being followed. Conversely, any of the charging policies discussed could be used successfully if an independent, transparent and coherent governance structure were in place. In this regard charging policy can largely be seen as *orthogonal* to the question of PSIH performance – whether evaluated in terms of quality, responsiveness or efficiency. Moreover, the importance of having an adequate governance structure – whatever charging policy is chosen – cannot be overemphasised.

In many countries some of that structure is already in place. However, as already discussed, there are likely to be several important ways in which it could be extended in pursuit of delivering on the key goals of transparency, certainty and efficiency. If an adequate structure is in place, and economists and regulators experience over the last few decades provides plentiful experience in this regard, then there is every reason to be confident that almost any pricing policy can be *implemented* without significant adverse effects on the efficiency and performance of the PSIHs affected.

27 Though, interestingly, the need for government to provide funds is likely to ensure these kinds of calculations are more ‘in the open’. This may be a significant advantage of marginal cost pricing as an increase in transparency benefits all concerned, and, furthermore, requires that a regulator have access to the relevant cost and output data from a PSIH on a regular basis. As such, it is one way of credibly committing government to a more transparent and active regulatory regime.

3 WHICH FUNDING MODEL?

3.1 INTRODUCTION

When deciding which funding model is ‘best’ we need to know what ‘best’ means. The main ‘outcome’ variables one would consider are:

- the value (utility) end consumers derive over and above any payments they make
- surplus to producers (profits)
- revenue and expenditure
- sum of these taking account of the relevant distributional weights.

For economists, and most policymakers, it will be the last of these, total social welfare, which would be the most significant since it is an overall measure which incorporates all of the other changes into a single value (usually presented in monetary terms for convenience of comprehension). To decide which funding model is optimal simply requires us to perform a standard ‘social cost-benefit analysis’. Conceptually, all this involves is summing up the benefits and costs from each particular option and seeing which one does best. Of course there are some theoretical subtleties, particularly in relation to making adjustments based on who gains the benefits and who bears the costs. However, the major challenge will be an empirical one: obtaining estimates of the main parameters upon which the calculations depend.

One last point before we embark on the formal analysis: in what follows we shall concentrate solely on comparing two of our three charging options: average cost to marginal cost.²⁸ This is not a great restriction for two reasons. First, we are concentrating on upstream material. It would therefore be difficult to allow a PSIH to pursue a profit-maximisation regime without raising a host of serious competition issues.²⁹ Second, if marginal cost is superior to average cost charging then it is also (a fortiori) superior to profit maximisation. Hence, the comparison of marginal cost to average cost already yields most of the relevant information we need.³⁰

28 Those who want a full analysis of all of the charging options can find one in Pollock et al. (2008).

29 See the previous section on regulation.

30 Of course, if average cost is superior to marginal cost we are left with the possibility that profit-maximisation is even better. However: a) there are good theoretical reasons why this is unlikely (deadweight losses grow as the square of the price increase); b) as mentioned, this is problematic from a competition perspective. Furthermore, as we shall see, it is likely that in most cases marginal cost is superior to

3.2 THEORY

The theoretical underpinnings of the calculations conducted in this report can best be understood by the diagram presented in Figure 1. Here, we show the demand curve for a single information ‘product’ which a PSIH could supply.³¹ This (linear) demand function is shown together with the marginal and average cost curves. As illustrated the cost curves correspond to a good having constant marginal costs approximately equal to zero and a non-zero fixed cost of production. We would emphasise that the particular functional forms and parameters have been chosen simply for illustrative purposes and do not necessarily indicate those that will be used in doing calculations – though, of course, the natural division of costs into fixed and marginal will be retained.

average cost and so this issue is moot.

- 31 Implicitly this kind of partial equilibrium analysis assumes that the prices of other goods (and other information supplied by the PSIH) are being kept fixed while we analyse this particular item.

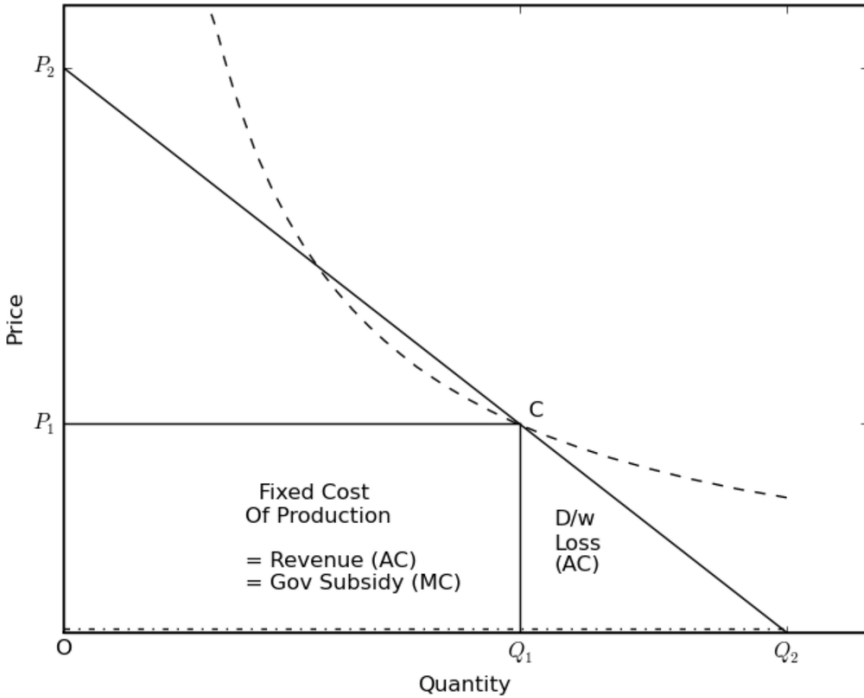


Figure 1: Illustrative demand and cost functions. Shown is a linear demand curve for a product with fixed costs and constant marginal costs (approximately equal to 0). Marginal cost (dot-dashed at very bottom of figure) and average cost curves (dashed) are shown

Table 3 explicitly relates each outcome variable to a particular area under the demand curve in Figure 1. Producer surplus equals profits: that is revenue minus costs (fixed as well as variable). Thus producer surplus is zero under average cost pricing (this is the definition of average cost pricing), and is negative under marginal cost pricing. Consumer surplus, using the partial equilibrium approach adopted here, will equal the area under the demand curve which is above the price being set. Since the PSIH is government controlled, producer surplus equals government revenue/expenditure. Thus under average cost the government receives and expends nothing but under marginal cost must supply a subsidy to cover the fixed costs of producing and maintaining the information.

Table 3: Outcomes under different charging regimes with reference to Figure 1. Government revenue has been omitted as it is equal to producer surplus

	Average Cost	Marginal Cost
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Consumer Surplus	P_1P_2C	OP_2Q_2
Producer Surplus	0	$-OP_1CQ_1$
Deadweight Loss	CQ_1Q_2	0

The next step is to combine consumer and producer surplus together with government expenditure and revenue to obtain an overall measure of social welfare. Here, it will often be simpler to compare the differences between the two options rather than looking at overall welfare. The situation, at least conceptually, is extremely simple with a move from an average to a marginal cost charging policy involving two changes:

- The government must supply the funds to pay the fixed cost producing and maintaining the information
- Users gain surplus equal to this fixed cost plus the deadweight loss.

Now, if funds/surplus in the hands of the government and in the hands of users were equivalent it would be immediately obvious that a marginal cost regime was better – the fixed cost would net out and one would be left with the gain of the deadweight loss. However, things are not so simple: we need to take account of the benefits those government funds would otherwise have generated (if they were not being used for the subsidy). The basic approach for performing this kind of cost/benefit analysis is well known. It involves taking uncommitted government funds as the numeraire and then adjusting the surplus from the project under consideration using the appropriate social weights to reflect the different values of public and private costs and benefits. This surplus is then compared to a standard benchmark project upon which funds could otherwise have been spent (one unit equally distributed). In essence this is asking: are the benefits derived from spending government funds in order to have a marginal cost charging policy for this PSI greater than those obtained by spending those government funds on the benchmark project. If the answer is yes the project is worthwhile; if the answer is no the project is not.³²

3.2.1 *The Multiplier*

The approach laid out uses the standard partial equilibrium approach of equating areas under the demand curve with social surplus. But one needs to ask here

32 An alternative approach involves taking money in consumer's pockets as the numeraire. In that case one needs to determine the marginal cost of public funds (that is, how much does raising one pound of government funds cost general society at the margin).

whether, in this case, demand accurately reflects surplus. Note that this is *not* about the standard question as to whether using the uncompensated (Marshallian) demand curve is a good approximation to the compensated demand curve (see Willig [1976]; Hausman [1981]). Rather it is the question whether, for the information goods considered here, the demand curve systematically misrepresents willingness-to-pay and hence welfare. There are two major reasons why the answer to this question is likely to be an affirmative one in the case of public sector information (further discussion of both of these possibilities may be found in the appendix):

- Public sector information is frequently *sold, not direct to consumers, but to intermediate firms who in turn provide products (informational or otherwise) to consumers*. As such, the demand curve observed by the PSIH may significantly understate the true value being generated either because downstream firms do not capture the full surplus from their activities or because the downstream market is itself imperfectly competitive.
- The standard demand curve is static, frozen at a particular point in time, with no allowance for how it might change, and, in particular, how reductions in *present* prices may, by stimulating the development of products and services both downstream and in other markets,³³ have a major positive impact on *future* surplus.

Both of these two factors provide reasons to think that using the basic demand curve may lead to underestimates of the gains from lower prices – equivalently, underestimates of the deadweight losses of higher prices. This would imply that, when doing cost/benefit style calculations of social welfare, one would need to scale up the welfare related to increases in usage of PSI by some form of ‘multiplier’. We therefore introduce such a ‘multiplier’ parameter into our calculations below.

3.2.2 The Form of the Demand Curve, Regime Change and Transaction Costs

The very limited availability of empirical data necessitates some assumption about the shape of the demand curve. The approach adopted here will be to assume that, at least in the region of interest, the demand curve may be approximated by a linear function and thus that the elasticity of demand captures

33 For example, cheaper geodata may lead to more rapid improvement in the quality of the software and hardware components of Geographical Information Systems (GIS). Similarly, Weiss (2004) argues that marginal cost access to weather data in the US was a large factor in the development of the multi-billion dollar weather derivatives industry.

sufficient information for us to calculate changes in consumer and producer surplus. For small changes in prices such an approximation is quite reasonable. Of course here the price changes under consideration are likely to be quite substantial. In this case using a more convex inverse demand function (e.g. $p = 1/q$) or a more a concave one (e.g. $p = k - q^2$) might lead to changes in the surplus estimates. Nevertheless, given the data constraints an assumption of linearity seems a reasonable first-order approximation.

We shall also assume that altering charging policy does not change the costs of a PSIH. In reality, it is likely that a change from average to marginal cost pricing would result in a reduction in the costs incurred by the PSIH in creating and maintaining the information – for example, with marginal costs at zero (so the information is provided free) there may be significantly less administrative overhead in relation to billing, contract monitoring, enforcement etc. However, while such cost changes may not be negligible, we will ignore them here for three reasons. First, such cost changes are very difficult to calculate given the data available. Second, such cost changes are probably ‘second-order’, that is small relative to the main effects. Third, and perhaps most decisively, such an omission is ‘conservative’, in the sense that it biases the results towards the average-cost regime (which is currently the default in many countries). While inserting ‘bias’ is never first-best, inserting a ‘conservative’ one could be seen here as a reasonable ‘second-best’ – and where a marginal cost (or zero) price cost regime is found to be preferable, this ‘bias’ would be irrelevant in the sense that it would make the preferability ‘stronger’.

Finally, transaction costs will also be ignored, whether these relate to transitioning to a new charging regime or to running a given regime. Our reasons for doing so are similar to those just discussed for general costs. First, there is no data on which to base estimates of their magnitude. Second, in the case of the costs of transition these are likely to be small, at least compared to the magnitude of the other sums involved. Third, for general transaction costs a move from an average cost to marginal cost regime would likely result in a reduction due to less need for monitoring and enforcement. Thus, ignoring them can either be seen as having little effect or as instilling a ‘conservative’ bias in favour of the existing regime. Again, inserting such ‘bias’ is not first-best, but given its ‘conservative’ nature it could be seen as a reasonable ‘second-best’.

Table 4: Key variables

Name	Variable
θ	Distributional weight for the project under consideration. Note that

	the ‘marginal cost of public funds’ equals $\frac{1-\theta}{\theta}$.
F	Revenue under average cost pricing (equal to fixed costs of the PSIH in producing and maintaining the information).
DWL	Size of deadweight loss under average cost pricing.
g	The proportion of revenue derived from government sources under average cost pricing.
λ	Demand curve ‘multiplier’. Note that $\lambda \geq 1$.
ε	(Absolute) elasticity of demand at price under an average cost regime.
p, q	Price and output under average cost pricing (point C in figure 1).
Δq	The (absolute) change in quantity (usage) as a result of moving from average cost to marginal cost pricing.

3.2.3 Algebra

This subsection converts the preceding discussion into an equation which characterises the welfare difference between the average and marginal cost regimes in terms of the key underlying variables (listed in Table 4). The numeraire for all of these calculations will be government funds (and not funds in the hands of consumers). The choice of numeraire has no effect on the signs of any value and therefore on choice of policy, but simply acts to scale outcome values. Taking government funds as the numeraire seems the natural approach here given their centrality in the calculations – it is government funds that will be used in paying any subsidy.

As already discussed at the end of Section 3.1 the change from the average cost to marginal cost regime has two simple effects:³⁴

- The government must supply the fixed cost F
- Users gain surplus of the fixed cost plus ‘deadweight loss’: $F + DWL$.

34 We should note here that, in addition to the items already mentioned, we will also ignore issues such as a) some of ‘consumer’ surplus is really accruing to firms and therefore may flow back to the government as tax (and may have a different distributional weight) b) a time differential in the impact of benefits and costs. These are likely to have a relatively small effect and the reader seeking a full treatment can see Pollock et al. (2008).

The next step is to ensure that both of these terms are represented in terms of the numeraire which is government funds. Obviously government expenditure need not be modified but any gains to those outside government need to be scaled by the distributional weight θ . Thus the first step is to break-down the costs and benefits into those accruing to the government, and those accruing outside government, whether to consumers (consumer surplus) or to producers (producer surplus). The breakdown is show in Table 5. The important point is that the values in the unweighted subsection are not necessarily commensurable since they are not expressed with respect to the same numeraire. Those in the second ‘weighted’ subsection have been corrected with the necessary distributional weights to ensure they are all expressed in terms of the numeraire used (government funds).

Table 5: Theoretical breakdown of surplus

Item	Expression
Unweighted (no common numeraire)	
Cost:	$-F$
Benefit	$F + DWL$
o/w Govt	gF
o/w Non-Govt Surplus	$(1 - g)F + DWL$
Weighted (numeraire = govt funds)	
Δ Government: ΔG	$-(1 - g)F$
Δ Consumer Surplus: ΔCS	$\theta((1 - g)F + DWL)$
Δ Total Welfare: ΔW	$-(1 - \theta)(1 - g)F + \theta DWL$

Our last step is to relate the PSIH fixed cost: F , and the deadweight loss: DWL . The fixed cost equals price times quantity under average cost pricing: $F = pq$. The deadweight loss is more complex and its exact size will depend on the shape of the demand curve. Using the linear form for the demand curve the expression for the deadweight loss takes a particularly simple form as follows:

$$DWL = \lambda \cdot \text{Triangle } CQ_1Q_2 = \lambda \frac{1}{2} p \Delta q = \lambda pq \frac{\Delta q}{2q} = \lambda F \frac{\Delta q}{2q}$$

It will be useful to rewrite this in terms of the elasticity using the fact that $\Delta q/q = \varepsilon \Delta p/p$:³⁵

$$DWL = F\lambda\varepsilon \frac{\Delta p}{2p}$$

Noting that $\Delta p = p$ (as marginal cost = 0) we have $DWL = F \frac{\lambda\varepsilon}{2}$ and thus that:

$$\Delta W = F \left(-(1-\theta)(1-g) + \theta \frac{\lambda\varepsilon}{2} \right)$$

In terms of decision-making all that matters is whether the change in social welfare is positive or negative ($\Delta W > 0$). Since the term outside of the brackets is always positive it follows that ΔW is greater than zero, and hence that marginal cost pricing delivers higher social welfare than average cost pricing, if and only if:

$$\frac{\lambda\varepsilon}{2} \geq \frac{1-\theta}{\theta}(1-g) \quad (1)$$

In words this could be expressed as:

'Per-Unit' Deadweight Loss ≥ Per-Unit 'Cost' of the Subsidy

Thus, this is simply the original costs and benefits compared but 'per unit' of the fixed cost needed (F) and normalised by the appropriate distributional weights.

3.3 EMPIRICS

This section combines estimates of the key parameters derived from the existing literature and evidence from PSIHs with the formula derived at the end of the last section so as to provide guidance as to whether a change from an average cost to a marginal cost pricing regime would be welfare improving.

3.3.1 Distributional Weights and the Social Value of Public Funds

As previously discussed the numeraire for surplus calculations will be uncommit-

35 Note that this would normally be only an approximate equality but for the case of linear demand it is exact.

ted government funds. It is then necessary to compute θ , the distributional weight for the specific project under consideration. Roughly the logic here is that uncommitted public funds could either be used for lowering the price of PSI or for some other government purposes. These uncommitted funds, by definition, have a weight of one.³⁶ This is almost certainly not true for the (consumer and producer) surplus generated by the project under consideration, and the appropriate distributional weight will depend on how the project's benefits are realised across the population which in turn depends on the existing distribution of income, the degree of inequality aversion, the marginal utility of consumption and the income elasticity of demand for PSI data.

Here, it will be assumed that the *benefits from lowering the price of PSI are received in proportion to income*. Specifically, the income elasticity of consumption of PSI is assumed to be one. This is a fair assumption given that general consumption is (approximately) proportional to income. Using this together with estimates of the distribution of income over the population and the elasticity of the marginal utility of income we obtain a range for θ of 0.718–0.857 with a point estimate of 0.802.³⁷

3.3.2 Elasticity of Demand For PSI

In this section we survey the direct and indirect evidence on the elasticity of demand public sector information and use it to form a sense of likely range of elasticities applicable in the majority of cases. The (absolute) price elasticity of demand can be interpreted as the percentage increase in demand resulting from a 1% reduction in price (or, conversely the percentage decrease in demand resulting from a 1% increase in price).³⁸ A change in pricing policy by a PSIH (or other entity) allows one to elicit the elasticity of demand by comparing prices and demands before and after the change. However, in some situations the price changes can be quite substantial. In such cases the elasticity will depend upon whether one uses the old price and output pair (before the change), or the new price and output pair (after the change). We discuss this point further in Appendix 6 and show that

36 That is, there is at least one project in the government portfolio where £1 of expenditure generates benefits equivalent to £1 equally distributed across the population.

37 We have omitted a detailed derivation of this figure as the calculation is a standard one and not specific to the subject matter of this paper. Those who want full details, including references for all data sources, are directed to the Appendix to Pollock et al. (2008).

38 Note that formally an elasticity is negative (since the price reduction is negative). However, for convenience, and to match with the definition used in the theory subsection above, the elasticity of demand has been defined so as to (normally) be positive rather than negative.

using one or other of the price-output pairs generate a set of lower/upper bounds for the elasticity.

We begin with Weiss (2004) which itself surveys a variety of existing evidence both anecdotal and systematic. He argues that the price elasticity for information is likely to be high in most cases and ‘only when use of the information is mandatory or somehow indispensable might the demand be less elastic’.

The Office of Fair Trading (2006) also surveys existing data on the elasticities of demand for information in other countries. For example, it suggests an elasticity of 0.3 for New Zealand national mapping data based on evidence quoted by Longhorn and Blakemore (2004): ‘Rhind reviewed data charging outcomes after New Zealand had imposed a rigorous cost recovery program on national mapping, noting a reduction in sales between 1989 and 1994 of 60%, although income was 25% greater in real terms’. However this calculation appears to be using the lower bound – using the same calculation as in Appendix 6 one finds that 0.3 is the lower bound and that the upper bound is around 2.2.

Davies and Slivinski (2005) suggest that the elasticity for demand of weather forecasts is 0.3 based on evidence by Lazo and Chestnut (2002). However this paper only measures direct household demand for improving day-to-day weather forecasts through stated preference surveys. This should therefore be treated as a lower bound since it excludes demand for weather data coming from intermediaries and the private sector.

The study of Bedrijvenplatform (2000) claims ‘lowering the price of public sector geographic data by 60% would lead to a 40% annual turnover growth’. Interpreting turnover as revenue one finds an upper bound elasticity of 4.17 and a lower bound elasticity of 0.48 using the same calculations as in Appendix 6.

Under the *Making Information Freely Available* initiative, Statistics New Zealand is in the process of making a wide range of products and data available for free.³⁹ For example, Digital Boundaries Files on CD and StreetLink files were distributed for free from 6 July 2007.⁴⁰ Digital Boundaries Files previously cost around NZ\$3300 for the standard five-yearly census pattern, or NZ\$25,212 for the annual detailed file. StreetLink Files previously cost NZ\$6000 for first supply and then NZ\$2000 for annual updates. As of 28 August 2007 around 250 copies of Digital Boundaries CDs and 75 StreetLink files have been provided.⁴¹ This is a two-fold and ten-fold increase in Digital Boundaries Files and Street Link Files respectively in the six weeks after charges were withdrawn compared with what

39 The policy press release is available at www.beehive.govt.nz/Documents/Files/Statistical%20Info%20FAQ.pdf for details.

40 See press statement available at www.beehive.govt.nz/ViewDocument.aspx?DocumentID=2998.

41 See statement available at www.beehive.govt.nz/ViewDocument.aspx?DocumentID=30426.

Statistics New Zealand sold in the past three and a half years.

Using these immediate changes in demand would imply very high elasticities. However the initial surge of requests could be a consequence of a backlog of demand for the data at zerocost and so the annual uptake is likely to stabilise at a much lower level. Bearing this in mind it seems appropriate to use this recent demand to approximate the average annual uptake. Doing so and using equation (4) one finds an upper bound elasticity of around 6 and 34 for Digital Boundaries and StreetLink Files respectively. Small Area Population Estimates which previously cost around NZ\$250 were made free to download on 28 August 2007. By 14 September 2007 there had been 184 accesses by unique visitors compared to around 75 customised jobs per year previously. Again using this recent uptake to approximate the new annual output and using equation (4) one finds an upper bound elasticity of around 1.5. These estimates are still likely to be too high since the high surge in demand may include a large number of users who are unlikely to find the data of use, but request it at no cost to see if it may be suitable.

The Australian Bureau of Statistics made information free on their website towards the end of 2005. Table 6 shows the total products download statistics from 2003–07.⁴² Figure 2 graphs usage of ABS statistics over this time period.⁴³ It is clear that there is a significant increase in the usage of data once it was made freely available. Comparing the average dissemination of 2003–05 with 2005–07 estimates (crudely) gives an elasticity of 2.33.⁴⁴

42 This data is available in Table 13.3 in the ABS Annual Report at www.abs.gov.au/AUSSTATS/abs@.nsf/39433889d406eeb9ca2570610019e9a5/FBF88ADA798ABCA1CA257371001411C3?opendocument.

43 Available at www.epsiplus.net/content/download/7380/88070/file/3_3_ePSIplus_TM2_Pricing2_QUT_11107.pdf.

44 Using the 2007 values rather than an average 2006–07 would give an even higher elasticity of around 3.5. Thus the long-run elasticity might well be even higher – though of course one would need to then make efforts to detrend for the effect of technical advance and general growth in demand.

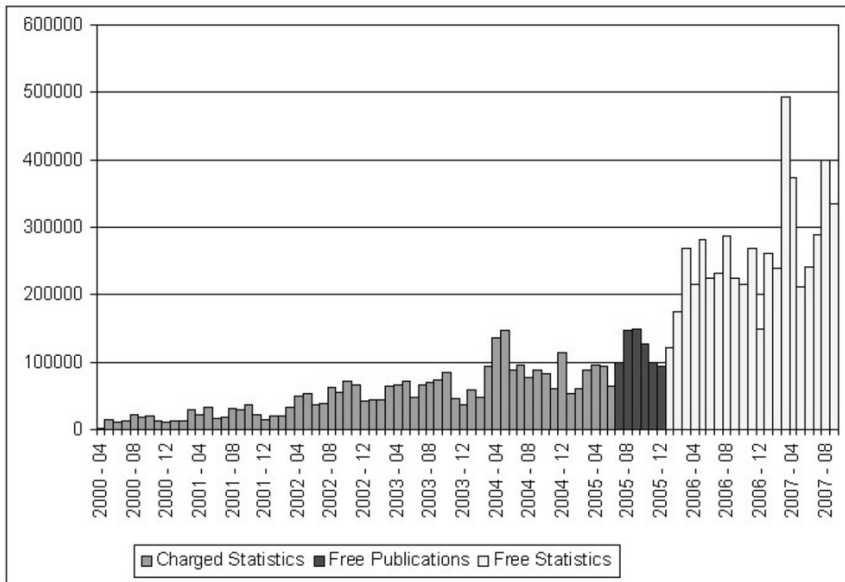


Figure 2: Australian Bureau of Statistics 'Dissemination of Statistics'

Table 6: Product downloads from ABS website

	2003–04	2004–05	2005–06	2006–07
Reported	948,956	962,872	1,868,280	4,501,530

The Office of Spatial Data Management in Australia conducted a wider program to make available fundamental spatial data across a range of agencies for free or at marginal cost.⁴⁵ The policy was announced in September 2001 and implemented over a six-month period so that by February 2002 agencies were providing data for free online, or at marginal cost in CD format. Table 7 details the delivery figures for scheduled datasets (i.e. those that fell under the new policy).⁴⁶ Unfortunately no data was available for the period before the pricing

45 This list of fundamental spatial datasets is listed on the Data Schedule available at www.osdm.gov.au/schedule/schedule_search.jsp.

46 Figures from 2001–02 are quoted by OSDM as from the fundamental dataset. This is understood to be all data listed on the Data Schedule as 'This Policy is premised on the view that all fundamental spatial data should be freely available at no more than marginal cost of transfer in order to maximise the net economic and social benefits arising from its use' (www.osdm.gov.au/fund_pricing.html). OSDM also state that the 'Australian government spatial datasets that are available under the

policy was announced. However, if one makes the conservative estimate that data delivered in 2000–01 was no more than in 2001–02 and compares this to uptake in 2005–06 gives an elasticity of upper bound elasticity of 10.45. Of course this does not take into account any general increase in demand due to other factors. One approach would be to detrend using the ABS figures since their data did not become freely available until 2005. Using the ABS data a reasonably generous estimate for the growth rate 2001–05 (for non-free data) would be around 44.2%. The effects of applying this growth rate is shown in Table 7 as Trend 1. Comparing the 2005–06 value in Trend 1 with the reported value suggests an elasticity of 1.65.

Table 7: Office of Spatial Data Management Scheduled (free) Datasets Delivered. The figures in brackets are estimates. Trend 1 uses a growth rate of 44.2%

Year	Scheduled Dataset Units Delivered	Trend 1
2000–01	(75,310)	–
2001–02	75,310	75,310
2002–03	83,049	108,597
2003–04	52,565	156,597
2004–05	219,821	225,813
2005–06	862,530	325,622

In order to supplement this direct evidence we also look at estimates coming from the area of telecommunications. Many analogies can be drawn between the information and telecommunications sectors making them suitable for comparison. Both are related to innovation and new technology. Both serve as inputs into other activities and both display spillover (multiplier) effects. Telecommunications is also a route through which information can be distributed and hence they are intrinsically related. The internet for example offers access to a wide range of information. Part of the demand for access to the internet will therefore reflect the demand for this information, and so the elasticities in each sector can be compared.

Hausman et al. (1997) finds a price elasticity of 1.61 and 0.51 for the introduction voice messaging and mobile phones respectively in the United States. Goolsbee (2006) finds an average price elasticity of demand for broadband of

terms of the Policy on Spatial Data Access and Pricing ('the Policy') are listed on the Schedule'. (www.osdm.gov.au/schedule/schedule_search.jsp). This policy states that 'Fundamental spatial data will be provided ... at no more than the marginal cost of transfer'. (www.osdm.gov.au/policy/accessPricing.html)

2.75 at an average price of \$40 per month for a range of metropolitan areas in the US. Goolsbee and Klenow (2006) takes into account the opportunity cost of ones time to deduce the value of using the internet and so estimates a price elasticity of 1.6. Kridel et al. (2002) find a price elasticity of broadband of about 1.8 at \$49.95 a month. Hackl and Westlund (1996) finds a range of price elasticities of demand for international telecommunications in Sweden from 0.09 to 1.25.

To sum up, as we have just seen direct evidence on the price elasticity of information is relatively limited. Estimates often are based on large changes in prices which result in a large range of elasticities. Furthermore, the elasticity will vary depending upon the product under consideration. Thus we offer three basic ranges for the elasticity of demand for PSI which can then used as a basic for classification and discussion. The ranges are:⁴⁷

- 0–0.5 (midpoint: 0.25)
- 0.5–1.5 (midpoint: 1.0)
- 1.5–2.5 (midpoint: 2.0).

While true that the evidence is currently limited and often displays quite a range it is it is noteworthy that the elasticities from the direct and indirect evidence discussed above are generally quite high (i.e. greater than 1). Thus, at least with our present state of knowledge, it would appear that the medium or high range would be the most appropriate for the majority of PSI products.

3.3.3 The Multiplier

The theoretical analysis in Section 3 provided some reasonable a priori grounds for believing that the ‘multiplier’ could be significant. However, it would obviously be important to have empirical evidence for the significance and magnitude of the ‘multiplier’. Unfortunately, there is, at present, very little such evidence available. This is perhaps not surprising given the difficulties to be faced and the general lack of the detailed time-series firm-level data which would be required. However there are some suggestive individual items as well as a body of more ‘anecdotal’ evidence that can be drawn upon.⁴⁸

Weiss (2004) argues that marginal cost access to weather data in the US was a large factor in the development of the multi-billion dollar weather derivatives industry (and that its limited availability has retarded developments in the EU).

47 These ranges should be interpreted as reasonably short-run elasticities. Over the long term elasticities are likely to be higher as new uses and applications for data are found.

48 There is, of course a significant literature on spillovers in R&D, particularly from public to private R&D. For example Jaffe (1989) and Mansfield (1995) both provide evidence of large spillover effects in this area.

An analogous argument for general weather services is made in a recent paper by Richard Pettifer, general secretary of PRIMET.⁴⁹ It argues, that particularly by comparison with the US, the EU weather marketplace is seriously underdeveloped. It goes on to argue that much of the potential, but unrealised value, lies in the ‘small unit value sector of the market place which is extremely price sensitive’. Furthermore, and of more relevance to this subsection, realising the potential value of those markets would involve the development of new products and services based on cheaper access to the data collected by national meteorological services.⁵⁰

Turning to geographic data, again hard data is sparse. Returning to Australia, the Spatial Information Industry Action Agenda (2001) presents evidence that reducing the price of access to geographic information had a significant impact on use and, more importantly, re-use: ‘The most important impact has been the dramatic increase in the volume of data sold. In Victoria, the number of licences or “seats” has increased from around ten before the price reductions to about 600. In Queensland, over 75 licences to distribute and value-add to the data have been issued, whereas under the previous arrangements no whole-of-state sales were made at the then commercial rate’. Meanwhile, *Bedrijvenplatform* (2000), looking at the Netherlands suggested that a substantial portion of the benefits from cheaper geodata would arise from the development of new products and services. In the UK, the Ordnance Survey themselves commissioned Oxera in 1999 to estimate the value of the economic infrastructure ‘built on’ OS data.⁵¹ The resulting report gave an estimate that around £79–136 Billion of Gross Value Added came from activities for which the Ordnance Survey’s geographic information was a primary input. Of course this figure does not tell one much directly about the mul-

49 Towards a Stronger European Market in Applied Meteorology. PRIMET is the association of Private Meteorological Services. Obviously, their particular interest in this area should be taken into account when considering the arguments made in the document.

50 Specifically, according to the document: ‘[T]his potential market [the small unit value, high potential demand] is not reached by the large government owned players because their high fixed costs and politically sponsored operating constraints prevent them from delivering the end user price and flexibility this market demands. It is not fully penetrated by the small, private sector companies largely because the exploitation of the monopoly supply position of the government owned players in respect of the raw material necessary to permit the development of suitable products at appropriate market prices. The data are subject to wholesale pricing that is too high and in some cases there is a failure to supply the data in a timely fashion (or at all), while re-use license terms can render it impossible fully to exploit the non rival nature of the data.’

51 See www.ordnancesurvey.co.uk/oswebsite/aboutus/reports/oxera/index.html.

tiplier since the fact that many businesses use (or even depend) on OS data does not itself indicate how large the spillovers are or how much innovation is occurring. Nevertheless the report is indicative of the fact that geographic information is widely used, particularly as an input into intermediate products and services, which in turn suggest the multiplier could be quite significant.⁵²

Finally, analogies can also be drawn with the spillovers in other sectors. The Power of Information review (Mayo and Steinberg, 2007) itself provided several examples. For example, in medical studies such as Rodgers and Chen (2005) and Ziebland (2004) on breast cancer and Hellinger (2002) on HIV, it was found that access to medical information on the internet allowed users to cope better with a resulting reduction, in some cases, in treatment costs. On a different tack, Hampton (2007) finds that members of ‘wired’ neighbourhoods are more likely to know each other and Lomax (2005) finds that providing clear information with medication can improve patient adherence to medical advice by 16–33%. One could argue that similar spillover would be present for some of the products considered below. For example, easier access to DVLA data could enable more and better HPI checks, leading to a greater return of stolen vehicles and a reduction in theft. Similarly, the Land Registry’s data on property boundaries where better access could make it easier for planners of construction projects to contact those owning neighbouring land.⁵³

Turning this diverse, and predominantly anecdotal evidence into an exact estimate for the ‘multiplier’ is clearly impossible. Furthermore, the multiplier will vary across products (just as the elasticity will). Thus, as with the elasticity, we proceed by using three basic ranges. Recalling that the multiplier has a lower bound of 1 corresponding to no multiplier effect on welfare, a suitable set would be:

-
- 52 The argument that there are large potential gains from increased access to and re-use of PSI can be found in the PIRA report prepare for the European Commission back in 2000 (PIRA, 2000) – with a similar set of points made in OECD, Working Party on the Information Economy (Directorate for Science Technology and Industry) (2006). As with most material the contentions are based more upon analogy with the United States, and a general consideration of the market, than any ‘hard’ data – not surprising given how difficult ‘hard’ data would be to obtain.
- 53 One could multiply these examples of ‘potential’ applications almost indefinitely. Easier access to current and historical weather data might help those researching climate change. Better access to geographic information would enable greater citizen understanding and participation in the planning at the local, regional and national level. Increased freedom of re-use would greatly multiply the potential for specific groups, whether those with disabilities such as the blind or with particular interests such as walkers, to add value to basic geographic data whether via annotation or integration with other sources of data.

- 1
- 1–3 (midpoint: 2.0)
- 3–9 (midpoint: 6.0).

Given the great uncertainty about the exact value for the multiplier any assignment for a particular product will necessarily be substantially speculative. Thus, when performing welfare calculations, it will be important for robustness to check all results using a multiplier of one (i.e. no effect). This way, while the multiplier is incorporated into the analysis one can also be sure that it is not ‘driving the results’.

3.4 SUMMARY AND CONCLUSION

As should be clear from the preceding discussion, while our estimate for the distributional weight θ is fairly good, our estimates of the other major parameters are highly uncertain. However, recall from equation (1), that a MC pricing regime is equal to or superior to AC if and only if:

$$\frac{\lambda\varepsilon}{2} \geq \frac{1-\theta}{\theta}(1-g)$$

Substituting $\theta = 0.802$ and multiplying both sides by 2 gives:

$$\lambda\varepsilon \geq \frac{1-g}{2}$$

Assuming the proportion of government usage is ≈ 0 (the most pessimistic scenario for the marginal cost regime) then gives that MC pricing is superior to AC pricing if:

$$\lambda\varepsilon \geq \frac{1}{2}$$

3.4.1 Charging for Use

Thus, deciding on the charging regime for a given piece of PSI reduces to deciding whether the product of the multiplier and the elasticity is greater than a half. Since the multiplier, λ , is always greater than or equal to 1, an elasticity above a half is sufficient to imply that marginal cost pricing is preferable to average cost

pricing.⁵⁴ The full sets of outcomes as a function of the three categories (low, medium, high) for the multiplier and the elasticity are shown in Table 8.

The evidence presented previously suggest that for most examples of (digital, upstream) public sector information the medium or high range for the elasticity would be the most appropriate. Thus, for these kinds of public sector information *marginal cost pricing for users is the preferable option*.

Table 8: Preferred user charging regimes for different parameter values. AC (MC) indicates that average cost (marginal cost) pricing is preferable throughout the range. AC/MC indicates that average cost and marginal cost pricing is preferable, but in different parts of the range (the figure in brackets indicates what is preferable at the mid-points of both ranges.)

		λ		
		1	1–3	3–9
$3^{\ast\epsilon}$	0.0–0.5	AC	AC/MC (AC)	AC/MC (MC)
	0.5–1.5	MC	MC	MC
	1.5–2.5	MC	MC	MC

3.4.2 Charging for Updates

So far in our discussion of funding policies we have large ignored the possibility of ‘updater’ or ‘write’ funding, that is charging those who make updates to the information set. Though in some cases there are no ‘updaters’ to charge in other cases, perhaps the majority, there clearly are – in fact some PSIH’s primary function is ‘registration’.⁵⁵

Importantly all of our theoretical analysis developed for normal information ‘users’ can also be applied to the case of ‘updates’. That is, just as for ‘users’, we can compare charging ‘updaters’ a price equal to the marginal cost of their activities or a price equal to average cost (that is sufficient to cover fixed costs as

54 Though, as discussed previously, we are likely to be dealing with large changes in price and demand. In this case we might want to be cautious, particularly given the underlying linearity assumption, and require a somewhat higher elasticity and/or multiplier before being certain that marginal cost were preferable.

55 For example, PSIHs dealing with property, vehicle and company ownership. Non-registration examples are perhaps more interesting here because less obvious. One important example relates to geospatial datasets. Today, many of the changes which occur to such datasets are likely to be anthropogenic, arising from activities such as construction, road-building etc. As such, it would be possible to levy charges upon those carrying out the activities leading to changes in a geospatial dataset (and such changes are often already being logged via some form of planning process).

well). Since the analysis is essentially identical all we need to do is replace the elasticity of demand with the elasticity of registration/updates and the multiplier for use with a ‘multiplier’ for updates.⁵⁶

This is instructive because the parameters for ‘updates’ are likely to differ substantially from those for ‘use’. In particular, for ‘updates’ there are no systematic distortions of the willingness-to-pay. As such multiplier effect are likely to negligible ($\lambda = 1$). Furthermore, the elasticity of ‘demand’ for updates is likely to be (very) low: most such updates occur as a very small, but legally required part, of some larger activity – such as buying a house, creating and running a limited company, etc. Thus, contrary to the situation on the ‘user’ side, charges for ‘updates’ above marginal cost may well be an attractive option, and preferable to funding a PSIH’s fixed costs out of general government revenues.

4 CONCLUSION

This paper has provided an overview of the economics of public sector information with particular attention to the regulatory structure and funding model under which public sector information should be collected, maintained and provided. The focus was on public sector information that was *digital, non-personal and upstream*.

Funding for public sector information can come from three basic sources: government, ‘updaters’ (those who update or register information) and ‘users’ (those who want to access and use it). Policymakers control the funding model by setting charges to external groups (‘updaters’ or ‘users’) and committing to make up any shortfall (or receive any surplus) that results. Much of the debate focuses on whether ‘users’ should pay charges sufficient to cover most costs (average cost pricing) or whether they should be given marginal cost access – which equates to free when the information is digital. However, this should not lead us to neglect the third source of funding via charges for ‘updates’.

56 In fact we need to a little bit more: for ‘updates’ we cannot take marginal cost as zero

$$\lambda \varepsilon \geq \frac{\Delta p}{2p}$$

and hence the formula would become: $\frac{\Delta p}{2p}$ where Δp is the reduction in price when going from average cost pricing (p) to marginal cost pricing. We might also want to perform a more complete two-sided analysis. This would involve taking account of the impact of each side on the other – i.e. the impact of more ‘updates’ on the demand of ‘users’ and of an increase in ‘users’ on the demand for ‘updates’. However, for most public sector information it is reasonable to assume these effects are fairly negligible (‘updaters’ especially care little about ‘users’ – though an important exception is provided by the case of harbours which often need to be properly charted to be usable by marine vessels).

Policymakers must also to concern themselves with the regulatory structure in which public sector information holders operate. The need to provide government funding can raise major commitment questions while the fact that many public sector information holders are the sole source of the information they supply raise serious competition and efficiency issues.

Having an adequate structure in place is essential for a public sector information holder's performance – be that in terms of efficiency, information quality etc. Furthermore, such a structure is important under all funding options – and this structure should (and can) be chosen independently of that funding option. Thus, getting this right should be one of the first items on the agenda of any policymaker concerned with the provision of public sector information.

Regulation should be transparent, independent and empowered. For every public sector information holder there should be a single, clear, source of regulatory authority and responsibility, and this 'regulator' should be largely independent of government. Policymakers around the world have had substantial experience in recent years with designing these kinds of regulatory systems and this is, therefore, not an issue that should be especially difficult to address.

Turning to the question of funding, there is a general proposition that public sector goods and services should be offered at efficient prices, unless there are compelling reasons to depart from efficiency. In the absence of beneficial (or harmful) spillovers, the efficient price is marginal cost (with supply adapted such that the short and long-run marginal costs are equal). One reason for departing from efficient pricing is that the marginal cost is below the average cost, and that the benefits of a hard budget constraint outweigh the distortionary costs of raising the revenue to make up the short-fall, not from general taxation, but from raising the price of the products supplied.

When it comes to charging 'users' of public sector information the case for pricing at marginal cost or below is very strong for a number of complementary reasons (note that, for most digital data, marginal cost will be approximately zero). First, the distortionary costs of average rather than marginal cost pricing are likely to be high because: a) the mark-up to cover fixed costs is high, as marginal costs are such a low fraction of average costs; b) the demand for digital data as with other information services is likely to be high and growing; c) there are likely to be large beneficial spillovers in inducing users to create new products and services based on the information. Second, the case for hard budget constraints to ensure efficient provision and induce innovative product development is weak for public enterprises not subject to regulation and providing monopoly services without fear of competition. It would be far better to address issues of incentives, regulation and commitment explicitly rather than indirectly through budget constraints. Finally, for several services, the government is already providing effectively a large contribution to fixed costs, without allowing the public to enjoy the benefits of efficient pricing.

By contrast, it may well be good policy to charge ‘updaters’ of public sector information prices above marginal costs, using the funds thereby obtained to cover (some portion) of the fixed costs of maintenance and collection. This is in accordance with good Ramsey pricing principles that if distortionary mark-ups are necessary to cover or contribute to fixed costs, they should be higher for inelastically demanded goods and lower for elastically demanded ones (in simple cases, the mark-up divided by the price should be inversely proportional to the elasticity of demand).

To conclude: *most upstream, digital public sector information is best funded out of a combination of ‘updater’ fees and direct government contributions with users permitted free and open access. Appropriately managed and regulated this model offers major societal benefits from increased provision and access to information-based services while imposing a very limited funding burden upon government.*

APPENDIX

5 THE DEMAND CURVE AND SOCIAL WELFARE

5.1 INTERMEDIATE FIRMS

Consider, as an example, the case where a PSIH sells to a downstream firm which is a monopolist in its own market. In that case, with royalty-based pricing, one would have a classic case of ‘Cournot complements’ and attendant double marginalisation, and the demand curve seen by the PSIH would under-represent actual demand and welfare changes.⁵⁷

A similar, but different, effect arises if downstream firms have fixed costs as a result of the Dupuit triangle.⁵⁸ Imagine there are a large number of downstream firms each demanding one unit of the information but with different fixed costs. The PSIH’s demand curve then arises from aggregating across all these downstream firms. Pick a point on the PSIHs demand curve, p , q say, and consider an increase of δp in the price charged resulting in some reduction δq in purchases.⁵⁹

57 Note that this effect still occurs if the downstream market is an oligopoly rather than a monopoly though the degree of double-marginalisation will decrease as the level of competition increases.

58 This effect occurs whether the tariff used by a PSIH is a royalty or a fixed fee – unlike the case of ‘Cournot complements’.

59 Since only one unit of the product is demanded here this is necessarily a fixed fee.

This reduction in demand corresponds to some downstream firms ceasing to purchase (and hence ceasing production). Consider one of these firms and let initial revenue be R and C their total costs (excluding the payment for data). Then one must have $R - C \approx p$ (since $R - C < p + \delta p$ and $R - C \geq p$). What about the surplus generated by this firm? Its producer surplus is zero ($R - C - p = 0$) but consumer surplus, denoted CS , is almost certainly not zero. Thus, from the point of view of society current total surplus produced by this firm is $p + CS$. However using the demand curve of the PSIH all that would be recorded is the p coming from the payment for data.⁶⁰

5.2 DYNAMICS AND INNOVATION

Lower prices for information today, by increasing access and usage, are likely to stimulate the rate of innovation both downstream and in related (especially complementary) markets. For example, cheaper geodata may lead to more rapid improvement in the quality of the software and hardware components of Geographical Information Systems (GIS). Or, as Weiss (2004) argued, marginal cost access to weather data in the US was a large factor in the development of the multi-billion dollar weather derivatives industry.

It is quite possible for such effects on welfare to be large, much larger in fact than those arising from purely static considerations related to the underlying product's demand curve.⁶¹ Furthermore this may be true even if the current costs of access are relatively low – at least relative to the potential benefits. This is somewhat surprising since normally one would imagine that the cost of a particular piece of information should place a (rough) upper limit on the value of the innovations which it enables.⁶²

However this argument can easily be extended to the more general case where demand is variable and the PSIH sets a nonlinear tariff.

- 60 This, of course is in the extreme case where the firms who no longer purchase simply cease operation. However the basic point still holds in the more realistic case where a rise in the price of the PSIH's product causes them to substitute it with another (necessarily inferior) input.
- 61 Of course, in doing such a calculation, one would need to be cautious about how one allocated these 'spillover' benefits. Just because the data provided by a PSIH is used in (or is even central to) the activities of a particular firm does not mean one can allocate the entire surplus generated to the availability of that data.
- 62 To give a concrete illustration, suppose a particular set of geodata costs £1000 and there is a potential innovator who has an idea for a new product based on that geodata worth £ X . If $X > 1000$ then the innovator should be willing to pay for access to the geodata. This suggests that only innovations worth less than £1000 are lost

However, there are a variety reasons why this basic logic fails. The simplest example is to consider a chain of cumulative innovations in which an innovator at each stage can only extract some fraction r of the total surplus generated by the subsequent innovator. In this case for a chain of length N the initial innovator only receives r^N of the actual surplus generated (and so conversely an innovator with a willingness to pay of only X for a piece of data may be generating a surplus of X/r^N).

Another possibility is that the innovation effort is distributed across many different firms or individuals ('componentised' innovation – as an explicit example one could think of an open-source project working to produce GIS software). In this case if each agent needs access to the underlying data supplied by the PSIH in order to contribute to the project the total costs may become so high as to be prohibitive.⁶³ Other more complex examples can be found in the cumulative innovation literature – see e.g. Bessen and Hunt (2007), Pollock (2008).

6 DERIVING THE ELASTICITY OF DEMAND

The formal definition of price elasticity of demand is given in the expression below where p is the price of data, q is output and where δ represents an infinitesimal increase in the variables:⁶⁴

$$\varepsilon = - \frac{(\delta q/q)}{(\delta p/p)}$$

Intuitively one can think of the price elasticity of demand as the percentage increase in demand for PSIH data for a one percentage point decrease in price. Similarly, a change from average cost to marginal cost pricing (or vice-versa) al-

when the price is at this level.

- 63 Suppose the innovation is worth V and the cost of data is X and there are N participants. If these N participants were all in a single firm which could obtain a single development license the cost is X , willingness to pay is V and the project is undertaken if $V \geq X$. However if the participants are distributed and must all buy their own license then the willingness to pay of any individual would be only V/N and the project is only undertaken if $NX \leq V$.
- 64 Note that usually there would be no negative sign at the front here. However, for convenience, and to match with the definition used in the theory subsection above, the elasticity of demand has been defined so as to (normally) be positive rather than negative.

allows one to elicit the elasticity of demand. However as the price changes can be quite substantial, the elasticity will depend upon whether one uses the old price and output pair, p_0, q_0 , or the new price and output pair, p_1, q_1 . This is best illustrated with an example, say where a price rise results in revenue increasing by 40% and output decreasing by 40%. Let R_0 and R_1 be old and new revenues respectively. The relation between old and new revenues and old and new prices can be expressed as:

$$R_1 = \frac{7}{5} R_0 \quad (2)$$

$$q_1 = \frac{3}{5} q_0 \quad (3)$$

Now assume that the demand curve is linear. If one defines the elasticity using the old price output pair then:

$$\varepsilon_0 = - \frac{(q_1 - q_0/q_0)}{(p_1 - p_0/p_0)} \quad (4)$$

$$R_1 = p_1 q_1 = \frac{7}{5} p_1 q_1 = R_0 \quad (5)$$

Substituting (3) into the (5) gives:

$$p_1 = \frac{7}{3} p_0 \quad (6)$$

Similarly substituting (6) into (4) one finds that $\varepsilon_0 = - - 3/10 = 0.3$. However if one defines the elasticity using the new price output pair then:

$$\varepsilon_1 = - \frac{(q_1 - q_0/q_1)}{(p_1 - p_0/p_1)} \quad (7)$$

Substituting (6) into (7) one finds that $\varepsilon_1 = - - 7/6 = 1.17$.

For a linear demand curve the high price, low output pair generates a sig-

nificantly higher elasticity. Note also that the demand curve may not be linear. Demand may be more inelastic at higher prices, where there are a few large businesses who simply have to have the data and so are willing to pay a very high price. However the demand may also be particularly elastic lower down the demand curve, where a substantial amount of experimentation with the data may take place. Both these effects would reduce the effect on elasticity estimates with different price, output pairs. Nonetheless, wherever there are substantial price changes, there will also be a significant range in elasticity estimates using the same underlying data. In such cases it may be more appropriate to use the mid-point as opposed to either the upper or lower bounds.

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CHAPTER FOUR

OPEN ACCESS AND PUBLIC SECTOR INFORMATION: POL- ICY DEVELOPMENTS IN AUSTRALIA AND KEY JURIS-

DICTIONS

Governments generate a vast and important flow of information and content which is produced by their employees and contractors, or by other organisations that receive government funding, across a very broad range of scientific, social, cultural and economic activity. The term 'public sector information' (PSI) is used here in a broad sense to include information and data produced by the public sector as well as materials that result from publicly funded cultural, educational and scientific activities. It can include policy documents and reports of government departments, public registers, legislation and regulations, meteorological information, scientific research databases, statistical compilations and datasets, maps and geospatial information¹ and numerous other data and information products produced by government for public purposes.

The importance of ensuring that such information flows to those who want access to it in order to use and re-use it is increasingly recognised. The value of PSI derives from its use. A great deal of the information and content generated by governments and publicly funded researchers is of value and relevance to the broader community. Properly used, as well as contributing to social and economic development, advancing education, research and innovation, it enhances public health and safety, creates opportunities for engagement between government and citizens, fosters transparency of governance and promotes democratic

1 The terms 'spatial information' and 'geospatial information' are used in the same sense as the definition in the Office of Spatial Data Management's Spatial Data Access and Pricing Policy: 'Spatial data is information about the location and attributes of features that are on, above or beneath the surface of the earth. In other words, it is data that can be mapped. The terms 'land information', 'geographic information' and 'geospatial data' are also used to describe spatial data'. See Commonwealth Interdepartmental Committee on Spatial Data Access and Pricing, A Proposal for a Commonwealth Spatial Data Access and Pricing Policy (June 2001) p. 7, available at www.osdm.gov.au/OSDM/Policies+and+Guidelines/Spatial+Data+Access+and+Pricing/default.aspx. accessed 14 September 2008.

ideals. It is an essential foundation of an informed, participatory society and provides a foundation for evidence-based policy and decision-making, for example, in the planning and delivery of health and social welfare programs. The ability of the global community to address pressing challenges in the environmental, economic, health, cultural, and other fields is dependent on realising the full potential of this information and data, which demands improved levels of access and clearer re-use rights.

The value of PSI increases when restrictions on access and re-use are removed and it is made available in common digital formats downloadable from internet websites.² From the emergence of the World Wide Web in the early 1990s, the Australian government embraced the internet as a medium for communicating with citizens, civil society and business. Government agencies quickly grasped the advantages of email and the internet for disseminating information both within the public sector as well as from government to citizens and other stakeholders. Advances in information and communication technologies – greatly increased computing power and storage capacity, grid and cloud computing, high speed broadband networks, the collaborative web, simulation and virtual worlds – have brought about a revolution.³ These developments, which have fundamentally changed how information (especially information in digital form) is generated, shared, distributed and used, have immediate relevance for governments and public sector entities. For the public sector, the new technologies have brought about changes not only in the volume and kind of information that is generated and how it is produced, but also in how – and by whom – it is used.

While the importance of ensuring that government information flows to those who want or need to access and use it is increasingly acknowledged, it is also clear that policies to bring this about are unlikely to be achieved with simple ‘strokes of the pen’. If governments are to ensure that PSI can be ac-

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- 2 See, for example the Data.gov website established by the US federal government. For further discussion, see Ed Felten, David Robinson, Harlan Yu and Bill Zeller, ‘Government Data and the Invisible Hand’, (2009) 11: 160, *Yale Journal of Law and Technology*, available at www.yjolt.org/11/fall/robinson-160. This paper was referred to by the UK Power of Information Taskforce in its final report published in March 2009, see poit.cabinetoffice.gov.uk/poit/wp-content/uploads/2009/03/poit-report-final-doc.doc.
 - 3 See the Submission of the Intellectual Property: Knowledge, Culture and Economy (IP: KCE) Research Program, Queensland University of Technology (QUT) to the Department of Broadband, Communications and the Digital Economy’s *Digital Economy Future Directions* consultation paper, prepared by Brian Fitzgerald, Anne Fitzgerald, Jessica Coates and Kylie Pappalardo, 4 March 2009, p. 2, available at www.dbcde.gov.au/digital_economy/digital_economy_consultation/submissions. (under ‘Queensland University of Technology QUT Law Faculty’) at 10 June 2009.

cessed, used and re-used, they need to develop an integrated and comprehensive information policy framework that supports access and re-use among a distributed, online network of information suppliers and users. An extensive review of the materials published in Australia and key overseas jurisdictions⁴ clearly shows that the emerging international consensus on the social and economic benefits flowing from access to PSI and publicly funded research data is reflected in policies and practices developed at national, regional and international levels. In the United States and Europe, which have taken the lead in developing national information strategies, attention in recent years has been focused on the introduction of administrative procedures and technologies designed to ensure that access policies will be effectively implemented. In the United States and the United Kingdom, the role of coordinating agencies⁵ has been strengthened and web 2.0 technologies have been used to improve access to PSI and establish new channels of interactive communication between government and citizens.⁶ At the international level, the cause of promoting access to PSI and publicly

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- 4 The review of the literature covered Australia (federal, State and Territory levels), New Zealand, the United States, the European Union (with a particular focus on the United Kingdom), Canada, international organisations and inter-governmental organisations. The materials identified in the review are in a range of formats and come from a wide variety of sources. As well as materials that have been formally published in print form, such as books, journal articles and official reports of governments and organisations, the review includes: web-published versions of official reports, books, academic journal articles, articles in professional newsletters, etc; newspaper articles published in online versions of newspapers; and materials published on the internet web, e.g. blogs. This research was carried out from 2007 to 2009 by a team of researchers from the QUT Faculty of Law and the Queensland Government, led by Professor Anne Fitzgerald (QUT). A report, *A review of the literature on the legal aspects of open access policy, practices and licensing in Australia and selected jurisdictions*, (June 2009) is available at: Compiled Literature Review (via Queensland University of Technology (QUT) ePrints) - www.aupsi.org/publications/reports.jsp. The report has been produced as part of the Apollo project within the work program of project 3.05, 'Enabling Real-Time Information Access in Both Urban and Regional Areas', established within the Co-operative Research Centre for Spatial Information (CRCSI).
- 5 In the United States, the lead agency responsible for the federal government's information strategy is the Office of Management and Budget (OMB) (see www.whitehouse.gov/omb/), while in the United Kingdom the lead agency is the Office of Public Sector Information (see www.opsi.gov.uk).
- 6 See, for example, the data.gov site established in 2009 by the United States government as part of the Obama administration's Open Government initiative and the work of the United Kingdom's Power of Information Task Force (see powerofinformation.wordpress.com/).

funded research outputs has been advanced by inter-governmental and international organisations, bodies within the UN system (such as the United Nations Educational, Scientific and Cultural Organisation [UNESCO]), the Organisation for Economic Co-operation and Development (OECD), and the International Science Union's Committee on Data for Science and Technology (CODATA).

AUSTRALIA

Australia does not yet have a national policy framework addressing access to and use of PSI, an important point of difference with the United States, the United Kingdom and European countries. The situation with respect to PSI access and use has been fragmented and lacking a coherent policy foundation, whether viewed in terms of interactions within or among the different levels of government at the local, state/territory and federal levels, or between the government, academic and private sectors. Some important practices and initiatives can be identified but they are only loosely connected, deal with different aspects of access and re-use and lack any formal coordination.

However, this situation is beginning to change, with the need for a comprehensive national information policy framework to be developed having been recognised in the Review of the National Innovation System (NIS) in 2008⁷ and acknowledged in ministerial addresses in 2008 and 2009. The *Venturous Australia – Building Strength in Innovation* report produced by the NIS review panel⁸ recommended that a National Information Strategy should be established, to opti-

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- 7 The Review of the National Innovation System was commissioned by Senator Kim Carr, Minister for Innovation, Industry, Science and Research on 22 January 2008. The review panel, chaired by Dr Terry Cutler, was asked to identify gaps and weaknesses in Australia's innovation system and recommend ways to correct them. The panel considered evidence of both market failure — where commercial incentives are insufficient to induce socially and economically desirable behaviour; and system failure — where the scope for innovation is limited by policy and institutional shortcomings. The panel released its final report (a 'Green Paper'), *Venturous Australia - Building Strength in Innovation*, on 29 August 2008. See generally www.innovation.gov.au/innovationreview/Pages/home.aspx.
 - 8 Cutler & Company, *Venturous Australia - Building Strength in Innovation*, report on the Review of the National Innovation System, for the Australian Government Department of Innovation, Industry, Science and Research, 29 August 2008. Note especially Recommendations 7.7, 7.8 and 7.14; available at www.innovation.gov.au/innovationreview/Pages/home.aspx. accessed 11 June 2009.

mise the flow of information in the Australian economy.⁹ It further recommended that, ‘to the maximum extent practicable, information, research and content funded by Australian governments should be made freely available over the internet as part of the global public commons’,¹⁰ that ‘Australian governments should adopt international standards of open publishing as far as possible’¹¹ and that PSI ‘should be released under a creative commons licence’.¹² In another important development, the *Digital Economy, Future Directions* consultation paper released by the Department of Broadband, Communications and the Digital Economy in December 2008 raised ‘Open Access to Public Sector Information’¹³ as a key issue for discussion, observing that there is increasing support for ‘the notion that the Australian Government should provide access to public sector information on terms that clearly permit the use and re-use of that information’.¹⁴ The final re-

9 *ibid.* In Recommendation 7.7 which states:

Australia should establish a National Information Strategy to optimise the flow of information in the Australian economy.

The fundamental aim of a National Information Strategy should be to:

- utilise the principles of targeted transparency and the development of auditable standards to maximise the flow of information in private markets about product quality; and
- maximise the flow of government generated information, research, and content for the benefit of users (including private sector resellers of information).

10 Recommendation 7.14 states: ‘To the maximum extent practicable, information, research and content funded by Australian governments – including national collections – should be made freely available over the internet as part of the global public commons. This should be done whilst the Australian Government encourages other countries to reciprocate by making their own contributions to the global digital public commons’.

11 Recommendation 7.8.

12 Recommendation 7.8.

13 See Australian Government, Department of Broadband, Communications and the Digital Economy, *Digital Economy Future Directions: Consultation Paper* (18 December 2008) www.dbcde.gov.au/communications_for_business/Digital_Economy_Development/digital_economy_consultation. accessed 22 May 2009.

14 *ibid.*, p. 3. Responses received by government during this consultation process informed the government’s White Paper, *Powering Ideas: An Innovation Agenda for the 21st Century*, its response to the Venturous Australia Green Paper. See the Submission of the Intellectual Property: Knowledge, Culture and Economy (IP: KCE) Research Program, Queensland University of Technology (QUT) to the Department of Broadband, Communications and the Digital Economy’s *Digital Economy Future Directions* consultation paper, prepared by Brian Fitzgerald, Anne Fitzgerald, Jessica Coates and Kylie Pappalardo, 4 March 2009, p. 2, available at www.dbcde.gov.au/digital_economy/digital_economy_consultation/submissions. (under ‘Queensland University of

port, *Australia's Digital Economy: Future Directions* expressly recognised 'the digital economy and innovation benefits generated by open access to PSI, subject to issues such as privacy, national security and confidentiality'.¹⁵ Enabling open access to PSI is seen not only as a way of promoting public sector innovation but also as a means by which government can facilitate private sector innovation.¹⁶

The federal government's response to the Venturous Australia recommendations, contained in the White Paper, *Powering Ideas: An Innovation Agenda for the 21st Century*,¹⁷ released as part of the May 2009 Budget process, is generally supportive of its recommendations on access to PSI. It accepted the need to build on initiatives already commenced by agencies including the Australian Bureau of Statistics, the Bureau of Meteorology and Geoscience Australia and 'to develop a more coordinated approach to Commonwealth information management, innovation and engagement'.¹⁸ A similar approach was taken by the Victorian Parliament's Economic Development and Infrastructure Committee (EDIC) on the *Inquiry into Improving Access to Victorian Public Sector Information and Data*, tabled in parliament on 24 June 2009.¹⁹ The 46 recommendations of the

Technology QUT Law Faculty) at 10 June 2009.

15 *Australia's Digital Economy: Future Directions*, Department of Broadband, Communications and the Digital Economy, July 2009 at p. 12, available at www.dbcde.gov.au/?a=117295.

16 *ibid.* p. 11.

17 *Powering Ideas: An Innovation Agenda for the 21st Century*, Department of Innovation, Industry, Science and Research, 12 May 2009, Chapter 6 (Public Sector Innovation), available at www.innovation.gov.au/innovationreview/Documents/PoweringIdeas_fullreport.pdf, accessed 14 July 2009.

18 *ibid.* p. 57.

19 Victorian Parliament, Economic Development and Infrastructure Committee, *Inquiry into Improving Access to Victorian Public Sector Information and Data*, 27 June 2009, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/final_report.html. Note in particular submissions by the Australian Bureau of Statistics at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_63_ABS.pdf, Bureau of Meteorology at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_17_Bureau_Meteorology.pdf, QUT Law Faculty at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_38_QUT_Law_Faculty.pdf, Professor A Fitzgerald at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/transcripts/EDIC_080812_A_Fitzgerald.pdf and Dr Terry Cutler at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/transcripts/

Victorian Parliament's EDIC include that the Victorian government should publicly endorse open access as the default position for the management of its PSI,²⁰ develop a whole-of-government information management framework (IMF),²¹ adopt Creative Commons licensing as the default licensing system for the IMF²² and develop specific guidelines for the pricing of PSI, emphasising no or marginal cost provision wherever possible.²³

Speeches by senior federal government ministers in early 2009 expressly supported the introduction of reforms aimed at providing greater access to government information, through improvements to freedom of information ('FOI') regimes and moving from the traditional 'pull' model inherent in FOI laws to a 'push' model in which government proactively releases information in accordance with an established information publication scheme, rather than reactively in response to specific requests. Important speeches signalling the shift in thinking at the federal level were delivered in early 2009 by Senator John Faulkner, (then) Special Minister of State, announcing the overhaul of the federal *Freedom of Information Act* and the creation of the Office of the Information Commissioner²⁴ and Lindsay Tanner MP, Minister for Finance and Deregulation at the CeBIT Conference, discussing how web 2.0 technologies enable 'the nature of the dialogue between Government and the wider community to be completely transformed'.²⁵ To advance work in these areas, in June 2009, the federal government appointed the Government 2.0 Taskforce to work with it to identify policies and frameworks to make PSI more readily accessible and usable and to encourage online engagement between government and citizens.²⁶ The federal

EDIC_300908_Cutler_&_Co.pdf

20 *ibid.* Recommendation 1.

21 *ibid.* Recommendation 2.

22 *ibid.* Recommendation 15.

23 *ibid.* Recommendation 16.

24 *Open and Transparent Government – the Way Forward*, delivered on 24 May 2009, at the Australia's Right To Know Freedom of Speech Conference, Sydney, available at www.smos.gov.au/speeches/2009/sp_20090324.html, accessed 11 June 2009. See also *Powering Ideas: An Innovation Agenda for the 21st Century*, Chapter 6 (Public Sector Innovation) at p. 58, available at www.innovation.gov.au/innovationreview/Pages/home.aspx. (accessed 22 May 2009).

25 Delivered on 13 May 2009 at the e-Government Forum held as part of the CeBIT conference, available at www.financeminister.gov.au/speeches/2009/sp_20090513.html.

26 See gov2.net.au. In July 2009, the Government 2.0 Taskforce released for comments an Issues Paper, *Towards Government 2.0*, available at gov2.net.au/consultation/2009/07/17/towards-government-2-0-an-issues-paper/ (accessed 19 July 2009).

government and several state governments have taken steps to reform the administrative arrangements for access to PSI, through the creation of Information Commissioner positions and the introduction of legal frameworks supporting a 'right to information'.²⁷

Whilst these steps by the federal and state governments are significant, they are very recent developments. For many years until recently, Australia was largely disengaged from the developments in theory and practice evident in the US, EU and international organisations from the mid-1990s. With some notable exceptions,²⁸ until a few years ago there was little evidence of an awareness or appreciation of the steps being taken elsewhere. For reasons which have yet to be fully understood, Australia largely failed to engage with developments in the formulation of policies and principles for access to PSI that took place at the national (UK, US, NZ), regional (EU) and the international levels (UNESCO, OECD) up to around 2005. At the international level in particular, the Australian government appears not to have played a significant role (such as through participation in working groups) formed by a range of international organisations (notably UNESCO, OECD and ICSU/CODATA) to advance the policy framework for access to PSI. (Australia only rejoined CODATA – one of the leading international organisations concerned with science data – in 2008 after membership had lapsed some decades earlier.)

The issue of access to and re-use of government information and data has been considered by various government agencies and in reports commissioned by governments over the last 15 years. The National Library of Australia was one of the first federal government agencies to realise – by the mid-1990s – the potential of the emerging internet to provide enhanced citizen access to government information in digital format.²⁹ The landmark 1994 report, *Commerce in Content*:

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- 27 Queensland is the first state to legislate, enacting the *Right to Information Act* 2009 and the *Information Privacy Act* 2009 and accompanying regulations, which came into force on 1 July 2009, see www.oic.qld.gov.au/legislation and www.rti.qld.gov.au/rti/the_information_commissioner.asp. The Queensland government has also published a *Statement of Right to Information Principles for the Queensland Public Service*, see www.rti.qld.gov.au/downloads/Right%20to%20Information%20Principles.pdf.
- 28 See for example, *Unlocking the Potential: Digital Content Industry Action Agenda, Strategic Industry Leaders Group report to the Australian Government*, November 2005 at www.dbcde.gov.au/__data/assets/pdf_file/0006/37356/06030055_REPORT.pdf (accessed 22 May 2009).
- 29 Tony Barry, *Caught in a Web – Australian Government network policy*, paper presented at AUUG '95 and Asia-Pacific World Wide Web '95 Conference, available at www.csu.edu.au/special/conference/apwww95/papers95/tbarry/tbarry.html (accessed 1 September 2008).

Building Australia's International Future in Interactive Multimedia Markets, commissioned from Cutler & Company by the federal government³⁰ made several recommendations as to how governments, at both federal and state level, could leverage off the cultural and content materials they created, owned or used, so as to accelerate the development of the digital content sector.³¹ The recommendations included providing easy access to culturally significant data in digital form, as well as providing comprehensive access to nationally significant data, and promoting the development of standards for document and image digitalisation and archiving. Contemporaneously, the Australian Science and Technology Council's (ASTC) 1994 report, *The Networked Nation*, proposed that government should stimulate public interest in, and facilitate access to, government information via electronic networks. ASTEC noted the need for a coordinated approach by government and recommended the establishment of a Commonwealth Government Information Services Task Force to provide this coordination, to develop pilot programs, to investigate options for extending community access to networked information, and to develop a directory of government information publicly available over networks. In 2006, the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) in its report, *From Data to Wisdom: Pathways to Successful Data Management for Australian Science*,³² recommended that 'Australia's government, science, research and business communities establish a nationally supported long-term strategic framework for scientific data management, including guiding principles, policies, best practices and infrastructure'³³ and the adoption of 'mechanisms to enable the discovery of, and access to, data and information resources'.³⁴

Opportunities arose on several occasions up to the mid-2000s to examine the question of access to PSI, but they were either not recognised as such or were not

30 The report was commissioned by the Commonwealth Department of Industry, Science and Technology, CSIRO and the Broadband Services Expert Group.

31 Cutler & Company, *Commerce in Content: Building Australia's International Future in Interactive Multimedia Markets*, A report for the Department of Industry Science and Technology, CSIRO, and the Broadband Services Expert Group, 1994, Part 8: The role and contribution of government, available at www.nla.gov.au/misc/cutler/cutler8.html (at 16 July 2008).

32 Prime Minister's Science, Engineering and Innovation Council, Working Group on Data for Science, *From Data to Wisdom: Pathways to Successful Data Management for Australian Science*, (2006) www.dest.gov.au/sectors/science_innovation/publications_resources/profiles/Presentation_Data_for_Science.htm; see also pandora.nla.gov.au/tep/75221.

33 Recommendation 1.

34 Recommendation 6.

acted upon. The Copyright Law Review Committee's review of Crown copyright in 2005–2006, which was established to address concerns about governments' anti-competitive licensing of PSI, provided an opportunity to consider not only the subsistence and exercise of copyright in public sector materials but also to engage with the broader policy issues about access to and re-use of PSI. Unfortunately, the CLRC failed to contextualise its inquiry and recommendations within the framework of international developments and concepts about access to and re-use of government information and data.³⁵ Developments that have occurred in overseas jurisdictions in establishing systems for access to environmental information³⁶ have gone almost entirely unremarked upon in Australia and there is no current discussion of their relevance or significance domestically.

In the absence of a general national or inter-governmental policy, activities in Australia relating to information access and re-use have been largely focused on two key areas: spatial data and publicly funded research outputs (whether in the form of publications or data). Much of the impetus for access to PSI has come from the spatial information industry,³⁷ which has for many years been a pro-

35 A good analysis of the CLRC's inquiry is found in Professor G Greenleaf's submission (no. 504[R]) to the Review of the National Innovation System, at pp. 70–71, available at [www.innovation.gov.au/innovationreview/Documents/504\(R\)-Graham_Greenleaf.pdf](http://www.innovation.gov.au/innovationreview/Documents/504(R)-Graham_Greenleaf.pdf), (accessed 14 July 2009). Professor Greenleaf refers to the CLRC's Crown copyright review as 'anaemic'. He comments: 'The CLRC's terms of reference were extremely broad, and included an explicit requirement for it to consider the rationale for government ownership of copyright material. Despite this, the CLRC does not seem to have seriously considered (or given reasons for rejecting) any of the alternative ways by which more substantial changes could be made to put Crown materials in the public domain. In effect, there has not yet been a comprehensive consideration of how a public sector public domain in Australia could stimulate innovation – quite clearly recognised in the European Union directive - and serve the public interest in other ways. The CLRC's report was a missed opportunity rather than a reason to accept the Crown copyright status quo'.

36 Such as environmental information reporting obligations under the Aarhus Convention (Convention on Access to Information, Public Participation and Decision Making, and Access to Justice in Environmental Matters, Aarhus, Denmark, 25 June 1998) or the EU Directive on access to environmental information European Directive 2003/4/EC on public access to environmental information.

37 Much of the focus of the spatial industry has been on the development of spatial data infrastructures at the national and state levels. See generally S Jacoby, S Smith, L Ting, and I Williamson, 'Developing a Common Spatial Data Infrastructure between State and Local Government—An Australian case study', *International Journal of Geographical Information Science*, 16: 4, pp. 305–22; B Thompson, T Chan, R Slee, P Kinne, A Jahshan, P Woodgate, I Bishop and D McKenzie, 'Virtual Australia: its key elements – know, think, communicate', *In-*

ponent of the view ‘that government held information, and in particular spatial information, will play an absolutely critical role in increasing the innovative capacity of this nation’.³⁸ In fact, the most advanced data access and re-use policy developed in Australia to date – and only one ever intended to apply Australia-wide at the federal level – is the Spatial Data Access and Pricing Policy³⁹ (known as the OSDM Policy) adopted by the Commonwealth government in 2001.

Various initiatives relating to publicly funded research results were developed within the Accessibility Framework for Publicly Funded Research established in 2004 as part of the *Backing Australia’s Ability – Building Our Future through Science and Innovation* package.⁴⁰ The Accessibility Framework was designed to manage research information, outputs and infrastructure in order to enable them to be more readily discovered, accessed and shared. It aims to provide a regulatory environment that both enables and encourages the population of digital repositories in order to provide better access to information.⁴¹ The Open Access to Knowledge (OAK) Law and Legal Framework for e-Research projects established as part of the Research Information Infrastructure Framework

ternational Journal of Digital Earth, 1: 1, January 2008 at pp. 66–87, available at www.informaworld.com/smpp/content~content=a790360558~db=all~order=page. See also K McDougall, *Unlocking The Potential of Spatial Information Through Data Sharing – It’s A Two Way Street*, Queensland Spatial Conference 2008, 17–19 July 2008, Gold Coast; M Warnest, K McDougall, A Rajabifard and I Williamson, *Local and state-based collaboration: the key to unlocking the potential of SDI*, Centre for Spatial Data Infrastructures and Land Administration, Spatial Sciences 2003; and A Rajabifard, A Binns and I Williamson, *Creating an Enabling Platform for the Delivery of Spatial Information*, Proceedings of SSC 2005 Spatial Intelligence, Innovation and Praxis: The national biennial Conference of the Spatial Sciences Institute, September 2005, Melbourne, Spatial Sciences Institute.

38 Submission to the Review of the National Innovation System, submission no. 307, Australian Spatial Consortium, at p. 2, available at www.innovation.gov.au/innovationreview/Documents/307-Australian_Spatial_Consortium.pdf, (accessed 14 July 2009).

39 See Commonwealth Interdepartmental Committee on Spatial Data Access and Pricing, *A Proposal for a Commonwealth Spatial Data Access and Pricing Policy* (June 2001) www.ext.osdm.gov.au/osdm/policy/accessPricing/SDAP.pdf (accessed 22 May 2009) and generally www.osdm.gov.au/OSDM/Policies+and+Guidelines/Spatial+Data+Access+and+Pricing/default.aspx (accessed 22 May 2009).

40 See www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/accessibility_framework/backingaus.innovation.gov.au/ (accessed 24 April 2008). and

41 See www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/accessibility_framework/.

for Australian Higher Education under *Backing Australia's Ability* dealt extensively with the legal issues involved in managing open access publication of research papers and data so as to enable access and re-use.⁴² Several universities (including QUT)⁴³ have introduced open access policies for academic publications and, in December 2006, the two major Australian public research funding bodies – the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC) – announced the introduction of open access guidelines for published papers and data resulting from funded research projects, effective 2008.⁴⁴ Both policies encourage researchers to:

Consider the benefits of depositing their data and any publica-

42 See www.oaklaw.qut.edu.au and www.e-research.law.qut.edu.au/.

43 See eprints.qut.edu.au/. In 2008, QUT amended clause 3.1.5 of its IP policy to ensure open access to scholarly works published by QUT academics – see www.mopp.qut.edu.au/D/D_03_01.jsp#D_03_01.05.mdoc. It states:

‘QUT assigns the right to publish scholarly works to the creator(s) of that work. The assignment is subject to a perpetual, irrevocable, worldwide, royalty-free, non-exclusive licence in favour of QUT to allow QUT to use that work for teaching, research and commercialisation purposes and to reproduce and communicate that work online for non-commercial purposes via QUT’s open access digital repository. If required, QUT will sign documents to more fully record the staff member’s ownership of the right of publication of the copyright in a scholarly work and QUT’s non-exclusive licence to that work.

The version of the scholarly work that QUT can make available via the digital repository may be the published version or the final post-peer review manuscript version. QUT will agree to third party publisher-requested embargoes of 12 months or less (from date of publication by the third party publisher) on the publication of the manuscript via the digital repository’.

Open access requirements have also been adopted by the University of Tasmania (see eprints.utas.edu.au/) and Charles Sturt University (see bilby.unilinc.edu.au:8881/R?func=search&local_base=GEN01-CSU01) and are being considered at Macquarie University (see www.earlham.edu/~peters/fos/2008/07/macquarie-vc-preparing-to-propose-oa.html).

44 Australian Research Council, *Discovery Projects Funding Rules for funding commencing in 2008* www.arc.gov.au/pdf/DP08_FundingRules.pdf; National Health and Medical Research Council, *Project Grants Funding Policy for grants commencing in 2008* www.nhmrc.gov.au/publications/_files/profundingpol.pdf. See also the ARC’s response to the Productivity Council’s draft research report on Public Support for Science and Innovation (2006), recommending that consideration be given to the funding of institutional open access repositories: Australian Research Council, *Response to the Productivity Commission Draft Research Report – Public Support for Science and Innovation (2006)* www.arc.gov.au/pdf/response_PCdraftresearchreport_06.pdf.

tions arising from a research project in an appropriate subject and/or institutional repository [because in order to] maximise the benefits from research, findings need to be disseminated as broadly as possible to allow access by other researchers and the wider community.⁴⁵

At the state and territory level there is a lack of consistency in policies on access to and re-use of government information and data. States and territories have developed their own policies on information access and re-use and, in recent years some have also implemented policies on dealings with public sector intellectual property. There is a broadly held view that since public sector information has been produced through the expenditure of public funds, it should be made available to citizens and businesses.⁴⁶ However, while access is generally supported, there are differences in how this is achieved in practice and in the pricing models applying in the various jurisdictions.

There has been an ongoing tension in Australian governments (federal, state and territory) between, on the one hand, adopting an open access approach and, on the other hand, focusing on cost recovery or generating commercial returns or rents. This dichotomy was remarked upon by KPMG Consulting after comparing geospatial data policies and practices in its 2001 Geospatial Data Policy Study Project Report for GeoConnections Canada:

Surprisingly, if the wording of the overarching national cost recovery policies in the United States and Australia are compared side by side without reference to the application of these policies, the policies seem very much alike ... While the national data pricing policies in the USA and Australia are very similar in terms of the words used in the overarching policies, they are clearly different in both application, apparent intent, and result. The US agencies reporting data income had revenues equal to 2% of their expenses. The Australian agencies had revenues equal to over 30% of expenses. (The average Canadian agency is near the middle with about 13% of costs recovered.)

....

45 Australian Research Council, Discovery Projects Funding Rules for funding commencing in 2008, [1.4.5.1] www.arc.gov.au/pdf/DP08_FundingRules.pdf; National Health and Medical Research Council, Project Grants Funding Policy for grants commencing in 2008, [16.2]. www.nhmrc.gov.au/publications/_files/profunding-pol.pdf.

46 Rob Davies and Mary Rowlett, Report on the ePSINet *Visit to Australia (9–15 May 2004)*, p. 4.

Most of the data the US clients acquire is free (65% of the data), while most of the data acquired by Australian clients are at some form of market or cost recovery (75%). Differences in the two countries' federal cost recovery implementation and copyright legislation drives the disparity ... With generally free and open access to federal public domain data, US users are satisfied and feel major business opportunities result. Australian clients are less satisfied with the current geospatial data environment. Lack of a national geospatial data strategy in Australia and competition by government agencies in geomatic services that are available in the private sector are believed to be detrimental to the industry and economy as a whole.⁴⁷

Gradually, over the last few years, things have begun to change, led by Australian government agencies including Geoscience Australia, the Australian Bureau of Statistics, the Education and Innovation & Industry Departments, the Australian Government Information Management Office (AGIMO) and the Prime Minister's Science, Engineering and Innovation Council (PMSEIC). Acceptance of the importance of developing the policy framework for access to PSI has been growing, while key federal government agencies have made significant changes to their information licensing practices. In November 2005, the Australian Bureau of Statistics (ABS) abandoned the restrictive licensing practices it had previously applied in licensing its datasets, which had involved charging fees for access to data and the restriction or prohibition of commercial downstream use by the licensee and/or others. Since then the ABS has eliminated virtually all charges for data and restrictions on downstream use of their data (that is, both access and re-use), whether commercial or otherwise.⁴⁸ Geoscience Australia offers free downloads of geospatial data from its website, based on the OSDM Policy.⁴⁹ Whilst initiatives such as these are important and provide evidence of a growing

47 KPMG Consulting (Garry Sears), *Geospatial Data Policy Study Project Report – Executive Summary*, prepared for GeoConnections Policy Advisory Node, March 2001, pp. 16–17, available www.geoconnections.org/programsCommittees/proCom_policy/keyDocs/KPMG/KPMG_E.pdf.

48 Siu-Ming Tam, *Informing the Nation – Open Access to Statistical Information in Australia*, available at www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.pdf and the presentation slides can be downloaded at www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.ppt.

49 See www.ga.gov.au/products/servlet/controller?event=DEFINE_PRODUCTS (accessed 22 May 2009).

awareness of the importance of ensuring access to and re-use of PSI, they remain fragmented and separate and involve relatively few government departments and agencies.⁵⁰

One of the most influential projects in Australia in recent years has been the Government Information Licensing Framework Project (GILF Project).⁵¹ It grew out of a project commissioned by the Queensland Spatial Information Council (QSIC) in 2006 to develop a legal framework to support the sharing and re-use of spatial and other information within and across the various levels of government and between government and the private sector. The focus of the GILF project was the development of a licensing model to be applied to PSI, the objective being new standardised information licensing arrangements which could be recommended for use with all kinds of Queensland government information to enable enhanced, on-demand access to PSI.⁵² Importantly, the GILF project did not directly address information policy per se. However, by focusing attention on removing impediments to accessing PSI caused by inadequate or inappropriate licensing practices, its findings and recommendations about the use of Creative Commons licences on PSI directly influenced the reviews of information access policies by the federal government,⁵³ other state governments⁵⁴ and the New

50 Among the most prominent are Geoscience Australia, Australian Bureau of Statistics, the Department of Education (DEWWR), the Department of Innovation, Industry, Science and Research (DIISR) and AGIMO.

51 See the GILF project website at www.gilf.gov.au.

52 Queensland Government, Queensland Spatial Information Council, *Government Information and Open Content Licensing: An access and use strategy (Government Information Licensing Framework Project Stage 2 Report)* (October 2006). The GILF standard licences consist of the Creative Commons licences and a template Restrictive Licence. See www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB6814A25727B0013C7EE (accessed 22 May 2009). See also the GILF website at www.gilf.gov.au for further details, including access to an online interactive licensing tool designed to enable licences to be selected from the GILF standard suite of licences. There are six Creative Commons licences as well as a template Restrictive Licence for PSI which is subject to restrictions such as privacy, confidentiality or statutory constraints.

53 See *Venturous Australia – Building Strength in Innovation*, report by Cutler & Co for the Australian Government Department of Innovation, Industry, Science and Research, September 2008. It recommended (recommendation 7.8) that PSI ‘should be released under a creative commons licence’. Available at www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).

54 The Victorian Parliament, Economic Development and Infrastructure Committee, in its report, *Inquiry into Improving Access to Victorian Public Sector Information and Data*, (27 June 2009), recommended that the Victorian government should adopt Creative Commons licensing as the default licensing system for PSI (recommenda-

Zealand Government.⁵⁵

At the federal government level, the GILF project also served as a catalyst for renewed effort on the development of a national information framework when it was adopted by the Ministerial Online and Communications Council (OCC) in 2007. The need for a coordinated national approach to information access and re-use was acknowledged in the proposal for a National Information Sharing Strategy (NISS) which was approved by Commonwealth, state and territory ministers at the June 2007 meeting of the OCC. The proposal (later renamed the National Government Information Sharing Strategy (NGISS)) and carried forward by the Australian Government Information Management Office (AGIMO), envisaged the development of a standardised approach to information sharing to support the delivery of government services, for use by all portfolio areas at all levels of government.

NEW ZEALAND

By contrast with Australia, New Zealand has developed a comprehensive information strategy at the national level, which encompasses sector-specific strategies for digital content,⁵⁶ e-government⁵⁷ and geospatial information.⁵⁸ Ongoing work has been done on the development of whole-of-government policies and

tion 15); see www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/final_report.html.

- 55 On 1 July 2009, the Ministry for the Environment (Manatū Mō Te Taiao) announced that it was making two important environmental databases - the Land Cover Database (LCD) and Land Environments New Zealand (LENZ) classification - available online, for free and licensed under an unrestricted Creative Commons licence (CC-BY). See Land Information New Zealand in consultation with the State Services Commission and others, *Understanding our Geographic Information Landscape: A New Zealand Geospatial Strategy*, (January 2007) available at www.geospatial.govt.nz/assets/Geospatial-Strategy/nz-geospatial-strategy-2007.pdf.
- 56 National Library of New Zealand, *Creating a Digital New Zealand: New Zealand's Digital Content Strategy*, August 2007, available at www.digitalstrategy.govt.nz/upload/Main%20Sections/Content/NATLIBDigitalContentStrategy.pdf.
- 57 See generally at www.e.govt.nz/about-egovt and New Zealand State Services Commission (2006) *Enabling Transformation: A strategy for e-government 2006*, available at www.e.govt.nz/about-e-govt/strategy/strategy-nov-06.pdf.
- 58 Land Information New Zealand in consultation with the State Services Commission and others, *Understanding our Geographic Information Landscape: A New Zealand Geospatial Strategy*, (January 2007) available at www.geospatial.govt.nz/assets/Geospatial-Strategy/nz-geospatial-strategy-2007.pdf.

practices for PSI since the NZ Cabinet approved the *Policy Framework for New Zealand Government-held Information* in 1997.⁵⁹

The *Policy Framework for New Zealand Government-held Information*, developed by the New Zealand Public Service chief executives and State Services Commission,⁶⁰ adopted the position that government-held information should be made as accessible as possible, with barriers to access removed. It balances the ease of access with security and the need to withhold certain types of information (notably personal information). It enunciated 11 principles which provide general guidance on matters including: availability, coverage, pricing, ownership, stewardship, collection, copyright, preservation, quality, integrity and privacy.

The Digital Strategy⁶¹ was first released in 2005 with the aim of creating a digital future for all New Zealanders, acknowledging that the information accessed through digital technologies can promote innovation, increase productivity and enrich the quality of the lives of New Zealanders. The strategy established the goal of unlocking the nation's 'stock of content and provide all New Zealanders with seamless, easy access to the information that is important to their lives, businesses and cultural identity'.⁶² It saw the unlocking of repositories of information (whether historical or new) as adding to the nation's wealth of knowledge and creating a major new resource for education, cultural development and innovation. A revised version of the Digital Strategy, *Digital Strategy 2.0*,⁶³ released in 2008, contains strong statements about re-use of public sector information, committing government to making public information accessible to everyone in a way that people want it, when they want it. Government is to provide secure personalised interaction between government and individuals, and open up authoritative data sources also while protecting privacy and the security of information.

The New Zealand *Geospatial Strategy*, launched in 2007, is designed to improve knowledge of, and access to, the geospatial assets owned, maintained or used by government.⁶⁴ On 1 July 2009, the Ministry for the Environment (Manatū

59 See *Policy framework for New Zealand Government-held information* website at www.ssc.govt.nz/display/document.asp?DocID=4880 (accessed 11 June 2009).

60 *ibid.*

61 See the *Digital Strategy* website at www.digitalstrategy.govt.nz/.

62 New Zealand Government, *Digital Strategy: Creating Our Digital Future*, May 2005, p. 11, available at www.digitalstrategy.govt.nz/upload/documents/MED11706_Digital%20Strategy.pdf.

63 See generally www.digitalstrategy.govt.nz/Digital-Strategy-2/ and www.digitalstrategy.govt.nz/upload/Documents/Digital%20Strategy%202.0%20FINAL.pdf.

64 Land Information New Zealand in consultation with the State Services Commission and others, *Understanding our Geographic Information Landscape: A New Zealand*

Mō Te Taiao) announced that it was making two important environmental databases – the Land Cover Database (LCD) and Land Environments New Zealand (LENZ) classification – available online, for free and licensed under an unrestricted Creative Commons licence.⁶⁵ Both of these databases are widely used by government agencies in environmental and resource management planning. The new licence enables the public to freely share and distribute environmental data and information without having to seek permission to use and re-use the data.⁶⁶ In the media statement the department stated that ‘improving access to the Government’s spatial information is a goal of the New Zealand *Geospatial Strategy*, one that the Ministry is committed to supporting’.

INTERNATIONAL

There have been significant international initiatives especially over the past decade which show how the drive to promote better access to PSI and the freer flow globally of information and knowledge produced through publicly funded research, has increased with the realisation of the full magnitude of the environmental, social and economic issues confronting humankind. It is in this challenging global context that there appears to be an increasing realisation by the international community that greater international cooperation, a significant part of which needs to be based on clearly articulated policies and principles on access to and re-use of PSI, is essential if these challenges are to be met effectively.

The United Nations (UN) and its specialised agencies have issued numerous official resolutions, declarations and reports addressing the development of policies on access to and re-use of government information.⁶⁷ The importance of scientific research and open access to information relating to the environment is recognised in two of the key documents negotiated at the United Nations Conference on Environment and Development (the Earth Summit) in 1992, the *Rio Declaration on Environment and Development*⁶⁸ and the *United Nations*

Geospatial Strategy, (January 2007) available at www.geospatial.govt.nz/assets/Geospatial-Strategy/nz-geospatial-strategy-2007.pdf.

65 The databases are licensed under a Creative Commons Attribution (CC-BY) licence. See the Ministry for the Environment New Zealand website at www.mfe.govt.nz/ and www.mfe.govt.nz/issues/land/land-cover-dbase/index.html (accessed 3 July 2009).

66 The Land Cover Database and Land Environments New Zealand are now available online at www.koordinates.com, a New Zealand company.

67 Paul Uhler, *Policy Guidelines for the Development and Promotion of Governmental Public Domain Information*, UNESCO, Paris, 2004, p. 1.

68 *Rio Declaration on Environment and Development*, United Nations General As-

Framework Convention on Climate Change (UNFCCC).⁶⁹ Principle 9 of the *Rio Declaration* requires states to cooperate to strengthen their capacity for sustainable development ‘by improving scientific understanding through exchanges of scientific and technological knowledge’ while Principle 10 requires, at the national level, that ‘each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision making’. The UNFCCC commits parties to the Convention to promote and cooperate ‘in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system’⁷⁰ as well as to ‘the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies’.⁷¹ These commitments were expanded upon by a decision at the Conference of the Parties in 1998 which recognised the importance of national contributions to global climate observing systems.⁷² It urges parties to ‘undertake free and unrestricted exchange of data to meet the needs of the Convention, recognising the various policies on data exchange of relevant international and intergovernmental organisations’.

During the 1990s, the United Nations Educational, Scientific and Cultural Organization (UNESCO) played an important role in further developing policies and guidelines on access to PSI. The growing awareness of the importance of access to information is particularly apparent in the recent work of intergovernmental bodies such as the Organisation for Economic Cooperation and Development (OECD) and the International Council for Science (ICSU). UNESCO’s work from the late 1990s on made an important contribution to the development of PSI access policies at the international level and fed into the

sembly, United Nations Conference on Environment and Development, 12 August 1992, United Nations document no. A/CONF.151/26 (Vol.I), available at www.un.org/documents/ga/conf151/aconf15126-1annex1.htm.

69 *United Nations Framework Convention on Climate Change*, United Nations, 1992, United Nations document no. FCCC/INFORMAL/84, GE.05-62220 (E) 200705, available at unfccc.int/resource/docs/convkp/conveng.pdf. Australia signed the UNFCCC on 4 June 1992 and ratified it on 30 December 1992. The UNFCCC came into force on 21 March 1994.

70 *ibid.* Article 4.1(g).

71 *ibid.* Article 4.1(h).

72 *Research and Systematic Observation – Recommendation of the Subsidiary Body for Scientific and Technological Advice*, UNFCCC, Conference of the Parties, Buenos Aires, November 1998, FCCC/CP/1998/L.4, available at unfccc.int/cop4/.

more recent work of other bodies such as the OECD, the World Summit on the Information Society (WSIS) and the Internet Governance Forum (IGF). One of the most useful guides to developing a national information policy is the report, *Policy Guidelines for the Development and Promotion of Governmental Public Domain Information*, which was commissioned by UNESCO from Paul Uhler of the US National Academy of Sciences in 2004.⁷³

During the last decade, the OECD⁷⁴ (through its Directorate for Science, Technology and Policy⁷⁵) has examined the social and economic implications of the development and use of information and communication technologies, the internet and e-business. At the Seoul Ministerial Meeting on the Future of the Internet Economy in 2008, the OECD Ministers endorsed the Seoul Declaration on the Future of the Internet Economy and supporting policy framework.⁷⁶ The Seoul Declaration incorporates key principles from the OECD's *Principles and Guidelines for Access to Research Data from Public Funding* and the *Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information* and both of these documents form part of the supporting materials annexed to the Declaration.⁷⁷ They provide guidelines on the availability of research data, including openness, transparency, legal conformity, interoperability, quality, efficiency, accountability and sustainability. OECD Recommendations have the status of OECD legal instruments that describe standards or objectives which OECD member countries (such as Australia) are expected to implement, although they are not legally binding. However, through long-standing practice of member countries, a Recommendation is considered to have great moral force.⁷⁸ The relevance of the OECD guidelines to the Australian context

73 For details, see Chapter 11 of this book: Paul Uhler, *Policy Guidelines for the Development and Promotion of Governmental Public Domain Information*.

74 The OECD is a group of 30 member countries (including Australia) which aim to facilitate and promote good governance. See www.oecd.org/pages/0,3417,en_36734052_36734103_1_1_1_1_1,00.html (accessed 22 May 2009).

75 See www.oecd.org/department/0,3355,en_2649_33703_1_1_1_1_1,00.html (accessed 22 May 2009).

76 OECD, *The Seoul Declaration for the Future of the Internet Economy and the shaping policies for the future of the internet economy* (2008), noting in particular the annexes including the *Recommendation concerning Access to Research Data from Public Funding* and the *Recommendation for Enhanced Access and More Effective Use of Public Sector Information*, available at www.oecd.org/site/0,3407,en_21571361_38415463_1_1_1_1_1,00.html.

77 *OECD Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information* is included in Vol 2 of this book – Chapter 25.

was acknowledged by the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) in its 2005 report *From Data to Wisdom: Pathways to Successful Data Management for Australian Science*, which recommended that they should be taken into account in the development of a strategic framework for management of research data in Australia.⁷⁹

As well as the principles contained in declarations by UN agencies and inter-governmental organisations, statements of principle on open access to publicly funded research data and academic publications are found in numerous declarations made by non-government organisations and groups operating at the international level.

There are numerous international policy statements that promote public availability and open exchange of data, including the Bermuda Principles (1996) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003).⁸⁰ The Bermuda Principles were developed by scientists involved in the International Human Genome Sequencing Consortium and their funding agencies, and represented an agreement among researchers about the need to establish a basis for the rapid and open sharing of pre-publication data on gene sequences.⁸¹ The Bermuda Principles required automatic release of sequence assemblies larger than 1kb and immediate publication of finished annotated sequences. They sought to make the entire gene sequence freely available to

78 See the Submission of the Intellectual Property: Knowledge, Culture and Economy (IP: KCE) Research Program, Queensland University of Technology (QUT) to the Department of Broadband, Communications and the Digital Economy's *Digital Economy Future Directions* consultation paper, prepared by Brian Fitzgerald, Anne Fitzgerald, Jessica Coates and Kylie Pappalardo, 4 March 2009, p. 11, available at www.dbcde.gov.au/digital_economy/digital_economy_consultation/submissions (under 'Queensland University of Technology QUT Law Faculty') at 10 June 2009.

79 Prime Minister's Science, Engineering and Innovation Council (PMSEIC) Working Group on Data for Science (December 2006) *From Data to Wisdom: Pathways to Successful Data Management for Australian Science*, Recommendation 9, p. 12, available at www.dest.gov.au/NR/rdonlyres/D15793B2-FEB9-41EE-B7E8-C6DB2E84E8C9/15103/From_Data_to_Wisdom_Pathways_data_man_forAust_scie.pdf and www.dest.gov.au/sectors/science_innovation/publications_resources/profiles/Presentation_Data_for_Science.htm.

80 For more information, see Anne Fitzgerald and Kylie Pappalardo, *Building the Infrastructure for Data Access and Reuse in Collaborative Research: An Analysis of the Legal Context*, 2007, OAK Law Project and Legal Framework for e-Research Project, available at eprints.qut.edu.au/8865/.

81 *Bermuda Principles* (1996) available at www.ornl.gov/sci/techresources/Human_Genome/research/bermuda.shtml (as at 10 June 2009).

the public for research and development in order to maximise benefits to society. The Berlin Declaration had the goal of supporting the open access paradigm via the internet and promoting the internet as a fundamental instrument for a global scientific knowledge base.⁸² The Berlin Declaration defined ‘open access contribution’ to include scientific research results, raw data and metadata, and required open access contributions to be deposited in an online repository and made available under a ‘free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship’.⁸³

Acknowledgement of the need for data access and sharing is invariably found, in express statements, in the framework documents of large-scale observational projects generating vast amounts of data about the earth, water, marine environment and the atmosphere. For more than 50 years, the foundation documents of major science collaborative projects have typically included, as a key principle, a commitment to ensuring that research outputs will be openly and freely available. Data and information sharing provisions are found in numerous international environmental treaties, including the Antarctic Treaty (1959), the Convention on the Law of the Sea, the Ozone Protocol, the Convention on Biodiversity and the Aarhus Convention (1998).⁸⁴ Article III of the Antarctic Treaty establishes the principle that scientific data will be ‘exchanged and made freely available’:

1. In order to promote international cooperation in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the Contracting Parties agree that, to the greatest extent feasible and practicable: ... (c) scientific observations and results from Antarctica shall be exchanged and made freely available.⁸⁵

The need for coherence between data sharing principles that are at the heart of international scientific collaborations and the policy and legal frameworks in place in the disparate jurisdictions where researchers operate is highlighted by

82 *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities* (2003) available at oa.mpg.de/openaccess-berlin/berlindeclaration.html (at 10 June 2009).

83 *ibid.*

84 *White Paper on the GEOSS Data Sharing Principles*, CODATA, Paris, September 2008, p. 10, available at www.earthobservations.org/documents/dsp/Draft%20White%20Paper%20for%20GEOSS%20Data%20Sharing%20Policies_27Sept08.pdf.

85 The Antarctic Treaty (1959) signed 1 December 1959; entry into force for Australia and generally: 23 June 1961 [1961] ATS 12 (Australian Treaty Series, 1961 No. 12) available at www.austlii.edu.au/cgi-bin/sinodisp/au/other/dfat/treaties/1961/12.html?query=antarctic (accessed 5 June 2009).

the Global Earth Observation System of Systems (GEOSS) initiated in 2005 by the Group on Earth Observations (GEO).⁸⁶ GEOSS seeks to connect the producers of environmental data and decision-support tools with the end users of these products, with the aim of enhancing the relevance of Earth observations to global issues. The end result is to be a global public infrastructure that generates comprehensive, near-real-time environmental data, information and analyses for a wide range of users. The vision for GEOSS is as a ‘system of systems’, built upon existing observational systems and incorporating new systems for Earth observation and modelling that are offered as GEOSS components. This emerging public infrastructure links a diverse and growing array of instruments and systems for monitoring and forecasting changes in the global environment. This ‘system of systems’ supports policymakers, resource managers, science researchers and many other experts and decision-makers.

One of GEO’s earliest actions was to explicitly acknowledge the importance of data sharing in achieving its vision and to agree on a strategic set of data sharing principles for GEOSS:

1. There will be full and open exchange of data, metadata and products shared within GEOSS, recognising relevant international instruments, and national policies and legislation.
2. All shared data, metadata and products will be made available with minimum time delay and at minimum cost.
3. All shared data, metadata and products being free of charge or at no more than the cost of reproduction will be encouraged for research and education.⁸⁷

EUROPE

Some of the most important initiatives on access to information generated by public sector entities are those which have been developed by the European Union (EU), in the form of Conventions and Directives binding on EU Member States. An early example of cooperation at the European level is found in the Convention that established the European Organisation for Nuclear Research (CERN) in 1953.⁸⁸ The Convention, which establishes CERN’s role in organising and

86 See the GEOSS home page at www.earthobservations.org/geoss.shtml and the Wikipedia entry at en.wikipedia.org/wiki/GEOSS.

87 Group on Earth Observations (GEO), *GEOSS 10 Year Implementation Plan*, adopted 16 February 2005, p. 4, www.earthobservations.org/docs/10-Year%20Implementation%20Plan.pdf.

88 See public.web.cern.ch/public/en/About/About-en.html accessed 22 May 2009. The

sponsoring international cooperation in research, promoting contacts between scientists and interchange among laboratories and institutes⁸⁹ requires research results to be ‘made generally available’:

The Organisation shall provide for collaboration among European States in nuclear research of a pure scientific and fundamental character ... The Organisation shall have no concern with work for military requirements and the results of its experimental and theoretical work shall be published or otherwise made generally available.⁹⁰

Building on commitments in the Rio Declaration (1992)⁹¹ and the United Nations Framework Convention on Climate Change (1992), detailed obligations to provide access to environmental information were introduced in the Aarhus Convention (1998) which grants rights to members of the public to obtain access to environmental information and to participate in decision-making about environmental matters.⁹² In 2003 the European Parliament and Council adopted the Directive on Public Access to Environmental Information⁹³ which requires pub-

CERN Convention was established in July 1953 in the aftermath of the Second World War. CERN was officially established on 29 September 1954 on ratification by France and Germany, amongst the 12 founding Member States.

- 89 CERN now connects and combines the IT power of more than 140 computer centres in 33 countries. At full capacity, the Large Hadron Collider (LHC), the world’s largest particle accelerator, is expected to produce more than 15 million Gigabytes of data each year. Hundreds of millions of subatomic particles will collide each second, presenting a massive data challenge.
- 90 See public.web.cern.ch/public/en/About/Mission-en.html (accessed 22 May 2009).
- 91 *Rio Declaration on Environment and Development, United Nations Conference on Environment and Development*, 1992, available at www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163; UNEP is the United Nations Environment Program.
- 92 *Convention on Access to Information, Public Participation and Decision Making, and Access to Justice in Environmental Matters*, Aarhus, Denmark, 25 June 1998, see www.unece.org/env/pp/documents/cep43e.pdf (accessed 22 May 2009). See FERN, *Accessing Environmental Information In and From the European Community: a practical guide to your right to know*, November 2007, available at www.fern.org/media/documents/document_4095_4108.pdf (accessed 22 May 2009).
- 93 Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on Public access to Environmental Information and Repealing Council Directive 90/313/EEC OJL 041, 14/02/2003 P. 0026–0032. See eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0004:EN:HTML (accessed 22 May

lic authorities to provide timely access to environmental information.

Central to any consideration of access to PSI in Europe are the Directive on the re-use of public sector information⁹⁴ ('the PSI Directive'), adopted in 2003, and the Directive establishing an Infrastructure for Spatial Information⁹⁵ ('the INSPIRE Directive'), adopted in 2007. In negotiating the PSI Directive, the European Parliament and Council of the European Union recognised that the public sector is the largest producer of information in Europe and that substantial social and economic benefits stood to be gained if this information were available for access and re-use. However, it was considered that European content firms engaging in the aggregation of information resources into value-added information products would be at a competitive disadvantage unless there were clear policies or uniform practices on how PSI could be accessed and re-used. The lack of harmonisation of policies and practices regarding PSI was regarded as a barrier to the development of digital products and services based on information obtained from different countries. In response, the PSI Directive establishes a framework of rules governing the re-use of existing documents held by the public sector bodies of EU member states. The INSPIRE Directive (which EU member states were due to implement by May 2009) establishes EU policy and principles on spatial information held by or on behalf of public authorities, such as information about mapping of the land and sea, the weather, geology, the environment, population, housing and public utility services. Its purpose is to ensure that private and public sector bodies and citizens can gain access to this information and re-use it where appropriate, to develop new services and information resources.

Further, communications of the European Commission in 2007 and 2008 address issues relevant to open access in relation to a broad range of information types including scientific and creative materials online. In the field of scientific information, the European Commission published a communication on scientific information in the digital age: access, dissemination and preservation in 2007.⁹⁶

2009).

- 94 Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of the public sector information [2003] OJ L 345/90, available at www.epsiplatform.com/reports/european_directive_on_psi/directive_2003_98_ec and eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0098:EN:HTML (accessed 22 May 2009).
- 95 Directive 2007/2/EC of the European Parliament and the Council of 14 March 2007 establishing an Infrastructure for Spatial Information [2007] OJ L 108/1, 25 April 2007. The INSPIRE Directive entered into force on 15 May 2007, available at www.ec-gis.org/inspire/directive/l_10820070425en00010014.pdf and eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:108:0001:01:EN:HTML (accessed 22 May 2009).
- 96 Communication from the Commission to the European Parliament, the Council, and

In January 2008, the European Commission published a communication on creative content online in the single market, launching further actions to support the development of innovative business models and the deployment of cross-border delivery of diverse online creative content services.⁹⁷

Certain key and frequently encountered issues emerge from the various European initiatives and the varied informational contexts and subject matters which they address. The key issues include the benefits to be derived from technological (ICT) compatibility and interoperability (with the related need for readily accessible innovative ICT tools to facilitate these objectives e.g. open source software and open ICT systems), the need for clearly articulated information management policies and principles, the economics of open access to PSI, and the need for cross border legal compatibility such as widely accepted and clearly expressed standard open content licences which indicate clearly what uses may be made of the information being accessed online and on an open access basis.

UNITED KINGDOM

The United Kingdom has established itself at the forefront of European Union member states in implementing initiatives to enable access to public sector materials. It took the lead in 2005 by transposing the PSI Directive into UK law⁹⁸ and establishing an effective administrative regime, central to which is the Office of Public Sector Information (OPSI).⁹⁹ From the mid-2000s, the UK government

the European Economic and Social Committee on scientific information in the digital age: access, dissemination and preservation, COM(2007) 56 final, available at ec.europa.eu/research/science-society/document_library/pdf_06/communication-022007_en.pdf (accessed 22 May 2009).

- 97 Communication from the Commission to the European Parliament, the Council, and the European Economic and Social Committee on creative content on-line in the single market, COM(2007) 836 final, available at eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0836:EN:NOT accessed 22 May 2009. See generally ec.europa.eu/avpolicy/other_actions/content_online/index_en.htm (accessed 22 May 2009).
- 98 The PSI Directive was given effect in UK law through the Re-use of PSI Regulations 2005 (S.I. 2005 No. 1515). The UK was one of eight EU member states to implement the Directive by the nominated date of 1 July 2005.
- 99 www.opsi.gov.uk. The UK has also established an Advisory Panel on Public Sector Information, www.appsi.gov.uk. See the 2008 and 2009 annual reviews of OPSI's activities: *Unlocking PSI Potential: The United Kingdom Report on the Re-use of Public Sector Information* (2008), Office of Public Sector Information, available at www.opsi.gov.uk/advice/psi-regulations/uk-report-reusepsi-2008.pdf and *Unlocking PSI Potential: The United Kingdom Report on the Re-use of Public Sector*

has demonstrated a broad commitment to the introduction of reforms to enable access to PSI, commissioning a series of important reports from which it has drawn guidance, including the *Power of Information: an independent review* (2007),¹⁰⁰ the report on *Models of Public Sector Information Provision via Trading Trusts* ('the Cambridge Report')¹⁰¹ and the *Power of Information Taskforce report* (2009).¹⁰² Throughout these reports are findings and recommendations that support the introduction of fundamental reforms to longstanding policies and practices on access to and re-use of PSI, including those of the Ordnance Survey Office¹⁰³ and other trading trusts.¹⁰⁴

In the forum of public opinion, since 2006 the *Guardian* newspaper has run its influential *Free our Data* online campaign which serves to highlight perceived shortcomings in current access and pricing practices at the national and local government levels.¹⁰⁵

Information (2009), Office of Public Sector Information at www.opsi.gov.uk/advice/psi-regulations/uk-report-reuse-psi-2009.pdf. A timeline of the UK's implementation of the PSI Directive from mid-2005 to mid-2008 is available on the ePSI Platform website at www.epsiplatform.com/good_practice/uk_psi_timeline. The UK has also established an Advisory Panel on Public Sector Information, www.appsi.gov.uk.

- 100 Ed Mayo and Tom Steinberg, *The Power of Information: an independent review*, (June 2007), commissioned by the Cabinet Office, UK Government, available at www.opsi.gov.uk/advice/poi/index, www.cabinetoffice.gov.uk/newsroom/news_releases/2007/070607_power.aspx. and www.cabinetoffice.gov.uk/reports/power_of_information.aspx.
- 101 David Newbery, Lionel Bently and Rufus Pollock, *Models of Public Sector Information Provision via Trading Funds*, Cambridge University (26 February 2008), available at www.opsi.gov.uk/advice/poi/models-psi-via-trading-funds.pdf.
- 102 *Power of Information Taskforce report*, Power of Information Taskforce, chaired by Richard Allan (February 2009), available at poit.cabinetoffice.gov.uk/poit/. See also the Power of Information Taskforce site at powerofinformation.wordpress.com/.
- 103 In April 2009, the Ordnance Survey published a new Business Strategy with proposals for improvements in how it makes its data available, designed to provide 'the best balance between making information more widely available and creating a sustainable future for Ordnance Survey and the wider market'. See strategy.ordnancesurvey.co.uk/.
- 104 See also *Digital Britain: the Final Report*, UK Government, Department for Culture, Media and Sport and Department for Business, Innovation and Skills, 16 June 2009, available at www.culture.gov.uk/what_we_do/broadcasting/6216.aspx. Note in particular, recommendation 79, p. 24.
- 105 *The Guardian's Free our Data* website is at www.guardian.co.uk/technology/free-our-data. See also the Free our Data blog at www.freeourdata.org.uk/blog/.

The UK government's embrace of the interactive functionality of web 2.0 technologies to foster engagement with citizens and provide greater access to PSI closely parallels developments in the United States from early 2009 under the Obama administration.¹⁰⁶ An indication of the weight the UK government puts on the development of new models of public information delivery is found in the appointment in June 2009 of Sir Tim Berners-Lee, the inventor of the World Wide Web, as its expert advisor. Sir Tim will lead a panel of experts to advise the Minister for the Cabinet Office on how the UK government can best use the internet to make public data as widely available as possible.¹⁰⁷

UNITED STATES

The environment for access to government information in the United States is characterised by broad rights for citizens to obtain access to government information and re-use it for commercial purposes, a lack of restrictions on re-use, charges limited to the marginal costs of reproduction and dissemination, and the absence of copyright in materials produced by the federal government. The United States has a long history of support for public access to government information, with support for open access to government documents extending back to the era of the founding fathers. There has also been a long held commitment to the principle that scientific information and research results should, as far as possible, be shared broadly within the scientific community.¹⁰⁸ This strong sup-

106 See, for example, the report of the UK Cabinet Office Strategy Unit, *Power in People's Hands: Learning from the World's Best Public Services*, July 2009, available at www.cabinetoffice.gov.uk/strategy/publications/world-class-public-services.aspx (accessed 18 July 2009). See *Guardian* article, 4 June 2009 at www.guardian.co.uk/technology/2009/jun/04/free-our-data.

107 See *Pioneer of the World Wide Web to advise the government on using data*, UK Cabinet Office, 10 June 2009, at www.cabinetoffice.gov.uk/newsroom/news_releases/2009/090610_web.aspx; *Web inventor to help Downing Street to free up government data*, Charles Arthur, *The Guardian*, 10 June 2009, at www.guardian.co.uk/technology/2009/jun/10/berners-lee-downing-street-web-open. See also, an article by Sir Tim Berners-Lee, *Putting Government Data Online*, at www.w3.org/DesignIssues/GovData.html (accessed 19 July 2009).

108 See the National Security Decision Directive 189, *National Policy on the Transfer of Scientific, Technical and Engineering Information*, issued by the Reagan White House on 21 September 1986, which stated that '[i]t is the policy of this Administration that, to the maximum extent possible, the products of fundamental research remain unrestricted'. The term 'fundamental research' is defined as meaning 'basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished

port of the open access philosophy is based on a variety of factors – historical, governmental and cultural.

Two documents are central to the US legislative and policy framework underpinning access to and re-use of PSI. These are the US Copyright Act 1976 and the OMB Circular A-130. Under the Copyright Act works of the federal government are excluded from copyright protection.¹⁰⁹ While the absence of copyright to protect federal government agencies' information is one clear contributing factor it certainly is not the only one. Circular A-130, issued by the OMB in 2000¹¹⁰ establishes the data access and re-use policy framework for executive branch departments and agencies of the US federal government, is the US federal government's most significant policy statement on access to PSI. As well as acknowledging that government information is a valuable public resource and that the nation stands to benefit from the dissemination of government information, OMB Circular A-130 requires improperly restrictive practices to be avoided. Additionally, Circular A-16, entitled *Coordination of Geographic Information and Related Spatial Data Activities*, provides that US federal agencies have a responsibility to '[c]ollect, maintain, disseminate, and preserve spatial information such that the resulting data, information, or products can be readily shared with other federal agencies and non-federal users, and promote data integration between all sources'.¹¹¹

Open access remains a key point of interest in current US political and administrative discourse. In 2008, the US National Institutes of Health¹¹² (the

from proprietary research and from industrial development, design, production, and product utilisation, the results of which ordinarily are restricted for proprietary or national security reasons'. See www.fas.org/irp/offdocs/nsdd/nsdd-189.htm (accessed 22 May 2009).

- 109 Section 105. Although s 105 of the US Copyright Act 1976 applies only to the federal government and does not prevent the states from asserting copyright in their materials, most states have adopted policies which encourage the sharing of government information among agencies or with the public.
- 110 Office of Management and Budget, *Circular A-130 on Management of Federal Information Resources* (OMB Circular A-130) (2000) available at www.whitehouse.gov/omb/circulars/a130/a130trans4.pdf and www.whitehouse.gov/omb/circulars/a130/a130trans4.html. See further Fitzgerald, *Literature Review*, pp. 174–75, at www.aupsi.org/publications/reports.jsp.
- 111 Office of Management and Budget, *Circular A-16 on the Coordination of Geographic Information and Related Spatial Data Activities* (OMB Circular A-16) (issued 16 January 1953, revised in 1967, 1990, 2002) Section 8, www.whitehouse.gov/omb/circulars_a016_rev/#8.
- 112 See NIH's Revised Policy on Enhancing Public Access to Archived Publications Resulting from NIHFunded Research, at grants.nih.gov/grants/guide/notice-files/NOT-OD-08-033.html (accessed 22 May 2009). NIH's mandatory open access pol-

largest funder of basic biomedical research in the world, spending US\$27 billion in the 2005 financial year) and Harvard University faculties (the Law School¹¹³ and the Faculty of Arts and Sciences¹¹⁴) introduced mandatory open access publishing policies, requiring peer-reviewed journal publications to be made available in open access repository.¹¹⁵ President Obama came into office in January 2009 with a technology policy aimed at creating ‘a transparent and connected democracy’, including the use of technology ‘to reform government and improve the exchange of information between the federal government and citizens while ensuring the security of our networks’.¹¹⁶ On his first day in office President Obama issued a Presidential Memorandum on *Transparency and Open Government*, encouraging transparency in government and instructing US government agencies to err on the side of making information public.¹¹⁷ As part of the Obama administration’s Open Government Initiative,¹¹⁸ the data.gov portal was launched

icy has received legislative backing by the Consolidated Appropriations Act 2008 (Division G, Title II, Section 218 of Public Law 110–161); see NIH’s Revised Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research, at grants.nih.gov/grants/guide/notice-files/NOT-OD-08-033.html.

113 See www.law.harvard.edu/news/2008/05/07_openaccess.php.

114 Adopted 12 February 2008, see www.fas.harvard.edu/~secfas/February_2008_Agenda.pdf and www.eprints.org/openaccess/policysignup/fullinfo.php?inst=Harvard%20University%20Faculty%20of%20Arts%20and%20Sciences. In an important advance on previous practice, instead of requiring academic authors to deposit their publications in the institutional repository themselves (which requires individual academic authors to assume responsibility for negotiating copyright interests with their publishers) Harvard’s Faculty of Arts and Sciences obtains a licence from faculty authors which allows Harvard to deposit and make available faculty authors’ publications on their behalf. Importantly, the Faculty of Arts and Sciences’ policy also provides that any transfer of copyright to a publisher is subject to the licence granted by the faculty author to Harvard.

115 Subsequently, the Kennedy School of Government, MIT, the Stanford School of Education and Harvard’s Graduate School of Education (GSE) also endorsed open access policies.

116 See the Technology Policy on the White House web site at www.whitehouse.gov/agenda/technology/.

117 *Transparency and Open Government*, Memorandum for the Heads of Executive and Agencies, Office of the Press Secretary, The White House, 21 January 2009, available at www.whitehouse.gov/the_press_office/Transparency_and_Open_Government/. See also the Press Secretary’s Statement of 21 January 2009 at www.whitehouse.gov/the_press_office/StatementfromthePressSecretaryonthePresidentssigningoftwoExecutiveOrdersandthreeMe/ (accessed 14 July 2009).

in May 2009 providing access to large numbers of federal datasets, which are continually being added to.¹¹⁹ For example, machine-readable datasets may be accessed from the ‘raw’ data catalogue, in a variety of formats (including XML, CSV/TXT, KL/KMZ and Esri) with accompanying metadata and analysed using tools available on the portal.

CANADA

Canada, like Australia, continues to recognise the existence of copyright in (‘Crown copyright’) in materials produced by the government.¹²⁰ While there have been initiatives designed to promote access to public sector materials in Canada in recent years (notably programs such as GeoBase and GeoGratis which provide free access to government spatial data), the Canadian situation is similar to that in Australia in that there is as yet no clearly established information policy or strategy operating at a national level. Unlike the United States, Canada has historically supported a higher level of private sector participation in the development, funding and maintenance of key spatial data infrastructure (SDI).¹²¹ This is reflected in initiatives led by GeoConnections Canada, a national program, commenced in 1999, headed by Natural Resources Canada which involves the federal, provincial (state), territory and municipal governments, and the private and academic sectors working in partnership with governments to develop the components of the Canadian Geospatial Data Infrastructure (CGDI).¹²²

118 See www.whitehouse.gov/open/ and www.whitehouse.gov/open/blog/ (accessed 14 July 2009).

119 Following the launch strategically important datasets continue to be promptly and progressively uploaded, with Landsat Satellite data and the US Geological Survey (USGS) Oil and Gas Assessment Database being included in the datasets currently available. Additionally, the US Geological Survey’s mineral resource database is available at www.data.gov/details/14.

120 Copyright Act 1985, s. 12.

121 Garfield Giff and David Coleman, *Spatial Data Infrastructure Funding Models: A necessity for the success of SDIs in Emerging Countries*, FIG XXII International Congress, Washington DC, 26 April 2002; see also Garfield Giff, *Financing Spatial Data Infrastructure Development: Towards Alternative Funding Models*, Proceedings of International Symposium on SDI, Melbourne Australia, November 2001.

122 Irwin Itzkovitch, *A National Partnership to Develop the Canadian Geospatial Data Infrastructure (CGDI)*, 8th United Nations Regional Cartographic Conference for the Americas, New York, 27 June–1 July 2005.

CONCLUSION

The federal government's positive response to the Venturous Australia recommendations in the *Powering Ideas* White Paper, the prominence given to the issue of access to PSI in the Department of Broadband, Communications and the Digital Economy's *Australia's Digital Economy, Future Directions* report, the formation of the Government 2.0 Taskforce, the enactment of Right to Information legislation and the creation of Information Commissioner positions by federal and state governments, when viewed together, provide a clear indication that Australian governments are now seized of the importance of proceeding to develop and implement a comprehensive national information strategy. As is apparent by reviewing developments in comparable jurisdictions, putting in place such a strategy is essential if Australia is to become a fully engaged participant in the global information economy.

As we begin to move along this path, much assistance can be obtained from the policies and practices developed in jurisdictions with the most advanced national information strategies (such as the United States and the United Kingdom), as well as declarations and recommendations of intergovernmental organisations such as the OECD and international bodies. To date, Australian activities aimed at enabling information access and re-use have been largely focused on two key areas: spatial data and publicly funded research outputs (whether in the form of publications or data). Policies and practices that have been developed in Australia for specific information domains will also provide guidance in developing a more broadly applicable strategy for access to PSI. However, in developing an Information Policy Framework, the importance of a comprehensive and integrated strategy should not be overlooked. It is important that the issues arising from specific data domains or economic sectors are not superimposed over the national Information Policy Framework. Rather, the focus should be on developing a comprehensive and integrated high level Information Policy Framework, within which consideration can be given to specific issues arising in particular sectors or information domains. As Uhler emphasised in his 2004 report for UNESCO,¹²³ in developing a national information policy, a broad approach must be taken. The Information Policy Framework for the management and active dissemination of PSI should be comprehensive and integrated, although individual consideration may be required for specific areas or sectors with special information objectives and implementation requirements (such as health, environment, energy, transportation, finance and defence).

123 For details, see Chapter 11 of this book: Paul Uhler, *Policy Guidelines for the Development and Promotion of Governmental Public Domain Information*.

CHAPTER FIVE

ENABLING OPEN ACCESS TO PUBLIC SECTOR INFORMA- TION WITH CREATIVE COMMONS LICENCES: THE

AUSTRALIAN EXPERIENCE¹

Governments are coming to realize that they are one of the primary stewards of intellectual property, and that the wide dissemination of their work – statistics, research, reports, legislation, judicial decisions, and administrative and economic regulation, scientific progress, education, and cultural development.²

The management of informational works is one of the most significant issues for government in the current era.³ During the last decade much attention has focused on policies and practices to enable public sector information (PSI)⁴ to be more

2 David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of Their Own*, 2008, p. 192.

3 See Brian Fitzgerald, *Copyright 2010: The Future of Copyright*, [2008] European Intellectual Property Review 43, eprints.qut.edu.au/archive/00013305/; Brian Fitzgerald and Ben Atkinson, *Copyright as an Instrument of Information Flow and Dissemination: the case of IceTV Pty Ltd v Nine Network Australia Pty Ltd*, eprints.qut.edu.au/view/person/Atkinson_Benedict.html; Elliott Bledsoe, Jessica Coates and Brian Fitzgerald, *Unlocking the Potential Through Creative Commons: An Industry Engagement and Action Agenda*, 2007, ARC Centre of Creative Industries and Innovation creativecommons.org.au/unlockingthepotential.

4 The term ‘public sector information’ (PSI) is used here in a broad sense to include information and data produced by the public sector, including materials produced by government employees, materials commissioned by government from non-government parties, materials provided to government by non-government parties pursuant to a legislative obligation and materials that result from publicly-funded cultural, educational and scientific activities. It can include policy documents and reports of government departments, public registers, legislation and regulations, meteorological information, scientific research databases, statistical compilations and datasets, maps and geospatial information and numerous other data and information products produced by government for public purposes. Increasingly the term public sector information is being used globally to describe what was formerly often referred to

readily accessed and used,⁵ as

This chapter considers how open content licences – specifically, Creative Commons (CC) licences⁸ – can be used by governments as a simple and effective mechanism to support the re-use of their copyright-protected PSI, particularly where materials are made available in digital form online or distributed on disk. In Australia, as in other countries worldwide, there is a growing awareness at the governmental level of the advantages of using open content licences when distributing their copyright materials.⁹

as government information. See the European Directive on Access to and Reuse of Public Sector Information, ec.europa.eu/information_society/policy/psi/rules/eu/index_en.htm. See also the OECD's *Seoul Declaration on the Future of the Internet Economy* (2008) and the OECD Council's *Recommendation for Enhanced Access and More Effective Use of Public Sector Information* (2008), available at www.oecd.org/dataoecd/0/27/40826024.pdf. The Seoul Declaration, in paragraph (b), refers to 'public sector information and content' as including scientific data and works of cultural heritage.

5 See Chapter 4 in this book, *Open Access and Public Sector Information: Policy Development in Australia and Key Jurisdictions*.

1 We would like to thank the various individuals in Australia and overseas with whom we have consulted about open content licensing initiatives, in particular, Siu Ming Tam (Australian Bureau of Statistics), Jeff Kingwell (Geoscience Australia), Geoff Renton (Crown Law, Queensland Government), Keitha Booth (State Services Commission, New Zealand), Richard Best (NZ), Carol Tullo (OPSI and National Archives, UK), Jim Wretham (OPSI and National Archives, UK), Graham Vickery (OECD), Francis Gurry (WIPO) and Paul Uhlir (National Academies of Science, US). We are particularly appreciative of the efforts of Chris Corbin (UK) and Peter Suber (US) in tracking open access developments through the ePSI Platform and Open Access News websites, respectively. Thanks also to our research assistant, Cheryl Foong, who prepared the bibliographic materials for this chapter, and to Jessica Coates and Elliott Bledsoe of Creative Commons Australia for keeping us updated on the adoption of Creative Commons licences in the public sector.

8 Creative Commons licences are standardised, copyright licences which grant permission to use copyright works, in accordance with the terms of the particular set of template clauses applied by the licensor (who may be the copyright owner or another person who has the authority to license the use of the material). See generally www.creativecommons.org.au.

9 In August 2009, the New Zealand Government released the Draft New Zealand Government Open Access and Licensing Framework (NZGOAL), available at www.e.govt.nz/policy/information-data/nzgoalframework.html (accessed 25 January 2010). NZGOAL proposes that government agencies provide open access to copyright works, applying 'the most liberal of the New Zealand Creative Commons law licences to those of their copyright works that are appropriate for release, unless there is a restriction which would

In building frameworks to improve the flow of PSI, it is necessary to ensure not only the interoperability of technical systems and document formats but also that legal interests in PSI are understood and effectively managed.¹⁰ The importance of identifying and managing the range of legal interests relevant to PSI, to ensure that they operate to support – not hinder – efforts to improve access and re-use is central to the Organisation for Economic Cooperation and Development (OECD) *Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information* ('the OECD PSI Recommendation').¹¹ In establishing a primary principle of openness in order to maximise

prevent this. This most liberal Creative Commons licence is the Attribution (BY) licence'. See also Keitha Booth, State Services Commission, *Draft NZ Government Open Access and Licensing Framework (NZGOAL)*, Linux Miniconf, Wellington, 19 January 2010 at www.aupsi.org/news/LINUX2010.jsp (accessed 25 January 2010). In the December 2009 report, *Putting the Frontline First: Smarter Government*, (available at www.hmg.gov.uk/frontlinefirst.aspx) the UK Government indicated its intention to 'establish a common licence to re-use data which is interoperable with the internationally recognised Creative Commons model'. Upon the launch of the data.gov.uk website on 22 January 2010, the UK Government announced that the datasets would be made available under new, straightforward, machine readable licensing terms and conditions that are interoperable with Creative Commons licences and permit both commercial and non-commercial re-use of the data. The new simple terms and conditions replace the existing Click-Use Licence and are the 'first major step towards the adoption of a non-transactional, Creative Commons style approach to licensing the re-use of government information'. The National Archives is working with Creative Commons teams in the UK, the US, Australia and NZ to assess whether revised versions of the UK CC licences (due for release in May 2010) are suitable for licensing of UK government data and databases. See Perspectives blog (OPSI), 21 January 2010 at perspectives.opsi.gov.uk/2010/01/licensing-and-datagovuk-launch.html (accessed 25 January 2010). Further information on use of CC licences by governments worldwide is available at wiki.creativecommons.org/Government_use_of_CC_licenses (accessed 25 January 2010).

- 10 See A Fitzgerald and K Pappalardo, *Building the Infrastructure for Data Access and Reuse in Collaborative Research: An Analysis of the Legal Context*, OAK Law Project and Legal Framework for e-Research Project (June 2007) eprints.qut.edu.au/archive/00008865/01/8865.pdf; and A Fitzgerald, K Pappalardo and A Austin, *Practical Data Management: A Legal and Policy Guide*, OAK Law Project and Legal Framework for e-Research Project (September 2008), available at eprints.qut.edu.au/14923/1/Microsoft_Word_-_Practical_Data_Management_-_A_Legal_and_Policy_Guide_doc.pdf.
- 11 OECD, *Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information*, C(2008)36, OECD, Paris, 2008, available at www.oecd.org/dataoecd/0/27/40826024.pdf.

the availability of PSI for use and re-use, the OECD PSI Recommendation requires that any legal grounds that restrict the default presumption of openness should be clearly defined and justified.¹² Among the most commonly identified legal considerations displacing the presumption of openness are national security interests and obligations to maintain the privacy of personal information and to comply with undertakings regarding the confidentiality of information disclosed to a government agency during, for example, a tendering process. The OECD PSI Recommendation advocates making PSI available for access and re-use under transparent, broad, non-discriminatory and competitive conditions.¹³ Where possible, PSI should be made available online and in electronic form, and unnecessary restrictions on access, use, re-use, combination and sharing should be removed, so that, in principle, all accessible information is open for all to re-use, for any purpose. As most governments worldwide claim copyright in at least some of their PSI (the most notable exception being the United States federal government), in order to give effect to an open access policy, it will be necessary to ensure that the government's copyright is not relied upon to justify (or excuse) restrictions on access, re-use and sharing. While copyright protection does not extend to mere information or facts, many of the informational works created or held by government will fall within the groups of material to which copyright applies (literary, artistic, sound and video recordings) and will be sufficiently original to attract protection. The OECD PSI Recommendation acknowledges that intellectual property rights in PSI should be respected, and recommends that governments exercise their copyright in ways that facilitate re-use, by developing simple mechanisms to encourage wider access and re-use, such as simple and ef-

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- 12 OECD PSI Recommendation, the 'Openness' principle states: 'Maximising the availability of public sector information for use and re-use based upon presumption of openness as the default rule to facilitate access and re-use. Developing a regime of access principles or assuming openness in public sector information as a default rule wherever possible no matter what the model of funding is for the development and maintenance of the information. Defining grounds of refusal or limitations, such as for protection of national security interests, personal privacy, preservation of private interests for example where protected by copyright, or the application of national access legislation and rules'.
- 13 OECD PSI Recommendation, the 'Access and transparent conditions for re-use' principle states: 'Encouraging broad non-discriminatory competitive access and conditions for re-use of public sector information, eliminating exclusive arrangements, and removing unnecessary restrictions on the ways in which it can be accessed, used, re-used, combined or shared, so that in principle all accessible information would be open to re-use by all. Improving access to information over the Internet and in electronic form. Making available and developing automated on-line licensing systems covering re-use in those cases where licensing is applied, taking into account the copyright principle below'.

fective automated online licensing systems.¹⁴

CC licences offer the kind of ‘simple and effective licensing arrangement’ envisaged by the OECD PSI Recommendation, providing non-discriminatory access and conditions of re-use for copyright-protected PSI. This chapter gives an overview of the key features of the CC licences developed for use in Australia and considers their advantages for governments when distributing their copyright PSI. The experience of Australian governments in assessing the potential of CC licences and applying them in practice is described, beginning in 2005 with the collaborative project between Queensland University of Technology (QUT) and the Queensland Government (which became known as the Government Information Licensing Framework [GILF] project),¹⁵ through to the widespread adoption of CC licences by Australian federal, state and local government agencies. An account is given of several of the most significant projects in which CC licensing has been applied and the conclusions and recommendations of various government reviews that have considered and supported the use of CC licences on public sector materials.

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- 14 OECD PSI Recommendation, the ‘Copyright’ principle states: ‘Intellectual property rights should be respected. There is a wide range of ways to deal with copyrights on public sector information, ranging from governments or private entities holding copyrights, to public sector information being copyright-free. Exercising copyright in ways that facilitate re-use (including waiving copyright and creating mechanisms that facilitate waiving of copyright where copyright owners are willing and able to do so, and developing mechanisms to deal with orphan works), and where copyright holders are in agreement, developing simple mechanisms to encourage wider access and use (including simple and effective licensing arrangements), and encouraging institutions and government agencies that fund works from outside sources to find ways to make these works widely accessible to the public’.
- 15 All the authors of this chapter have been involved with the Government Information Licensing Framework (GILF) project since its inception in 2005. See generally www.gilf.gov.au. For the background to the GILF project, see Queensland Spatial Information Office, Office of Economic and Statistical Research, Queensland Treasury, *Government Information and Open Content Licensing: An Access and Use Strategy*, Government Information Licensing Framework Project Stage 2 Report, October 2006, available at [www.qsic.qld.gov.au/QSIC/QSIC.nsf/0/F82522D9F23F6F1C4A2572EA007D57A6/\\$FILE/Stage%202%20Final%20Report%20-%20PDF%20Format.pdf?openelement](http://www.qsic.qld.gov.au/QSIC/QSIC.nsf/0/F82522D9F23F6F1C4A2572EA007D57A6/$FILE/Stage%202%20Final%20Report%20-%20PDF%20Format.pdf?openelement).

THE COMPLEX FLOWS OF PUBLIC SECTOR INFORMATION

Improving the flow of PSI requires a detailed understanding of the kinds of materials produced, how they have been created, and by whom. As these factors all bear upon the existence, ownership and exercise of copyright, they need to be taken into account in any strategy for licensing PSI materials designed to enable PSI to move without impediment among government agencies and between government and the private sector.¹⁶

Governments at all levels develop, manage and distribute an array of PSI in the form of documents, reports, websites, datasets and databases on CD or DVD and files that can be downloaded from a website. PSI materials come into existence by various means. A large amount of PSI material is created within government, through the efforts of government employees and other persons who are not employed by government but produce copyright materials while working as volunteers (for example, interns, students on work experience placements and members of emergency services teams). However, a significant part of the materials held by government is produced externally, by recipients of government funding (such as research institutes) and parties who are required to provide certain documents and reports to government. Governments commonly commission independent contractors to produce materials and enter into arrangements to fund work in universities and research institutes that results in output in the form of reports, academic publications and data. An important category of PSI is materials prepared by non-government parties which are lodged with government pursuant to a statutory or regulatory direction to provide information or a report (for example, environmental impact assessments and information about water use, greenhouse gas emissions and results of mineral or petroleum exploration activities).

Systems to facilitate PSI access and re-use must be designed so that government-produced materials can flow both to other government agencies as well as to non-government users. Materials provided to government by private sector parties need to be usable not only by the particular agency that receives them but also by other government bodies. However, the flow of PSI does not only involve government-generated materials flowing to other government agencies and the private sector. Government often needs to be able to on-distribute materials generated by a private sector party to others in the private sector. Any model for licensing of copyright PSI materials must be based on an understanding of how PSI is produced and how it flows, both within government and between

16 See generally, B Atkinson and B Fitzgerald (2008) *Copyright as an Instrument of Information Flow and Dissemination: the case of ICE TV Pty Ltd v Nine Network Australia Pty Ltd*. available at eprints.qut.edu.au/15208/ (accessed 29 January 2010).

government and the private sector.

As awareness has grown of the importance of enabling access to PSI, so have the barriers to achieving this objective become more readily apparent. The importance of clear policy frameworks and practices is increasingly well understood and is dealt with at length in chapter 4. However, as well as developing a policy framework, it is necessary to address the impediments presented by cultural factors and inadequate information management practices. The complexities of PSI creation and use mean that unless the conditions of use are stated in clear and easily understood terms, licensing is likely to prove to be an impediment to information flows.¹⁷ To enable PSI to effectively flow to those who want to use it, the adoption of simple, clear and standardised licences and the transparency of the conditions on which the PSI can be accessed and re-used is of crucial importance.¹⁸

CREATING A COMMONS OF PUBLIC SECTOR MATERIALS

From a copyright law perspective, the concept of ‘public domain’ traditionally connoted materials that were not subject to copyright protection, whether because copyright had expired or because they did not qualify for copyright in the first place (such as mere facts or information and, in the United States, works produced by the federal government).¹⁹ As David Bollier explains:

For decades, the public domain was regarded as something of a wasteland, a place where old books, faded posters, loopy music from the early twentieth century, and boring government reports go to die. It was a dump on the outskirts of respectable culture.²⁰

17 See M Heller, *The Gridlock Economy: How Too Much Ownership Wrecks Markets, Stops Innovation and Costs Lives*, Basic Books, New York, 2008.

18 See KPMG Consulting, *Executive Summary: Geospatial Data Policy Study – Project Report*, 2001, Recommendation 5 pp. 24–25, available at www.geoconnections.org/publications/policyDocs/keyDocs/KPMG/KPMG_E.pdf.

19 B Fitzgerald, A Fitzgerald et al., *Internet and E-Commerce Law: Technology, Law, and Policy*, Lawbook Co/Thomson, Sydney, 2007, p. 265.

20 David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of Their Own*, The New Press, New York, 2008, p. 42, available at www.viralspiral.cc/download-book (accessed 10 December 2009).

During the last decade there has been a rethinking of what the public domain is²¹ and how it functions,²² such that it is now accepted that it has an intrinsic economic and cultural value,²³ and that its openness can be structured and reinforced by law (including copyright and contract).²⁴ With the changing role of knowledge in society and the economy, the concept of public domain has been recast more broadly to mean ‘open’ knowledge and content – that is, ideas, information and materials that can be accessed, re-used and redistributed by participants in an online social community.²⁵ This public domain – or commons – of openly accessible knowledge and content does not consist only of materials that are not subject to any rights whatsoever but, rather, encompasses materials that are protected by copyright but are made available for access and re-use under, for example, open source software and open content licences.²⁶

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- 21 See D Lange (1981), *Recognising the Public Domain* *Law and Contemporary Problems*, 44: 147; T Ochoa (2002), *Origins and Meanings of the Public Domain*, *University of Dayton Law Review*, 28: 215, p. 237; E Lee (2003), *The Public’s Domain: The Evolution of Legal Restraints on the Government’s Power to Control Public Access Through Secrecy or Intellectual Property*, *Hastings Law Journal*, 55: 91, pp. 102–05.
- 22 See J Litman, ‘The Public Domain’ (1990) *Emory Law Journal* 39: 965; see also E Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, Cambridge UK, 1990.
- 23 See J Boyle (2003), ‘The Second Enclosure Movement and the Construction of the Public Domain’, *Law and Contemporary Problems*, 66: 33; P Samuelson (2006), ‘Enriching Discourse on Public Domains’, *Duke Law Journal*, 55: 783; B Fitzgerald and I Oi (2004), ‘Free Culture: Cultivating the Creative Commons’, *Media and Arts Law Review* 9(2): 137; W Landes (2000), ‘Copyright, Borrowed Images, and Appropriation Art: An Economic Approach’, *George Mason Law Review* 9: 1; L Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World*, Random House, New York, 2001; J Cohen, ‘Copyright, Commodification and Culture: Locating the Public Domain’, in L Guibault and P B Hugenholtz (eds), *The Future of the Public Domain: Identifying the Commons in Information Law*, Kluwer, The Netherlands, 2006.
- 24 JH Reichman and PF Uhlir (2003), ‘A Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment’, *Law & Contemporary Problems* 66: 315–462; A Fitzgerald and K Pappalardo, *Building the Infrastructure for Data Access and Reuse in Collaborative Research: An Analysis of the Legal Context*, OAK Law Project and Legal Framework for e-Research Project, QUT, Brisbane, July 2007, available online at www.oaklaw.qut.edu.au/files/Data_Report_final_web.pdf.
- 25 Yochai Benkler refers to ‘that most precious of all public domains – our knowledge of the world that surrounds us’. See Y Benkler (2000), ‘Constitutional Bounds of Database Protection: The Role of Judicial Review in the Creation and Definition of Private Rights in Information’, *Berkley Technology Law Journal* 15: 535.

Based on this broader conceptualisation of public domain, much of the effort directed towards improving access to public sector materials is not now driven by assumptions that improved access and re-use can only be achieved in situations where copyright does not exist.²⁷ Although superficially attractive, the deficiencies of a ‘no copyright’ approach towards the structuring of the public domain are now fairly well understood. There is a growing awareness that the key to facilitating access to public sector materials revolves not so much around the issues of subsistence and ownership of copyright, but depends rather on the licensing and pricing arrangements for access to and re-use of the material.²⁸ That the subsistence of copyright is not incompatible with promoting re-use of PSI is explicitly acknowledged in the OECD PSI Recommendation which accepts that ‘[t]here is a wide range of ways to deal with copyrights on public sector information, ranging from governments or private entities holding copyrights, to public sector information being copyright-free’.²⁹

In fact, there are very few jurisdictions worldwide that do not recognise copyright in government-produced materials, the most prominent example being the United States federal government.³⁰ Like Australia, many governments adopt

26 For a discussion of the concept of ‘public domain’, see R Pollock, *The Value of the Public Domain*, Institute for Public Policy Research, July 2006, available at www.ippr.org/publicationsandreports/publication.asp?id=482 (accessed 22 October 2008).

27 See Intrallect Ltd (E Barker and C Duncan) and AHRC Research Centre (A Guadamuz, J Hatcher and C Waelde), *The Common Information Environment and Creative Commons, Final Report*, October 2005, Ch. 3.6, available at www.intrallect.com/index.php/intrallect/knowledge_base/general_articles/creative_commons_licensing_solutions_for_the_common_information_environment_1/ (accessed 29 January 2010); UK Government, Office of Fair Trading, *The Commercial Use of Public Information*, (December 2006), available at www.oft.gov.uk/advice_and_resources/publications/reports/consumer-protection/oft861 (accessed 29 January 2010).

28 Section 105 of the US Copyright Act states: ‘Copyright protection under this title is not available for any work of the United States Government, but the United States Government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise’. For a US perspective on s 105, see Maj. B W Mitchell, *Works of the United States Government: Time to Consider Copyright Protection?*, LLM Thesis, George Washington University School of Law, Washington DC, 2002, available at www.stormingmedia.us/81/8166/A816604.html (accessed 10 December 2009).

29 The ‘Copyright’ principle, OECD, *Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information*, C(2008)36, OECD, Paris, 2008, available at www.oecd.org/dataoecd/0/27/40826024.pdf.

30 The United States Copyright Act 1976, s. 105 states: ‘Copyright protection under

a position with respect to copyright that is at the opposite end of the spectrum, continuing to recognise the subsistence and ownership of copyright in all or most works produced or commissioned by the government.³¹ Others, such as New Zealand, have excluded a range of public materials from the scope of government copyright, but continue to assert government ownership of copyright in other materials.³² Even within the United States, the majority of states continue to recognise government copyright in a large proportion of their materials.³³ As Bradley Mitchell observes:

The [US federal government's] prohibition on [copyright] in federal government works is fairly unique. Other countries have different policies, but none as extreme as that of the

this title is not available for any work of the United States Government, but the United States Government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise'. A 'work of the United States Government' is defined in s 101 as 'a work prepared by an officer or employee of the United States Government as part of that person's official duties'. The closest to this approach is found in the Philippines' copyright law, the Intellectual Property Code of the Philippines (Republic Act No. 8293) which is influenced by US copyright law. Section 176.1 ('Works of the Government') provides that 'no copyright shall subsist in any work of the Government of the Philippines', but goes on to state that 'prior approval of the government agency or office wherein the work is created shall be necessary for exploitation of such work for profit [and that] such agency or office may, among other things, impose as a condition the payment of royalties'. However, no prior approval or conditions are required for the use of 'statutes, rules and regulations, and speeches, lectures, sermons, addresses, and dissertations, pronounced, read or rendered in courts of justice, before administrative agencies, in deliberative assemblies and in meetings of public character'. Available at www.congress.gov.ph/download/ra_10/RA08293.pdf (accessed 02 February 2010).

- 31 For a comprehensive survey of the copyright position in different countries and the states of the United States, see Appendix A and Appendix B in B W Mitchell, *Works of the United States Government: Time to Consider Copyright Protection?*, LLM Thesis, George Washington University School of Law, Washington DC, 2002, available at linkinghub.elsevier.com/retrieve/pii/S1352023704000279.
- 32 Under the Copyright Act 1994 (NZ), there is no copyright in Bills, Acts, regulations, bylaws, Parliamentary Debates, reports of select committees tables before the House of Representatives, judgments of any court or tribunal, reports of Royal commissions, commissions of inquiry, ministerial inquiries or statutory inquiries.
- 33 See Appendix B in B W Mitchell, *Works of the United States Government: Time to Consider Copyright Protection?*, LLM Thesis, George Washington University School of Law, Washington DC, 2002, available at linkinghub.elsevier.com/retrieve/pii/S1352023704000279.

United States. The U.S. policy also applies only to the federal government; most states protect their government works through copyright law. And the policy applies only to copyrights, with the federal government able – and quite willing – to patent the results of federal research.³⁴

United States' experience has led to a reappraisal of the appropriateness of the blanket 'no copyright' rule, particularly where such works are subsequently included in proprietary products, often without any indication of the source, currency or accuracy of the PSI and absent its accompanying metadata or an explanation of what the material represents.³⁵ Even if no copyright subsists in PSI and the government's policy favours open access and re-use, barriers such as the expense of obtaining the material, making copies of it and converting it into re-usable formats may mean that only a small proportion of potential re-users will have the resources or expertise to convert the raw (non-copyright) material obtained from the government into new, value-added copyright works. Increasingly, it is apparent that restrictions on access to and re-use of PSI are due less to the subsistence and ownership of copyright in government materials than to the failure to adopt a clear policy position on access and re-use and the lack of established practices (ranging from licensing to use of interoperable file formats) supporting open access and re-use.

The point that the management of copyright to enable dissemination and re-use of PSI should not simply revolve around considerations about the subsistence or otherwise of copyright was made in submissions to the CLRC's Crown Copyright review. Professor Brian Fitzgerald's submission stated:

Ten years ago the question would simply have been whether the Crown should or should not have copyright. Many advocating for no copyright would have been seeking open access to information. However, today we know more about the intricacies of open content licensing. It is arguable that a broader and more robust information commons can be developed by leveraging off copyright rather than merely 'giving away' material.³⁶

34 See B W Mitchell, p. 17 and Table 1, pp. 20–21.

35 See Maj. B W Mitchell, *Works of the United States Government: Time to Consider Copyright Protection?*, LLM Thesis, George Washington University School of Law, Washington DC, 2002, available at www.stormingmedia.us/81/8166/A816604.html (accessed 10 December 2009).

36 See further B Fitzgerald, 'The Australian Creative Commons Project', (2005) *Copyright Reporter* 22(4): 138, p. 143. Professor Brian Fitzgerald's submission to the

On the specific issue of copyright in judgments, Judge McGill of the District Court of Queensland commented that while abolishing copyright would bring ‘no obvious practical advantage’ (since judgments are already widely disseminated), it could result in unforeseen disadvantages. His Honour stated that copyright ownership of judicial materials was not necessarily ‘inconsistent with having them readily available, but would be useful in discouraging inappropriate use of them.’³⁷ Judge McGill pointed out that abolishing copyright in judgments ‘may well be a huge incentive to plagiarism’, noting:

Any judge would be pleased to see his exposition of any particular legal point or principle cited by others, but would I think be less pleased to see it claimed by others as their own.³⁸

Advocates of the abolition of copyright in most or all government materials typically suggest that governments can exercise sufficient control over their PSI by other means, such as imposing contractual obligations on users, technological mechanisms and jurisdiction-specific laws governing the use of official government insignia (such as crests and shields) displayed on government materials. These arguments were considered, but rejected, by the Victorian Parliament’s Economic Development and Infrastructure Committee (EDIC) in its *Inquiry into Improving Access to Victorian Public Sector Information and Data*.³⁹ The Committee concluded:

The removal of copyright from Victorian Government public sector information (PSI) is unlikely to simplify access to and re-use of PSI. Access to and re-use of PSI *will be best facilitated by issuing licences in accordance with existing copyright provisions*.⁴⁰ [emphasis added]

Copyright Law Review Committee’s review of Crown Copyright (2004) is reproduced in Chapter 18. It is also available at www.ag.gov.au/agd/WWW/clrHome.nsf/Page/

[Present_Inquiries_Crown_copyright_Submissions_2004_Sub_No_17_-_Professor_Brian_Fitzgerald.](#)

37 Submission 70, p. 2, referred to in CLRC, *Crown Copyright*, 2005, p. 42, para. 4.50.

38 *ibid.*, referred to in CLRC, *Crown Copyright*, 2005, para. 4.71, p. 54.

39 Victorian Parliament, Economic Development and Infrastructure Committee, *Inquiry into Improving Access to Victorian Public Sector Information and Data (Final Report)*, June 2009, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/final_report.html. (accessed 30 June 2009). See para. 6.1.2, p. 66 and para. 6.1.2.2, p. 67.

40 *ibid.*

ADVANTAGES OF A COPYRIGHT-BASED LICENSING APPROACH

Adoption of a copyright-based, licensing approach for PSI has some distinct advantages that are not readily achievable otherwise. The most readily identified benefits of this approach are that it enables governments to achieve their open access policy objectives, ensures that information about the provenance of PSI is distributed along with it and avoids government and citizens being locked out (through pricing or technical barriers) from accessing and using materials produced with public funding.

SUPPORTS GOVERNMENT'S OPEN ACCESS POLICY OBJECTIVES

Where, as in Australia, governments own copyright in a very extensive range of materials, they are in the position of being able to manage their copyright interests through open content licensing strategies (such as Creative Commons licences), to create what amounts to a 'commons' of PSI that can be readily accessed, used and re-used by individuals, not for profit organisations and businesses. As government materials are increasingly distributed online in digital form, governments can contribute to the public domain by applying simple, automated, computer-readable licences which grant extensive rights to users to access, use, re-use and share the licensed materials.

While permitting a broad range of uses of PSI, government may often, justifiably, want to continue to be able to control the use of its material, even though that power may only rarely be exercised. This is especially the case where PSI takes the form of materials that are part of the official record or have authoritative status. An integral aspect of governmental responsibility is ensuring that important records and documents are distributed in an accurate and reliable form. Government policy may support unrestricted access to these materials and encourage users to copy and widely distribute them, provided that the copies circulated are accurate, or, if altered, are not misrepresented as being the original versions released by government. For such materials, the continued recognition of copyright is regarded as central to ensuring the integrity and authenticity of PSI, so that the public can be aware of the status of each publication.⁴¹ Distribution of PSI under copyright licensing conditions provides governments with a means of ensuring the integrity and authenticity of their materials, whether by terminating the licence and/or bringing an action for copyright infringement if

41 See CLRC, *Crown Copyright*, 2005, footnote 93, para. 4.66, p. 53 and para. 4.68, p. 53, referring to Submission 64 (Victorian Government), p. 1.

materials are misused or misrepresented.⁴²

Fully a decade before the implementation of CC licences in Australia, the advantages of a copyright-based licensing approach were recognised by Australian governments⁴³ which issued general copyright licences to promote the widespread accessibility of judicial and legislative materials.⁴⁴ Under what are (somewhat misleadingly) referred to as ‘copyright waivers’, the New South Wales government granted general licences, initially just for legislation (1993)⁴⁵ but later extended to judgments (1995),⁴⁶ authorising any publisher to ‘publish and otherwise deal with’ these materials, subject to compliance with specified conditions. Importantly, the New South Wales government did not relinquish or abandon its copyright interests in the licensed materials. Rather, the notices published in the *Government Gazette* make it clear that copyright continues to reside with the New South Wales government but that it will not be enforced if the material is published or otherwise dealt with in accordance with the authorisation. In publishing the materials, publishers are prohibited from indicating (directly or indirectly) that their publication is an official version of the material and must ensure that it is ‘accurately reproduced in proper context and [is] of an appropriate standard’.⁴⁷ While publishers are granted extensive rights to publish legal materials, the government retains rights which can be exercised to ensure the accuracy and integrity of the published versions of its material, through the express reservation of the right to revoke, vary or withdraw its permission if the conditions of

42 See J Gilchrist (1996), ‘The role of government as proprietor and disseminator of information’, *Australian Journal of Corporate Law* 7: 1, pp. 62–79, p. 79. On this point, see also J Bannister (1996), ‘Open Access to Legal Sources in Australasia: Current Debate on Crown Copyright and the Case of the Anthropomorphic Postbox’, *Journal of Information, Law and Technology (JILT)* 3, available at www2.warwick.ac.uk/fac/soc/law/elj/jilt/1996_3/bannister (accessed 9 November 2009), commenting on *Baillieu and Poggioli (of and on behalf of the Liberal Party of Australia, Victorian Division) v Australian Electoral Commission and Commonwealth of Australia* [1996] FCA 1202.

43 New South Wales and the Northern Territory.

44 See CLRC, Crown Copyright, 2005, pp. 58–59.

45 *NSW Government Gazette*, 27: 94, August 1993, p. 5115; this was replaced by another Notice in 1996: The Hon JW Shaw QC, MLC, Attorney General, Notice: Copyright in legislation and other material, *NSW Government Gazette* No. 110 (27 September 1996) p. 6611, which was in turn varied in 2001 (*Gazette* No 20 of 19 January 2001), available at www.legislation.nsw.gov.au/copyleg_2001.pdf.

46 The Hon John Hannaford MLC, Attorney General, Notice: Copyright in judicial decisions, *NSW Government Gazette* 23 (3 March 1995) p. 1087.

47 Clause 2, Notice: Copyright in legislation and other material, *NSW Government Gazette* 110 (27 September 1996) p. 6611; and Clause 2, Notice: Copyright in judicial decisions, *NSW Government Gazette* 23 (3 March 1995) p. 1087.

the grant are breached.

PROVENANCE AND ATTRIBUTION

For much PSI, it is important that information about its origin, quality, currency and significance continues to be displayed on or in association with it, for example, by means of a metadata description accompanying the document or accessible via hyperlink. The credibility a user gives to information (whether generated by the public sector or otherwise) relates directly to who has created it and how, and what it represents. Ensuring that the provenance of PSI is properly documented is even more important for authoritative or official materials and in circumstances where correct attribution of ideas and information is a prerequisite to its public release, such as with scientific research results.⁴⁸ Using copyright-based licence conditions to ensure that provenance and attribution information is retained with PSI not only enhances its reliability but also significantly improves its discoverability by search engines. Where PSI represents the findings of scientific research, the inclusion of an attribution requirement in a copyright-based open content licence provides formal legal expression of the well-established normative practice of attribution that is central to ‘the traditional system under which [scientific] ideas and research output are shared’.⁴⁹ As Victoria Stodden observes:

[t]his mechanism largely mirrors how scientific work is typically cited and built upon, with the difference that the attribution process is formalised in a legal licence, as opposed to academic citation.⁵⁰

AVOIDS FINANCIAL AND TECHNICAL LOCK-UP OF TAXPAYER-FUNDED MATERIALS

In the absence of copyright protection for PSI, any recipient of PSI that is distributed without restrictions as to its re-use⁵¹ is free to incorporate it into a new work. The newly created independent work may consist primarily of PSI which has

48 See V Stodden (2009), ‘Enabling Reproducible Research: Licensing for Scientific Innovation’, *International Journal of Communications Law & Policy* 13, pp. 18–19.

49 V Stodden (2009), ‘Enabling Reproducible Research: Licensing for Scientific Innovation’, *International Journal of Communications Law & Policy* 13, p. 18.

50 *ibid.* p. 19.

51 Such restrictions could apply under a contract between the government and a particular recipient or could apply generally under legislative provisions.

been value added, for example, through features which better organise the base material and make it more easily searchable, or may consist largely of new materials produced by third parties. In either situation, the creator of the new work will own copyright and may assert their rights against all other parties, including the government, notwithstanding that the work has been produced by drawing on, and incorporates, PSI.⁵² PSI is produced at taxpayers' expense. Yet, if PSI is distributed without copyright-based or other obligations designed to ensure that it continues to be freely accessible and re-usable, there is nothing to prevent a private entity from including it in a new, copyright-protected work access to which is restricted by legal and technological controls. It is desirable to avoid creating a situation where government and taxpayers are precluded from accessing and using materials that have been produced at public expense and released into the public domain by the government without any legal or technical encumbrance. Retaining copyright in PSI and distributing it under open content licences such as Creative Commons ensures that PSI released by the government continues to be freely available for access and re-use, even where it has been included in a value added commercial product or locked up behind technological measures. Importantly, copyright preserves the openness of PSI and avoids the situation which would see governments and citizens alike having to obtain permission and pay for the pleasure of using their publicly funded democratic and cultural heritage. Concerns that, in the absence of Crown copyright, governments may pay more than once for PSI were raised by the Federal and State governments in their submissions to the Copyright Law Review Committee's (CLRC) review of Crown Copyright in 2004–05:

[T]he absence of Crown copyright could lead to the public paying for the production of information by government and then its secondary sale by private vendors.⁵³

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- 52 David Bollier explains: '[A]s Anne Fitzgerald, Brian Fitzgerald, and Jessica Coates of Australia have pointed out, 'putting all such material into the public domain runs the risk that material which is essentially a public and national asset will be appropriated by the private sector, without any benefit to either the government or the taxpayers'. For example, the private sector may incorporate the public-domain material into a value-added proprietary model and find other means to take the information private. Open-content licenses offer a solution by ensuring that taxpayer financed works will be available to and benefit the general public': David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of Their Own*, The New Press, New York, 2008, pp. 192–93, available at www.viralspiral.cc/download-book (accessed 10 December 2009).
- 53 See Copyright Law Review Committee, *Crown Copyright*, 2005, p. 81, para. 5.66, quoting from the submission by the New South Wales Attorney General's Depart-

GOVERNMENT ('CROWN') COPYRIGHT

Under Australian law, copyright protects much of the creative, cultural, educational, scientific and informational material generated by federal, State/Territory and local governments and their constituent departments and agencies. Ownership of copyright by the government agencies is dealt with in Part VII of the *Copyright Act 1968* (the 'Crown copyright' provisions). The principal provisions on which government ('Crown') copyright is based are ss. 176–79 of the *Copyright Act 1968*. Sections 176 and 178 provide that the government owns copyright in literary, dramatic, musical and artistic works, sound recordings and films 'made by, or under the direction or control of the Commonwealth or a State'. Section 177 further provides that the government owns copyright in a literary, dramatic, musical or artistic work that is first published in Australia 'by, or under the direction or control of, the Commonwealth or a State'.⁵⁴ The operation of ss. 176–78 can be displaced by an agreement between the government and the person who created the copyright material that copyright is to belong to that person or some other party specified in the agreement.⁵⁵

The meaning of the phrase 'by, or under the direction or control of, [the Crown]' was considered by the Full Federal Court in *Copyright Agency Limited v State of New South Wales* [2007] FCAFC 80, which made it clear that governments will own copyright not only in works produced by their employees but by a more extensive (but not clearly defined) group:

[122] 'By' is concerned with those circumstances where a servant or agent of the Crown brings the work into existence for and on behalf of the Crown. 'Direction' and 'control' are not concerned with the situation where the work is made by the Crown but with situations where the person making the work is subject to either the direction or control of the Crown as to how the work is to be made. In the copyright context, that may mean how the work is to be expressed in a material form.

[123] Direction might mean order or command, or management or control (*Macquarie Dictionary Online*). Direction might also mean instructing how to proceed or act, authoritative guidance or instruction, or keeping in right order manage-

ment. A similar concern was expressed by the Federal government's Department of Finance and Administration.

54 Sections 176–78 are subject to any agreement between the Crown and the maker of the work or subject matter under which it is agreed that copyright is to belong to the author or maker or some other specified person (s. 179).

55 *Copyright Act 1968*, s. 179.

ment or administration (*Oxford English Dictionary Online*).

[124] Control might mean the act or power of controlling, regulation, domination or command (*Macquarie Dictionary Online*). Control might also mean the fact of controlling or of checking and directing action, the function or power of directing and regulating, domination, command, sway: *Shorter Oxford English Dictionary* (5th ed., Oxford University Press 2002).

[125] Thus, when the provisions refer to a work being made under the direction or control of the Crown, in contrast to being made by the Crown, the provisions must involve the concept of the Crown bringing about the making of the work. It does not extend to the Crown laying down how a work is to be made, if a citizen chooses to make a work, without having any obligation to do so.⁵⁶

Governments own copyright in a vast range of written and other materials (including legislation, judgments, parliamentary materials and reports of government-commissioned review bodies).⁵⁷ As the *Copyright Act 1968* does not generally differentiate between the rights of government as copyright owner and the rights of private parties who own copyright, government can exercise the same range of rights as non-government copyright owners.⁵⁸ One of the few points of difference between the rights of government and private sector copyright owners is that the duration of copyright for materials within the scope of ss. 176–78 is 50 years from the end of the calendar year in which the copyright item is first published or is made.⁵⁹ Consequently, to give effect to their infor-

56 *Copyright Agency Limited v State of New South Wales* [2007] FCAFC 80, paras. 122–25.

57 For a listing of the various kinds of copyright materials produced by or for governments, see CLRC, *Crown Copyright*, 2005, pp. 10–11, available at www.clrc.gov.au/www/agd/agd.nsf/Page/RWPBB79ED8E4858F514CA25735100827559 (accessed 9 November 2009). Whilst the view that ownership of copyright in judgments vests in the Crown is generally non-controversial the contrary view is expressed (usually by the judges themselves) from time to time. See the CLRC's *Crown Copyright* report, 2005, pp. 46–48, for discussion of submissions from members of the judiciary on whether copyright in judgments is owned by the Crown or by the judges: Chief Justice Black (Federal Court), para. 4.47; Chief Justice Doyle (Supreme Court of South Australia), para. 4.49; and Judge McGill (District Court of Queensland), para. 4.50.

58 Section 182 specifically states that, apart from the provisions in Part VII of the *Copyright Act 1968* (in ss. 176–81) relating to the subsistence, duration and ownership of copyright, the provisions of Part III and Part IV of the Act apply.

mation access and re-use policies, governments need to develop and implement copyright management strategies to ensure that their exclusive rights are exercised consistently with their open access objectives.

The primary rights of copyright are the rights to reproduce (copy), first publish, publicly perform, make an adaptation⁶⁰ of the work and to communicate it to the public in digital form (e.g. on a website).⁶¹ Other important rights of copyright owners in the digital era are the rights to ensure that electronic rights management information (ERMI) is not removed or altered and to prevent the circumvention of technological protection measures (TPM) they apply to their copyright materials to control access to or copying of it.⁶²

ERMI is electronic information (including numbers or codes representing such information) which is either attached to or embodied in the copyright material, or appears in connection with a communication or the making available of the copyright material.⁶³ It typically includes information identifying the copyright work, its author or copyright owner or indicating the terms and conditions on which the material can be used, or that the use of the material is subject to terms or conditions of use.⁶⁴ It is an infringement of the copyright owner's rights to remove or alter ERMI relating to a copyright work or other subject matter without the permission of the copyright owner or exclusive licensee, if the person doing the act knows or ought reasonably to have known that the removal or alteration would induce, enable, facilitate or conceal an infringement of copyright.⁶⁵ In certain circumstances the removal or alteration of ERMI relating to a copyright work

59 *Copyright Act 1968*, ss. 180–81.

60 For literary, dramatic and musical works: *Copyright Act 1968*, s. 31(1)(a)(vi).

61 *Copyright Act 1968*, ss. 31, 85–88.

62 For an overview of the operation of these provisions, see Chapter 4, 'Copyright' in B Fitzgerald, A Fitzgerald et al., *Internet and E-Commerce Law: Technology, Law, and Policy*, Lawbook Co/Thomson, Sydney, 2007, pp. 216–44.

63 The main provisions dealing with ERMI are set out in Division 2A, Subdivision B of the *Copyright Act 1968*. Section 116D sets out the legal remedies (including an injunction or damages) available for the removal of and interference with ERMI.

64 *Copyright Act 1968*, s.10(1) defines it as information that:

- (a) is electronic; and
- (b) either: (i) is or was attached to, or is or was embodied in, a copy of the work or subject-matter; or (ii) appears or appeared in connection with a communication, or the making available, of the work or subject-matter; and
- (c) either: (i) identifies the work or subject-matter, and its author or copyright owner (including such information represented as numbers or codes); or (ii) identifies or indicates some or all of the terms and conditions on which the work or subject-matter may be used, or indicates that the use of the work or subject-matter is subject to terms or conditions (including such information represented as numbers or codes).

65 *Copyright Act 1968*, ss. 116B-116D.

may be a criminal offence under the *Copyright Act*.⁶⁶ The anti-circumvention provisions enable copyright owners to protect their materials by applying technical measures that control access to or copying of the work. It is an infringement to knowingly deal in devices designed to circumvent TPMs⁶⁷ and, where the TPM controls access to a copyright work, it is an infringement to knowingly circumvent the TPM.⁶⁸

As well as the rights described above, individual authors of copyright works can also exercise moral rights, which are personal to the author and cannot be transferred. An author's moral rights are the rights:

- of attribution, that is to be attributed (accredited) as the author of the work, where reasonable;
- to object to false attribution, that is to prevent someone else being wrongly identified as the author of the work; and
- of integrity, that is to prevent derogatory treatment of the work that would prejudice the author's reputation.⁶⁹

Although government does not, itself, have moral rights, government may own copyright in materials in respect of which individual authors can exercise moral rights. This situation can arise where copyright ownership vests in the government (including through an assignment of rights) but the individual creator of the materials has not consented that their moral rights will not be respected.⁷⁰ As moral rights are not transferred along with the economic rights, the individual creator will still be able to exercise their moral rights unless they have agreed not to exercise them.

While government, as copyright owner, enjoys the same exclusive economic rights as other copyright owners, the nature and purpose of government copyright means that these rights should not be exercised in a way that restricts the flow

66 *Copyright Act 1968*, ss. 132AQ-132AS.

67 *Copyright Act 1968*, s. 116AO(1).

68 *Copyright Act 1968*, s. 116AN(1). The meaning of the statutory definition 'access control technological protection measure' (TPM), appearing in section 10(1) of the *Copyright Act 1968*, was considered at first instance by Sackville J. in *Kabushiki Kaisha Sony Computer Entertainment v Stevens* [2002] FCA 906; on appeal to the Full Court of the Federal Court in, *Kabushiki Kaisha Sony Computer Entertainment v Stevens* [2003] FCAFC 157; and on appeal to the High Court in *Stevens v Kabushiki Kaisha Sony Computer Entertainment* [2005] HCA 58. See Chapter 4, 'Copyright' in B Fitzgerald, A Fitzgerald et al., *Internet and E-Commerce Law: Technology, Law, and Policy*, Lawbook Co/Thomson, Sydney, 2007, pp. 223–30.

69 *Copyright Act 1968*, Part IX, ss. 189–95AZR.

70 Subject to their terms of employment, government employees may be entitled to moral rights in respect of copyright works which they authored.

of PSI. It seems to be widely acknowledged, in Australia and other jurisdictions that at least part of the original rationale for government copyright ownership was to ‘promote the accuracy and integrity of official government publications’.⁷¹ However, it is also apparent that the concept of Crown copyright in the United Kingdom and Australia is inextricably connected with what is now known as open content licensing. The earliest House of Commons documents explaining Crown copyright make it clear that publications such as reports of Select Committees or Royal Commissions, and Acts of Parliament were produced for the ‘use and information of the public and it [was] desirable that the knowledge of their contents should be diffused as widely as possible. A ‘general rule permitting full and free reproduction’ of such copyright works would apply and, while the rights of the Crown would continue, no steps would ordinarily be taken to enforce the Crown’s copyright.⁷² Consequently, the exclusive rights to copy, publish, perform and distribute electronically to the public would not usually be exercised by governments to restrict the distribution of accurate and integral copies of the vast majority of government copyright materials. The exercise of these rights to prevent others from using government works would occur only in a narrow and distinct range of circumstances, such as to halt the circulation of erroneous or falsely attributed materials or where it is necessary for national security reasons.

Copyright should not, as a general practice, be relied upon by governments for secondary purposes not directly related to the exercise of Crown copyright (such as to restrict access to government documents containing confidential or otherwise sensitive information).⁷³ Where, under an open access policy, PSI has been identified as suitable to make available for access and re-use, the government should not rely on copyright to control use of the work (such as by copying, digitisation, electronic distribution or inclusion in new works), irrespective of the

71 See Copyright Law Review Committee, *Crown Copyright*, 2005, p. xxiv, available at www.clrc.gov.au/www/agd/agd.nsf/Page/RWPBB79ED8E4858F514CA25735100827559.

72 See B Fitzgerald, A Fitzgerald et al., *Internet and E-Commerce Law: Technology, Law, and Policy*, Lawbook Co/Thomson, Sydney, 2007, pp. 267–68.

73 See CLRC, *Crown Copyright*, 2005, p. 39. Note that in *Commonwealth v Fairfax* (1980) 147 CLR 39, the High Court of Australia (Mason J) granted an interim injunction to restrain the publication of certain documents produced by the Department of Defence and the Department of Foreign Affairs on the basis that publication would infringe copyright. However, the case has been criticised as a ‘poor exercise of government copyright...because it was essentially used for an ulterior purpose, that of preserving the confidentiality of documents. In the governmental sphere this is more appropriately dealt with by specific laws dealing with disclosure...’ J Gilchrist (1996), ‘The role of government as proprietor and disseminator of information’, *Australian Journal of Corporate Law*, 7: 1 pp. 62–79, p. 62.

purpose for which the PSI is used.

CREATIVE COMMONS LICENCES

Creative Commons licences are standardised, ‘open content’ copyright licences which grant permission to use copyright works, in accordance with the terms of the particular set of template clauses applied by the licensor (who may be the copyright owner or another person who has the authority to license the material). ‘Open content’ licences are based on copyright, with the copyright owner retaining ownership and exercising their rights liberally to ensure that the work can be accessed and used. While copyright is claimed in the work, under the terms of an open content licence, the copyright owner exercises their exclusive rights to permit the copying, publication and distribution by users for a wide range of purposes, subject only to restrictions on certain kinds of re-use.⁷⁴

The open content model of copyright licensing can be contrasted with traditional, ‘all rights reserved’ copyright licensing practices in which the copyright owner exercises their rights by limiting the use of the copyright material to specified persons and purposes. The focus of traditional copyright licensing is on the exercise of the exclusive rights to reproduce and distribute copies of the work, with rights being granted to specific parties, on certain conditions and often for some economic return to the licensor. Open content licensing, by contrast, is predicated on the exercise of the exclusive rights to permit reproduction and distribution by all users, subject to specific conditions applying to use of the copyright work.⁷⁵ Another important point of difference is that traditional licences of informational copyright works often seek to impose, by contractual means, additional obligations or constraints on users. Such obligations commonly relate to how the information contained in a copyright work can be used, with the recipient required to maintain the confidentiality of the information or to impose

74 See N Suzor and B Fitzgerald, ‘The Role of Open Content Licences in Building Open Content Communities: Creative Commons, GFDL and Other Licences’, in C Kapitzke and M Peters (eds.) *Global knowledge cultures*, 2007, Sense Publishers, Rotterdam, Netherlands, pp. 145–59. For the background to the Creative Commons licences, see David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of their Own*, The New Press, New York, 2008, available at www.viralspiral.cc/download-book (accessed 10 December 2009).

75 Whilst there are 6 types of Creative Commons licences, the most appropriate for use with most PSI in practice is the CC-BY (attribution) licence, with CC- BY- ND (no derivatives) being appropriate for a more limited segment of PSI. By contrast, the use by government of either of the Share Alike licences may in practice result in more restricted re-use than intended.

the same re-use restrictions on parties to whom the licensee passes the material, through a contractual ‘daisy chain’.⁷⁶

As open content licensing starts from the premise that copyright will be exercised to permit reproduction and distribution of the copyright material by users (although there may be other conditions of use), it is particularly relevant in systems designed to facilitate access to and re-use of PSI, especially where material is distributed online in digital form. While acknowledging the government’s ownership of copyright in the material, open content licences enable a government to give effect to its open access policy and to set the conditions on which PSI may be accessed and re-used. Open access licences such as CC can be seen as both the legal expression of a policy supporting access and re-use and the means of implementing the policy. Although it was not initially envisaged or intended that CC licences would be used on government materials, their potential for use by governments and publicly funded research institutes was soon recognised, particularly in jurisdictions such as Australia where copyright subsists in a vast range of PSI.⁷⁷

76 *Government Information and Open Content Licensing: An Access and Use Strategy. Government Information Licensing Framework Project (Stage 2 Report)*, p. 7, para. 5.6. See www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB6814A25727B0013C7EE. See the representation of the Indirect Licensing Model (the ‘daisy chain’ model) in Figure 1 below.

77 An early Australian example of recognition of the potential for applying CC licences to PSI is the GILF project. See Queensland Government, Queensland Spatial Information Council, *Government Information and Open Content Licensing: An access and use strategy* (Government Information Licensing Framework Project Stage 2 Report), October 2006, available at www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB6814A25727B0013C7EE (accessed 14 November 2009). See the submission by Professor Brian Fitzgerald to the Copyright Law Review Committee in Chapter 18 of this book; also available at www.ag.gov.au/agd/WWW/clrHome.nsf/Page/Present_Inquiries_Crown_copyright_Submissions_2004_Sub_No_17_-_Professor_Brian_Fitzgerald. In the UK, see *The Common Information Environment and Creative Commons. Final Report to the Common Information Environment Members of a study on the applicability of Creative Commons licences* (October 2005), available at www.intrallect.com/index.php/intrallect/knowledge_base/general_articles/creative_commons_licensing_solutions_for_the_common_information_environment__1/ (accessed 10 December 2009).

CREATIVE COMMONS – AUSTRALIAN LICENCES

Creative Commons (CC) licences were devised from the outset to operate in both the digital, online and analog environments and aimed to be user friendly for non-lawyers.⁷⁸ Each of the CC licences contains standardised licensing terms describing user permissions in simple ('human readable') language, depicted by symbols (the 'Licence Deed' or 'Commons Deed'), a legally enforceable ('lawyer readable') licence (the 'Legal Code'), and computer ('machine readable') code (the 'Digital Code' or 'Licence Metadata').

Australian versions of the CC licences were released in January 2005. They enable owners of materials that qualify for protection under the *Copyright Act 1968* to license them in accordance with Australian law. The Australian CC licences contain the same basic elements as those found in the international CC licences, but in terms crafted to reflect Australian law.⁷⁹ The current version of the Australian CC licences is version 2.5; work on porting the updated version 3.0 of the licences is underway and version 3.0 of the Australian licences will be published in 2010. In Australia, the Creative Commons office is based at the Queensland University of Technology (QUT), in Brisbane, Queensland.⁸⁰

Under each of the CC licences, users are expressly granted permission to do a range of specified acts in relation to the licensed material – these are referred to here as the 'baseline rights'. However, CC licences do not grant users the right to do everything within the scope of the copyright owner's rights but, rather, some of the rights are kept (or 'reserved') by the owner. In reliance on the

78 For the background to the Creative Commons licences, see David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of their Own*, The New Press, New York, 2008, available at www.viralspiral.cc/download-book (accessed 10 December 2009); B Fitzgerald, 'Structuring open access to knowledge: The Creative Commons story', in C Kapitzke and B Bertram (eds), *Libraries: Changing information space and practice*, 2006, Lawrence Erlbaum Associates, pp. 271–80; and B Fitzgerald, *Open Content Licensing (OCL) for Open Educational Resources*, presented at the OECD Expert Meeting on Open Educational Resources, 6 and 7 February 2006, Malmo, Sweden, available at eprints.qut.edu.au/3621/ (accessed 29 January 2010).

79 The CC licences do not limit or remove statutory rights, such as 'fair dealing', conferred under the *Copyright Act 1968* (Cth).

80 The office was established under the terms of an Affiliation Agreement entered into between QUT and Creative Commons Corporation in 2004. The QUT Project leads are Professor Tom Cochrane and Professor Brian Fitzgerald. For more information on the CC licences see the Creative Commons website at www.creativecommons.org and the Creative Commons Australia (CCau) website at www.creativecommons.org.au. For more information on Creative Commons the organisation see creativecommons.org/about/.

rights retained by the copyright owner, under CC licences the licensor – as well as granting rights to users – imposes restrictions (or conditions) on the use of the licensed material. The recipient of a CC-licensed work is permitted to exercise the rights granted, subject to respecting the restrictions (or conditions) imposed by the copyright owner. In practice, the user of a CC-licensed work will be required, depending on which CC licence has been selected by the licensor, to observe conditions that range from simply acknowledging the author of the work (or the copyright owner as indicated), to refraining from using it for commercial purposes or from making any derivative works.

The baseline rights granted under the CC licences are:

- to reproduce the work
- to incorporate the work into Collective Works⁸¹
- to reproduce the work as incorporated in the Collective Works
- to publish, communicate to the public, distribute copies or records of, exhibit or display publicly or perform publicly the Work (including as incorporated in Collective Works).⁸²

Each of the CC licences – other than those which include a ‘No Derivative Works’ condition – also grant the user the rights:

- to create and reproduce Derivative Works⁸³
- to publish, communicate to the public, distribute copies or records of, exhibit or display publicly or perform publicly the Derivative Works.⁸⁴

There are four standardised sets of conditions which can be applied by copyright owners when licensing their materials under a CC licence:



Attribution (BY): The work is made available to the public with the baseline rights, on condition that the work is distributed with the licensing in-

81 As defined in Clause 1(a), Legal Code, Attribution 2.5 Australia to mean ‘a work, such as a periodical issue, anthology or encyclopedia, in which the Work in its entirety in its unmodified form, along with a number of other contributions, constituting separate and independent works in themselves, are assembled into a collective whole’.

82 Clause 3(a) – (d), Legal Code, Attribution 2.5 Australia.

83 As defined in Clause 1(b), Legal Code, Attribution 2.5 Australia to mean ‘a work that reproduces a substantial part of the Work, or of the Work and other pre-existing works protected by copyright, or that is an adaptation of a Work that is a literary, dramatic, musical or artistic work...[but] a work that constitutes a Collective Work will not be considered a Derivative Work for the purpose of this Licence’.

84 Clause 3(a) – (d), Legal Code, Attribution 2.5 Australia.

formation, the author or another specified person (e.g. the custodian) is attributed in the manner specified in the licence, the work is not falsely attributed to another person and the work is not distorted or altered to the prejudice of the author's reputation.



Non-Commercial (NC): The work can be copied, displayed and distributed, provided any use of the material is for non-commercial purposes.⁸⁵



No Derivative Works (ND): This licence grants baseline rights, but it does not allow Derivative Works to be created from the original. A Derivative Work is one in which a substantial part of the licensed work is reproduced or an adaptation of the work (for example, a translation or dramatisation).



Share Alike (SA): Derivative works based on the licensed work can be created, but the Derivative Work must be distributed under a Share Alike licence, creating a 'viral' licence aimed at maintaining the openness of the original work.⁸⁶

These four sets of conditions, together with the baseline permissions, can be combined to create six licences:

- Attribution 2.5 (BY)
creativecommons.org/licenses/by/2.5/au/
- Attribution No Derivatives 2.5 (BY-ND)
creativecommons.org/licenses/by-nd/2.5/au/
- Attribution Non-Commercial 2.5 (BY-NC)
creativecommons.org/licenses/by-nc/2.5/au/
- Attribution Non-Commercial No Derivatives 2.5 (BY-NC-ND)
creativecommons.org/licenses/by-nc-nd/2.5/au/
- Attribution Non-Commercial Share Alike 2.5 (BY-NC-SA)

85 Creative Commons has conducted consultations around the meaning of the term 'non-commercial'. In September 2009, Creative Commons published the report, *Defining 'Noncommercial': A Study of How the Online Population Understands 'Noncommercial Use'*, See creativecommons.org/press-releases/entry/17721 and wiki.creativecommons.org/Defining_Noncommercial (accessed 21 January 2010).

86 It is important to note that a licence cannot feature both the Share Alike and No Derivative Works options. The Share Alike requirement applies only to derivative works.

creativecommons.org/licenses/by-nc-sa/2.5/au/

- Attribution Share Alike 2.5 (BY-SA)
creativecommons.org/licenses/by-sa/2.5/au/

The Attribution (BY) condition applies to each of the current Australian CC licences. Interestingly, when the suite of CC licences was first drafted in 2002, it extended to a total of eleven licences – the six that are currently used (as listed above) as well as versions which did not require attribution of the author: Share Alike (SA); No Derivatives (ND); Non-Commercial (NC); Non-Commercial, Share Alike (NC-SA); and Non-Commercial, No Derivatives (NC-ND). As few people were choosing the five no-attribution licences, in May 2004 Creative Commons decided to ‘retire’ them, leaving the current set of six, all of which include the Attribution requirement.⁸⁷ In 2008, it was estimated that there were at least 130 million works licensed under CC licences, up from about 90 million in the previous year.⁸⁸

COPYRIGHT-BASED, DIRECT LICENCES

The CC licensing model is inspired by the work of Richard Stallman, who developed the GNU General Public Licence (GNU GPL) for free software.⁸⁹ Stallman’s ‘powerful insight’ was that:

[C]opyright in software code can be used not only to restrict access and exploit its benefits for monetary reward, but also to

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- 87 On this aspect of the history of CC licences, see David Bollier, *Viral Spiral*, 2008, pp. 118–20, available at www.viralspiral.cc/download-book (accessed 10 December 2009). Where either of the CC Share Alike licences (e.g. BY-SA or BY-NC-SA) is selected and applied to copyright material it is permissible to use (e.g. mix or mash up) this material with other copyright material licensed under a later version of the same type of Share Alike (SA) licence or indeed with material licensed under another country’s version of the same type of SA licence. This ability is referred to as ‘versioning up’. Creative Commons has conducted consultations around the meaning of the term ‘non-commercial’. In September 2009, Creative Commons published the report, *Defining ‘Noncommercial’: A Study of How the Online Population Understands ‘Noncommercial Use’*, See creativecommons.org/press-releases/entry/17721 and wiki.creativecommons.org/Defining_Noncommercial (accessed 10 December 2009).
- 88 See ‘History’ page on Creative Commons website at creativecommons.org/about/history (accessed 6 November 2009).
- 89 For information on the GNU General Public Licence, see www.gnu.org/licenses/licenses.html (accessed 25 January 2010).

maintain open access for downstream users and developers.⁹⁰

The GNU GPL explicitly recognises the use of free and open source software (FOSS) licences to ensure that others can use, copy, modify and redistribute the software at no cost:

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users.⁹¹

Like FOSS licences, CC licences are based on the copyright in the licensed work. The permitted uses under the CC licences are consents or permissions⁹² to do acts within the scope of the copyright owner's exclusive rights.⁹³ Copyright licences can be contractual or bare: a contractual licence is one granted by the licensor to the licensee under the terms of a contract, whereas a bare licence is merely 'permission to do that which would otherwise be unlawful'.⁹⁴ Acting outside the scope of a bare copyright licence will put the licensee in the position of infringing copyright (unless some exception or defence can be relied upon) whereas breach of a contractual copyright licence gives rise to both a breach of the contract and infringement of copyright.

The CC licences commence with the words:

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- 90 See: B Fitzgerald and N Suzor (2005), 'Legal Issues Relating to Free and Open Source Software in Government', *Melbourne University Law Review* 29, p. 412. This does not mean that successful business models cannot be built around open licensing. IBM, RedHat, and Revver are examples of such successful business models. For further information on Revver, see revver.com/go/faq/#general1. Revver is the first viral video network that pays, using Creative Commons Attribution-NonCommercial-NoDerivatives 2.5 as its default licence. See also UNCTAD, *Free and Open Source Software: Policy and Development Implications* (2004), available at www.unctad.org/en/docs/c3em21d2_en.pdf.
- 91 The Free Software Foundation, GNU General Public License v3.0 (2007) at www.gnu.org/licenses/gpl-3.0.html (accessed 25 January 2010).
- 92 *Computermate Products (Aust) Pty Ltd v Ozi-Soft Pty Ltd* (1988) 20 FCR 46 at 49.
- 93 See Mark Henley (2009), 'Jacobsen v Katzer and Kamind Associates – an English legal perspective', *International Free and Open Source Software Law Review* 1: 41, p. 43.
- 94 H Laddie, P Prescott and M Vitoria, *Modern Law of Copyright*, Butterworths, London, 3rd ed., 2000, para. 24.2. See also P Johnson (2008), '“Dedicating” Copyright to the Public Domain', *Modern Law Review* 71(4): 587, p. 604.

By exercising any rights to the work provided here, you accept and agree to be bound by the terms of this licence. The licensor grants you the rights contained here in consideration of your acceptance of such terms and conditions.

Although the CC licences use contractual language, in reality they will often take effect as a bare (non-contractual) licence. Notwithstanding mention of ‘acceptance’ by the licensee and ‘consideration’ flowing from the licensor, in many circumstances where CC licences are used, all the elements required for a valid contract to be formed (offer, acceptance and consideration) will not be present.⁹⁵ Even if there is an offer by the licensor which is accepted by the licensee and consideration is provided by the licensor, the element of consideration from the licensee will generally not be satisfied.⁹⁶ In circumstances where there is suffi-

95 This is the case in common law based jurisdictions (e.g. Australia, US and UK) where the presence of consideration is a fundamental requirement for the formation of a legally enforceable contract. Nevertheless some have reasoned that in common law jurisdictions the CC licences are contract-based or have a contractual element. The weight of opinion and the better view is that true consideration is not present but rather only illusory consideration which will not support a legally enforceable contract. Two authors supporting the illusory consideration analysis, addressed principally in the context of open source software licences, are Ben Giles ‘*Consideration and the open source agreement*’ (2002) 49 NSW Society for Computers and the Law, available at www.nswscl.org.au/journal/49/Giles.html, and Jeremy Malcolm, *Problems in Open Source Licensing* (2003) see www.ilaw.com.au/public/licencearticle.html (accessed 25 January 2010). In civil law based jurisdictions (e.g. EU member states and Japan), where unlike common law jurisdictions no requirement of consideration exists, there is considerable support for the view that a contract may arise where an open source licence or a Creative Commons licence is entered into. For a civil law analysis or perspective on these issues see Andres Guadamuz-Gonzales *The License/Contract Dichotomy in Open Licenses: A Comparative Analysis* (2008–09) at heinonline.org/HOL/Page?handle=hein.journals/jjuv130&div=18&g_sent=1&collection=journals.

96 The legal theory underpinning CC licensing is explained as follows by David Bollier in *Viral Spiral*, 2008, p. 118: ‘To ensure that the licenses would be enforceable, the CC lawyers built on the same legal base as the GPL; the licenses were crafted not as contracts, but as conditional permissions based on copyright law. A contract requires that the licensee have the opportunity to accept or reject the terms of an agreement, which would not be the case here. A conditional permission, by contrast, is the legal prerogative of a copyright holder. She is simply offering advance permission to use a CC-licensed work (to share, modify, distribute, etc.) so long as the specified terms are respected’. Professor Eben Moglen, former General Counsel of the Free Software Foundation, considering GPL open source software licences,

cient consideration (such as where the work is licensed for money) and a contract is formed, the copyright-based licence can co-exist with any contractual promise in relation to the work.⁹⁷

As non-exclusive copyright licences, CC licences do not require any formalities or writing (unlike exclusive licences of copyright which must be evidenced in writing, signed by the licensor). The licence operates directly from the licensor to each recipient of the licensed material, notwithstanding that the recipient has not obtained the material directly from the licensor. The operation of CC licences as a direct licence between the licensor and each recipient of the material (rather than a sub-licence to subsequent recipients) is explained in Clause 8(a) and (b): when the licensee publishes, communicates to the public, distributes or publicly digitally performs the licensed Work, a Collective Work or a Derivative Work, the licensor offers to the recipient a licence on the same terms and conditions as the licence granted to the licensee.⁹⁸

Figure 1 (following) represents the situation where a copyright work (W) is distributed unaltered to downstream recipients, commencing with the original licensor (A) and passing to a series of licensees (B, C, D, E). It illustrates both the direct licensing model adopted in CC licences (above the line of letters A-B-C-D-E) and the indirect licensing model typically used in contractual licences that permit sub-licensing of copyright works (below the line of letters A-B-C-D-E). In the indirect, contractual licensing model – often referred to as the ‘daisy chain’ model – each licensee of the work is granted the right to sub-license it to subsequent recipients further down the distribution pathway. Under the direct licensing relationship established by CC licences, each downstream recipient of the copyright work (B, C, D, E) obtains a direct licence from the original licensor (A), even though they may have received the work indirectly (e.g. where E receives it from D, not A). By contrast, when the original licensor (A) licenses the copyright work under a contractual licensing arrangement that permits sub-licensing, none of the subsequent recipients (other than B) has a direct legal relationship with A. Only B forms a direct, contractual relationship with A, while all subsequent recipients are in a direct relationship with the party from whom they have obtained the licensed material (e.g. C relates to B, E relates to D). The result is that the le-

takes the view that the GPL ‘is a very simple form of copyright license...because it involves no contractual obligations’: ‘[T]he work’s user is obliged to remain within the bounds of the license not because she voluntarily promised, but because she doesn’t have any right to act at all except as the license permits’. See E Moglen at www.gnu.org/press/mysql-affidavit.html and E Moglen, *Free Software Matters: Enforcing the GPL*, I, 12 August 2001, available at moglen.law.columbia.edu/publications/lu-12.html.

97 *Copyright Agency Limited v State of New South Wales* [2008] HCA 356, para. [9].

98 Clause 8(a), (b), Legal Code, Attribution 2.5 Australia.

gal relationship between A and each recipient of the licensed material (except B) is indirect: A can enforce the licence directly against B, but each subsequent party in the distribution chain is accountable only to the immediate party from which it has obtained the licensed material (e.g. C is liable to B; E is liable to D).⁹⁹

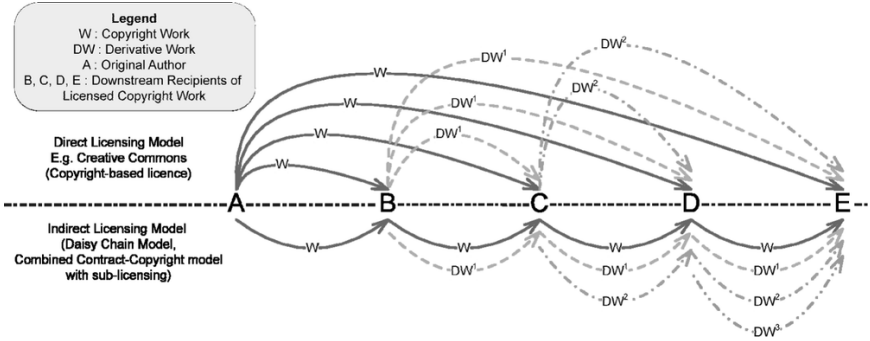


Figure 1: Direct and indirect licensing models

ATTRIBUTION BASED ON ECONOMIC AND MORAL RIGHTS

Each of the CC licences contains provisions relating to the inclusion of copyright and licensing information, the identification of the author and other nominated parties, and prohibition of false attribution of authorship and dealings with the work that prejudice the author’s honour or reputation. These attribution requirements are based on the economic rights of copyright owners to maintain electronic rights management information (ERMI)¹⁰⁰ they have applied to their works and the moral rights of individual authors of copyright works (the rights of attribution of authorship, integrity and to prevent false attribution).¹⁰¹

Clause 4 of the Legal Code of the Attribution 2.5 Australia licence contains various provisions designed to ensure that licensed works are correctly attributed

99 As well as illustrating the situation where the copyright work (W) is on-distributed in an unaltered form, the diagram represents the situation where B adapts or adds value to W and creates a Derivative Work (DW1) which is distributed to the downstream parties C, D and E. C, in turn, adapts or adds value to DW1 and creates another or second Derivative Work (DW2). The discontinuous curved lines show the legal relationships (and the flow of rights) in relation to DW1 and DW2, under the direct and the indirect licensing models respectively.

100 *Copyright Act 1968*, ss. 116B–116D.

101 *Copyright Act 1968*, Part IX.

and identified and that the terms of the licence can be readily ascertained by licensees using the work:

- A copy of the CC licence, or the Uniform Resource Identifier (URI) for the licence, must be included with each copy of the work that the licensee publishes, communicates to the public, distributes, publicly exhibits or displays, or publicly performs or digitally performs. The licensee is not permitted to impose terms that ‘exclude, alter or restrict the terms of [the] Licence or the recipients’ exercise of the rights granted’ under it.¹⁰²
- All copyright notices for the work must be kept intact when the licensee publishes, communicates to the public, distributes, publicly exhibits or displays, publicly performs or publicly digitally performs the licensed work, any Derivative Works or Collective Works.¹⁰³ Where the licensee creates a Collective Work or a Derivative Work they must, if requested by the licensor, remove any credit that would otherwise be required.¹⁰⁴
- Clear and reasonably prominent credit must be given to the Original Author (that is, the individual or entity who created the licensed work), by name or pseudonym where possible, and any other party designated for attribution in the copyright notice (e.g. a sponsor institute, publishing entity or journal). If accreditation is required, it must be given in the particular manner made known by the Original Author, and otherwise as reasonable to the medium being used, by conveying the identity of the Original Author or other designated party, the title of the licensed work, the URI specified by the licensor (where reasonably practicable). Accreditation may be done in any reasonable manner, provided that, where the licensed work is used in a Derivative Work or a Collective Work, such credit appears where any other comparable accreditation of authorship appears and at least as prominently as any other comparable accreditation.¹⁰⁵
- The licensed work is not to be falsely attributed to someone other than the Original Author when the licensee publishes, communicates to the public, distributes, publicly exhibits or displays, or publicly performs or digitally performs the work, or any Derivative Works or Collective Works, unless as agreed in writing by the licensor.¹⁰⁶
- The licensee must not do anything that results in a material distortion of, mutilation of, or a material alteration to the licensed work, or any other act in relation to the licensed work, that is prejudicial to the Original Author’s hon-

102 Clause 4(a), Legal Code, Attribution 2.5 Australia.

103 Clause 4(b), Legal Code, Attribution 2.5 Australia.

104 Clause 4(a), Legal Code, Attribution 2.5 Australia.

105 Clause 4(b), Legal Code, Attribution 2.5 Australia.

106 Clause 4(c), Legal Code, Attribution 2.5 Australia.

our or reputation, except as otherwise agreed in writing by the licensor.¹⁰⁷

Where PSI is licensed under a CC licence, the government (or a particular government agency) will typically be the party designated for the purpose of attribution. Where an individual author continues to exercise moral rights, it may also be necessary to attribute the author, even though ownership of copyright may have been transferred to the government.

A question which frequently arises when datasets and databases are developed from numerous sources is how the attribution requirement – a standard feature in all CC licences – can be complied with in practice. This question is particularly relevant where numerous individual contributors (potentially numbering in their thousands) contribute data into highly collaborative works. The requirement to attribute the creators of a huge number of data compilations is often referred to as ‘attribution stacking’. The attribution condition in CC licences enables the licensor to specify how they are to be attributed and how the work is to be identified. The CC licences do not require attribution to take any particular form and, in fact, the licensor may not insist on being positively attributed and may indicate as much in the copyright notice on the work. It is generally a matter for the licensor to indicate what form of attribution, if any, is required. In some projects the conditions of operation or conduct agreed among all the participants may be to the effect that attribution of individual inputs or contributions will not be shown.¹⁰⁸ Instead, it may be agreed that the only party attributed will be the owner of copyright in the composite database or material produced collaboratively by project participants.¹⁰⁹ However, even if positive attribution is not

107 Clause 4(d), Legal Code, Attribution 2.5 Australia. Note that the moral right of integrity is not addressed in the US version of the CC licences. Compare the Australian Attribution 2.5 licence (creativecommons.org/licenses/by/2.5/au/legalcode) to the United States Attribution 3.0 licence (creativecommons.org/licenses/by/3.0/us/legalcode).

108 For example, a nationwide project undertaken by a federal government agency may invite citizens and firms to upload comments or information on a topical issue to a designated website as part of a policy consultation or development process. The conditions under which the comments or information are provided could be clearly set out on the relevant website for all potential participants to see before deciding whether to upload information. In such an example, it could be stated in the conditions that all contributions provided are to be provided under a CC-BY licence and that the results of the consultation will be made available through the website by the government agency under a CC-BY licence with a general form of attribution only to be included such as ‘All participants in the XYZ policy consultation exercise (2009)’ with no specific attribution to be given to any individual input or contribution.

109 Another operational response where numerous parties require attribution is to pro-

required or is not feasible in the circumstances, licensors may still insist – via the attribution condition – that the work is not falsely attributed to another person¹¹⁰ and is not altered in a manner derogatory to the licensor’s reputation.

CC0 (‘CC zero’) is a form of Creative Commons dedication by which the licensor (known as the ‘affirmer’) waives all their copyright and related rights in a particular work to the maximum extent legally permissible.¹¹¹ Although it has been proposed for use by Science Commons in some jurisdictions as a way of ensuring that data remains free and open for access and re-use, this approach is problematic in the Australian legal environment and its use is not generally recommended, particularly for data produced by publicly funded researchers or government research institutes. For publicly funded material in Australia, the CC BY licence will usually be the most appropriate licence to facilitate broad access and re-use with minimal restrictions (users are only obliged to retain associated metadata or rights management information and to correctly attribute authorship and maintain the integrity of the data).

Under the CC0 approach all copyrights and related rights in a work are purported to be waived. However, the operation of moral rights means that the general waiver of all rights which the CC0 licence purports to achieve will not be effective if the work is copyright-protected and has been created by an individual author. The *Copyright Act* does not permit an author to grant a general waiver of their moral rights in a copyright work.¹¹² To effectively waive their moral rights, the author must consent to specified acts/omissions or specified classes or types

vide a link to a separate website containing the attribution details for the numerous contributors.

- 110 On this issue, see the submission of Judge McGill, Queensland District Court, to the Copyright Law Review Committee’s review of Crown copyright, submission no 70, p. 2. His Honour noted: ‘Any judge would be pleased to see his exposition of any particular legal point or principle cited by others, but would I think be less pleased to see it claimed by others as their own’. See Copyright Law Review Committee, *Crown Copyright*, 2005, para. 4.71, p. 54, available at www.clrc.gov.au/www/agd/agd.nsf/Page/RWPBB79ED8E4858F514CA25735100827559.
- 111 In ‘Dedicating’ Copyright to the Public Domain’, *The Modern Law Review* (2008) 71(4) pp. 587–610, Phillip Johnson considers whether an author can effectively dedicate or give up their copyright to the public domain. The author suggests that the dedications are not legally effective to place copyright in the public domain and instead operate, under English law at least, as no more than a bare copyright licence, which may be terminated at any time provided reasonable notice of revocation is provided. The author considers (p. 606) what period of time might represent reasonable notice in a range of situations. See www3.interscience.wiley.com/cgi-bin/fulltext/120751054/PDFSTART.
- 112 *Copyright Act 1968*, s 195AWA (other than films), and s 195AW (films).

of acts/omissions. The CC0 terms state that where the CC0 waiver does not work for any reason, CC0 acts as an unconditional, irrevocable, non-exclusive, royalty free licence to use the work for any purpose ('the default licence'). Where the work has been produced by an individual author, the default licence would still be subject to the author's moral rights, with the consequence that, in attempting to use a CC0 licence, the licensor is left in the position of using a licence subject to conditions similar to those found in the Attribution clause of CC licences.

If a CC0 'no rights' affirmation is used, and even assuming that it operates in the manner intended with all rights having been totally surrendered, the consequences of abandoning all rights based on the economic rights of copyright and moral rights need to be fully appreciated. Once all rights are abandoned, users of the material are entirely unrestricted in what they do with it, subject only to limitations that may arise through other legal obligations (such as contractual terms or the operation of fair trading laws). In waiving all rights under a CC0 affirmation, the affirmer loses not only their right to positive attribution (i.e. the right to be named as author of the work), but also the right to protect against false attribution (e.g. to prevent the work being distributed with someone else's name attached) and the moral right of integrity of authorship (e.g. the right to prevent an altered and inaccurate version of the work being circulated under the affirmer's name). If users are to be required to comply with obligations such as identification of author/s, maintain the integrity of the work or retention of metadata, these obligations will only be enforceable if they are imposed by another legal means, such as a contract between the author and each user of the material.

ACCESS AND CONTROL NOT LIMITED BY TECHNOLOGICAL MEANS

Copyright owners have the right to prevent the circumvention of technological protection measures they have applied to their copyright materials to control access to or copying of the works. Such technological measures are often referred to as digital rights management (DRM)¹¹³ and encompass a range of technologies, including encryption¹¹⁴ and digital watermarking.¹¹⁵ CC licences cannot be

113 For an overview of many technological and legal issues relating to digital rights management, see Reihaneh Safavi-Naini and Moti Yung (eds.), *Digital Rights Management: Technologies, Issues, Challenges and Systems* (2006). Note, in particular, the chapter by Yee Fen Lim, 'Digital Rights Management: Merging Contract, Copyright and Criminal Law' in R. Safavi-Naini R & Yung M (Eds.) *Proceedings of First International Conference on Digital Rights Management: Technologies, Issues, Challenges and Systems, 2005*, Lecture Notes in Computer Science Series 3919, Springer-Verlag Berlin Heidelberg 2006, pp. 66–74.

used to license copyright material if the copyright owner has applied a technological protection measure to preclude unauthorised use of the material. Clause 4 of the Legal Code of the Attribution 2.5 Australia licence states that the licensed copyright work must not be published, communicated to the public, distributed, publicly exhibited, displayed, performed or digitally performed ‘with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this Licence’. However, where the licensed work is included in a Collective Work, it is not necessary for the Collective Work (apart from the licensed work itself) to comply with this requirement.¹¹⁶

TERMINATION ON BREACH

The grant of rights under a CC licence is perpetual, lasting for the full duration of copyright.¹¹⁷ CC licences do not contain an express provision which entitles the licensor to terminate the licence solely for the licensor’s convenience,¹¹⁸ although the licensor reserves the right to release the work under a different licence or to stop distributing it at any time.¹¹⁹ A CC licence and the rights granted under it will terminate automatically if there is a breach of the terms of the licence by the user.¹²⁰ If a CC licence terminates due to breach by the licensee, in the absence of an ongoing licence to use the copyright material, the ordinary principles of copyright law come into operation. This means that, following termination for breach, any unauthorised use of the copyright material by the licensee may be an infringement of copyright that is subject to civil and criminal penalties.

Some commentators have contended that the absence of a right to terminate for convenience means that CC licences are irrevocable. For most practical purposes, the issue of termination for convenience is unlikely to arise where government has distributed PSI under a CC licence to give effect to a policy position supporting open access to government materials. The question of revocation of

114 Encryption involves the scrambling of the information embedded within a digital object so that it cannot be used without a password.

115 Digital watermarks (which can be visible or invisible) embed information (e.g. about the author, publisher, terms and conditions of use) into the data and removing them causes the quality of the data to be severely degraded.

116 Clause 4(a), Legal Code, Attribution 2.5 Australia.

117 Clauses 3 and 7(b), Legal Code, Attribution 2.5 Australia.

118 Such termination for convenience clauses are commonly found in Australian federal government contracts, but are much more rarely used by State and Territory governments.

119 Clause 7(a), Legal Code, Attribution 2.5 Australia.

120 Clause 7(a), Legal Code, Attribution 2.5 Australia.

CC licences will usually only arise in the event that government changes its policy, either generally or in relation to a specific copyright work or category of materials, or if the distribution of the PSI in question is found to be illegal or to raise national security concerns. An operational response to a shift in policy of this kind would be for the government agency to cease distributing the material or to continue making it available under altered licence conditions,¹²¹ although any material that has already been distributed under the original licence would continue to be so.¹²²

A bare (non-contractual) licence can be revoked at any time, provided that adequate notice of revocation is given to any licensee: *Trumpet Software v OzE-mail* [1996] FCA 560 ('Trumpet Software'). Accordingly, where a CC licence takes effect as a bare licence, it may be revoked at any time by the government agency (the licensor) that has applied the licence to its material, upon giving reasonable notice to the licensee.¹²³ What period of notice will be 'reasonable' will depend upon the circumstances in each case but might range from a period of some weeks to several months or more.¹²⁴ In the *Trumpet Software* case, the plaintiff had distributed its internet connection Trumpet Winsock computer program as shareware available for free download from FTP¹²⁵ sites, under a bare licence which permitted those who obtained a copy to use it for a specified period

121 Both of these options are provided for in Clause 7(b), Legal Code, Attribution 2.5 Australia.

122 Clause 7(b), Legal Code, Attribution 2.5 Australia.

123 In this respect, CC licences operate in a similar fashion to the general 'waivers' of copyright in judgments and legislative material issued by the New South Wales government. Under the 'waivers', the NSW government retains copyright in the materials and expressly authorises publishers to publish and otherwise deal with the materials, subject to specified conditions. The authorisation takes effect 'as a licence binding on the State' which can be revoked, varied or withdrawn by the State if the conditions are breached or upon giving notice. The authorisation may be revoked, varied or withdrawn generally, or in respect of specified publishers or classes of publishers, or in relation to specified classes of materials, upon the government giving notice in the *NSW Government Gazette* or by notice to any particular publisher, or otherwise as determined by the Attorney General: Notice: Copyright in judicial decisions, *NSW Government Gazette* No. 23 (3 March 1995) p. 1087; and Notice: Copyright in legislation and other material, *NSW Government Gazette* No. 110 (27 September 1996) p. 6611.

124 See P Johnson (2008), 'Dedicating' Copyright to the Public Domain', *Modern Law Review* 71(4): 587, pp. 605–06. Johnson (p. 606) comments that six months' notice was considered reasonable where the licensee had spent substantial sums in reliance upon the licence (*Dorling v Honnor Marine* [1963] RPC 205), but a reasonable notice period might be considerably less where the licensee had expended less.

125 File Transfer Protocol.

for assessment and to pass on the entire program (including the same terms of use) to other users. As is the case with CC licences, the licence granted to users of Trumpet Winsock (to use it as shareware for a 30-day evaluation period) operated directly from the plaintiff to each user. Heerey J rejected the defendant's assertion that the method of distribution of Trumpet Winsock as shareware gave rise to a licence which could not be revoked, even if reasonable notice of termination was given. While Heerey J countenanced that it may be the case 'that a bare licence not supported by consideration can still only be revoked on giving the licensee reasonable notice: *Computermate Products (Aust) Pty Ltd v Ozi-Soft Pty Ltd* (1988) 20 FCR 46 at 49', he said it would be without foundation to hold that such a licence could not be revoked at all.¹²⁶

A contractual copyright licence can be revoked in accordance with the terms of the contract. Where a CC licence takes effect as a contract and the licensee is in material breach of the terms of the licence, the licensor would be entitled to notify the licensee of the breach and allow a reasonable period within which to remedy the breach. Failure by the licensee to remedy within that period would entitle the licensor to terminate the CC licence.

The basis for the contention that CC and other open source/content licences are irrevocable seems to owe more to the practical difficulties of recalling works that have been widely distributed, to users other than those who are the immediate recipients of the work from the licensor, than to the lack of legal grounds for revocation.¹²⁷ Notwithstanding the earlier impracticalities of seeking to give notice of revocation of a licence to all the distributed recipients of a copyright work, in the internet era the core features of CC licences assist in locating copies of licensed works and notifying users of changed conditions of use. All CC licences include provision for the identification of the licensor and Digital Code, which enable the web location of licensed works to be discovered by search engines such as Google and Yahoo. Consequently, it is not difficult to locate copies of CC-licensed works on the web and to notify the administrators of websites where they are displayed that the licence has been or will be terminated.

While the issue of revocability of CC licences may be a theoretical rather than a practical concern,¹²⁸ if a licence of PSI granted by a government were to

126 *Trumpet Software Pty Ltd v OzEmail Pty Ltd* [1996] FCA 560.

127 Note that this reasoning is implicit in the argument put forward by the defendants in *Trumpet Software Pty Ltd v OzEmail Pty Ltd* [1996] FCA 560 that the shareware licence granted by the plaintiff to users of its Trumpet Winsock software was irrevocable.

2. The central principle of the doctrine is that the law will not permit an unconscionable – or, more accurately, unconscientious – departure by one party from the subject matter of an assumption which has been adopted by the other party as the basis of some relationship, course of conduct, act or omission which would operate to that

be revoked, the licensee may still be entitled – under the estoppel doctrine – to continue using the material.¹²⁹ To successfully raise estoppel, the licensee would need to show that they had, in reliance on the CC licence, altered their position such that it would now be unreasonable (unconscionable) for the government agency/licensor to withdraw permission to use the licensed material. Where the licensee has relied on the terms of the CC licence to their detriment, the doctrine of estoppel would prevent the licensor from resiling from the representations made in the licence about how it will exercise its rights as copyright owner.

It is established in Australian law that estoppel can be raised against a government. In the leading case, *The Commonwealth v Verwayen* (the ‘Voyager’ case) [1990] HCA 39, (1990) 170 CLR 394, members of the High Court of Australia applied the doctrine of estoppel, holding that the Commonwealth could not avail itself of a defence that a tort action was statute barred when it had earlier made representations to the plaintiff that it would not rely on that defence.¹³⁰ Chief Justice Mason explained the doctrine of estoppel as one which:

provides that a court of common law or equity may do what is required, but not more, to prevent a person who has relied upon an assumption as to a present, past or future state of affairs (including a legal state of affairs), which assumption the party estopped has induced him to hold, from suffering detriment in reliance upon the assumption as a result of the denial

other party’s detriment if the assumption be not adhered to for the purposes of the litigation.

3. Since an estoppel will not arise unless the party claiming the benefit of it has adopted the assumption as the basis of action or inaction and thereby placed himself in a position of significant disadvantage if departure from the assumption be permitted, the resolution of an issue of estoppel by conduct will involve an examination of the relevant belief, actions and position of that party.
4. The question whether such a departure would be unconscionable relates to the conduct of the allegedly estopped party in all the circumstances. That party must have played such a part in the adoption of, or persistence in, the assumption that he would be guilty of unjust and oppressive conduct if he were now to depart from it.¹³²

¹³² Deane J, para. 21, pp. 444–45.

¹²⁹ Estoppel could also be raised on the basis of the express statements in the New South Wales government’s ‘waivers’ of copyright in legislation and judgments that ‘[t]he State will not enforce copyright in any judicial decision [or legislative material] to the extent that it is published or otherwise dealt with in accordance with this authorisation’: Clause 3, Notice: Copyright in judicial decisions, *NSW Government Gazette* 23 (3 March 1995) p. 1087; and Clause 3, Notice: Copyright in legislation and other material, *NSW Government Gazette* 110 (27 September 1996) p. 6611.

¹³⁰ Mason CJ, p. 413, Deane J, pp. 446–51; Dawson J, pp. 455–63.

of its correctness.¹³¹

Deane J numerated the elements of the doctrine:

2. The central principle of the doctrine is that the law will not permit an unconscionable – or, more accurately, unconscientious – departure by one party from the subject matter of an assumption which has been adopted by the other party as the basis of some relationship, course of conduct, act or omission which would operate to that other party’s detriment if the assumption be not adhered to for the purposes of the litigation.

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While the principles of estoppel have developed mainly in the area of private law, the elements of the doctrine apply in the same way in both public and private law. The main difference is that estoppel cannot be invoked against a government entity to stop it exercising its statutory powers.¹³³ In *Baillieu and Poggioli v Australian Electoral Commission* [1996] FCA 1202, the AEC was estopped from enforcing its copyright in postal vote application forms and brochures. There was no issue of the exercise of a statutory discretion by the AEC. Rather, the AEC as owner of copyright in the materials in question, was asserting its rights in the same way as any other copyright owner. Since s 64 of the *Judiciary Act 1903* (Cth) provides that in an action to which the Commonwealth is a party, the rights of the parties are to be ‘as nearly as possible’ the same as in a suit between subject and subject, there was no basis for holding that the Commonwealth could not

131 Mason CJ, para. 36, p. 413.

132 Deane J, para. 21, pp. 444–45.

133 See Sir Anthony Mason, ‘The Place of Estoppel in Public Law’ in M Groves (ed), *Law and Government in Australia*, Federation Press, Sydney, 2005, p. 160.

be estopped.¹³⁴

In *Computermate Products (Aust) Pty Ltd v Ozi-Soft Pty Ltd* (1988) 20 FCR 46 at 49 the Full Federal Court considered the operation of the estoppel doctrine in circumstances where the assumption relied upon is based upon a bare licence:

[W]here the bare licence has been acted upon by the licensee to the detriment of the licensee, in an appropriate case there may be an estoppel against the licensor preventing the revocation of the licence, either at all or otherwise than upon notice: *Waltons Stores (Interstate) Ltd v Maher* [1988] HCA 7; (1988) 164 CLR 387.

As CC licences operate as a direct licence between the licensor and each of the licensees receiving the copyright material, the estoppel would operate not only between the licensor and an initial recipient of the licensed material but also between the licensor and all subsequent (downstream) recipients, even though they have not obtained the material directly from the licensor.¹³⁵

While the *Crown Proceedings* legislation enacted in each of the Australian jurisdictions makes it clear that the rights and liabilities of the Crown are, as far as possible, the same as those of private parties,¹³⁶ some Crown immunities and privileges nevertheless survive, exempting governments from compliance with their civil obligations. Of particular relevance is the doctrine of executive necessity (also known as government effectiveness) which allows a government to override existing rights, including those based on contract, where it is necessary to do so for governmental reasons (such as in an emergency or a bona fide change in policy). Consequently, irrespective of whether a CC licence takes effect as a bare (non-contractual) or a contractual licence, where required by public interest considerations, a government would be able to terminate the licence to give effect to its policy, even in the absence of any breach by the licensee.¹³⁷

134 *Baillieu and Poggioli of and on behalf of the Liberal Party of Australia (Victorian Division) v Australian Electoral Commission and Commonwealth of Australia* [1996] FCA 1202 per Sundberg J, paras. 60–64.

135 See Figure 1.

136 See, for example, *Crown Proceedings Act 1980* (Qld), s. 9(2), *Judiciary Act 1903* (Cth), s. 64.

137 See generally, N Seddon, *Government Contracts: Federal, State and Local*, 4th ed., Federation Press, Sydney, 2009; and A Fitzgerald, *Mining Agreements: Negotiated Frameworks in the Australian Minerals Sector*, Prospect, Sydney, 2002, pp. 56–63.

JURISDICTION – APPLICABLE LAW

It is well established and prudent practice in commercial and other cross-border or international transactions for the operative document to specify the laws of which jurisdiction are to govern the transaction (the ‘applicable law’). The jurisdiction selected need not be that of any of the parties, although the laws of the jurisdiction should be comprehensive and fully developed in relation to the subject matter of the transaction. Nomination of the jurisdiction whose laws are to govern the transaction is intended to introduce certainty and to avoid the complexities which would otherwise arise in determining which laws should apply.

The Australian Creative Commons licences specify the laws applying in the state of New South Wales as the applicable law to govern the licensing transactions.¹³⁸ In a federal legal system such as Australia’s, the laws of one State or Territory jurisdiction need to be specified to provide certainty. The selection of New South Wales is appropriate – as would have been one of the other jurisdictions in the Australian Federation – as its laws are comprehensive and fully developed.

NON-ENDORSEMENT

An additional provision has been developed for inclusion in the next version of the Creative Commons licences to dispel or negate any suggestion made by a licensee of material provided under a CC licence that the licensor approves, sponsors or endorses in some way the licensee or the licensee’s use of the licensed materials. Before a licensee is authorised to make any such suggestion they must first obtain the licensor’s written approval to do so. The Creative Commons Australia 3.0 consultation drafts of the CC Attribution (BY) 3.0 and the Attribution Non-Commercial Share Alike (BY-NC-SA) 3.0 licences¹³⁹ contain an explicit ‘nonendorsement’ provision to this effect.

138 For example, Clause 8(f), Legal Code, Attribution 2.5 Australia provides: ‘The construction, validity and performance of this Licence shall be governed by the laws in force in New South Wales, Australia’.

139 The ‘non-endorsement’ provision in each Australian CC consultation draft licence is Clause 2.3 which, in relevant part, states:

[You/the licensee] must not assert or imply any connection with, sponsorship of or endorsement by the Original Author or Licensor of You or Your use of the Work, without their separate, express prior written permission.

Internationally, a non-endorsement provision was included in the Creative Commons Unported (i.e. generic or non-country specific) 3.0 licences. For more historical details see creativecommons.org.au/v3draft.

NO INDEMNITY OR WARRANTY OF TITLE

The CC licences are unmediated, with standard, predetermined provisions which do not include an indemnity provision in favour of the licensor.¹⁴⁰ Nor do the CC licences include a warranty provision under which the licensor ‘guarantees’ their good title to all rights, including intellectual property rights, in the material being licensed.¹⁴¹ The Disclaimer clause,¹⁴² which appears in each of the CC licences, states that the material is licensed without ‘any representations, warranties or conditions regarding ... title ... [or] ... noninfringement’. This clause also excludes other warranties, such as fitness for purpose, to the full extent permitted by law. Clause 6 (‘Limitation on Liability’) is a comprehensive limitation of legal liability provision, applying to the full extent permitted by law.¹⁴³

The absence of a warranty of title and an assertion that the licensed material does not infringe any other party’s rights has given rise to expressions of concern that third party copyright materials may be included in works licensed by government agencies under CC licences. In fact, the issue of inclusion of third party copyright materials in works being licensed for re-use is equally relevant whether the licensor is a government agency or a private party and whether the material is being licensed under a CC licence or some other form of licence. Good licensing practice for any licensor – whether government or private sector – is to conduct a due diligence or provenance review before proceeding to license the material, to ascertain whether it includes any material in which copyright is owned by a party other than the licensor. If the review establishes the existence of third party copyright interests, before proceeding further the licensor should contact the relevant party and endeavour to secure all necessary rights to license the material as intended. If the third party rights cannot be secured, the licensor would normally not proceed further as to do so would risk incurring liability. The various Intellectual Property guidelines and policies adopted by Australian governments require government agencies to acknowledge and respect the intellectual property rights of other parties. Implicit in the concerns expressed about the inclusion of third party materials in works licensed under CC licences is that government agencies

140 The use of prudent information management practices by government agencies has the effect of reducing the risk of legal liability associated with information transactions, in the vast majority of transactions, to acceptably low levels in accordance with proper risk management principles and practices. In such circumstances the seeking of an indemnity in the vast majority of transactions is neither appropriate nor required.

141 See, for example, the Australian Creative Commons Attribution 2.5 Licence terms at creativecommons.org/licenses/by/2.5/au/legalcode.

142 Clauses 5, Legal Code, Attribution 2.5 Australia.

143 Clause 6, Legal Code, Attribution 2.5 Australia.

would not bother – and, perhaps, would not be capable of – seeking authorisation to use the material but would simply proceed to use it under the statutory licence in ss. 183 and 183A of the *Copyright Act 1968*. While the statutory licensing provisions exempt from infringement activities done by government ‘for the services of the State’ provided equitable remuneration is paid to a declared copyright collecting society (in this case, Copyright Agency Limited), they will not exempt the unauthorised use of the third party material by parties who receive it from a government agency under a CC licence. In fact, the application of CC licences to PSI will not expose government to any significant risk of liability if government agencies adopt reasonable and prudent information management practices.

FEES AND CHARGES – UPFRONT PAYMENT FOR LICENSED MATERIAL

The application of CC licences by a government agency is not inconsistent with imposition of a statutory charge or fee, payable by the licensee at the time the PSI is made available to the user. For example, the government agency could make a digital file available for access on a web site where it can be viewed but not copied by a user; however, if the user wants to proceed to download a licensed copy of the file for use and re-use, they may be required to pay a charge or fee. Here, the downloaded digital material can be licensed by the government to the user under a CC licence – including a CC BY-NC licence – notwithstanding that the licensor obtains payment from the licensee. The terms of the CC licence describe the scope of the permission granted to the licensee, not the licensor’s rights in relation to the copyright material. There is no restriction on the licensor making the material available to the licensee under a CC BY-NC licence and requiring payment before providing the material even though the licensee is prohibited from using the licensed material for commercial purposes.

ADVANTAGES OF USING CC LICENCES ON GOVERNMENT COPYRIGHT MATERIALS

CC licences have several advantages for governments in managing copyright to give effect to open access policy objectives. Where an open access policy has been adopted, CC licences provide a means of managing copyright to establish a commons of PSI in which the broadest possible rights of access and re-use are conferred on all users.

ENFORCEABILITY

It is not disputed that bare (non-contractual) licences applied to copyright materials distributed in digital form on the internet will be recognised and enforced by the Australian courts. This much was established in Australia as far back as 1996 in *Trumpet Software v OzEmail* [1996] FCA 560, a case involving shareware distributed on openly accessible FTP sites.¹⁴⁴ If a copyright owner grants a licence authorising the doing of certain of the acts within the owner's exclusive rights under s 31 of the Copyright Act, any such act will be deemed to have been done with the permission of the copyright owner. However, if the licensee does acts outside the scope of their licence, those acts may infringe copyright.¹⁴⁵

Notwithstanding (or perhaps because of) the widespread use of CC and other open content and open source licences, there have been relatively few cases in which their validity and enforceability has been tested in court. As Lawrence Rosen comments:

In what in retrospect may seem like a leap of faith, millions of software programmers around the world published their works expecting that their open source licences, including the GPL, would be honored and enforced in court.¹⁴⁶

The most authoritative consideration to date of the effectiveness of open source licences is the decision of the United States Court of Appeals for the Federal Circuit in *Jacobsen v Katzer* in August 2008.¹⁴⁷ Although the licence at issue was an open source licence of computer programming code, the decision is of direct relevance to CC licences as Creative Commons intervened in the appeal as *amici curiae*. In this case, software was licensed for no fee under a copyright-based open source licence (the 'Artistic License') which permitted users to modify and distribute the copyright material, subject to a requirement that certain attribution

144 *Trumpet Software Pty Ltd & Anor v OzEmail Pty Ltd & Ors* [1996] FCA 560.

145 See: *Quanta Software International Pty Ltd v Computer Management Services Pty Ltd* [2001] FCA 1459 and *Sullivan v FNH Investments Pty Ltd* [2003] FCA 323.

146 L Rosen (2009), 'Bad facts make good law: The Jacobsen case and Open Source', *International Free and Open Source Software Law Review* 1: 27.

147 *Jacobsen v. Katzer*, 535 F.3d 1373 (Fed.Cir. Aug 13, 2008), on remand, *Jacobsen v. Katzer*, 609 F.Supp.2d 925 (N.D.Cal. Jan 5, 2009), available at www.cafc.uscourts.gov/opinions/08-1001.pdf. For comment, see: B Fitzgerald and R Olwan,, 'The Legality of Free and Open Source Software Licences: the case of *Jacobsen v. Katzer*' in M. Perry and B. Fitzgerald (eds.) *Knowledge Policy for the 21st Century*, Irwin Law Toronto, 2008, available at eprints.qut.edu.au/15148/ (accessed 29 January 2010).

and identification information was distributed along with it. As the authorisation to modify and distribute the software was subject to the conditions expressly stated in the open source licence, by failing to include the copyright notices and the ‘copying’ file, the defendant had gone beyond the scope of the licence and thereby infringed copyright. From the decision in *Jacobsen v Katzer* it is clear that open source and CC licences will be upheld by the courts, even though they are applied to copyright materials distributed for no financial reward, and that failure to comply with the licence conditions may be an infringement of copyright, for which the usual remedies will apply. CC licences have also been enforced in the Netherlands and Bulgaria,¹⁴⁸ treated as valid in court cases in Spain and enforced in Norway.¹⁴⁹

EXPLICIT STATEMENT OF RE-USE RIGHTS

Government agencies can use CC licences to clearly communicate to users just what they are permitted to do with the licensed PSI, without having to seek permission or to engage in timeconsuming negotiation of licensing conditions. Unlike the static websites of the web 1.0 era, CC licences can be included not only on each of the individual pages of a website but also on every digital object or file downloaded from the site. This is an important advance on prevailing practice which is for short copyright notices to be displayed – if at all – on government websites but lacking sufficient detail or clarity for users to understand what they are permitted to do with the material.¹⁵⁰ A survey of 130 New South Wales government websites conducted in mid-2006 found there to be a diversity of licensing approaches and no uniform whole-of-government policy on copyright notices.¹⁵¹ Eleven per cent of websites had no copyright notice at all, 8%

148 See ‘*Creative Commons Bulgaria Licence upheld in court*’, Veni Markovski, 9 June 2008, at blog.veni.com/?p=494

149 See ‘*Creative Commons License Honoured, US\$ 2150 for Flickr Photo*’, on Gisele Hannemyr’s ‘*Trails*’ blog, 15 October 2006, at heim.ifi.uio.no/~gisle/blog/?p=92, (accessed 14 November 2009).

150 As discussed above where the rights of re-use are clearly indicated, such as through the use of CC licences, the electronic rights management information (ERMI) provisions set out in Division 2A, Subdivision B of the *Copyright Act 1968* provide legal protection against removal of or interference with the relevant ERMI.

151 In 2005, the NSW Premier’s Department published *Intellectual Property Management Framework for the NSW Public Sector*, which recommends that copyright notices ‘should also make clear any automatic copyright permission the agency wishes to provide, any restrictions on use of the material, and how to obtain any further copyright permissions’, available at <http://www.premiers.nsw.gov.au/Train->

had a basic one¹⁵² and a further 8% displayed ‘All rights reserved’ statements or stated that there was to be ‘no reproduction without express permission’, requiring users to obtain written permission to reproduce the content on the website for any purpose.¹⁵³ A total of 52% of websites conveyed ‘either no or few explicit permissions’ other than those provided for in the *Copyright Act*.¹⁵⁴

Where a copyright notice is displayed on government websites and other materials, the statement typically addresses what the user cannot do and requires them to seek express permission (sometimes, in writing) to do anything beyond the very circumscribed range of permitted activities. A very real advantage of using open content licences drafted along the model found in the CC licence suite is that they expressly tell users what they can do with the licensed material. This advantage of using open content licensing has been noted by the Australian Bureau of Statistics (ABS):

An open licensing framework clarifies the responsibilities and obligations of ABS users in using, sharing and reusing ABS data. This will in turn create an environment which will optimise the flow of ideas and information of social and economic benefit.¹⁵⁵

In keeping with the nature and purpose of government copyright, typically, the only restrictions imposed on users (where a CC BY licence is applied to PSI) will be a requirement to maintain the licensing information, to properly attribute the licensor, to not falsely attribute another party as licensor and to distribute accurate copies of the material.

CLEAR STATEMENT THAT INFORMATION IS SOURCED FROM GOVERNMENT – INCREASED

ingAndResources/Publications/publications.htm.

152 For example, © Copyright–AHO 2002.

153 Catherine Bond, *The State of Licensing: Towards Reuse of NSW Government Information*, Unlocking IP Working Paper, [2006] AIPLRes 43, at www.austlii.edu.au/other/AIPLRes/2006/43.html.

154 *ibid.*, para. 2.4.2.

155 Siu-Ming Tam, Australian Bureau of Statistics, *Informing the Nation – Open Access to Statistical Information in Australia*, paper presented to the United Nations Economic Commission for Europe (UNECE) Work Session on the Communication and Dissemination of Statistics, Poland, May 2009, para. 34, available www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.pdf.

USER CONFIDENCE

The amount of information accessible online is increasing exponentially, and is of variable quality and reliability. A clear advantage for government in applying CC licences to PSI is that the source or provenance of the material is made clearly apparent to users. This is an important and practical factor for users online when trying to assess the character of information and confidence they can have in its quality, accuracy and other features.

While users will not automatically assume that information sourced from government is correct in all respects and therefore suitable for use, on balance, users are likely to see government as a reliable source of information of reasonable standard or quality. Where the source is clear the user may make an informed decision about whether or not to use the information or the degree of credence to be given to it. Importantly, all CC licences have a requirement that attribution be given to the author, or other party (e.g. the owner of copyright) designated for the purposes of attribution. In this way the source of the information is identified clearly to the user. Conversely, if the provenance of information is not stated in clear and transparent terms, the degree of confidence a user may have in it will diminish, reducing the likelihood that – and the extent to which – the information will be used or relied upon.¹⁵⁶

Another advantage of adopting a standard practice of applying CC licences to copyright material is that it prospectively avoids the problem of so-called ‘orphan’ copyright works, for which it is not possible to identify or locate the copyright owner in order to obtain permission to use the material. The orphan works problem is not confined to privately owned materials, but equally affects a great deal of material held by the public sector, much of which is of great sci-

156 The crucial role played by clearly stating the source or provenance of licensed information in facilitating the flows and re-use of the information is strongly affirmed in the report, by Dr Prodromos Tsiavos, *Case Studies Mapping the Flows of Content, Value and Rights across the Public Sector*, March 2009 (available at www.jisc.ac.uk/contentalliance) which contains an analysis of seven UK case studies of publicly funded e-content initiatives. The author, in the course of analysing the flows of rights and information in the case studies, states ‘the more rights offered to the licensee the more the need for – Attribution, Provenance, Quality Assurance, [and] Adherence to data protection rules...’ (p. 40, para. 5.4.1). In the Executive Summary, page 6, in the key findings the author states under the heading, More freedom means more responsibility, ‘[t]he closer we get to a model of unrestricted sharing and re-purposing of content, the greater the need for attribution, quality assurance,.. source tracing and provenance’. On the need for compatible licences to facilitate flows and re-use the author states ‘the copyright licences used have to be compatible with each other, otherwise they will lead to derivative works infringing the copyright of the content on which they are based’ (p. 40, para. 5.4.1).

entific, cultural and historic value. At least with respect to PSI, the problems currently encountered with orphan works could be virtually eliminated in the future if metadata – including the name of the creator/s of the work, copyright owner/s and licensing permissions – were to be attached to or embedded in copyright works at the time they are created and before distribution. As CC licences identify the individual or entity responsible for creating the work and specify the terms on which it can be used, they simplify the process of ascertaining what can be done with the material and should make it easier to contact the copyright owner to obtain permissions beyond those granted in the standard licence.

UNIVERSAL RECOGNITION OF SYMBOLS

The symbols used to indicate the terms of CC licences have the advantage of being widely recognised and understood, irrespective of the language in which the Licence Deed or Legal Code is written, or the location of the licensor. This is a particularly important advantage for works distributed online in digital form. When a government agency applies a CC licence and related symbols to a public sector work, the terms on which the work can be used are readily apparent to users, independently of their jurisdiction or language.

DISCOVERABILITY OF DIGITAL OBJECTS

CC licences are designed for the web 2.0 environment. Each of the CC licences is expressed in machine readable Digital Code (or Licence Metadata) which is used to ‘tag’ the digital object (or file), as well as the web page that links to it. Unlike the static copyright notices typically found on government websites, the Digital Code of CC licences is included in the digital object and travels with it, facilitating the distribution and discoverability of CC licensed works. As observed in the (draft) New Zealand Goal Open Access Framework:

Distribution and discoverability is increasingly significant in the digital age as it facilitates, among other things, machine-based indexing and searching of CC-licensed works by reference to the Digital Code’s metadata.¹⁵⁷

157 New Zealand Government, State Services Commission, *Draft New Zealand Government Open Access and Licensing Framework* (NZGOAL), August 2009, p. 18, available at www.e.govt.nz/policy/information-data/nzgoalframework.html (accessed 25 January 2010).

The machine-readable Digital Code enables CC-licensed materials to be indexed and retrieved by search engines such as Google, along with the licensing information. The inclusion of an express statement of user permissions with the digital file – both in the form of the human-readable Licence Deed and the machine-readable Digital Code – means that a user is immediately provided with information about what they can and cannot do with the material, which can be verified by checking with the licensor.

ENABLE LEGAL REMIXING OF COPYRIGHT MATERIALS

A significant impediment to the efficient sharing and re-use of PSI is the diversity of licensing practices and the lack of consistency or compatibility of the rights granted to users. Incompatibility of licence terms creates a legal logjam and presents a major obstacle to the ready flow of PSI. Although it may be possible, technologically, to obtain access to, and to mix and match (mash up or remix) various information inputs or products, this does not mean that such remixing or re-use of the information inputs or products is lawful.¹⁵⁸

To ensure that various information inputs or products can be remixed or mashed up without infringing copyright, it is necessary to carefully examine each of them to ascertain exactly what rights are granted to users and re-users. If the person who does the remixing or mashing proposes to license the new work they produce so that it can be used by others, they will not lawfully be able to grant more extensive rights of re-use than those they have themselves. Where there are different re-use rights attaching to the various components of a remixed or mashed work, the lowest common denominator principle applies: the most restrictive re-use rights applying to any one of the inputs will govern what can be done with the whole of the remixed or mashed work, irrespective of whether it is intended to be used only by the person who has produced it or licensed to other parties for downstream use. When licensing the remixed work, the person who has created it would only be able lawfully to license or grant the lowest common denominator rights of re-use. This can have a severely limiting effect on the scope of the re-use of remixed information products, representing a significant impediment to re-use of PSI.

The use of numerous different licences, often with inconsistent or incompatible terms, has been identified in numerous reviews as an impediment to effective

158 On the importance of being able to remix from among a wide range of existing materials, see Dr T Cutler, *The Role of Cultural Collections in Australia's Innovation System*, keynote address presented at the State Library of Victoria, 23 October 2009, pp. 3–4. Dr Cutler introduces the term ‘combinatorial innovation’ to refer to remix.

flows of PSI. Open content licences such as Creative Commons are a legally effective and efficient way in which to promote globally compatible re-use rights for copyright material, including PSI. The Government Information Licensing Framework (GILF) project was instigated by QSIC specifically to address the recurring problems in accessing and sharing spatial information among government agencies and utility service providers during and after natural disasters,¹⁵⁹ due to the fragmented, inefficient and confusing arrangements for information access and re-use.¹⁶⁰ For the Australian Bureau of Statistics the recognition that, even after making much of its data freely available online, the potential remained for its licensing practices to form ‘an undesirable barrier to those wishing to re-use significant amounts of data’ led to the decision to go a step further and adopt Creative Commons licensing for its online data.¹⁶¹ The *National Government Information Sharing Strategy* (NGISS)¹⁶² identified several existing barriers to information sharing, including ‘information management practices that restrict sharing capability’ and recommended the development of ‘appropriate governance arrangements for information sharing [which are] clearly defined and applied consistently across government’.¹⁶³ In particular, NGISS recommended that the governance documentation should include ‘instructions regarding information conditions of use e.g. copyright, licensing etc’ and referred to the GILF as one of the tools to be used in establishing clear governance arrangements

159 In Queensland, the problems of accessing and sharing spatial information were highlighted by Cyclone Larry which devastated large areas of northern Queensland in 2005; in Victoria, the 2009 bushfires poignantly demonstrated the criticality of real time, spatially-related information to enable effective emergency response management.

160 Queensland Government, Queensland Spatial Information Council, *Government Information and Open Content Licensing: An access and use strategy* (Government Information Licensing Framework Project Stage 2 Report), October 2006, available at www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB6814A25727B0013C7EE. See also www.gilf.gov.au.

161 Siu-Ming Tam, Australian Bureau of Statistics, *Informing the Nation – Open Access to Statistical Information in Australia*, paper presented to the United Nations Economic Commission for Europe (UNECE) Work Session on the Communication and Dissemination of Statistics, Poland, May 2009, para. 32, available at www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.pdf.

162 *National Government Information Sharing Strategy: Unlocking Government information assets to benefit the broader community*, Australian Government Information Management Office (AGIMO), Department of Finance and Deregulation, August 2009, available at www.finance.gov.au/publications/national-government-information-sharing-strategy/docs/ngiss.pdf.

163 *ibid.* pp. 6 and 19.

for shared information.¹⁶⁴ The draft *New Zealand Open Access and Licensing Framework* (NZGOAL)¹⁶⁵ observed that there are at least three broad categories of licensing in place across New Zealand government departments and that these ‘various and inconsistent licensing practices’ were a cause of ‘confusion, uncertainty and criticism’ by members of the public.¹⁶⁶

MONITORING LEVELS OF USAGE

With the increasing sophistication of online search capabilities it is now practicable for licensors to monitor the level of usage of their material licensed in the online world. This ability largely removes the need for licensors to continue to seek to impose a reporting obligation on a licensee to record and report back on the number of licences granted over a specified period. In practice, the accuracy of any usage or customer details reports was largely dependent upon the licensee’s diligence and record keeping ability. Now, the licensor can simply do an internet search for the licensed material, largely eliminating the need for detailed reporting conditions. Other considerations may well apply in the rather limited number of commercially focused licensing arrangements where a payment regime based on levels of usage or customer numbers is employed. However, considerations of this kind are unlikely to be a factor in the vast majority of PSI licensing arrangements.

USE OF CREATIVE COMMONS LICENCES BY AUSTRALIAN GOVERNMENTS

Although the CC licences were not originally developed with the intention that they would be used on copyright-protected datasets or government materials, the potential for application of the new licensing model quickly became apparent to some of those who had been grappling with open access to research outputs and government materials. In the United States, Paul Uhlir and Jerome Reichman urged the group that developed the CC licences to ‘expand its mission to include scientific research and take an international perspective’¹⁶⁷. Around the same

164 *ibid.*

165 New Zealand Government, State Services Commission, *Draft New Zealand Government Open Access and Licensing Framework* (NZGOAL), August 2009, available at www.e.govt.nz/policy/information-data/nzgoalframework.html.

166 *ibid.* p. 7.

167 David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of their*

time, in the United Kingdom and Australia the demands for greater access to copyright-protected PSI and dissatisfaction with existing licensing arrangements caused attention to focus on CC as a way of overcoming legal barriers to re-use. During 2004 and 2005, investigations into the applicability of CC licences to government copyright materials began almost simultaneously, but quite independently, in the United Kingdom and Australia.

In 2005, in the UK the Common Information Environment (CIE)¹⁶⁸ commissioned a study¹⁶⁹ to investigate the applicability of CC licences in the public sector with the objective of clarifying and simplifying the process of making digital resources available for re-use. The report, *The Common Information Environment and Creative Commons* (October 2005), found that there were many advantages to using CC licences¹⁷⁰ and concluded that CC licences ‘would allow a substantial amount of CIE resources to be made available for re-use’.¹⁷¹ By the time Creative Commons Australia was launched in 2005, there was an established appreciation of the advantages of open content licensing in the education

Own, 2008, p. 105, available at www.viralspiral.cc/download-book (accessed 10 December 2009).

- 168 The Common Information Environment (CIE) was a group of key UK public sector bodies, including Becta, the British Library, the Department for Education & Skills (DfES), the e-Science Core Programme, the Joint Information Systems Committee (JISC), the Museums Libraries & Archives Council (MLA), the National Archives, the National Electronic Library for Health, the Scottish Library & Information Council (SLIC), the BBC, Culture Online, English Heritage, The National Library of Scotland and UKOLN.
- 169 The study was carried out by Intrallect (E Barker and C Duncan) and the AHRC Research Centre for Studies in IP and IT Law (A Guadamuz, J Hatcher and C Waelde). See further, www.intrallect.com/index.php/intrallect/knowledge_base/general_articles/creative_commons_licensing_solutions_for_the_common_information_environment__1/ (accessed 29 January 2010).
- 170 The identified advantages included: ‘ease of use; widespread adoption leading to familiarity; choices offering flexibility; human-readable, machine-readable and symbolic representations of the licences; sharing a common licence with many others; a direct link between the resource and its licence’: Intrallect Ltd (E Barker and C Duncan) and AHRC Research Centre (A Guadamuz, J Hatcher and C Waelde), *The Common Information Environment and Creative Commons*, Final Report (10 October 2005), Executive Summary, p. 4, available at www.intrallect.com/index.php/intrallect/knowledge_base/general_articles/creative_commons_licensing_solutions_for_the_common_information_environment__1/ (accessed 29 January 2010).
- 171 *ibid.*

sector¹⁷² and a growing awareness of the potential for CC licences to be applied to facilitate access to PSI.¹⁷³ Submissions to the Copyright Law Review Committee's inquiry into Crown Copyright (2004–05) urged the Committee to consider not only how the elimination of copyright could enhance access to PSI but also the potential for this objective to be achieved through open content licensing.¹⁷⁴ Immediately upon the release of the Australian CC licences in 2005, senior Queensland public servants who had been looking to improve the licensing arrangements for PSI turned their attention to the potential of the new suite of open content licences.¹⁷⁵

GOVERNMENT INFORMATION LICENSING

- 172 AShareNet had pioneered the use of standardised licensing in the education sector in Australia. See further, B Fitzgerald, A Fitzgerald, M Perry, S Kiel-Chisholm, E Driscoll, D Thampapillai and J Coates, *Creating a Legal Framework for Copyright Management of Open Access within the Australia Academic and Research Sector* (OAK Law Report No 1), available at eprints.qut.edu.au/6099/1/Printed_Oak_Law_Project_Report.pdf (accessed 29 January 2010); B Fitzgerald, *Open Content Licensing (OCL) for Open Educational Resources*, presented at the OECD Expert Meeting on Open Educational Resources, 6 and 7 February 2006, Malmö, Sweden, 2005, available at eprints.qut.edu.au/3621 (accessed 29 January 2010).
- 173 Digital Content Industry Strategic Industry Leaders Group, *Unlocking the Potential: Digital Content Industry Action Agenda Report*, March 2006, pp. 29, 46, 62, available at www.archive.dcita.gov.au/2007/12/unlocking_the_potential_digital_content_industry_action_agenda_report (accessed 29 January 2010); S Cunningham, T Cutler, A Fitzgerald, Neale Hooper, Tom Cochrane, Why Governments and Public Institutions Need to Understand Open Content Licensing in B Fitzgerald, J Coates and S Lewis (eds.) *Open Content Licensing: Cultivating the Creative Commons*, Sydney University Press, 2007, pp. 74–92, available at eprints.qut.edu.au/6677/1/6677.pdf (accessed 2 February 2010).
- 174 See the submission by Professor Brian Fitzgerald to the Copyright Law Review Committee in Chapter 18 of this book; also available at www.ag.gov.au/agd/WWW/clrHome.nsf/Page/Present_Inquiries_Crown_copyright_Submissions_2004_Sub_No_17_-_Professor_Brian_Fitzgerald.
- 175 For several years, these officers had been investigating ways of improving the flow of spatial information within the Queensland Government, and between the State and other levels of government and the private sector. They had recently viewed a video presentation by Professor Lawrence Lessig delivered at an event at QUT in 2004 to mark the launch of Creative Commons in Australia and immediately grasped the potential for CC licences to be applied towards achieving their objective of reducing impediments to the flow of spatial information.

FRAMEWORK (GILF) PROJECT

The Government Information Licensing Framework Project (GILF project)¹⁷⁶ has been the single most important initiative in leading the way towards the adoption of CC licensing in the government sector in Australia and New Zealand. It grew out of a project initiated in 2004 by the Queensland Spatial Information Council (QSIC)¹⁷⁷ to address long-standing frustrations with the perceived limitations of the prevailing legal arrangements and practices for data access and sharing, both within government and between government and the private sector. Since 2005, work on GILF was progressed as a collaboration between QUT's Law Faculty and Queensland Government's Office of Economic and Statistical Research and the Department of Natural Resources and Water (now Department of Environment and Resource Management).¹⁷⁸

From the outset, the principal focus of the project was the development of a standardised information licensing model for PSI which could be recommended for use with all kinds of government copyright materials to enable enhanced, seamless, on-demand access to PSI.¹⁷⁹ Importantly, the project did not directly

176 Initial consideration of the applicability of CC licences to government copyright materials occurred in response to a request to examine this issue from Tim Barker, (then) Assistant Government Statistician and Director, Queensland Spatial Information Office, Office of Economic and Statistical Research (OESR), Queensland Treasury, Graham McColm, Principal Advisor, Department of Natural Resources and Water, Queensland and Rob Bischoff.

177 Government Information Licensing Framework (GILF) Project website, www.gilf.gov.au; see also the Queensland Spatial Information Office (QSIC) website for background information about GILF, www.qsic.qld.gov.au/QSIC/QSIC.nsf/CPByUNID/6C31063F945CD93B4A257096000CBA1A accessed 14 November 2009.

178 From 2007 to 2010, the GILF project has been funded as part of the Cooperative Research Centre for Spatial Information (CRC-SI). See A Fitzgerald, *Open Access Policies, Practices and Licensing: A review of the literature in Australia and selected jurisdictions*, QUT, July 2009, available at www.aupsi.org/news/CompiledLiterature

[Reviewnowavailableinhardcopy.jsp](#) (accessed 14 November 2009). The authors have been associated with the GILF project since its inception in 2005. Other members of the team in the OESR that progressed the Government Information Licensing Framework (GILF) project from 2005 on included Jenny Bopp, Brendan Cosman, Cathy McGreevy, Trish Santin-Dore and Baden Appleyard. For a chronological account of developments, see the GILF project website at www.gilf.gov.au.

179 Queensland Government, Queensland Spatial Information Council, *Government Information and Open Content Licensing: An access and use strategy* (Government Information Licensing Framework Project Stage 2 Report), October 2006, available

address information policy. However, by focusing attention on the importance of removing barriers to access to and re-use of PSI caused by inadequate or inappropriate licensing practices, the GILF project's findings and recommendations about the use of CC licences directly influenced the reviews of information access policies and practices by the federal government,¹⁸⁰ other State governments,¹⁸¹ the New Zealand Government¹⁸² and the United Kingdom government.¹⁸³ At the

at [www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/](http://www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB814A25727B0013C7EE)

[BFDC06236FADB814A25727B0013C7EE](http://www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB814A25727B0013C7EE) (accessed 14 November 2009).

- 180 See Siu-Ming Tam, Australian Bureau of Statistics, *Informing the Nation – Open Access to Statistical Information in Australia*, Siu-Ming Tam, paper presented to the United Nations Economic Commission for Europe Work Session on the Communication and Dissemination of Statistics, Poland, May 2009, para. 37, available at www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.pdf and *Venturous Australia – Building Strength in Innovation, Review of the National Innovation System*, 2008, available at www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).
- 181 Victorian Parliament, Economic Development and Infrastructure Committee, *Inquiry into Improving Access to Victorian Public Sector Information and Data*, June 2009, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/final_report.html. In December 2008 the South Australian Cabinet decided to endorse implementation of the GILF at an across-government level to its public sector information.
- 182 On 1 July 2009, the Ministry for the Environment (Manatū Mō Te Taiao) announced that it was making two important environmental databases - the Land Cover Database (LCD) and Land Environments New Zealand (LENZ) classification - available online, for free and licensed under a Creative Commons licence (CC BY). See Land Information New Zealand in consultation with the State Services Commission and others, *Understanding our Geographic Information Landscape: A New Zealand Geospatial Strategy* (January 2007), available at www.geospatial.govt.nz/assets/Geospatial-Strategy/nz-geospatial-strategy-2007.pdf. The Draft New Zealand Government Open Access and Licensing Framework (NZGOAL), released for comment in August 2009, proposes the use of New Zealand Creative Commons licences by government agencies and explicitly refers (p. 9) to consultations with the GILF project team and Creative Commons Australia. See www.e.govt.nz/policy/information-data/nzgoalframework.html (accessed 25 January 2010).
- 183 See *Power of Information Taskforce Report*, Richard Allan (chair), February 2009, pp. 7 and 25. This report is included in this book, vol 2, chapter 22. In the December 2009 report, *Putting the Frontline First: Smarter Government*, (available at www.hmg.gov.uk/frontlinefirst.aspx) the UK Government indicated its intention to 'establish a common licence to re-use data which is interoperable with the internationally recognised Creative Commons model'. For further details, see footnote 9.

federal government level, the GILF project served as a catalyst for renewed effort on the development of a national information framework. It was reviewed and supported by the Cross-Jurisdictional Chief Information Officers Committee (CJ-CIOC) and was endorsed by the Ministerial Online and Communications Council (OCC) in 2007.

Stage 1 of the project resulted in endorsement by QSIC and the Information Queensland Steering Committee of an open content licensing model, based on Creative Commons. Stage 2 of the project sought to update QSIC licensing practices and to produce a licensing framework based on an open content licensing model to support data and information transactions between the Queensland Government, other government jurisdictions and the private sector.¹⁸⁴ The report,

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- 2.1 That the Queensland Government establish a policy position that, while ensuring that confidential, security classified and private information collected and held by government continues to be appropriately protected, enables greater use and re use of other publicly available government data and facilitates data sharing arrangements.
 - 2.2 That the Creative Commons open content licensing model be adopted by the Queensland Government to enable greater use of publicly available government data and to support data sharing arrangements.
 - 2.3 That QSIC and the Office of Economic and Statistical Research continue to work closely with the Department of Justice and Attorney-General to ensure that any privacy provisions developed also support new data use, re-use and sharing policies.
 - 2.4 That the Whole-of-Government Information Licensing Project Stage 3: Draft Project Plan for the next phase of this project be endorsed.
 - 2.5 That the Draft Government Information Licensing Framework toolkit, which incorporates the six iCommons (Creative Commons Australia) licences, be endorsed for use in pilot projects proposed for Stage 3, which involves Information Queensland, the Department of Natural Resources and Water, the Environmental Protection Agency, the Department of Primary Industries and Fisheries, the Office of Economic and Statistical Research of Queensland Treasury and the Queensland Spatial Information Council, enabling testing of the CC licences for multi-agency and whole of-Government arrangements.
 - 2.6 That an application be made through the ICT Innovation Fund and Microsoft Program Committee in the Department of Public Works for further funding, to enable the technical development of a Government Information Licensing Management System, consistent with the Draft Government Information Licensing Framework toolkit.
 - 2.7 That a limited number of standard templates be developed to support information licensing transactions relating to confidential or private information or information with commercial value and for which the CC model is not appropriate.¹⁸⁹
- (1) The 2008 Green Paper on the National Innovation System, *Venturous Australia. Building strength in innovation* ('the Cutler Report') contains a strong recommendation on the use of Creative Commons (CC) licences for public sector information. Recommendation 7.8 states that: 'Australian governments should adopt international

standards of open publishing as far as possible [and that material] released for public information by Australian governments should be released under a creative commons licence'.¹⁹² The Cutler Report itself is released under a CC licence.

- (2) On 12 May 2009, the federal government, as part of its Budget process, released a White Paper entitled *Powering Ideas: An Innovation Agenda for the 21st Century*¹⁹³ in response to the *Venturous Australia* report.¹⁹⁴ On access to and re-use of PSI the White paper indicates broad agreement with the Cutler Report's recommendations and highlights the federal government's intention to build on the work already being undertaken by key federal agencies:¹⁹⁵ 'Commonwealth agencies such as the Australian Bureau of Statistics, the Bureau of Meteorology, and Geosciences Australia already gather, analyse, and disseminate information in the public interest. The Australian Government wants to build on this foundation'.
- (3) On 14 July 2009, the Department of Broadband, Communications and the Digital Economy released the report, *Australia's Digital Economy: Future Directions* (the Digital Economy report).¹⁹⁶ The Digital Economy report expressly recognised 'the digital economy and innovation benefits generated by open access to PSI, subject to issues such as privacy, national security and confidentiality'.¹⁹⁷ Enabling open access to PSI is seen not only as a way of promoting public sector innovation but also as a means by which government can facilitate private sector innovation.¹⁹⁸ Consistent with the policy framework it lays out, the Digital Economy report is published under a Creative Commons Attribution-Non-Commercial-No Derivative Works (CC BY-NC-ND) 2.5 licence.
- (4) In June 2009, the federal Minister for Finance and Deregulation, Lindsay Tanner, and the Special Minister of State, Senator Joe Ludwig, launched the Government 2.0 Taskforce.¹⁹⁹ The Taskforce's Terms of Reference included advising and assisting the Australian Government to make government information more accessible and useable; to make government more consultative, participatory and transparent; and to build a culture of innovation within government.²⁰⁰ In the report, *Engage: Getting on with Government 2.0*, delivered to the government in December 2009, the Taskforce made several recommendations, including that PSI should be 'licensed to permit free re-use and transformation by others', using machine readable licences that 'conform to some international standard such as Creative Commons'.²⁰¹ The Taskforce proposed that CC BY should be the default licence applied when distributing PSI in which the government owns copyright, as well as PSI containing third party material, subject to negotiation with the copyright owner/s.²⁰² Further, it recommended that Crown copyright works should be automatically licensed under a CC BY licence at the time when government records become available for public access under the *Archives Act 1983* (Cth).²⁰³

192 See www.innovation.gov.au/innovationreview/Documents/NIS-review-web.pdf, *Recommendation 7.8*, p. 95.

193 Australian Government, Department of Innovation, Industry, Science and Research, *Powering Ideas: An Innovation Agenda for the 21st Century*, 12 May 2009, www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June

*Government Information and Open Content Licensing: An Access and Use Strategy*¹⁸⁵ ('the Stage 2 report'), published in October 2006, described the work undertaken during Stage 2 of the project and set out its findings and recommendations.¹⁸⁶

Research during Stage 2 confirmed the Stage 1 findings that the regime regulating the collection and release of government information had developed in an ad hoc manner, resulting in a fragmented, inefficient and confusing system of contractual and statutory regulation of information access and re-use.¹⁸⁷ A review of licensing practices and models in several Queensland Government agencies found there were significant problems with the current approach, including a lack of uniformity and clarity in licensing practices.¹⁸⁸ Stage 2 identified a need for clear and succinct guiding principles for access, re-use and pricing and concluded that CC licences were the most appropriate for government information. The Stage 2 report supported the introduction of a simplified system of open content licensing for the majority of the information made publicly available by the Queensland government. It recommended:

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- 2009).
- 194 Cutler & Company, *Venturous Australia – Building Strength in Innovation*, Review of the National Innovation System, Report for the Australian Government Department of Innovation, Industry, Science and Research, September 2008, licensed under a Creative Commons Attribution-Non Commercial-No Derivative Works 2.5 Australia Licence, available at www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).
- 195 *ibid.*, Chapter 6, 'Public Sector Innovation', p. 53, available at www.innovation.gov.au/innovationreview/Pages/home.aspx.
- 196 See www.dbcde.gov.au/?a=117295.
- 197 *Australia's Digital Economy: Future Directions*, Department of Broadband, Communications and the Digital Economy, July 2009, p. 12, available at www.dbcde.gov.au/?a=117295.
- 198 *ibid.*, p. 11.
- 199 See gov2.net.au/2009/06/22/speech-launch-of-the-government-2-0-taskforce/.
- 200 See gov2.net.au/.
- 201 Government 2.0 Taskforce, *Engage: Getting on with Government 2.0 – Report of the Government 2.0 Taskforce*, Department of Finance and Deregulation, 2009, p. xv, available at gov2.net.au/report.
- 202 *ibid.* p. xv and 58.
- 203 *ibid.* p. 59.
- 185 *ibid.*
- 186 *ibid.*, pp. 1–2.
- 187 *ibid.*, p. 36.
- 188 *ibid.*, pp. 3–4.

- 2.1 That the Queensland Government establish a policy position that, while ensuring that confidential, security classified and private information collected and held by government continues to be appropriately protected, enables greater use and re use of other publicly available government data and facilitates data sharing arrangements.
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(1) The 2008 Green Paper on the National Innovation System, *Venturous Australia. Build-*

ing strength in innovation ('the Cutler Report') contains a strong recommendation on the use of Creative Commons (CC) licences for public sector information. Recommendation 7.8 states that: 'Australian governments should adopt international standards of open publishing as far as possible [and that material] released for public information by Australian governments should be released under a creative commons licence'.¹⁹² The Cutler Report itself is released under a CC licence.

- (2) On 12 May 2009, the federal government, as part of its Budget process, released a White Paper entitled *Powering Ideas: An Innovation Agenda for the 21st Century*¹⁹³ in response to the *Venturous Australia* report.¹⁹⁴ On access to and re-use of PSI the White paper indicates broad agreement with the Cutler Report's recommendations and highlights the federal government's intention to build on the work already being undertaken by key federal agencies:¹⁹⁵ 'Commonwealth agencies such as the Australian Bureau of Statistics, the Bureau of Meteorology, and Geosciences Australia already gather, analyse, and disseminate information in the public interest. The Australian Government wants to build on this foundation'.
- (3) On 14 July 2009, the Department of Broadband, Communications and the Digital Economy released the report, *Australia's Digital Economy: Future Directions* (the Digital Economy report).¹⁹⁶ The Digital Economy report expressly recognised 'the digital economy and innovation benefits generated by open access to PSI, subject to issues such as privacy, national security and confidentiality'.¹⁹⁷ Enabling open access to PSI is seen not only as a way of promoting public sector innovation but also as a means by which government can facilitate private sector innovation.¹⁹⁸ Consistent with the policy framework it lays out, the Digital Economy report is published under a Creative Commons Attribution-Non-Commercial-No Derivative Works (CC BY-NC-ND) 2.5 licence.
- (4) In June 2009, the federal Minister for Finance and Deregulation, Lindsay Tanner, and the Special Minister of State, Senator Joe Ludwig, launched the Government 2.0 Taskforce.¹⁹⁹ The Taskforce's Terms of Reference included advising and assisting the Australian Government to make government information more accessible and useable; to make government more consultative, participatory and transparent; and to build a culture of innovation within government.²⁰⁰ In the report, *Engage: Getting on with Government 2.0*, delivered to the government in December 2009, the Taskforce made several recommendations, including that PSI should be 'licensed to permit free re-use and transformation by others', using machine readable licences that 'conform to some international standard such as Creative Commons'.²⁰¹ The Taskforce proposed that CC BY should be the default licence applied when distributing PSI in which the government owns copyright, as well as PSI containing third party material, subject to negotiation with the copyright owner/s.²⁰² Further, it recommended that Crown copyright works should be automatically licensed under a CC BY licence at the time when government records become available for public access under the *Archives Act 1983* (Cth).²⁰³

192 See www.innovation.gov.au/innovationreview/Documents/NIS-review-web.pdf, *Recommendation 7.8*, p. 95.

Government agencies, in performing their portfolio responsibilities, are subject to various statutory obligations and duties which may extend to their information management and licensing practices. Any licensing practices or arrangements implemented by an agency must comply with all such statutory duties and obligations, as well as any policy considerations. The GILF project methodology draws attention to the need to identify and comply with applicable legislative duties and government policy constraints. Where statutory obligations must be satisfied, a government agency may still be able to release PSI for access and re-use, but on a more limited basis than provided for in any of the CC licences. So that agencies are able to make their PSI available for access and use, while still complying with their statutory obligations, the GILF project proceeded¹⁹⁰ to develop a Restrictive Licence template containing standardised clauses intended for use where the CC licences are not appropriate (such as where access and use of PSI is restricted on grounds of privacy, confidentiality or statutory constraints).¹⁹¹ The GILF pro-

193 Australian Government, Department of Innovation, Industry, Science and Research, *Powering Ideas: An Innovation Agenda for the 21st Century*, 12 May 2009, www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).

194 Cutler & Company, *Venturous Australia – Building Strength in Innovation*, Review of the National Innovation System, Report for the Australian Government Department of Innovation, Industry, Science and Research, September 2008, licensed under a Creative Commons Attribution-Non Commercial-No Derivative Works 2.5 Australia Licence, available at www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).

195 *ibid.*, Chapter 6, ‘Public Sector Innovation’, p. 53, available at www.innovation.gov.au/innovationreview/Pages/home.aspx.

196 See www.dbcde.gov.au/?a=117295.

197 *Australia’s Digital Economy: Future Directions*, Department of Broadband, Communications and the Digital Economy, July 2009, p. 12, available at www.dbcde.gov.au/?a=117295.

198 *ibid.*, p. 11.

199 See gov2.net.au/2009/06/22/speech-launch-of-the-government-2-0-taskforce/.

200 See gov2.net.au/.

201 Government 2.0 Taskforce, *Engage: Getting on with Government 2.0 – Report of the Government 2.0 Taskforce*, Department of Finance and Deregulation, 2009, p. xv, available at gov2.net.au/report.

202 *ibid.* p. xv and 58.

203 *ibid.* p. 59.

190 As had been proposed in recommendation 2.7.

191 The New Zealand Government’s draft New Zealand Government Open Access and Licensing Framework (NZGOAL) is taking a similar approach, with a combination of six CC licences and a Restrictive Licence template. See: New Zealand

ject envisaged that the six CC licences and the clauses of the Restrictive Licence would cover the vast majority of PSI.

AUSTRALIAN GOVERNMENT

Since 2008, there have been significant developments and initiatives at the federal government level, both with respect to policy support for access to and re-use of PSI and the adoption of CC licences to give effect to the policy. The development of the federal government's policy and practice in relation to PSI is apparent in a series of reports published in 2008 and 2009:

(1) The 2008 Green Paper on the National Innovation System, *Venturous Australia. Building strength in innovation* ('the Cutler Report') contains a strong recommendation on the use of Creative Commons (CC) licences for public sector information. Recommendation 7.8 states that: 'Australian governments should adopt international standards of open publishing as far as possible [and that material] released for public information by Australian governments should be released under a creative commons licence'.¹⁹² The Cutler Report itself is released under a CC licence.

(2) On 12 May 2009, the federal government, as part of its Budget process, released a White Paper entitled *Powering Ideas: An Innovation Agenda for the 21st Century*¹⁹³ in response to the *Venturous Australia* report.¹⁹⁴ On access to and re-use of PSI the White paper indicates broad agreement with the Cutler Report's recommendations and highlights the federal government's intention to build on the work already being undertaken by key federal agencies:¹⁹⁵ 'Commonwealth

Government, State Services Commission, *Draft New Zealand Government Open Access and Licensing Framework (NZGOAL)*, August 2009, pp. 11, 22, available at www.e.govt.nz/policy/information-data/nzgoalframework.html.

192 See www.innovation.gov.au/innovationreview/Documents/NIS-review-web.pdf, *Recommendation 7.8*, p. 95.

193 Australian Government, Department of Innovation, Industry, Science and Research, *Powering Ideas: An Innovation Agenda for the 21st Century*, 12 May 2009, www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).

194 Cutler & Company, *Venturous Australia – Building Strength in Innovation*, Review of the National Innovation System, Report for the Australian Government Department of Innovation, Industry, Science and Research, September 2008, licensed under a Creative Commons Attribution-Non Commercial-No Derivative Works 2.5 Australia Licence, available at www.innovation.gov.au/innovationreview/Pages/home.aspx (accessed 11 June 2009).

195 *ibid.*, Chapter 6, 'Public Sector Innovation', p. 53, available at www.innovation.gov.au/innovationreview/Pages/home.aspx.

agencies such as the Australian Bureau of Statistics, the Bureau of Meteorology, and Geosciences Australia already gather, analyse, and disseminate information in the public interest. The Australian Government wants to build on this foundation’.

(3) On 14 July 2009, the Department of Broadband, Communications and the Digital Economy released the report, *Australia’s Digital Economy: Future Directions* (the Digital Economy report).¹⁹⁶ The Digital Economy report expressly recognised ‘the digital economy and innovation benefits generated by open access to PSI, subject to issues such as privacy, national security and confidentiality’.¹⁹⁷ Enabling open access to PSI is seen not only as a way of promoting public sector innovation but also as a means by which government can facilitate private sector innovation.¹⁹⁸ Consistent with the policy framework it lays out, the Digital Economy report is published under a Creative Commons Attribution-Non-Commercial-No Derivative Works (CC BY-NC-ND) 2.5 licence.

(4) In June 2009, the federal Minister for Finance and Deregulation, Lindsay Tanner, and the Special Minister of State, Senator Joe Ludwig, launched the Government 2.0 Taskforce.¹⁹⁹ The Taskforce’s Terms of Reference included advising and assisting the Australian Government to make government information more accessible and useable; to make government more consultative, participatory and transparent; and to build a culture of innovation within government.²⁰⁰ In the report, *Engage: Getting on with Government 2.0*, delivered to the government in December 2009, the Taskforce made several recommendations, including that PSI should be ‘licensed to permit free re-use and transformation by others’, using machine readable licences that ‘conform to some international standard such as Creative Commons’.²⁰¹ The Taskforce proposed that CC BY should be the default licence applied when distributing PSI in which the government owns copyright, as well as PSI containing third party material, subject to negotiation with the copyright owner/s.²⁰² Further, it recommended that Crown copyright works should be automatically licensed under a CC BY licence at the time when government records become available for public access under the *Archives Act*

196 See www.dbcde.gov.au/?a=117295.

197 *Australia’s Digital Economy: Future Directions*, Department of Broadband, Communications and the Digital Economy, July 2009, p. 12, available at www.dbcde.gov.au/?a=117295.

198 *ibid.*, p. 11.

199 See gov2.net.au/2009/06/22/speech-launch-of-the-government-2-0-taskforce/.

200 See gov2.net.au/.

201 Government 2.0 Taskforce, *Engage: Getting on with Government 2.0 – Report of the Government 2.0 Taskforce*, Department of Finance and Deregulation, 2009, p. xv, available at gov2.net.au/report.

202 *ibid.* p. xv and 58.

1983 (Cth).²⁰³

Key federal government departments (Geoscience Australia, the Australian Bureau of Statistics and the Bureau of Meteorology) have adopted CC licences to distribute PSI in accordance with their policies on access and re-use. In 2009, on the initiative of the Government 2.0 Taskforce, the Australian government set up the data.australia.gov.au site from which datasets contributed by the Australian and State governments can be downloaded. Many of the datasets available on data.australia.gov.au are licensed under the Creative Commons Attribution 2.5 Australia licence.

GEOSCIENCE AUSTRALIA (GA)

Geoscience Australia (GA) was an early adopter of CC, being the first Australian government agency to implement CC licences on its datasets in October 2008.²⁰⁴ Earlier that year, in response to requests from clients for easier access to GA's information products and clearer statements of the terms of use and re-use, GA undertook an analysis and internal trial of CC licences on a representative sample of its datasets to ascertain whether open content licensing would meet the organisation's desired operational outcomes.²⁰⁵ Following successful completion of the CC licensing trial, GA announced that it would use CC licences on its Moderate Resolution Imaging Spectroradiometer (MODIS),²⁰⁶ the Australian Atlas of

203 *ibid.* p. 59.

204 See entry 'New product licence improves customer access' at www.ga.gov.au/news/archive/2008/dec/. GA's adoption of CC licensing predated the implementation of CC licences by the Australian Bureau of Statistics by two months.

205 Outlined in the presentation by Jeff Kingwell, Head, Project Management Office, Information Services Branch, Geoscience Australia at the Open Access and Research Conference, hosted by the Open Access to Knowledge Project (OAK Law), in Brisbane in September 2008. See www.oaklaw.qut.edu.au/node/61 for the PowerPoint slides. The analysis included obtaining legal advice on application of CC licences.

206 The GA website explains the strategic importance of the satellite-based MODIS to global change modelling:

Moderate Resolution Imaging Spectroradiometer (MODIS) is the key instrument aboard the satellites Terra (EOS AM-1), launched on 18 December 1999, and Aqua (EOS PM-1), launched on 4 May 2002. MODIS views almost the entire surface of the Earth every day, acquiring data in 36 spectral bands over a 2330 km swath.

MODIS data will improve the understanding of global dynamics and processes occurring on the land, in the oceans, and in the lower atmosphere. MODIS is playing a vital role in the development of validated, global, interactive Earth system models able to predict global change accurately enough to assist policy makers in making sound decisions concerning the protection of our environment.

Mineral Resources,²⁰⁷ the GeoMAP 250K dataset, digitised Bureau of Mineral Resources records and educational material about tsunami. In announcing its decision to apply CC licences to key mapping and other information products, GA emphasised that the use of the ‘easy to understand, royalty-free, modular, off the shelf [CC] licences’ would make it easier for visitors to GA’s website to use and access information. Further, adoption of CC licences by other organisations

One of the following statements must be displayed with, attached to or embodied in (in a reasonably prominent manner) any Satellite Data or Derivative Work provided to an End-user:

Where the Satellite Data is provided in unaltered form:

[insert Satellite Sensor] Data© Commonwealth of Australia (Geoscience Australia) [insert year in which the Satellite Data was published].

The Commonwealth gives no warranty regarding the Satellite Data’s accuracy, completeness, currency or suitability for any particular purpose.

Where a Derivative Work is provided, including any digital publication:

This product (insert Derivative Work name) incorporates [insert Satellite Sensor] Data which is © Commonwealth of Australia (Geoscience Australia) [insert year in which the Satellite Data was published].

[insert Satellite Sensor] Data has been used in (insert Derivative Work name) with the permission of the Commonwealth. The Commonwealth has not evaluated the Satellite Data as altered and incorporated within (insert Derivative Work name), and therefore gives no warranty regarding its accuracy, completeness, currency or suitability for any particular purpose.

Where a Derivative Work is provided and is a simple publication (that is, one page or less, such as a map or a web page), but not including digital products, the Licensee may elect to use the following short form notice:

This product (insert Derivative Work name) incorporates [insert Satellite Sensor] Satellite Data which is © Commonwealth of Australia (Geoscience Australia) [insert the year in which the Satellite Data was published].²¹⁰

210 Creative Commons Attribution 2.5 Australia: Copyright notice – Attribute for Satellite Data and Data Products supplied by Geoscience Australia, see www.ga.gov.au/image_cache/GA12434.pdf.

would make it easier for users to merge spatial and geoscientific data from different sources. In November 2009, GA began licensing all the material on its website, and the OzCoasts website²⁰⁸ which it hosts, under the Creative Commons Attribution 2.5 Australia licence.²⁰⁹

Selection by GA of the CC BY licence is designed to assist in realising the potential of the information products by enabling ‘mash ups’, including the layering together of different information products. As an example of how the attribution requirement in the CC BY licence has been applied in practice, when GA supplies satellite data and data products to users, attribution is to be given as follows:

One of the following statements must be displayed with, attached to or embodied in (in a reasonably prominent manner) any Satellite Data or Derivative Work provided to an End-user:

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[insert Satellite Sensor] Data has been used in (insert Derivative Work name) with the permission of the Commonwealth. The Commonwealth has not evaluated the Sate-

208 See www.ozcoasts.org.au/.

209 Note that some datasets such as MapConnect and GADDS could not be made available immediately under CC licences because the OSDM registration is embedded in these products.

lite Data as altered and incorporated within (insert Derivative Work name), and therefore gives no warranty regarding its accuracy, completeness, currency or suitability for any particular purpose.

Where a Derivative Work is provided and is a simple publication (that is, one page or less, such as a map or a web page), but not including digital products, the Licensee may elect to use the following short form notice:

This product (insert Derivative Work name) incorporates [insert Satellite Sensor] Satellite Data which is © Commonwealth of Australia (Geoscience Australia) [insert the year in which the Satellite Data was published].²¹⁰

AUSTRALIAN BUREAU OF STATISTICS

In November 2005, the Australian Bureau of Statistics (ABS) abandoned the restrictive licensing practices it had previously applied in licensing its datasets, which had involved charging fees for access to data and the restriction or prohibition of commercial downstream use by the licensee and/or others.²¹¹ Since then the ABS has eliminated virtually all charges for data and restrictions on down-

210 Creative Commons Attribution 2.5 Australia: Copyright notice – Attribute for Satellite Data and Data Products supplied by Geoscience Australia, see www.ga.gov.au/image_cache/GA12434.pdf.

211 Commencement of the use of the CC-BY licence for ABS materials was accompanied by the following statement of purpose on the ABS website:

The Australian Bureau of Statistics (ABS) has introduced Creative Commons (CC) licensing for the bulk of the content on this website. This will lessen the restrictions on the use of free data from the website considerably by changing the copyright from 'all rights reserved' to 'some rights reserved'. In effect, what the ABS is asking is only that it be acknowledged as the source of the data. People are free to re-use, build upon and distribute our data, even commercially. This makes a wealth of data readily available to the community, researchers and business, facilitating innovative research and development projects based on quality statistics, and promoting the wider use of statistics in the community, which is one of our core objectives.

(www.abs.gov.au/websitedbs/D3310114.nsf/4a256353001af3ed4b2562bb00121564/8b2bdbc1d45a10b1ca25751d000d9b03?opendocument?utm_id=HPI)

stream use of their data (that is, both access and re-use), whether commercial or otherwise.²¹² Following the lifting of fees, the number of hits and downloads of ABS publications increased dramatically; downloads of electronic publications increased from 91,000 in 2000/01 to more than 650,000 in 2005/06, while the number of page views doubled from the end of 2005 to the end of 2007.²¹³

However, even after the relaxation of licensing practices in 2005, any significant redistribution of information obtained from the ABS website still had to be licensed by the ABS. Although the ABS allowed broad use of its website content, often at no cost, the licensing process itself was seen as potentially acting as a barrier to those wishing to re-use significant amounts of data. Consequently, after discussions with the open access community and relevant government departments, in mid 2008 ABS decided to make information on its website freely and openly available for access and re-use. This decision was consistent with ABS's philosophy of access to information, as well as Recommendation 7.8 of the *Venturous Australia* Green Paper.²¹⁴ On 18 December 2008, the ABS implemented CC licensing on its website and began making an extensive range of its statistical information products available online under a Creative Commons Attribution 2.5 Australia licence. Implementation involved adding to the footer on every page of the ABS website an updated Copyright Statement, Disclaimer notice, CC symbols, information on how to attribute material sourced from the ABS website and a hyperlink to the CC licence. In effect, ABS makes its website material openly

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- 212 Similar inhibitory outcomes from the adoption of restrictive licensing practices by government agencies were clearly identified in the 2001 Canadian report delivered by KPMG Consulting. The authors, in Recommendation 5 (pp. 24–25) identified the need to minimise the inhibiting impact of government agencies using restrictive licensing and copyright practices to prevent redistribution and the broader use of government geospatial data, in order to protect pricing policies. The authors pointed out this operational outcome was directly at odds with the stated government goals of maximising data use, with the identified resulting benefits. See Recommendation 5 in the Executive Summary, pp. 24–25, available at www.geoconnections.org/programsCommittees/proCom_policy/keyDocs/KPMG/KPMG_E.pdf (accessed 9 November 2009).
- 213 Siu-Ming Tam, Australian Bureau of Statistics, *Informing the Nation – Open Access to Statistical Information in Australia*, paper presented to the United Nations Economic Commission for Europe (UNECE) Work Session on the Communication and Dissemination of Statistics, Poland, May 2009, paras. 27–29 and 31, available at www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.pdf.
- 214 *Venturous Australia - Building Strength in Innovation*, report on the Review of the National Innovation System, Cutler & Company for the Australian Government Department of Innovation, Industry, Science and Research, 29 August 2008, available at www.innovation.gov.au/innovationreview/Pages/home.aspx.

available, on condition that users acknowledge ABS as the source of the data.²¹⁵

The background to the ABS's adoption of CC licences is explained in a paper, *Informing the Nation – Open Access to Statistical Information in Australia*, presented by Siu-Ming Tam, senior executive officer of the ABS, to the United Nations Economic Commission for Europe (UNECE) in May 2009.²¹⁶ It outlines the sequence of funding, economic and information policy and practice developments leading up to the current position. In explaining the reasoning behind the adoption of CC licences, Siu-Ming Tam emphasises the importance of a simple, easily understood licensing model to facilitate enhanced and innovative re-use such as through mash-ups in which different layers of information are combined:

33. The recent advent of Web 2.0 technologies increases the potential to use, share and 'mix and match' ABS data sets to add value to ABS information. 'Mash ups' are an excellent example of how the value of a product may be significantly enhanced by including different layers of information with statistical information. To facilitate this, and other innovative uses of ABS data, the ABS needs to have an internationally recognised licensing framework for accessing, using and re-using its statistical information.

...

49. One of the hallmarks of a democracy is freedom to choose one's own affairs. Choice requires decisions and in turn good decision making requires information. Therefore, open access to statistical information is fundamental to a democracy.

...

52. Most recently, the introduction of Creative Commons licences, an internationally recognised licensing framework, onto the ABS website provides clarity on responsibilities and obligations on users of ABS statistics when using, sharing and re-using ABS information. It is our belief that this initiative will facilitate an environment for creativity, innovation, and the development of value added products, all of which will lead Australia to be a better place for its citizens.²¹⁷

Ongoing work in ABS involves the development of 'injector' software which will

215 Note that the ABS does not use CC licences on jointly authored publications for which it does not own copyright. Such publications carry their own copyright statement.

216 *ibid.*

217 *ibid.*, paras. 33 and 52

enable CC licences to be inserted into downloadable files, so that users can view the licensing conditions in files they have downloaded from the ABS website.²¹⁸

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25. The Bureau has been reviewing its current licensing arrangements and giving consideration to the application of open content licensing models, including Creative Commons. It is considered that such arrangements might better reflect the agency's mandate and attitudes to the provision of its public interest information and data for the benefit of the Australian community.
 26. At present, the Bureau has formal licensing procedures in place for most of its cost-recovery products and services, and for secondary distributors, in the form of a written Access Agreement. All information on the Bureau web site contains a copyright statement and incorporates a link to the Bureau's copyright notice. However as new products and services become available and new technology opens up new and innovative ways of working, these arrangements must evolve. A more robust and transparent licensing scheme needs to be developed to reflect both the specific characteristics of Bureau products and modern mechanisms of data exchange and use.
 27. The Creative Commons licensing framework provides a method, based on copyright law, of making data and information freely available while retaining some rights for the data owners and licensors. Use of Creative Commons licensing is increasing worldwide and its use by government agencies for data sharing is also becoming more common. This 'open content' approach to licensing is gaining favour as it maximises the social benefits of public information, encourages the use and re-use of data and information, and provides a simpler, legally robust licensing framework replacing existing data sharing arrangements which are often complex, expensive to administer, unresponsive to user needs, or legally untested.
 28. In Australia, the Working Group on Data for Science report to the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) in December 2006 includes a recommendation that 'the principle of open equitable access to publicly-funded scientific data be adopted wherever possible and that this principle be taken into consideration in the development of data for science policy and programmes', while a report on the open access to public sector information (PSI) summit held in July 2007 concludes that 'a broad consensus emerged in favour of the benefits to be derived from government implementing an open access policy ... and the use of Creative Commons (CC) open content licences for the majority of PSI which is unaffected by privacy or other restricting factors'.
 29. The Water Regulations associated with the *Water Act* came into force on 30 June 2008 and Bureau staff are currently working with State and Territory water agencies to ensure the smooth provision of water information. The Bureau is actively seeking support from States and Territory jurisdictions for the use of a Creative Commons framework and has recently written to all Departments of Premier and Cabinet alerting them to the Bureau's intention to use Creative Commons Attribution as the licensing regime for water data.²²³
 - 223 *ibid.*, see www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_17_Bureau_Meteorology.pdf.

BUREAU OF METEOROLOGY

The *Water Act 2007*(Cth) expanded the role of Bureau of Meteorology (BoM) to include management of water information, with the establishment of the Australian Water Resources Information System (AWRIS).²¹⁹ BoM is required to collect water information from a range of sources and to disseminate it for wide-spread re-use, including by publishing a National Water Account and periodic reports on water resource use and availability. A major outcome of BoM's work will be increased transparency, confidence and understanding of water information on a national level.

To ensure that water information provided to BoM under the *Water Regulations 2008* can be widely re-used, BoM has sought the support of the States and Territories for the adoption of a CC licensing framework for copyright-protected water datasets and databases.²²⁰ BoM recommends that each of the 260 data suppliers required to provide information to it under the *Water Regulations 2008* should apply CC licences – and, specifically, the Creative Commons Attribution Australia 2.5 Licence (CC BY) – to all the data they provide to AWRIS, so that it can be re-used by anyone on condition that the original data supplier is acknowledged.²²¹

An account of BoM's approach towards the licensing of information and data is set out in its August 2008 submission to the Victorian Parliament's Economic Development and Infrastructure Committee's inquiry into Improving Access to Victorian Public Sector Information and Data.²²² In response to the Committee's invitation to comment on whether 'the use of open source and open content licensing models, including Creative Commons, would enhance the discovery, access and use of Government information', BoM stated:

25. The Bureau has been reviewing its current licensing

219 See: www.bom.gov.au/waterjobs/awris.htm.

220 See www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_17_Bureau_Meteorology.pdf.

221 www.bom.gov.au/water/regulations/cc/disseminating.shtml

222 See *Inquiry into Improving Access to Victorian Public Sector Information and Data: Submission by the Bureau of Meteorology*, 18 August 2008, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_17_Bureau_Meteorology.pdf accessed 23 July 2009. See also the oral submission by Dr L Minty, Assistant Director, Water Analysis and Reporting, Water Division, Bureau of Meteorology, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/transcripts/EDIC_080908_BOM.pdf (accessed 23 July 2009).

arrangements and giving consideration to the application of open content licensing models, including Creative Commons. It is considered that such arrangements might better reflect the agency's mandate and attitudes to the provision of its public interest information and data for the benefit of the Australian community.

26. At present, the Bureau has formal licensing procedures in place for most of its cost-recovery products and services, and for secondary distributors, in the form of a written Access Agreement. All information on the Bureau web site contains a copyright statement and incorporates a link to the Bureau's copyright notice. However as new products and services become available and new technology opens up new and innovative ways of working, these arrangements must evolve. A more robust and transparent licensing scheme needs to be developed to reflect both the specific characteristics of Bureau products and modern mechanisms of data exchange and use.

27. The Creative Commons licensing framework provides a method, based on copyright law, of making data and information freely available while retaining some rights for the data owners and licensors. Use of Creative Commons licensing is increasing worldwide and its use by government agencies for data sharing is also becoming more common. This 'open content' approach to licensing is gaining favour as it maximises the social benefits of public information, encourages the use and re-use of data and information, and provides a simpler, legally robust licensing framework replacing existing data sharing arrangements which are often complex, expensive to administer, unresponsive to user needs, or legally untested.

28. In Australia, the Working Group on Data for Science report to the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) in December 2006 includes a recommendation that 'the principle of open equitable access to publicly-funded scientific data be adopted wherever possible and that this principle be taken into consideration in the development of data for science policy and programmes', while a report on the open access to public sector information (PSI) summit held in July 2007 concludes that 'a broad consensus emerged in favour of the benefits to be derived from government implementing an open access policy ... and the use of Creative Commons (CC) open content licences for the majority of PSI which is unaffected by privacy or other restricting fac-

tors’.

29. The Water Regulations associated with the *Water Act* came into force on 30 June 2008 and Bureau staff are currently working with State and Territory water agencies to ensure the smooth provision of water information. The Bureau is actively seeking support from States and Territory jurisdictions for the use of a Creative Commons framework and has recently written to all Departments of Premier and Cabinet alerting them to the Bureau’s intention to use Creative Commons Attribution as the licensing regime for water data.²²³

In mid-2009, BoM prepared an Item Paper entitled ‘Creative Commons Licensing’ outlining its support for and intention to implement Creative Commons licensing within AWRIS, for consideration by the 6th meeting of the Jurisdictional Reference Group on Water Information (JRGWI)²²⁴ held in Melbourne on 23 and 24 July 2009. The Item Paper states:

223 *ibid.*, see www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/submissions/PSI_Sub_17_Bureau_Meteorology.pdf.

224 The following account of the Jurisdictional Reference Group on Water Information (JRGWI) appears in the Explanatory Statement to the *Water Regulations 2008* under the *Water Act 2007*:

The Jurisdictional Reference Group on Water Information (JRGWI) is made up of two representatives from each of the state and territory governments. JRGWI plays a key role in bringing together the national water information activities of the Bureau with the regional water information activities undertaken by the states and territories. JRGWI membership is by invitation of the Director of Meteorology, based on the recommendations of the Department of Premier and Cabinet (or equivalent) in each jurisdiction. JRGWI provides a forum for states and territories to articulate their water information priorities and activities, improve the flow of water information between their agencies and the Bureau, discuss ways to contribute to the national water information strategy and provide feedback to the Bureau on its various water information products, both during the development and operational phases.

Representative agencies on JRGWI are responsible for liaising with other water data collectors in their jurisdiction regarding the Regulations and also the \$80 million Australian Government fund which the Bureau is administering to extend and modernise data collection nationally. Through JRGWI the Bureau is in discussion with many of the private data collectors included in the Regulations. Many of the major data collectors named in the Regulations have put forward or are proposing to put forward funding applications to the Bureau.

See www.austlii.edu.au/au/legis/cth/num_reg_es/wr2008n106o2008275.html.

Under Section 123 of the *Water Act 2007*, the Director of Meteorology may publish any water information that the Bureau holds without the need to obtain agreement from any provider to do so, unless he/she believes that it would not be in the public interest to do so.

However, while the *Water Act 2007* implicitly supports access and normal use of water information by third parties (as part of the completion of the dissemination by the Bureau), it does not extend to granting any explicit usage rights to third party users. The Australian Government Solicitor (AGS) advises that the *Water Act 2007* supports activities reasonably incidental to a user gaining access to the published information. This includes downloading, printing and internal or personal use, but probably not more ‘downstream’ use, such as the making of derivative material or creation of a product that is further distributed or communicated for commercial or non-commercial purposes.

Section 129 of the *Water Act 2007* is explicit on the retention of ownership of water data by the data givers, stating that the ‘giving of information does not affect a person’s property rights with respect to that information’. The Bureau therefore will not own the bulk of the information it acquires under the Water Regulations 2008.

The utility of Australia’s water information will be maximised by making it freely available for use by all persons, including uses for commercial purposes. However, as discussed above, the Bureau is restricted in its right to apply any licence to that information or to confer any rights on third parties to use that information. We have therefore elected to promote and actively support the application by data owners of the Creative Commons Attribution licence to the water information they supply. The Creative Commons Attribution licence, known as the ‘By Licence’, merely requires users to attribute the data owner when they use the data for any purpose not covered by the *Water Act 2007* provisions.

...

The Bureau has been working actively with the lead water agencies to promote the uptake of CC licensing and will provide on-line and other support to enable data givers to understand and apply a CC license easily.

...

Use of CC licensing should be attractive to organisations

as it provides a simple and effective way to open up access to data, whilst retaining some rights, and promises to reduce the administrative burden for data providers in maintenance and communication of licensing conditions.

Over the next six months, the Bureau will continue to actively promote the use of CC licensing to organisations providing data under the Water Regulations 2008. In late 2009, the Bureau will explicitly ask each data supplying organisation to agree or not agree to use of a CC license for their water data. Users of AWRIS will be able [to] identify information that is provided with a CC licence or, where information is not so licensed, to ascertain the contact details of the data provider so that they may seek any licence conditions that apply.

The Bureau acknowledges the work done by the Queensland Government and others, including the Australian Bureau of Statistics (ABS) and Geoscience Australia (GA), in pioneering the adoption of CC licensing. This approach aligns with growing recognition both nationally and internationally that governments, wherever possible, should not only make their information publicly available but also make it available on open access terms that permit and enable its use and re-use.

While CC licensing includes a standard suite of six licences, the Bureau is strongly encouraging organisations providing data to adopt the most open licence, CC Attribution. This is the licence used by ABS on most of its data and information products, and GA on some of its data sets available for download.²²⁵

The Creative Commons Licence gives the community permission in advance to use water information, without having to contact the supplier directly. The Creative Commons Licence allows anyone to use the water information in a manner convenient to them, provided that they acknowledge the original data supplier. The original data supplier will generally be the person or organisation that gave the water information to the Bureau.

STATE AND LOCAL GOVERNMENT INITIATIVES

There have been several significant developments recently at State and local gov-

²²⁵ For further details, see BoM's website at www.bom.gov.au/water/regulations/cc/disseminating.shtml.

ernment level, and in major cultural institutions, which have as their objective open access and generous re-use rights through the use of CC or open content licensing. As well as providing direct access to their information products through State-based websites, several State governments have contributed numerous datasets (many licensed under CC licences, usually CC BY) to the data.australia.gov.au website established by the Federal government.²²⁶

QUEENSLAND

Whilst there are various examples of Queensland Government agencies applying CC licences to information products, a whole-of-government policy on the use of CC licences has not yet been endorsed. Practical assistance is provided to agencies wishing to apply CC licences through an interactive, web-based licensing options tool that guides decision making about which of the CC licences or GILF Restrictive Licence template clauses should be used for a particular information product or materials.²²⁷

The Office of Economic and Statistical Research has released key statistical information products on its website under a CC BY licence, together with case studies of the decision processes followed in determining whether CC licences should be used.²²⁸ The Queensland Government Chief Information Officer applied a CC licence to the Government Enterprise Architecture Framework 2.0 document.²²⁹ The Queensland Museum releases photographs from its collection on Wiki Commons²³⁰ under a CC BY SA licence.²³¹ Aged Care Queensland pub-

226 See data.australia.gov.au

227 See www.gilf.gov.au.

228 *Queensland Government Population Projections to 2056: Queensland and Statistical Divisions 3rd Edition*, 2008, see: www.gilf.gov.au/queensland-government-population-projections-to-2056-3rd-edition-2008; and Gender in Queensland (Census 2006 Bulletin 1) see: www.gilf.gov.au/gender-in-queensland-census-bulletin-1.

229 See www.qgcio.qld.gov.au/SiteCollectionDocuments/Architecture%20and%20Standards/QGEA%202.0/Queensland%20Government%20Enterprise%20Architecture%20Framework%202%20v%201%200%200.pdf. The following outline of the QGEA document is described in the Foreword, p. ii as

The Queensland Government Enterprise Architecture (QGEA) provides the decision making and management structures to support the development of better services for Queenslanders, more efficient and effective use of information and ICT in government and effective partnering with the private sector through the application of whole-of-Government, cross agency and agency information and information communications technology policies and practices.

230 See commons.wikimedia.org/wiki/Main_Page (accessed 25 January 2010).

lished its *eMentoring Handbook* (on CD Rom) – designed to assist aged care workers with training and mentoring advice and opportunities – under a CC BY licence.²³² The most concerted and systematic application of CC licensing in the Queensland Government has been by the Department of Environment and Resource Management (DERM) which is the custodian of some of the State’s most significant environmental and spatial information datasets and databases. DERM has provided its Surface Water Database to BoM under a CC BY licence and has contributed several important datasets under CC BY licences to data.australia.gov.au, including the Property Boundaries Annual Extract (Lite DCDB).²³³

VICTORIA

The Report of the Victorian Parliament’s Economic Development and Infrastructure Committee (EDIC), *Inquiry into Improving Access to Victorian Public Sector Information and Data* (EDIC Report), was tabled in the (State) Victorian Parliament on 24 June 2009.²³⁴ The Committee had been asked to report on the benefits and costs of maximising access to and use of PSI for commercial and non-commercial purposes and to consider how flexible licensing arrangements would facilitate re-use of PSI.²³⁵

The EDIC Report is very significant, as the EDIC inquiry was the first in

231 See for example, digitised images of the A E Roberts collection at commons.wikimedia.org/wiki/Category:A_E_%22Bert%22_Roberts_plate_glass_photo_collection (accessed 25 January 2010).

232 See www.acqi.org.au and www.creativecommons.org.au/node/247

233 See data.australia.gov.au/152. The Digital Cadastre DataBase (DCDB) is the spatial representation of the property boundaries and the related property descriptions of Queensland. The dataset made available on data.australia.gov.au is a fortnightly copy of the DCDB and is downloadable as an ESRI Shape File.

234 Victorian Parliament, Economic Development and Infrastructure Committee, *Inquiry into Improving Access to Victorian Public Sector Information and Data (Final Report)*, June 2009, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/final_report.html (accessed 2 February 2010). The report is also included in this book as Chapter 27. The main recommendations are summarised in the accompanying media release, *21st Century Approach to Government Information: Committee calls for improved access to government information*, Economic Development and Infrastructure Committee, 24 June 2009, available at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/PSI_Inquiry_Media_Release.pdf (accessed 2 February 2010).

235 EDIC adopted a broad definition of PSI, but excluding software: EDIC Report, p. 1.

Australia to consider in depth the issue of access to PSI and the Committee's findings provide valuable guidance for other governments. The key economic recommendation in the report was that the Victorian Government establish a comprehensive Information Management Framework (IMF), with open access to PSI at no or marginal cost as the default position and the development of specific guidelines to deliver with policy outcome.²³⁶ The Committee formed the view that the economic and social benefits arising from the release of Victorian Government information at no cost far outweighs the benefits of treating it as a commodity.²³⁷ Specific key recommendations in the report included:²³⁸

Recommendation 1: That the Victorian Government release a public statement indicating that it endorses open access as the default position for the management of its public sector information.

Recommendation 2: That the Victorian Government develop a whole-of-government Information Management Framework (IMF) with the following key features:

- that the object of the IMF is to promote and facilitate increased access to and re-use of Victorian public sector information (PSI) by government, citizens, and businesses;
- that the default position of the IMF be that all PSI is made available;
- that the IMF define and describe criteria under which access to PSI may be restricted, or released under licence;
- that PSI made available under the IMF be priced at no cost or marginal cost; and
- that the IMF establish a systematic and consistent whole-of-government methodology for categorisation, storage and management of PSI.

Recommendation 14: That the Victorian Government adopt the Creative Commons licensing model as the default licensing system for the Information Management Framework.

Recommendation 15: That the Victorian Government adopt a hybrid public sector information licensing model comprising Creative Commons and a tailored suite of licences for restricted materials.

236 EDIC Report, Recommendation 16.

237 EDIC Report, para. 2.4, p. 19.

238 EDIC Report, pp. xxv–xxvi.

Recommendation 20: That the Victorian Government enhance its role as an information provider as a means to improve social benefits and facilitate commercial activity in the private sector.

In responding to the EDIC Report in February 2010,²³⁹ the Victorian Government fully supported 32 of the 46 recommendations and gave in-principle support to the remainder, which are issues that will require further consideration in the development and implementation of the IMF. Recommendations 1, 14, 15 and 20 received unqualified support while recommendation 2 was supported in-principle.

The Victorian Government endorsed the Committee's 'overarching recommendation that the default position for the management of PSI should be open access' and committed itself to 'the development of a whole-of-government Information Management Framework (IMF) whereby PSI is made available under Creative Commons licensing by default with a tailored suite of licences for restricted materials'.²⁴⁰ It stated:

Open access to PSI represents an important opportunity for the Victorian Government to increase its engagement with the community and to realise a range of social and economic benefits. The government is committed to improving access to PSI and will seek to bring current activities into a more consistent and comprehensive framework for the release of PSI to ensure it is addressing the varied needs and interests across the community ... Open access to PSI has the potential to provide a range of benefits for government and citizens on policy issues, social benefits to citizens through availability to increased information on matters as diverse as health or recreation, and economic gains by the State through creative or enterprising use of PSI by the public and private sectors.²⁴¹

The Victorian Government stated that implementation of an IMF to improve access to PSI²⁴² would provide the State with the opportunity to play a leading

239 Government of Victoria, *Whole of Government Response to the Final Report of the Economic Development and Infrastructure Committee's Inquiry into Improving Access to Victorian Public Sector Information and Data*, February 2010, available at www.diird.vic.gov.au/diird-projects/access-to-public-sector-information.

240 *ibid.*, p. 8.

241 *ibid.*, pp. 11–12.

242 The steps involved in the first stage of development of an IMF are described as

role in the development of policies and practices for access to government information and data in Australia, and enable it to realise significant economic and social benefits.²⁴³ While supporting in-principle the recommendation (in recommendation 2) that the default position should be that all PSI be made available, the government noted that ‘there may be instances where legislation (especially legislation dealing with privacy or confidentiality), licensing or other contractual arrangements or an overriding public interest (including security concerns) prevent information from being publicly released’.²⁴⁴ The government stated that it would consider the issues raised by the Committee and work undertaken in other jurisdictions in defining the circumstances in which ‘access to PSI may be restricted, or released under licence’. Another element of recommendation 2 that was supported in-principle was the recommendation that ‘PSI made available under the IMF be priced at no cost or marginal cost’. Although supporting making PSI available at no cost or marginal cost,²⁴⁵ the government noted that ‘this pricing structure may not be appropriate in all instances’, such as ‘where revenue generated covers the cost of collecting or producing the information and data’.²⁴⁶ It indicated that, in developing the IMF, the nature and costs of servicing current and future information needs would be addressed and that it was likely that a range of pricing models would have to be adopted.²⁴⁷

NEW SOUTH WALES

The Centre for Learning Innovation (CLI) in the New South Wales Department of Education and Training has released several of its learning resources under CC licences.²⁴⁸ The CLI produces learning resources and provides leadership in the

follows: ‘specifying the scope of PSI to which the IMF applies; obtaining further legal advice about the release of PSI and use of appropriate licensing arrangements including use of Creative Commons licensing, where appropriate, as the default licence; identifying and categorising datasets created and maintained by the Victorian Government; developing a hybrid licensing system that uses Creative Commons as the default licence; developing pricing models with no cost/marginal cost as the default; defining and describing criteria under which access to PSI may be restricted, or released under licence; and developing governance and funding arrangements for the implementation of the IMF. *ibid.*, pp. 8–9.

243 *ibid.*, p. 9.

244 *ibid.*, p. 12.

245 *ibid.*, p. 8.

246 *ibid.*, p. 12.

247 *ibid.*, pp. 8 and 12.

248 See www.smartcopying.edu.au/scw/go/pid/921.

use of technology in education and training. Included in the resources licensed under a CC licence is the work ‘Dynamic Calculus’, a collection of interactive learning objects for teaching calculus.²⁴⁹

At the local government level, in April 2009 the Mosman Municipal Council – the local government authority for the northern shores of Sydney Harbour – adopted a new Community Engagement Strategy and distributed it under a Creative Commons Attribution 2.5 Australia (CC BY) licence. By adopting the Strategy, the Council intends to ‘inform’, ‘consult’ and ‘involve’ their residents in genuine participatory government of their local area, and to promote the objectives of transparency and accountability in government. As part of the Strategy, the Council is committed to adopting best practices in use of new technologies to engage with citizens, including: ²⁵⁰

- use of blogs, wikis and other social network and social media platforms ‘where two-way communication between Council and the community is encouraged and nurtured’;
- developing appropriate guidelines for the use of these technologies by the Council ‘to ensure on-line discussions are appropriate, intelligent and lawful’;
- encourage community contribution of local knowledge to collaborative spaces including Wikipedia and OpenStreetMap;
- *releasing Council materials, where possible, under a Creative Commons licence ‘to promote the use and dissemination of Council’s materials while retaining Council’s rights of authorship’;*
- *releasing Council materials, where possible, in open format and as open data; and*
- building of an application programming interface (API) to that information. [emphasis added]

SOUTH AUSTRALIA

South Australia is the first of the Australian jurisdictions in which a formal deci-

249 See www.smartcopying.edu.au/scw/go/cache/offonce/pid/939;jsessionid=B82C2B3E2A4E5F1A63A7878C586F5ACD. This interactive resource is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 2.5 Australia Licence.

250 creativecommons.org.au/node/255. See also the case study on this Mosman Municipal Council initiative at wiki.creativecommons.org/Case_Studies/Mosman_Municipal_Council. The Strategy also points to the need for appropriate training for Council officers and to ensure that citizens who are not technologically literate are not disadvantaged. To this end traditional means of communication and engagement will be retained.

sion has been made by Cabinet to apply CC licences to the State's PSI. The lead agency in South Australia, the Office of the Chief Information Officer, became involved in considering the use of CC licences through the Cross-Jurisdictional Chief Information Officers Committee (CJCIOC). On 5 November 2008, the South Australian government's ICT Board – the State's governance and strategic leadership body for whole-of-government ICT services and initiatives – endorsed a recommendation to Cabinet that the government support the adoption of the Government Information Licensing Framework (GILF) model. This recommendation was approved by Cabinet in December 2008 and implementation of the South Australian GILF Program began in June 2009 with the establishment of a Working Group of government agencies and support of agency chief executives.

CULTURAL INSTITUTIONS

Australia's cultural institutions are increasingly seeking to engage with their audiences in ways that capitalise on the distributed and collaborative networking models available in the Web 2.0 environment. Digital technologies have dramatically changed the landscape of creating, collecting and providing access to cultural materials. In this environment, Australian museums and archives are exploring the potential of open access distribution models.

POWERHOUSE MUSEUM (SYDNEY)

The Powerhouse Museum in Sydney, a major Australian cultural institution, has adopted open access practices and commenced releasing a large amount of material under Creative Commons licences. The museum's new practices are designed to 'enable rich research and [to] encourage innovation'.²⁵¹ Materials available include the museum's photo of the day project,²⁵² downloadable PDF files from its Play program²⁵³ and the museum's general collection information and data.²⁵⁴ Since April 2009, all online descriptions of objects held by the museum have been

251 See, under the heading Open Licensing and Collections, the comments by Paula Bray, the Manager Image Services, at the Museum, in the context of developing business models based on the Commons project on Flickr: www.archimuse.com/mw2009/papers/bray/bray.html.

252 www.powerhousemuseum.com/imageservices/. The CC licence used is CC BY-NC-ND (Attribution, Non-Commercial, No Derivatives).

253 play.powerhousemuseum.com/. The CC licence used is CC BY-NC-ND (Attribution, Non-Commercial, No Derivatives).

254 www.creativecommons.org.au/node/225.

available under a Creative Commons Attribution-Non-Commercial (CC BY-NC) licence whilst the primarily factual information about each of the objects is available under a Creative Commons Attribution-ShareAlike (CC BY-SA) licence. In addition, the museum makes photographs (in which there are no known copyright interests) available for public download through the Commons on Flickr.²⁵⁵

AUSTRALIAN BROADCASTING CORPORATION'S 'POOL'

Pool is an initiative established by the Australian national broadcaster, the Australian Broadcasting Corporation (ABC), with the support of the University of Technology Sydney (UTS), the Royal Melbourne Institute of Technology (RMIT) and the University of Wollongong.²⁵⁶ The ABC website describes Pool as:

[A] space for people to upload and download, create profiles, share, remix and build communities. While encouraging this engagement, the ABC expects all users to treat each other with respect and courtesy. Pool is an open platform for conducting research in action at the intersection of conventional broadcast media and participatory media. Pool is a predictive project exploring this new territory asking the question: 'how does a traditional broadcaster make sense of participatory media culture?'²⁵⁷

To contribute material it is necessary to first register, agree to conditions displayed on the site²⁵⁸ and indicate the rights granted to the ABC and other parties

255 This material may never have been protected by copyright or the term of copyright has expired. For an overview of the Powerhouse Museum's rights and permissions practices see www.powerhousemuseum.com/imageservices/?page_id=157.

256 See www.pool.org.au.

257 *ibid.*

258 The conditions include the following:

3.3 You agree to allow the ABC to select whole or part of Your Uploaded Content to be used for inclusion on Pool.

3.4 The ABC does not warrant that we will archive, back up, or continue to store Your Uploaded Content. You should keep a copy of Your Uploaded Content.

3.5 All copyright in Your Uploaded Content shall remain the property of you. At the time of adding Your Uploaded Content to Pool you will nominate the type of licence which will apply to Your Uploaded Content. You can select the following

to use the uploaded material, by selecting from among the six standard CC licences, an ‘all rights reserved’ copyright notice and a public domain dedication. As well as inviting members of the public to upload material so that it is available on Pool, the ABC is releasing its archival material to the public for use and re-use under an open content licence.²⁵⁹

CONCLUSION

How best to manage PSI to foster innovation is one of the most significant challenges faced by governments at the present time. Unlocking the potential of the huge amount of informational, creative, educational and scientific material produced or funded by government requires the development and implementation of copyright management and licensing strategies that facilitate access and re-use.²⁶⁰ Recent Australian experience has shown that CC licences offer a legally

licensing options for Your Uploaded Content:

- (a) Creative Commons Attribution Non-Commercial licence;
 - (b) Creative Commons Attribution Non-Commercial Non-Derivative licence;
 - (c) Creative Commons Attribution Non-Commercial Share Alike licence;
 - (d) Creative Commons Attribution Share Alike licence;
 - (e) Creative Commons Attribution No-Derivatives licence;
 - (f) Creative Commons Attribution;
 - (g) All rights reserved; or
 - (h) Public domain
- 3.6 Your Uploaded Content may be edited or adapted at any time by the ABC in order to:
- (i) meet the requirements of broadcasting authorities;
 - (ii) adhere to any requirements of the ABC Editorial Policies;
 - (iii) ensure Your Uploaded Content meets any legal classification requirements or to avoid any breach of law;
 - (iv) use Your Uploaded Content for promotional purposes; and/or
 - (v) use Your Uploaded Content on any other ABC media platform.

3.7 Should the ABC want to use Your Uploaded Content for any other purpose than those outlined in 3.5, the ABC will first obtain your consent.

259 See www.pool.org.au/users/abc_archives.

260 B Fitzgerald, ‘It’s vital to sort out the ownership of ideas’ February 27, 2008, *The Australian* (Higher Education Supplement) www.theaustralian.news.com.au/story/0,25197,23280526-25192,00.html; B Fitzgerald and B Atkinson ‘Third Party Copyright and Public Information Infrastructure/Registries: How much copyright tax must the public pay?’ in B Fitzgerald and M Perry (eds.), *Knowledge Policy for the 21st Century*, 2008, available at eprints.qut.edu.au/archive/000113627/; Tracey P. Lauriault and Hugh McGuire, ‘Data Access in Canada: CivicAccess.ca’ (2008) www.osbr.ca/ojs/index.php/osbr/article/view/514; M van Eeouch and B van der Wal, *Creative Commons Licensing for Public Sector Information: Opportunities*

and operationally effective means by which much copyright protected PSI may be unlocked for innovative re-use. Open content licensing supports the shift by government towards open access policies and practices. Initiatives by Australian governments at the Federal, State and local level have shown that CC licences provide the ‘simple, open and internationally recognised licensing framework’ which is required in order to maximise the value of PSI in the web 2.0 era.²⁶¹ Governments are increasingly delivering information and services online with the increasing efficiencies that it brings. The adoption of CC licences by Australian governments is a logical step towards utilising the functionality available through web 2.0 technologies (and beyond) for the benefit of all sectors of the Australian community. The adoption of CC licences by all levels of government in the online environment will fuel the development of a vibrant global commons of PSI, the real value of which can only be realised when it is re-used for social, economic and cultural benefit.

ABBREVIATIONS AND ACRONYMS

ABC	Australian Broadcasting Corporation
ABS	Australian Bureau of Statistics
AEC	Australian Electoral Commission
API	application programming interface
AWRIS	Australian Water Resources Information System
BoM	Bureau of Meteorology
BY	Attribution
CC	Creative Commons
CC0	CC zero
CJCIOC	Cross-Jurisdictional Chief Information Officers Committee

and Pitfalls, 2007, available at www.ivir.nl/creativecommons/index-en.html.

261 Siu-Ming Tam, *Australian Bureau of Statistics, ‘Informing the Nation – Open Access to Statistical Information in Australia*, paper presented to the United Nations Economic Commission for Europe (UNECE) Work Session on the Communication and Dissemination of Statistics, Poland, May 2009, para. 33, available at www.unece.org/stats/documents/ece/ces/ge.45/2009/wp.11.e.pdf.

CLI	Centre for Learning Innovation
CLRC	Copyright Law Review Committee
CRC-SI	Cooperative Research Centre for Spatial Information
DERM	Queensland Department of Environment and Resource Management
DRM	Digital Rights Management
EDIC	Victorian Parliament's Economic Development and Infrastructure Committee
ERMI	electronic rights management information
FOSS	Free and Open Source Software
FTP	File Transfer Protocol
GA	Geoscience Australia
GILF	Government Information Licensing Framework
GPL	GNU General Public Licence
IMF	Information Management Framework
JRGWI	Jurisdictional Reference Group on Water Information
MODIS	Moderate Resolution Imaging Spectroradiometer
NC	Non-Commercial
ND	No Derivative Works
NGISS	National Government Information Sharing Strategy
NZGO	AL New Zealand Open Access and Licensing Framework
OCC	Online and Communications Council
OECD	Organisation for Economic Cooperation and Development
OESR	Queensland Office of Economic and Statistical Research
PMSEIC	Prime Minister's Science, Engineering and Innovation Council
PSI	Public Sector Information
QSIC	Queensland Spatial Information Council
QUT	Queensland University of Technology

SA	Share Alike
TPM	technological protection measures
UNECE	United Nations Economic Commission for Europe
URI	Uniform Resource Identifier

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Reviewnowavailableinhardcopy.jsp.
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CHAPTER SIX

NZ GOVERNMENT INFORMATION POLICY AND DATA RE-USE PROJECT BACKGROUND

PAPER SUMMARY

Keitha Booth¹

The Policy Framework for Government-held Information (PFGHI) was approved by Cabinet and released in 1997. It is government's best practice statement for managing information held by public service departments. Since that time, the E-government Strategy, Digital Strategy, Digital Content and draft Digital Continuity Strategies have set out visionary statements for, amongst much else, the management of New Zealand's digital content.

The Digital Strategy 2.0, released on 28 August 2008, recognises that the use of Web 2.0 technologies and applications on the Internet to network people and content is now commonplace. It commits government 'to making public information accessible to everyone. Information should be available in the way you want it, when you want it... Government will provide secure, personalised interaction between government and individuals, and open up authoritative data sources for others to use, while protecting privacy and the security of information'.

Whilst the PFGHI anticipated this environment by encouraging public service agencies to make government-held information 'increasingly available on an electronic basis', its eleven principles and guidance are no longer adequate for the 21st century digital environment. For example, there is no guidance about licensing publicly available information, offering it for re-use or for ensuring secure

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management of personal government-held information.

Investigating mechanisms for presenting and linking information in an online environment in a consistent way that promotes discoverability is also necessary.

The PFGHI only applies to the 35 public service departments. Yet much of government's data is created or funded by the wider state services, state sector and public sector agencies. The issues relating to opening up access to this information need consideration.

This paper describes the PFGHI, key international policies and initiatives, relates those approaches to the current PFGHI, and discusses the next steps. It then outlines the State Services Commission's proposed approach for updating the policy framework and carrying out an associated work program which will give effect to the commitments of the Digital Strategy 2.0 and underpin the opportunities provided by the networked digital environment. These are:

1. Providing updated principles and best practice advice for the management of New Zealand's government-held information; and
2. Creating the conditions that encourage use and re-use of open New Zealand government data for the benefit of the New Zealand economy and New Zealanders, whilst ensuring the integrity and privacy of personal information.

Cross-government participation and consultation with users of government-held information will be essential for achieving a comprehensive framework which will be relevant to the changing information environment and endure for at least five years.

BACKGROUND

The Policy Framework for Government-held Information (PFGHI)² was released in 1997 following Cabinet approval (CAB (97) M 15/4C (i) refers). It drew on international guidelines, reflected the purposes of the Official Information Act 1982 and the Privacy Act 1993, and is government's best practice statement for managing information held by public service departments.

Since that time, the E-government Strategy, Digital Strategy, Digital Content and draft Digital Continuity Strategies have set out visionary statements for, amongst much else, the management of New Zealand's digital content.³

2 www.ssc.govt.nz/Documents/policy_framework_for_Government_.htm.

3 www.e.govt.nz/about-egovt/strategy/nov-2006/; www.digitalstrategy.govt.nz/Digital-Strategy-2/; www.digitalstrategy.govt.nz/Resources/New-Zealand-Digital-Content-Strategy/; continuum.archives.govt.nz/digital-continuity-strat-

The Digital Strategy 2.0, released on 28 August 2008, commits government to making public information accessible to everyone in a way that people want it and when they want it. It states that government will provide secure personalised interaction between government and individuals, and open up authoritative data sources for others to use, while protecting privacy and the security of information. It also notes that ‘... we also need to be aware of the value of and potential for re-use of verifiable, reliable information such as that created by public entities’.

The PFGHI anticipated a digital environment by encouraging public service departments to make government-held information ‘increasingly available on an electronic basis’. It is now timely to offer advice on matters not previously covered. For example, there is no guidance on licensing government-held information, offering it for re-use or for ensuring secure management of personal government-held information.

New all-of-government igovt services (currently logon and identity verification) have been developed. These support online transactions with government and allow people to verify who they are when using some government services that require people to prove who they say they are. These services assume that people control their own personal information when seeking services from government. The PFGHI does not address these new types of technology-enabled government-held information services.

The PFGHI only applies to the 35 public service departments. Yet much government-held data is created or funded by the wider state services, state sector and public sector agencies. Examples are geospatial, meteorological and scientific data, managed by crown entities or state-owned enterprises and local government. The issues relating to opening up access to this information need consideration.

This paper describes the PFGHI, key international policies and initiatives, relates those approaches to the current PFGHI, and discusses the next steps. It then recommends an approach for updating the policy framework and carrying out an associated work program which will give effect to the commitments of the Digital Strategy 2.0 and underpin the opportunities provided by the networked digital environment.

DESCRIPTION OF THE POLICY FRAMEWORK FOR GOVERNMENT-HELD INFORMATION

The PFGHI comprises eleven principles which public service government departments are encouraged to apply when developing their own information manage-

ment strategies. These are:

- Availability
- Ownership
- Coverage
- Preservation
- Pricing
- Quality
- Copyright
- Integrity
- Stewardship
- Privacy
- Collection.

They reflect the provisions of the Official Information Act 1982, Local Government Official Information and Meetings Act 1987, the Privacy Act 1993, Copyright Act 1994 and specific legislation such as the Statistics Act 1975. When they were released in 1997, it was expected that they would be incorporated into departments' information systems strategic plans (ISSPs).

APPLICATION OF THE PFGHI

Despite low-key promotion of the PFGHI over last decade, and little supporting best practice guidance, there is evidence that it is being applied at a strategic and policy level. It is referenced in the Health, Justice and Geospatial Sector information strategies and in agencies' Information Management strategies. The pricing principle is cited in Treasury's *Guidelines for setting charges in the public sector*.⁴

The *New Zealand Government Data Management Policies and Standards*,⁵ released in 2000, supplement the PFGHI. They were drawn up to assist agency chief executives and anyone with delegated custodial responsibilities for Crown owned data or document assets.

Public service departments delivering information-based services are applying the stewardship and pricing principles. In general they have assigned stewards and custodians to their data, and applied the pricing principle – that people and organisations generally should pay no more than the unavoidable costs of access incurred by the department or agency in making the information available to

4 www.treasury.govt.nz/publications/guidance/finmgmt-reporting/charges/charges-dec02.pdf

5 www.e.govt.nz/standards/e-gif/data-management/data-management-policies/index.html/view?searchterm=data%20management

them.

There is international interest in New Zealand's government-held information management policy⁶, and it is notable that there are similarities with the European and OECD public sector information policies released recently.

INTERNATIONAL PUBLIC SECTOR INFORMATION POLICY

Public sector information policy development at international and country levels has been active. In North America the focus has been on updating all-of-government best practice information management statements, whereas at the international level, the OECD and European Union (EU) have set policy on access, use and re-use of their public sector information for their member countries. Licensing of public sector information has been a priority in Australia. There are also international campaigns for governments to open up access to their non-personal data. This international work is summarised below.

INFORMATION MANAGEMENT

The US sets out best practice advice for agencies, including minimising cost to the Federal Government, minimising the burden for citizens, maximising the utility of the information, and reducing paperwork.⁷ Canada regularly updates its information management advice for agencies.⁸

COVERAGE

The OECD and the EU define public sector information very broadly. The OECD's definition is 'information, including information products and services, generated, created, collected, processed, preserved, maintained, disseminated, or funded by or for the Government or public institution'⁹. The EU list below illustrates the breadth of its coverage and also its expectations for external uptake of

6 NZ was invited to speak at the International Summit on Open Access to Public Sector Information, in Brisbane and Canberra, March 2008.

7 US Coordination of Federal Information Policy Act; commonly known as the Paperwork Reduction Act. US Code Title 44, Chapter 35; Office of Management and Budget circular A-130

8 www.informationmanagement.gc.ca/links-liens_e.asp?catid=5&topid=32

9 www.oecd.org/dataoecd/0/27/40826024.pdf

this information.

Information type	Examples of added value service offered by private companies
Meteorological information	Weather forecast for mobile phones as a part of a wider package of information services. Insurance of crops based on historical meteorological data
Laws and regulations	Collection of legal texts in a specific area at European, national and local level with links to relevant case-law
Digital maps	Freight management service. System facilitating disaster management
Grant information	Comprehensive overview of European, national and local grants as part of a broader service to facilitate location decisions for companies
Tourist information from tourist boards	Mobile tourist service with description of main monuments, hotel information, etc.
Business statistics	Business consultancy service based on statistical analysis
Administrative information	Overview of administrative formalities as part of a service for transport companies
Images of artefacts in museums	Online course in history of art
Audio-visual material from public archives	Documentaries integrating historical material
Traffic data	Intelligent navigation systems helping you to avoid traffic jams

ACCESS AND RE-USE

The OECD Council's *Recommendation for Enhanced Access and More Effective*

*Use of Public Sector Information*¹⁰ and the *OECD Policy Guidance for Digital Content*¹¹, adopted by OECD member countries in June 2008, cover access and re-use. These documents complement the European Union (EU)'s *Directive on the Re-use of Public Sector Information*¹² (2003/98/EC, dated 17 November 2003).

They all open up, maximise access to and allow non-exclusive re-use of non-personal public sector information and digital content, and require this irrespective of a member country's funding model for developing and maintaining the information.

The United Kingdom leads the EU in implementing the Re-use Directive. This work is led by the Office of Public Sector Information¹³ which operates a mixed regime for charging and licensing re-use. Most material published on central government websites can be re-used free of charge under terms of a Click-use licence. The Information Fair Trader Scheme regulates trading activities of those parts of government which are designated as Trading Funds, such as the Ordnance Survey. The Information Asset Register lists government information assets, and work is underway investigating the combining of information and data using semantic web¹⁴ technologies.

In the United Kingdom, the Power of Information report¹⁵ recommended that the government take up 'opportunities that are emerging in terms of the creation, consumption and re-use of information'. In response, the Cabinet Office committed 'to unlock the value of the information we collect on behalf of citizens; to deliver better public services; and to support world-class innovation that underpins a growing part of our knowledge economy'.¹⁶ Other initiatives include a campaign for government to free up data,¹⁷ and mysociety.org,¹⁸ a project of the

10 www.oecd.org/dataoecd/0/27/40826024.pdf

11 www.oecd.org/dataoecd/20/54/40895797.pdf

12 ec.europa.eu/information_society/policy/psi/docs/pdfs/directive/psi_directive_en.pdf

13 www.opsi.gov.uk/

14 vision of information that is understandable by computers, so that they can perform more of the tedious work involved in finding, sharing and combining information on the web

15 *The Power of Information: An independent review* by Ed Mayo and Tom Steinberg commissioned by the Cabinet Office www.cabinetoffice.gov.uk/~media/assets/www.cabinetoffice.gov.uk/strategy/power_information%20pdf.ashx.

16 The Government's Response to *The Power of Information*, www.cabinetoffice.gov.uk/~media/assets/www.cabinetoffice.gov.uk/publications/reports/power_information/power_information_response%20pdf.ashx.

UK Citizens Online Democracy, which ‘builds websites that give people simple, tangible benefits in the civic and community aspects of their lives’, for example, TheyWorkForYou.

OPEN ACCESS

There is increasing international demand for governments to provide data in readily usable or re-usable formats. A US Open Government Working Group, comprising 30 invited attendees from influential US organisations, has released a set of principles for open government data¹⁹. In Canada, the Citizens for Open Access to Civic Information and Data group is advocating that all levels of government make ‘civic’ information and data accessible at no cost in open formats to their citizens. They believe ‘this is necessary to allow citizens to fully participate in the democratic process of an ‘information society’²⁰.

COPYRIGHT AND LICENSING

Licensing approaches which clarify copyright ownership and usage are required by the OECD and the EU. The Queensland Government Information Licensing Framework is based on open access principles and is currently being tested within the statistical office in the Queensland Treasury,²¹ an information-centric, highly transactional operating central government environment.

PRICING AND FUNDING

Both the OECD and the EU require transparent and consistent pricing which they anticipate will encourage competition.

Revenues to the UK Government from the sale and licensing of public sector information are around £340 million per year²². The Ordnance Survey estimates²³

17 www.freeourdata.org.uk/index.php.

18 www.mysociety.org/.

19 wiki.opengovdata.org/index.php/OpenDataPrinciples.

20 www.osbr.ca/ojs/index.php/osbr/article/view/514/473.

21 www.oesr.qld.gov.au/about-our-services/policy/gilf-project.shtml.

22 *The Power of Information: An independent review* by Ed Mayo and Tom Steinberg, www.cabinetoffice.gov.uk/~media/assets/www.cabinetoffice.gov.uk/strategy/power_information%20pdf.ashx.

that public sector information underpins £100 billion per year of economic activity in the UK and the total market for public sector information stands at £590 million per year. Yet, direct revenues from UK public sector information are considered to be only a fraction of the wider value that this information creates.

In 2008 Cambridge University investigated the impact of adopting different models for the provision of public sector information by trading funds²⁴. It examined the costs and benefits for society, and the effects on government revenue of different charging policies, ranging from profit maximisation through to zero cost. The UK Treasury has commissioned a further report to analyse the argument that the wider economy would benefit from making government-collected raw data free for re-use to see how this would affect some of the biggest trading funds, including the Ordnance Survey, Met Office, UK Hydrographic Office and the Land Registry²⁵.

In the US, government data collection is funded with money from the general budget, appropriated by Congress. The private sector is encouraged to use raw content to create new information services at no more than the cost of dissemination and without any government copyright restrictions. Information intensive industries, particularly in the geographic information and environmental services sectors, have led to increased tax revenues.²⁶

ADOPTION OF EU DIRECTIVE

The EU is now reviewing progress made by Member States in adopting its 2003 Directive 2003/98/EC.²⁷ All 27 EU Member States have transposed the Directive into their legislation, and the ePSIplus program has recommended²⁸ to the European Commission Directive 2008 Review group that it considers:

- independent channels for redress for re-users²⁹

23 www.ordnancesurvey.co.uk/oswebsite/aboutus/reports/oxera/index.html.

24 *Models of Public Sector Information Provision by Trading Funds*. Cambridge University, February 26, 2008. www.berr.gov.uk/files/file45136.pdf.

25 www.shareholderexecutive.gov.uk/publications/pdf/tradingfunds250608terms.pdf.

26 Weiss, Peter. *Borders in cyberspace: conflicting public sector information policies and their economic impacts: summary report*. US Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Services, 2002.

27 ec.europa.eu/information_society/policy/psi/docs/pdfs/directive/psi_directive_en.pdf.

28 www.epsplus.net/reports/epsplus_recommendations_to_the_ec_s_2008_review_of_the_psi_re_use_directive.

- how to stop persistent discriminatory practices in the licensing of data
- the creation of a suitable set of standards, an infrastructure and an action plan which brings about steadily improving discovery of access to the full range of public sector information
- the creation of practical initiatives to create ‘asset registries’, or other public sector information infrastructures supporting re-use
- ways of stimulating the private sector to act
- an intensification of work to establish and disseminate the economic case for low or no charges conclusively.

These recommendations cover matters and areas not included in New Zealand’s PFGHI.

ISSUES TO BE ADDRESSED IN AN UPDATED POLICY FRAMEWORK FOR GOVERNMENT-HELD INFORMATION

The table below sets out each PFGHI principle and notes issues to be considered, including potential gaps or alternative approaches.

Principle	Description	Comment
Availability	Government departments should make information available easily, widely and equitably to the people of New Zealand (except where reasons preclude such availability as specified in legislation).	Uses US Federal government terminology, which is still current – Office of Management and Budget circular A-130. Retain? Replace with OECD Openness principle which also covers privacy and security? Also cover usability? Cover availability in multiple languages?
Coverage	Government departments should make the following information increasingly	Use OECD definition of public sector information – ‘information, including in-

29 In order to make a complaint about existing business arrangements with public sector bodies.

	<p>available on an electronic basis:</p> <p>all published material or material already in the public domain;</p> <p>all policies that could be released publicly;</p> <p>all information created or collected on a statutory basis (subject to commercial sensitivity and privacy considerations);</p> <p>all documents that the public may be required to complete; and</p> <p>corporate documentation in which the public would be interested)</p>	<p>formation products and services, generated, created, collected, processed, preserved, maintained, disseminated, or funded by or for the Government or public institution’?</p> <p>Or just update list and include websites, online forms and online services?</p> <p>Cover open source.</p> <p>Include this in a new access and re-use principle as per the OECD?</p> <p>Refer also to permanent access.</p> <p>Cover semantic operability?</p> <p>Align with the Public Records Act 2005 and the Electronic Transactions Act 2002.</p>
<p>Pricing</p>	<p>a. Free dissemination of Governmentheld information is appropriate where:</p> <p>dissemination to a target audience is desirable for a public policy purpose; or</p> <p>charge to recover the cost of dissemination is not feasible or cost-effective.</p> <p>b. Pricing to recover the cost of dissemination is appropriate where:</p> <p>there is no particular public policy reason to disseminate</p>	<p>OECD seeks information provision free of charge, unless certain conditions restrict that. When information is not provided free of charge, it recommends transparent and consistent pricing to facilitate access and re-use and ensure competition.</p> <p>Any NZ changes will require changes to Treasury’s Guidelines for setting charges in the public sector,</p>

	<p>the information; and</p> <p>a charge to recover the cost of dissemination is both feasible and cost effective.</p> <p>c. Pricing to recover the cost of transformation is appropriate where:</p> <p>pricing to recover the cost of dissemination is appropriate; and there is an avoidable cost involved in transforming the information from the form in which it is held into a form preferred by the recipient, where it is feasible and cost-effective to recover in addition to the cost of dissemination.</p> <p>d. Pricing to recover the full costs of information production and dissemination is appropriate where:</p> <p>the information is created for the commercial purpose of sale at a profit; and</p> <p>to do so would not breach the other pricing principles.</p>	<p>last updated in 2002.</p> <p>They will also require detailed analysis of funding implications for State services agencies – with any consequential machinery of government considerations. Look at international approaches and monetary benefits.</p> <p>Should information assets be reflected on agency balance sheets and in the Crown Accounts?</p>
<p>Ownership</p>	<p>Government-held information, created or collected by any person employed or engaged by the Crown is a strategic resource ‘owned’ by the Government as a steward on behalf of the public.</p>	<p>Clarify the distinctions between ownership, stewardship and custodianship.</p> <p>Use term ‘asset’ rather than ‘strategic resource’?</p>
<p>Stewardship</p>	<p>Government departments are stewards of Government-held information, and it is their re-</p>	<p>Clarify the distinctions between ownership, stewardship and custodianship.</p>

	sponsibility to implement good information management.	ship.
Collection	Government departments should only collect information for specified public policy, operational business or legislative purposes.	Align with the Public Records Act 2005.
Copyright	Information created by departments is subject to Crown copyright but where wide dissemination is desirable, the Crown should permit use of its copyrights subject to acknowledgement of source.	<p>Review copyright arrangements in place for current dissemination.</p> <p>Need detailed guidance about application of Crown Copyright.</p> <p>Include advice on licensing approaches such as Creative Commons – use Queensland Government Information Framework as the foundation? Cover liability.</p> <p>Cover the Copyright (New Technologies) Amendment Act 2008.</p> <p>Use OECD terminology:- respect for IP rights; exercise of copyright in ways that facilitate re-use, development of mechanisms to encourage this, including simple licensing arrangements, encouragement to find ways to make works funded from outside sources widely accessible?</p>
Preservation	Government-held information should be preserved only where a public business need,	Also cover technological obsolescence and challenges of long-term preservation

	<p>legislative or policy requirement or a historical or archival reason exists.</p>	<p>and access – see OECD principle.</p> <p>Align with language of the draft Digital Continuity Strategy.</p>
Quality	<p>The key qualities underpinning Government-held information include accuracy, relevancy, timeliness, consistency and collection without bias so that the information supports the purposes for which it is collected.</p>	<p>NZ focus is quality information supporting the purposes for which it is collected.</p> <p>Extend to also cover methodical collection and curation by all parties to achieve quality and reliable information – per OECD principle?</p>
Integrity	<p>The integrity of Government-held information will be achieved when:</p> <p>all guarantees and conditions surrounding the information are met;</p> <p>the principles are clear and communicated;</p> <p>any situation relating to Government-held information is handled openly and consistently;</p> <p>those affected by changes to Government-held information are consulted on those changes;</p> <p>those charged as independent guardians of the public interest (e.g. the Ombudsman) have confidence in the ability of departments to manage the</p>	<p>Include security here?</p> <p>Or adopt OECD approach – in an Openness principle –?</p> <p>Align with the Security in the Government Sector manual³⁰.</p>

	information well; and there are minimum exceptions to the principles.	
Privacy	The principles of the Privacy Act 1993 apply	Reflect any changes to the Privacy Act 1993. Also address 'authoritative' (personal information that is verified by the source agency to be true to a specified level of confidence).

NEXT STEPS DISCUSSION

WAY FORWARD

The reasons for developing the PFGHI in the 1990s are still relevant today. These included 'concerns that a culture has evolved that locks government-held information away as a specific departmental asset'.³¹

In the 21st century information environment, where technology has made access to digital information much easier, key considerations are:

- making public information accessible to everyone in a way that people want it and when they want it;
- government providing secure personalised interaction between government and individuals; and
- opening up authoritative data sources for others to use, while protecting privacy and the security of information.³²

These reasons for an updated New Zealand government information policy framework are summarised as:

Providing updated principles and best practice advice for the management of

30 www.security.govt.nz/sigs/index.html.

31 *Policy framework for Government-held information: criteria for stewardship*, paper to Cabinet Strategy Subcommittee on Expenditure Control and Government Administration, 29 June 1998.

32 www.digitalstrategy.govt.nz/Digital-Strategy-2/.

New Zealand's government-held information; and

Creating the conditions that encourage use and re-use of open New Zealand government data for the benefit of the New Zealand economy and New Zealanders, whilst ensuring the integrity and privacy of personal information.

Cross-government participation and consultation with users of government-held information will be essential for achieving a comprehensive framework which will be relevant to the changing information environment and endure for at least five years.

UPDATING THE PRINCIPLES AND DEVELOPING BEST PRACTICE ADVICE

This process will require a comprehensive analysis of the current PFGHI, development of updated principles and best practice advice, and wide consultation across government ahead of submission to Cabinet. The framework needs to be written in language that is commonly understood across all the sectors which manage government-held information, and include supporting best practice and guidance. Extending its mandate beyond public service departments is a critical element of this work.

International practice indicates clear worth in setting national instruments. For example, each EU jurisdiction now uses national instruments to apply the 1993 EU Directive locally, and regular monitoring is carried out.

Creating conditions that encourage open use and re-use of government-held information

Parallel work which develops new principles and best practice advice on open use and re-use of government-held information will also need to address pricing, funding, copyright, licensing, and potentially machinery of government matters. This will require a full understanding of the Treasury charging guidance, information economics arguments, and be informed by the experience of agencies which have opened up access to their information³³ and the requirements of users of government-held information and data.

There has been little detailed analysis of the issues relating to funding the creation, management and any opening up of access to government-held information. The 2008 Treasury paper *Innovation and Productivity: Using Bright Ideas to Work Smarter*³⁴ does start this examination. It discusses the characteristics of knowledge and notes that 'these characteristics create the potential for markets on their own to fail to deliver the best outcome. First, knowledge can 'spill over'

33 *ibid.*

34 www.treasury.govt.nz/publications/research-policy/trpr/08-05.

to those who did not create it, resulting in a social return to knowledge creation that is greater than the private return. Secondly, the non-rival nature of knowledge suggests it ought to be made widely available once it has been created’.

It concludes that ‘given these features, there is likely to be less investment in new knowledge and less spreading of it compared to what would be best for society as a whole’. It states that there is ‘an important and potentially quite active role for government to create the best conditions for innovation, ranging from subsidising public- and private-sector R&D, ensuring that institutions for intellectual property rights and higher learning work well, and encouraging strong links between private-sector firms that apply knowledge and public research organisations that create it’.

There has been no quantitative assessment of the potential to create value and growth in the New Zealand economy from an increase in availability of government held information, and this may be an area where further work is required.

The analysis may also extend to considering machinery of government matters. Section 107 of the Crown Entities Act 2004 provides the capability for the Minister of State Services and the Minister of Finance to jointly direct certain categories of Crown entities to comply with specified requirements for the purpose of both supporting a whole of government approach; and either directly or indirectly, improving public services. E-government is cited as an example. Section 7 of the State Owned Enterprises Act 1986 states that ‘Where the Crown wishes a State enterprise to provide [non-commercial] goods or services to any persons, the Crown and the State enterprise shall enter into an agreement under which the State enterprise will provide the goods or services in return for the payment by the Crown of the whole or part of the price thereof’.

Crown copyright and information licensing best practice advice is an essential part of this stream of work. Agencies are seeking advice on whether to, or how to, apply licences such as Creative Commons across New Zealand’s government-held information.

Investigating mechanisms for presenting and linking information in an online environment in a consistent way that ensures discoverability is also necessary.

POTENTIAL NEW PRINCIPLES

As well as the influence of international policy and initiatives, informal discussions across government have identified a need for the updated framework to include new or more explicit principles which cover:

- Security
- Paper reduction
- Management of indigenous information held by government.

A new security principle would acknowledge the Confidence stream of the newly released Digital Strategy 2.0, in particular, ‘that private information and sensitive data held online is protected, that the online experience will be safe and secure, and that government law enforcement agencies are well-equipped to combat cyber-crime’³⁵.

A new principle supporting paper reduction, and considering information sustainability issues (not preservation) would support the intent of the draft Digital Continuity Strategy.

Management of indigenous information held by government is a potential new focus for the PFGHI. Detailed discussion with key agencies including the Te Puni Kōkiri (Ministry of Māori Development), National Library of New Zealand and Archives New Zealand is needed ahead of a decision to include a new principle.

FUTURE GOVERNANCE

Once there is consensus on the new set of principles, agency ownership of each principle needs to be agreed. In some cases, the Government CIO in the State Services Commission will continue to own a principle. Experience since 1997 indicates that ownership of some principles could be transferred to other public service agencies. However, the Government CIO will continue to retain overall accountability for the policy framework.

NEXT STEPS

The following next steps are proposed by the State Services Commission for updating the policy framework and carrying out an associated work program which will give effect to the commitments of the Digital Strategy 2.0:

1. Providing updated principles and best practice advice for the management of New Zealand’s government-held information
2. Create the conditions that encourage use and re-use of open New Zealand government data for the benefit of the New Zealand economy and New Zealanders, whilst ensuring the integrity and privacy of personal information.

35 www.digitalstrategy.govt.nz/Digital-Strategy-2/.

EDITORIAL NOTE:

On 27 August 2009, the New Zealand Government released an open access and licensing framework draft (NZGOAL) for public feedback. The framework is aimed towards enabling greater access to public sector copyright works and non-copyright material by encouraging the New Zealand State Services agencies to license material for reuse on liberal terms, and recommends Creative Commons as an important tool in this process.³⁶

36 blog.e.govt.nz/index.php/2009/08/27/draft-open-access-and-licensing-framework-released/

CHAPTER SEVEN

CHARTING SUCCESS AND NAVIGATING THE CHAL- LENGES IN THE PSI WORLD

Carol Tullo¹

What do we mean by Public Sector Information? Enshrined in UK legislation by the Re-use of Public Sector Information Regulations 2005² which implemented the EU Directive on Re-use³ on July 1, 2005, Europe set itself the strategic goal of becoming a competitive and dynamic knowledge-based economy. It recognised the enormous value of public sector information (PSI) and the contribution PSI could make to stimulate the development and growth of Europe's information industry. Underpinning the business of government at every level, how we use information shapes everyday activities and responsibilities. Understanding the implications of freeing up access and removing barriers to re-use lies at the heart of the push in the UK to raise awareness of the potential for transforming how the citizen and state interact.

Initiatives in the UK are shaping the PSI agenda, yet we are not complacent. Every public sector organisation that steers work at central and community level plays its part. The initial economic drivers for the Directive are matched by the UK embracing innovative opportunities that allow Government to engage with the citizen. This enables greater efficiency of government through more effective information sharing, and creates services tailored for each community with the user at the centre. As Gordon Brown, British Prime Minister, said in 2007, 'this is the century of information'.

1 © Crown copyright 2008. Reproduced with permission of the Controller of Her Majesty's Stationery Office. It should be noted that this chapter covers the period of 2007–2008 only.

2 www.opsi.gov.uk/si/si2005/20051515.htm.

3 eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0098:EN:HTML.

THE OFFICE OF PUBLIC SECTOR INFORMATION

The Office of Public Sector Information (OPSI),⁴ operating from within The National Archives, is at the heart of information policy in the UK, setting standards, delivering access and encouraging the re-use of PSI. OPSI has responsibility for the management of much of the UK government's intellectual property. OPSI is also the regulator of public sector information holders for their information trading activities. There is renewed focus within Government on challenging how we get the best value from our major official information providers that trade in their information. Providing the conditions for all users to access the richness of the public sector's output across diverse areas of operation brings with it substantial responsibilities to create the right conditions for unlocking the potential of PSI. These priorities are embedded in our objectives to develop policy and advise on PSI re-use; to lead compliance on PSI regulations; to deliver efficient and cost effective services including official publishing services; to provide e-services for facilitating and encourage re-use of PSI; and facilitate UK wide access to PSI.

Our vision – to lead and transform information management in government – is taking shape. The full spectrum of information management responsibilities sits within one lead organisation. This brings together Government's thinking for information exploitation and re-use, while addressing how we make sure that government knows what it controls and manages on our behalf. Shaping policy; pioneering new ways of working with PSI; setting standards across information trading and information management; providing support and guidance; and influencing understanding and culture, OPSI aims to make information easy to find, use, share and trade in.

INFORMATION HAS POWER

Google PSI and the progress of the last three years in the UK is clear with coverage of initiatives and reviews that continue to define the thinking and innovation in the PSI arena. This really is a dynamic, responsive world that lives up to its title of the power of information to harness the vast capacity for growth and development in innovation, citizen engagement and information provision.

In 2006 the Office of Fair Trading (OFT)⁵ conducted an extensive market study of *The Commercial Use of Public Information (CUPI)*.⁶ The report focused on the efficiency of PSI markets and how PSI is supplied to users. It highlighted

4 www.opsi.gov.uk/.

5 www.offt.gov.uk/.

6 www.offt.gov.uk/shared_offt/reports/consumer_protection/oft861.pdf.

the barriers to the re-use of information, such as pricing structures and licensing regimes; and the need for maintaining the quality of data whilst improving the quality of services provided. The OFT estimated that if these issues were resolved, the economic value of PSI in the UK would double to £1 billion, as a result of innovation and more efficient and improved public services.

The CUPI Report made a number of recommendations, which Government accepted in its Response in 2007.⁷ The key recommendations were that:

- public sector information holders (PSIHs) should separate their ‘unrefined’ and ‘refined’ information and allow re-users access to the information at the earliest practicable point
- PSIHs should improve their accounting practices and quality of service, underpinned by improved guidance
- Government Trading Funds (the public sector organisations that trade in information) should operate in a more transparent and fair manner in order to encourage re-use and wider competition. In practice, this could challenge the viability of the current funding model
- OPSI’s regulatory role should be strengthened and resourced accordingly.

Progress against each of the recommendations is reported to the Domestic Affairs (Public Engagement and Delivery of Services) Cabinet Sub-Committee (DA(PED)) every six months, to monitor and track progress.⁸

Following from this study the Government commissioned *The Power of Information Review (POI)*,⁹ an independent report by co-authors Tom Steinberg and Ed Mayo. Steinberg and Mayo’s simple vision was ‘... that citizens, consumers and government can create, re-use and distribute information in ways that add maximum value’. Their belief is that through re-using PSI, better and more innovative services and products can be produced to better enable citizens in their everyday lives. It broadened the case for re-use from unlocking the potential economic value, to releasing economic and social value of PSI and to enabling the delivery of more effective public services. The report was published on 8 June 2007 and the Government responded accepting all 15 recommendations on 24 June 2007.¹⁰

The CUPI Report helped inform the *Models of Public Sector Information Provision via Trading Funds*,¹¹ an independent report by a team of Cambridge economists. The Cambridge Report, as it became to be known, was commis-

7 www.berr.gov.uk/files/file39966.pdf.

8 www.opsi.gov.uk/advice/poi/cupi-progress-report-01.pdf.

9 www.berr.gov.uk/files/file39966.pdf.

10 www.opsi.gov.uk/advice/poi/poir-government-response.pdf.

11 www.berr.gov.uk/files/file45136.pdf.

sioned by HM Treasury as a direct result of the POI Review and examined how the Trading Funds provide and charge for PSI.

These reports begin to build an evidence base that sets out the benefits and significance of making information accessible and available. Understanding the significance to us all of the information market led to a commitment in the Budget Report 2008¹² to undertake a review of the business models of the Trading Funds to ensure the innovation of services and products is not hindered and information is traded fairly, efficiently and in a sustainable manner. The Shareholder Executive,¹³ a department within the Department for Business, Enterprise and Regulatory Reform (BERR),¹⁴ undertook this Review to examine the Trading Funds' governance, business plans and development strategies to assess if any improvements should be made and to define the public task of public sector organisations. The Terms of Reference were published in June 2008¹⁵ and this work is being informed by a number of government departments and Trading Funds.

CHARTING SUCCESS

Amongst these reports, officials and Ministers have pushed forward the agenda with great enthusiasm to maintain the growing momentum. The Minister for Transformational Government¹⁶ launched the Power of Information Taskforce¹⁷ to secure the success of the POI agenda. The Taskforce began a blog for users to discuss re-use and access issues and also issued guidance for civil servants when using social media. This POI agenda engages citizens and communities in harnessing the potential of new web technologies. An online competition was launched in June 2008, asking the public to 'show us a better way'¹⁸ aimed at improving how information is communicated to the public. The competition closed on 30 September with over 500 entries and a cash pot of £20,000 for developing the ideas. Judging took place in late October 2008.

In parallel, OPSI created a new information re-use request channel to gather and assess the requests to the re-use of PSI and to enable users to re-use this information to tailor solutions and services in their communities of interest. The

12 www.hm-treasury.gov.uk/d/bud08_completereport.pdf.

13 www.shareholderexecutive.gov.uk/.

14 www.berr.gov.uk/.

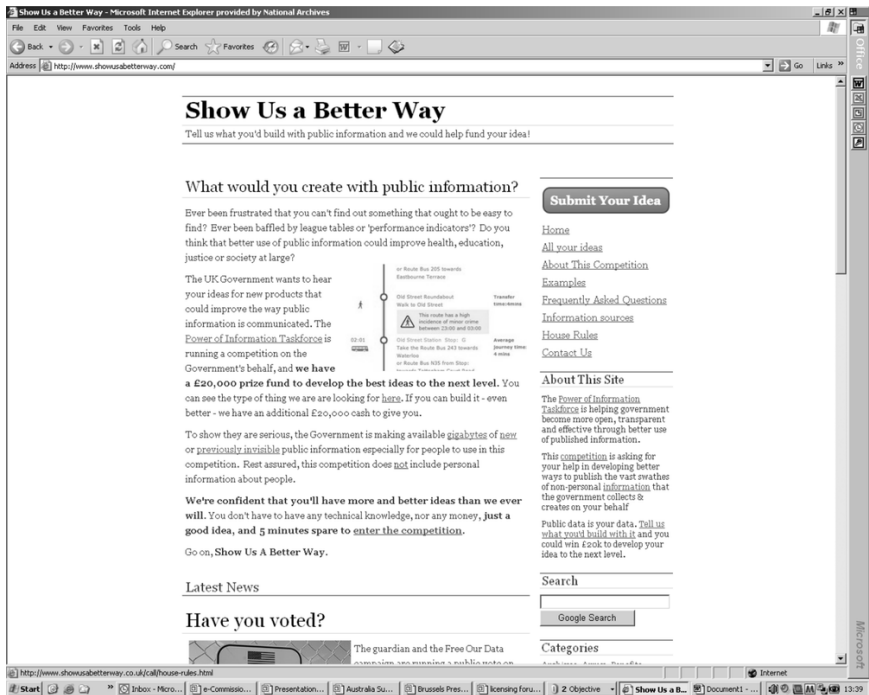
15 www.shareholderexecutive.gov.uk/publications/pdf/tradingfunds250608terms.pdf.

16 www.cio.gov.uk/transformational_government/index.asp.

17 powerofinformation.wordpress.com/.

18 www.showusabetterway.com/.

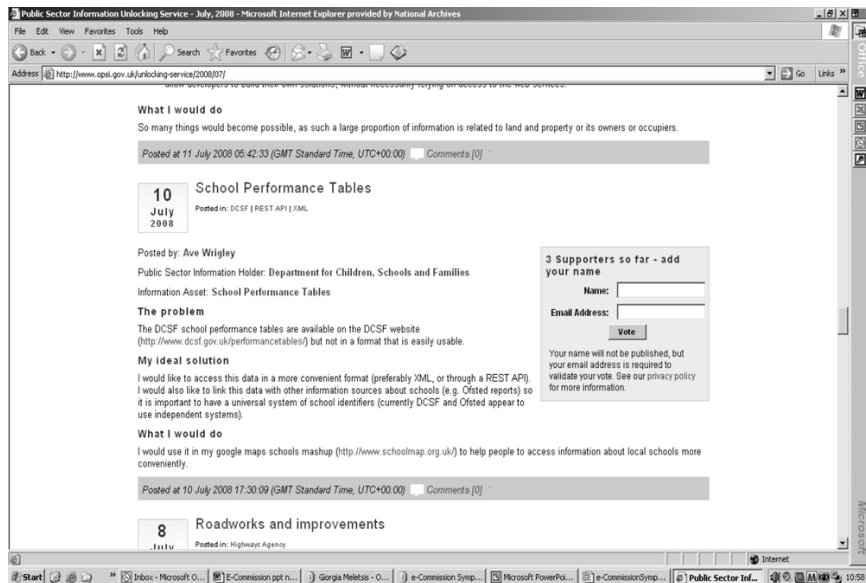
channel is called the Unlocking Service¹⁹ – a key to unlocking PSI’s potential and helping users to access the information they need. The Unlocking Service evolved from its predecessor – a dedicated online discussion forum launched in September 2007 to evaluate the demand for types of PSI. The Unlocking Service is a dedicated instrument for re-users to resolve problems with re-use, for example with charging, licensing or with data standards. OPSI organised three consultative events when developing the Service, to discuss with various sectors of the community, how they envisaged the Unlocking Service would work and what they wanted from it. This helped shape the Service.



The Unlocking Service allows users to fill out a form describing their issue, which is then considered and advanced. The request is posted to a blog style user interface where other users can view the information, add comments or vote to support the information being unlocked. In the first week, 14 requests were made to the service. It is a system that has been proven to work. The Department for Children, Schools and Families is launching a new, re-useable version of its Edubase²⁰ website making it more accessible for re-use. Edubase was a one-off

19 www.opsi.gov.uk/unlocking-service/OPSIpage.aspx?page=UnlockIndex.

dump for the Show Us a Better Way competition and also, was one of the first projects to come out of the Unlocking Service. Easier access to education data was one of the requests on the Unlocking Service. The new Edubase website provides self-serve access for the public, so that groups such as Netmums (an online network for parents) can discuss schools and their experiences with education – this can lead to services being built around the base data. These initiatives shape the direction of travel for Government to succeed with its aim of unlocking the potential of PSI.



The commitment from Ministers, the cross-departmental exchanges and the creation of the Power of Information Taskforce and the Unlocking Service, have all secured the success of this PSI activity. The UK government operates a mixed regime for charging and licensing the re-use of information. Since 2001, over 15,000 holders of online Click-Use Licences²¹ illustrate how information crosses traditional boundaries. Click-Use provides a high degree of transparency offering a fast and streamlined licensing model.

The Click-Use Licence originally covered core government material that was at the heart of the government process. In 2004, it was extended to cover value-

20 A database of educational establishments in England and Wales: www.edubase.gov.uk/home.xhtml.

21 www.opsi.gov.uk/click-use/index.htm.

added material produced by Government, and consequently, a Click-Use Licence system was developed for the UK Parliament, covering the copyright of Parliamentary material. The Click-Use Licence was again extended in 2006, so that non-Crown organisations such as local government and the NHS could make use of Click-Use by mandating us to allow the re-use of their information. Some local authorities have developed their own online licence system, based on Click-Use. The Click-Use licensing system covers many forms of re-use and types of re-users ranging from research to private individuals to commercial publishing. The licences are taken out across the world – proving that information re-use crosses national and geographical boundaries. It is one of the UK’s PSI successes and is promoted actively.²²

All this demonstrates how much more we can deliver with a relaxation of systems and a sound evaluation of risk to show how content rich services can drive economic innovation and also empower users. The Information Fair Trader Scheme (IFTS),²³ now expanding across the wider public sector, sets and assesses standards for public sector organisations to encourage the re-use of their information and supports them in reaching standards of fairness and transparency. The full IFTS is aimed at major information traders and Trading Funds. To be accredited, the organisations must make a commitment to five core principles²⁴ – openness, transparency, fairness, compliance and challenge.

OPSI’s role as regulator is enhanced by our complaints and mediation process. With five accredited mediation officers, trained by the Centre for Effective Disputes Resolution,²⁵ the service was formally relaunched in 2008 and provides effective solutions to issues surrounding licensing and the re-use of PSI. The PSI Regulations contain a statutory complaints process with specified roles for OPSI and the Advisory Panel on Public Sector Information (APPSI).²⁶ We have a responsibility for investigating complaints under the PSI Regulations underpinned by a review role provided by APPSI. To date, OPSI has investigated three formal complaints, which led to improved service delivery from the public sector organisation concerned. Smarter and more targeted regulation is under review as the UK assesses appropriate controls and sanctions in this developing area.

APPSI was set up in 2003 to advise Ministers and OPSI on the opportunities for the information industry that flow from the greater re-use of PSI, especially those enabled by new technologies. APPSI members are selected for their ex-

22 Blog of 8 October encourages councils to adopt Click-Use Licence: powerofinformation.wordpress.com/

23 www.opsi.gov.uk/ifts/index.htm.

24 www.opsi.gov.uk/ifts/ifts-principles.htm.

25 www.cedr.co.uk/.

26 www.appsi.gov.uk/.

expertise in the information world and therefore include providers, re-users and consumers of PSI, experts from academia and industry and representatives of producer and consumer groups and the devolved administrations.

Success has taken many forms allowing us to experiment with different ways of meeting users' expectations.

PROVIDE AND ENABLE

Once the barrier of access and availability is overcome, data rich information may not be in re-usable formats and is often trapped by poor structures – making it available and making it re-usable are two different demands. It is recognised that a government website is not always the most effective place to provide information. It is beneficial that information is where the users are and can be found easily, which means it can be re-used by others on the web. For example, food hygiene inspection reports have greater impact on restaurant review websites than when they are located on local authority websites under obscure headings.

Most government data is published online in text formats with little structure, hindering re-use. Semantic web technology has provided the opportunity to experiment with alternative formats to release poorly structured data and make it re-usable. The UK Government has understood the significance of semantic web technology and the contribution it can make to achieving greater efficiency in information trading and sharing for better public services.

In 2007, we initiated a research project undertaken with a team at the University of Southampton. The project, AKTive PSI,²⁷ was to show how the use of semantic web technologies could release data within rigid structures. The technical solutions that emerged from AKTive PSI illustrated what could be achieved if PSI was semantically enabled and made available for re-use.

The use of Semantic Web Standards is important to ensure information is presented in the most accessible form possible. There are a number of options for enabling this type of re-use, using the web as a platform to deliver data such as application programming interfaces (APIs) for structured data. With new Semantic Web Standards such as RDFa, it is now possible to mark up textual information inside documents, in effect turning a traditional website into an API. The UK Government has been exploring the use of semantic markup inside XHTML documents in order to facilitate access, use and re-use of data.

One main aim of this work was to show the added value of using semantic web technology and standards for publishing and government data. This technology was applied to the London Gazette,²⁸ the UK Government's official journal

27 www.aktors.org/interns/2006/aktivepsi/index.php.

and newspaper of record. Published by Authority since 1665, it is a unique source of a wide range of information, including notices grouped by subject, for example, planning, transport, environment, and insolvency. Work to semantically enable the London Gazette had two aims: first, to find a practical way of publishing PSI in a way that maximises its re-use potential, and secondly, to give the London Gazette a new role. Whenever a piece of legislation says that information must be published in the London Gazette, it will in effect ensure that information is made publicly available, in a consistent way and in a re-usable form. It is for users to decide what services are built from unlocking this information and support. Work continues to enable more government information and learn more about semantic web technologies and their applicability.

THE CURRENT UK POSITION

The UK Government's Annual Report on PSI²⁹ in July 2008, three years on from the implementation of the PSI Regulations, details the achievements so far mapping them against the timeline of that period (pages 36 – 39 of UK Government's Annual Report on PSI). The structure of this Report reflects the work at European Union level and so, OPSI grouped the coverage around the key themes under review by the European Commission as it assesses the first three years of operation of the PSI Directive. The UK emerges well in its direction of travel. The timeline contained in the report highlights and tracks activities, events and initiatives in this field. There have been many achievements to date, and the progress in the past year underlines the momentum that has gathered and continues to be a driving force. The acceleration of activity since 2005 is clear.

The Timeline is divided into three sectors – the UK Government, OPSI and external factors that are influencing the PSI field. It depicts the synergies between the public and private sectors and the emerging activities that are informing policy and current thinking.

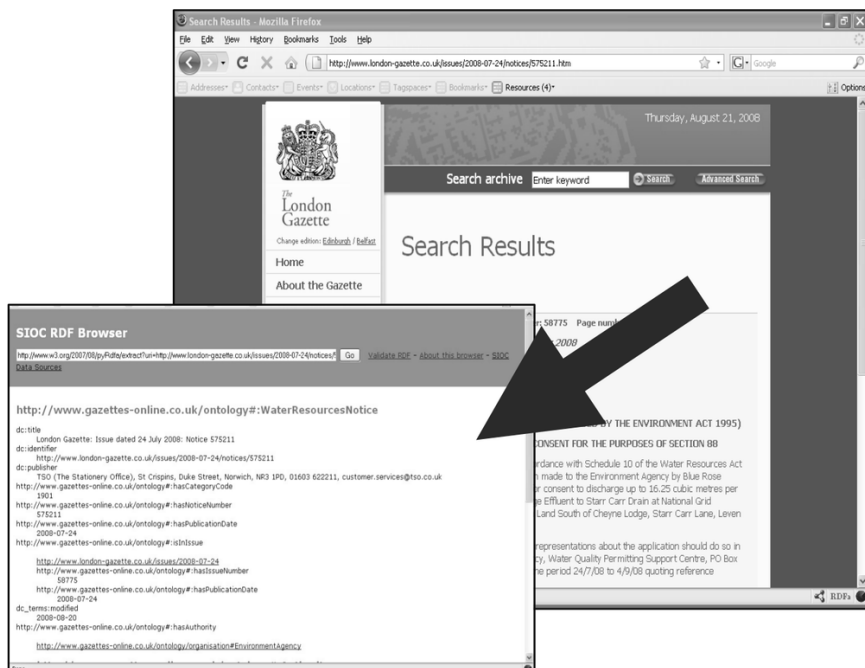
RAISING AWARENESS

In October 2008, OPSI supported a conference on unlocking the potential of PSI. The aim of the conference was to spread awareness of the UK's concerted activity surrounding PSI in the past year, with a number of reports providing the opportunity to change the current regime. The conference looked at how OPSI will go

28 www.gazettes-online.co.uk/.

29 www.opsi.gov.uk/advice/psi-regulations/uk-report-reuse-psi-2008.pdf.

forward and overcome the current obstacles and also covered the intertwined issues of the Web 2.0 world that rely on information being accessible and available for re-use.³⁰



With more than 100,000 public sector organisations in the UK, there is a constant tension in how we prioritise our activities. Targeted partnership with local government and health organisations is producing centres of excellence but the uptake across this wider public sector is piecemeal. Conflicting demands and priorities mean that we are working hard to extend understanding of the PSI benefits and responsibilities. This is all part of the sound management and stewardship of the information assets that drive the business of the public sector.

30 Interview with Carol Tullo and OPSI contribution: www.civilservicenetwork.com/features/article-within-tro.html?tx_ttnews%5Btt_news%5D=56848&tx_ttnews%5BbackPid%5D=24&cHash=4ce61aee3

Feature on Tom Watson's speech: www.civilservicenetwork.com/news/article.html?tx_ttnews%5Btt_news%5D=56852&tx_ttnews%5BbackPid%5D=29&cHash=cba11e187

Feature on discussion panel: www.civilservicenetwork.com/news/article.html?tx_ttnews%5Btt_news%5D=56855&tx_ttnews%5BbackPid%5D=29&cHash=f7ad77fbb

CONCLUSION

The legislative framework we operate has thrown up some challenges as we navigate a route to an optimal, equitable and sustainable information offering across the public sector. Confidence to embrace the opportunities requires clarity and some certainty over the public task of public sector information holders. There are calls to remove ambiguity in operation between upstream and downstream trading activities to encourage innovation. While we take our steer from Europe, we can also share the experiences of colleagues in international jurisdictions who provide constructive debate as we are all facing the same issues. Raising awareness of the impact and the benefits to the UK economy is of particular resonance at present. By making information available and re-usable in flexible ways on the web, new markets and uses can drive innovation. Government at every level is alive to that potential, acknowledging that shared expertise and knowledge is the key to improved and better services. The real questions for us all are: are you sure you are making the most of the information that you hold? Can you risk not adopting the PSI agenda?

Transformational Government was created to design and deliver public services around the needs of the citizen and to provide more efficient services to the public. It involves providing access to information and delivering services online, using technology as a transformer of the business of government. Since the UK adopted the overarching Transformational Government vocabulary we have seen a true transformation:

This is the time to push forward, faster and on all fronts: open up the system, break down the monoliths, and put the parent and pupil and patient and law-abiding citizen at the centre of it. We have made great progress. Let us learn the lessons of it not so as to rest on present achievements but to take them to a new and higher level in the future. *Tony Blair, Prime Minister 1997 – 2007*

The UK has shifted to putting the user at the centre of services. In this information policy side of the agenda we need also to manage the business information assets that drive services, building resilience and flexibility, without compromising the integrity of the content.

We judge ourselves so far as:

Good progress to date, sound planning and responsive initiatives that augur well but now the UK needs to deliver real change and enabled PSI awareness in the public sector business. We relish the next challenges as momentum is maintained

in the UK.

Editorial Note: This chapter covers the period 2007–2008. The following is a very brief account of some of the subsequent substantive UK developments. In 2009 the Power of Information (PoI) Task Force delivered its final report,³¹ which included key recommendations that government should adopt a highly permissive use ‘Crown Commons’ style licensing regime, and that geospatial data be freed up through ‘urgent reform’ of the Ordnance Survey (OS). In May 2009, the UK Government in its response accepted in principle the recommendation that ‘geospatial data produced by the Ordnance Survey should be opened up and made more widely available’. It also indicated that the Office of Public Sector Information (OPSI) was developing a new licence model that would ‘take the licensing of government content to the next level’ and be compatible with other standard licences such as Creative Commons.³² In January 2010, Sir Tim Berners-Lee³³ with colleague Professor Nigel Shadbolt launched the UK government initiative www.data.gov.uk, a portal giving access to a wealth of over 2500 central government data sets available for free re-use. Also, at this time Ordnance Survey launched its related OS Open Data initiative establishing an online portal providing free and unrestricted access to a large range of mapping and geographic information.³⁴ Both initiatives have adopted the same CC compatible licence terms to facilitate reuse of public sector information. In May 2010, following a general election a new government was formed in the UK and we are expecting further policy announcements in the coming months.

31 The POI Task Force Final Report is reproduced in Volume 2, Chapter 22.

32 UK Government, *Digital Enlargement: Update on Power of Information*, May 2009, available at www.epsplus.net/reports/uk_power_of_information_review/digital_enlargement_update_on_power_of_information.

33 Co-inventor of the world wide web, and appointed in 2009 as the government’s adviser on the delivery of UK public sector information to the public.

34 www.ordnancesurvey.co.uk/oswebsite/opendata/licence/docs/licence.pdf. The Open Data OS licence in part provides that the terms are ‘aligned to be interoperable with any Creative Commons Attribution 3.0 licence.’

CHAPTER EIGHT

PSI POLICY PRINCIPLES: EUROPEAN BEST PRACTICE

Chris Corbin

1. INTRODUCTION

The European Union *Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information* provides a legal framework for the conditions governing the re-use of public sector information in order to ensure fair, proportionate and non-discriminatory conditions for the re-use of such information. The Directive does not however state how a Member State should implement the framework neither does it prevent a Member State going beyond the minimum standards established in the Directive, thus allowing for more extensive re-use of public sector information. The European Commission public sector information portal provides information on the Directive and the implementation progress within the European Union as shown in DIAGRAM 1.

The screenshot shows the Europe's Information Society Thematic Portal. The main content area is titled "Public Sector Information - Raw Data for New Services and Products". It includes a sidebar with navigation links like "Public Sector Information", "Existing rules", "Infringements", "PSI Group", "Funding", "Good practices", "Background", "Library", and "Contacts". The main text explains that public sector information is data produced and collected by public bodies (digital maps, meteorological, legal, traffic, financial, economic and other data) and that most of this raw data could be re-used or integrated into new products and services. It also mentions that re-use of information means that individuals or legal entities can copy, publish and disseminate it for commercial and non-commercial purposes. A box highlights that public sector information has great economic potential, with an estimated market size of EUR 27 billion. A quote from 2003 states that the EU adopted the Directive on the re-use of public sector information (PSI Directive) to introduce a common legislative framework. On the right, there are sections for "News" (re-use of public sector information, Europeana, Press Pack), "Funding" (third call for proposals), and "In the Library" (speech by the European Commission).

Diagram 1: European Commission PSI Knowledge Base ec.europa.eu/information_society/policy/psi/index_en.htm

The Organisation for Economic Co-operation and Development (OECD) *Recommendations of the Council for Enhanced Access and More Effective Use of Public Sector Information [C(2008)36]* has the aim to increase returns on public investments in public sector information and increase economic and social benefits from better access and wider use and re-use. The OECD recommendations do not state how a Member State should implement the framework.

A key difference between the EU PSI Re-use Directive and the OECD PSI Principles is that the former is mandatory as the EU Member States are required to implement the framework where as the latter are recommendations that require OECD Member States to take account of the PSI principles *when establishing or reviewing their policies regarding access and use of public sector information*.

By the summer of 2008 all EU27 Member States had transposed the PSI Re-use Directive into national law. By the spring of 2009 the European Commission had initiated infringement proceedings against three Member States for not implementing the Directive correctly – *Italy, Poland and Sweden*.

The OECD PSI principles benefited from the experiences of implementing the EU PSI Re-use Directive and as a result the conditions set down go beyond those set down in the EU PSI re-use Directive.

Of the EU27 Member States 19 Member States are Member States of the OECD (70%) as shown in TABLE 1. TABLE 1 also shows that 39 countries have signed up (via the EU, the OECD or both) to implementing a policy related to maximising the potential from the investment in public sector information. The majority of the EU27 Member States had completed the transposition of the PSI

Re-use Directive by the time the OECD PSI Policy principles had been ratified in June 2008. However as a result of the European Commission infringement proceedings *Italy, Poland and Sweden* are reviewing their PSI policy and as such the OECD PSI Policy Principles now also apply.

Table 1: EU – OECD Members

State	Member of EU	Member of OECD	Member of EFTA
Austria	Yes	Yes	
Belgium	Yes	Yes	
Bulgaria	Yes		
Cyprus	Yes		
Czech Republic	Yes	Yes	
Denmark	Yes	Yes	
Estonia	Yes		
Finland	Yes	Yes	
France	Yes	Yes	
Germany	Yes	Yes	
Greece	Yes	Yes	
Hungary	Yes	Yes	
Ireland	Yes	Yes	
Italy	Yes	Yes	
Latvia	Yes		
Lithuania	Yes		
Luxembourg	Yes	Yes	
Malta	Yes		
Netherlands	Yes	Yes	
Poland	Yes	Yes	
Portugal	Yes	Yes	

Romania	Yes		
Slovenia	Yes		
Slovakia	Yes	Yes	
Spain	Yes	Yes	
Sweden	Yes	Yes	
United Kingdom	Yes	Yes	
Iceland		Yes	Yes
Lichtenstein			Yes
Norway		Yes	Yes
Switzerland		Yes	Yes
Australia		Yes	
Canada		Yes	
Japan		Yes	
Korea		Yes	
Mexico		Yes	
New Zealand		Yes	
Turkey		Yes	
United States		Yes	

The 39 countries identified in Table 1 cover a wide range of GDPs, government structures, population sizes, geographic areas and geographic regions across the world. Many of the countries operate in a mixed economy where both the public and private sectors openly trade in the information market place and as such compete with each other as well as others within the same sector. For example one part of the public sector may compete with another part of the public sector.

A growing collection of evidence and information from these 39 countries that have implemented or are in the process of implementing the public sector reuse framework is substantial. For example the information contained within the European Public Sector Information Platform contains information accumulated

over the past eight years – Diagram 2.



Diagram 2: The European Public Sector Information Platform www.epsipius.net/

2. THE EVIDENCE – KNOWLEDGE BASE

The collected evidence base is now becoming sufficient such that it provides indicators as to the best practice to adopt when implementing public sector information policies – irrespective of the diversity of the countries from which the evidence has been collected. The evidence base also highlights the complexity of the subject as it embraces Governments, government administrations, society, a very large number of organisations and an even larger number of stakeholders that have an interest in public sector information. Even with this complexity the evidence points to the need for:

- Leadership
- Simplicity
- Openness
- Transparency
- Accountability.

when implementing the framework. Where these points have been addressed the evidence base shows that the framework functions as intended.

The findings of the European Commission 2008 public sector consultation that have been published indicate that there is a need for:

- Technical measures – for example standards

- Legal measures – for example removing opt outs
- Implementation and organisational measures – for example a Regulator
- Monitoring – for example annual accountability reports
- Guidance – for example a manual on how to implement the framework based on best practice.

These identified needs show that the re-use of public sector information framework is far more complex than one may first imagine.

3. PSI COMPLEXITY

As an example of the factors that need to be considered when implementing PSI Policy it is worth considering the term *public sector!* These two words would suggest it is one legal body but it is not! The public sector often for democratic reasons is layered. One has:

- Central or Federal government
- Regional or State government
- Fully self-governing or partial self governing autonomous regions
- Local government.

all of which are led by elected politicians. The political structure is supported by the public sector service delivery sectors for example:

- The Health sector
- The Law and order sector
- The Education sector
- The Social security sector
- The Regulatory sector
- Government owned public companies.

So does this matter?

Well YES if one considers leadership, implementation and enforcement.

If it is a central (federal) government body that leads can they enforce the law all across the public sector? If not then a regulator is needed that is external of the structure such as an Information Commissioner (Privacy, Freedom of Information), Competition Authority, Telecommunications regulator for example. In the future this may be extended to a regulator for spatial data infrastructures.

Who owns the intellectual property rights? One often finds these are related to the organisational layer in the public sector.

Is there one data and information policy that applies to all of the public sector? Does the policy cover the whole life cycle from initial creation through to archiving or disposal, that sets out all the ways the data maybe shared of which the re-use of public sector information is but one example of sharing and the IN-

SPIRE Directive is yet another – spatial data infrastructure.

- Who defines what the public task is of a public body?
- How is a regulator going to ensure mission creep is not taking place?
- Whether the public task still needs to be done, as the world has moved on!

4. EUROPEAN BEST PRACTICE

So what good practice is appearing that demonstrates the effective implementation of the public sector information re-use framework that leads to an economic gain and as important a win-win situation for all stakeholders. That is implementing the policy that is cost-effective to both sides of the PSI supply-demand value chain.

A key aspect that leads towards successful implementation of public sector information policies within a Country is that the Government and the supporting government organisational infrastructure must operate transparently and be accountable.

Recognition by Government and the administration that public sector information is the fuel that enables the public sector to function and as such the data and information is a valuable asset that requires overall management and the implementation of procedures that ensure the public sector information is correctly utilised within the set of laws that apply to public sector information. For example in the European Union context:

- Data Privacy (Directive 95/46/EC & 2002/77/EC)
- Database protection (Directive 96/9/EC)
- Access to environmental information (Directive 2003/4/EC)
- Re-use of PSI (Directive 2003/98/EC – MS Compliance 1.07.05)
- Intellectual Property Rights (Directive 2004/48/EC – MS Compliance 29.04.06)
- INSPIRE (Directive 2007/2/EC – MS Compliant 15.05.09)
- EU Treaty – Article’s 81 & 82
- Transparency of Public Undertakings (Directive 2006/111/EC MS Compliance 19/12/06)(First Directive came into force in 1981)
- Public Procurement (Directives 93/8/EEC & 98/4/EC & 2004/17/EC, 93/87/EEC & 97/52/EC & 2004/18/EC. MS Compliance 31/01/2006)

Recognition by Government that a very large number of public sector bodies and public sector employees are involved with public sector information and that it is essential that the policies are simple and easy to implement and operate.

Recognition by Government that in many cases the public sector holds a monopoly position with respect to public sector information. However in some categories due to technological change and the skill sets that reside within society

alternative data and information sets (substitute data sets) will appear if the government PSI policy is restrictive.

Recognition by Government that it is an integral part of society and as such is dependent on society providing many of the products and services that it needs to deliver its responsibilities and services. That is it is not a self-sustaining entity group but a dependent entity group.

4.1 LEADERSHIP – ONE RESPONSIBLE BODY

When implementing Public Sector Information policy Member States must identify one public sector body that has the responsibility and the ownership of all the PSI policies. The body must be near to the pinnacle of the Member States administrative structure, as it requires the ability to work horizontally across all of the public sector. The body does not have to regulate the policy which can be done by other regulators that already exist.

4.2 IMPLEMENTING LEGISLATION

When implementing the public sector re-use framework there should be a clear separation of the re-use framework from the access framework law. This has been particularly advantageous to those countries that have a written constitution that embodies the right of access to information and re-dress processes. Where this has been followed it has led to:

- A smoother transition and more sustainable when passing through the Parliamentary processes that make and amend laws.
- The objective remains clear to all parties.
- It is simpler to implement by public bodies.

4.3 CHARGES

The public sector information re-use framework should not be used as a mechanism to finance each public sector body and its public task. If it is cost effective to do so no charge should be made. Alternatively the cost of supplying and supporting the public sector information re-use maybe adopted but it must be open, transparent, pre-disclosed and published and be non-discriminatory. It is clear from the evidence that downstream commercial re-users that have developed a market for their products and services would rather pay the cost of delivery for the information supplied as the charge combined with the terms and conditions are a form of contract, which reduces risk and provides a level of sustainability to

the re-user as well as other downstream re-users in the value chain.

4.4 LICENSING

Implement a standard licence for all of the public sector and make it simple to use – for example Click-Use-Licences or Creative Commons licence is another option. Once a standard licence has been introduced and used to then move towards removing the standard licence altogether.

4.5 EXCLUSIVE ARRANGEMENTS

Avoid implementing exclusive arrangements that restrict down-stream use. Where exclusive arrangements exist these should be phased out over a defined time period. In the case of the European Union the grace period was five years and that ended on the 31 December 2008.

The first step in the process of opening up exclusive arrangements where they exist is to identify them and make them transparent.

4.6 EFFECTIVE RE-DRESS

Implement an effective re-dress system and empower a regulator to implement it and enforce the decisions. It is important that Political interference does not occur. The re-dress system must be level and equally apply to both sides of the supply-demand chain.

5. CONCLUSION

The evidence shows that those countries that have adopted some or all of the best practices identified have had the most impact when implementing the policies and on raising the awareness across the public sector.

The objective of this paper is to stimulate debate as to best practice to adopt that would lead to an improved implementation of the PSI policy whether that be for re-use or connected with the implementation of a spatial data infrastructure such as that set down in the INSPIRE Directive.

CHAPTER NINE

UK PUBLIC SECTOR INFORMATION AND RE-USE POLICY – A 2008 ANALYSIS

Stephen Saxby¹

Information produced by government does of course serve a number of purposes. First it should inform government so as to generate sound policy decisions and effective strategies. Second, through a variety of media, it should provide the general public with information to enable individuals to engage with government services and to deliver personal data that they are obliged to provide. Access to a wide variety of public sector information (PSI) is also important to enable individuals to manage their lives, operate their businesses or help make political decisions about which party to support at an election. But in the midst of such uses is the asset itself i.e. PSI and the policy for its creation, storage, management, exploitation and distribution. As a national resource one issue is whether it is a commodity to be shared freely or, in those circumstances where income can be derived from it, a product to be licensed and sold to offset public sector costs? In the UK this has been under debate for many years through analysis of Crown copyright regulation. Current policy, as interpreted by HM Treasury, continues to argue that those wishing to exploit or add value to PSI for commercial purposes should at least contribute something to the cost of its supply. Joint ventures with the private sector have also been entered into for the preparation and distribution of some PSI where the private sector service provider is permitted to recoup subscriptions in return for the investment. Until recently this has been a relatively sterile debate lacking data to fuel the arguments. That has changed as a result of recent investigations which this paper now explores. At issue is whether present policy is vindicated or alternatively whether pressure is growing for fur-

¹ *Professor of IT Law and Public Policy, School of Law, Southampton University. This paper was first published in International Journal of Private Law 1: 3/4, 2008, pp. 229–55 (Inderscience Enterprises Ltd, www.inderscience.com) and in Business and Law – Theory and Practice – International Edition (Sylvia Mercado Kierkegaard (ed.) (2008, Ankara Bar Association Press) pp. 66–91. It was presented at the 2nd International Business Law and Technology Conference 17–19 June 2008 at the Touro Law Center, Long Island, New York.*

ther modernisation of conventional approaches? This paper traces the process of development of the policy through to the present.

INTRODUCTION

The origins of Crown copyright can be traced back to the 16th and 17th century controls on printing in which the Court of Star Chamber and subsequently the State claimed the right to supervise the publication of works of all kinds. Apart from the retention of separate prerogative powers governing the printing of the King James Bible and the Book of Common Prayer,² such rights were subsequently narrowed to a limited category of official publications as defined by legislation. Although the Whitford Committee³ proposed the abolition of Crown copyright in the build up to the 1988 Copyright Designs and Patents Act (c.48) it was retained where ‘a work is made by Her Majesty or by an officer or servant of the Crown in the course of his duties’.⁴ This applies whether or not the ordinary qualifying requirements are satisfied. In addition, the Act introduced a separate Parliamentary copyright for works ‘made by or under the direction or control of the House of Commons or the House of Lords’.⁵

In assessing policy towards the treatment of official information prior to the onset of information and communications technology (ICT) one can observe a situation where the Government is effectively in control of the distribution of such material. Up to this point there was no political will strong enough to shake the foundations of a system by which government and parliament were the custodians and controllers of the information they created. These institutions were largely free to introduce their own systems and rules for determining what public access to grant and under what terms such information could be reproduced. However, the sudden ease with which information of all kinds could be released online through the Internet has raised public expectations that official information would soon be more open and accessible too. This new state of mind is very much in tune with the lobby that ultimately was successful in pressing for a statutory freedom of information right for the UK with the passage of the Freedom of Information Act 2000 (c.36).

2 Prerogative powers, which had extended to statutes, were abolished by the Copyright Designs and Patents Act 1988 s. 164(4).

3 Cmnd. 6732, 1977.

4 Copyright Designs and Patents Act 1988, s. 163(1).

5 *ibid.* s. 165(1). It was thought more appropriate for control of such publications to be with the House in question rather than with Her Majesty’s Stationery Office (HMSO).

THE COMMERCIAL EXPLOITATION OF OFFICIAL INFORMATION

It is quite apparent that, by the time *government.direct* was published in November 1996 the Government had already accepted the value of the Internet for the delivery of basic information to the public about government and departmental services and was rapidly moving on to look more carefully at how transactional services, beyond mere information provision, might be entered into electronically.⁶ At the same time it was also clear that, as part of the move towards greater efficiency, the Government was also developing its thinking regarding the commercial exploitation of public information.

The starting point for any discussion of the latter issue is Crown and Parliamentary copyright. Works originating within government or commissioned and assigned to it have Crown copyright, with Parliamentary copyright vesting in works made by or under the direction and control of either House of Parliament.⁷ Exercising its Intellectual Property rights the Crown had, for many years, sought 'to off-set the costs of some of its operations through charging commercial rates for certain tradeable information-based services'.⁸ In 1996–97 the Government reported revenues in the sum of £199 million arising from such distribution including direct sales income, licensing revenues and income from data supply. Of the 76 departments or agencies originating the material more than 88% of the revenues derived from seven cost centres,⁹ and 73% of this income came from fees charged for public searches made at HM Land Registry, Trade and Industry as well as the sale of mapping products, navigational charts and publications and meteorological products.¹⁰ Altogether only 15% of the total income reported by the Government over that period represented a sales based royalty, where a department or agency published material via a commercial publisher, or licensed publishers, organisations or individuals to reproduce Crown copyright material.

In analysing these figures it is apparent that the Government was deriving less than £30 million per annum from its licensing and royalty agreements at that time. In broad explanation of the position the Green Paper pointed to the fact that

6 See ante.

7 For discussion of this see: *Crown Copyright in the Information Age*, Cm.3819, 1998 Ch. 2. See: www.opsi.gov.uk/advice/crown-copyright/crown-copyright-in-the-information-age.pdf

8 *ibid.*, p. 1.

9 Defence - Evaluation and Research Agency - £8.09m, UK Hydrographic Office - £37.41m and Meteorological Office - £21.75m; HM Land Registry - £22m; Office of National Statistics - £6.6m; Ordnance Survey - £69m; Trade and Industry £12.23m.

10 *op. cit.* note 6, Annex B.

policy towards Crown copyright was under review implying that the drift towards liberalisation (non-enforcement) of Crown copyright for some classes of material would reduce such income. It also suggested that, while it was important to ‘secure the revenue which Departments obtain for providing high-quality services for which the customer is willing to pay a price’, it should also be understood that ‘we want to provide the public and the information industry with easier and quick access to the general run of material produced and held by government’.¹¹

Two years later HM Treasury’s Cross cutting review of the knowledge economy¹² did report a 70% increase to £340 million in total income from publishing Crown copyright information, including information available only under licensing arrangements. However, almost all (92%) of this income was accrued by trading fund operators.¹³ Of the top five earners, only the Office of National Statistics was not a trading fund.

Government policy towards the publication of official material has been, with the exception of Acts of Parliament, statutory instruments and certain other Parliamentary papers, to leave the arrangements for first publication to the department that originated the material. Such authority was delegated by HMSO’s Copyright Unit, whose supervisory function was retained when the printing and publishing element of its original responsibilities were diverted to the newly privatised company – The Stationery Office Ltd – in 1996.¹⁴ For some time prior to these changes delegation of authority by HMSO to departments was limited. However, gradual acceptance that the private sector would have a contribution to make to the process led to the production of *Tradeable Information Guidelines* – first published in September 1986. A second edition was produced in 1990¹⁵ and this encouraged departments to seek out data and information that might

11 op. cit. note 6, para. 2.37.

12 *Cost Cutting Review of the Knowledge Economy Review of Government Information*, HM Treasury, December 2000.

13 Trading funds were introduced by the Government Trading Funds Act 1973 (as amended by the Government Trading Act 1990). Essentially a trading fund ‘is a means of financing trading activities undertaken by Government that would previously have been financed by the annual appropriations from Parliament, in the form of Vote Funding. A trading fund permits the establishment of a self-accounting unit that, while remaining under the control and management of Ministers (and accountable to Parliament through Ministers), has greater freedom to manage its financial affairs’. Source: *Vehicle Inspectorate Traffic Area Network Establishment of a Trading Fund – Consultation Document* (Department of Transport January 2003) paras. 18–19.

14 See Ministerial Statement of 9 February 1996 at: www.hmso.gov.uk/duchy.htm.

15 *Government-Held Tradeable Information - Guidelines for Government Departments in Dealing with the Private Sector*, 2nd edition, DTI 1990.

be suitable for use by the information industry within commercial electronic information services. The *Guidelines* envisaged that tradeable information might include information already processed and used by government to be re-used in the same context by the private sector; information to which the private sector wanted to process themselves and add *value*; and information collected by government for one purpose, resold to the private sector for other purposes. HMSO, as ‘legal owner’ of all Crown copyright material was to be a party to any agreement and informed when negotiations were underway.

It is clear that the 1990 *Guidelines* recognised implicitly that government held large amounts of information and that it was important, economically, that such information be available in a form in which it could be useful. Information was ‘a commodity’ which had value and this should be exploited. Although the *Guidelines* had identified a strategy and a process for potential collaboration with the information industry the private sector was generally unimpressed with the end product. In the 1980’s and 90’s, in the period leading up to the publication of the Green Paper on Crown Copyright in 1998,¹⁶ commercial publishers had become increasingly frustrated with the diversity of departmental policy on tradeable information and the licensing bureaucracy that accompanied it. Although a series of ‘Dear Publisher’ letters were published, offering more detailed guidance on a range of publishing, copyright and access issues, and although some discussion had taken place between HMSO and the industry, elements of it declared themselves to be generally dissatisfied and sidelined by the process that was being operated. This is now set out in OPSI Guidance.¹⁷

Conflict also surfaced on occasions between the negotiating parties. In one case, the Inland Revenue, entered into an exclusive licensing arrangement with commercial publisher Tolleys, for the printing and distribution of tax guidance manuals. HMSO had also apparently granted licences to Butterworths and a CD-Rom producer for printed and electronic versions of the work. Under the threat of litigation alleging Crown copyright infringement, the matter was settled and permission granted to HMSO’s licensees to proceed with publication subject to a Crown copyright notice appearing in the work.

In addition to the difficulties over so-called tradeable information, licensing restrictions were also applied in respect of other types of Crown copyright material. For example, reproduction (as opposed to photocopying) of statutory publications and press releases could only be reproduced in a ‘value-added’ content i.e. ‘where the official text has had value added to it by compilation, with other related text, analysis, commentary, annotation, indexing or cross-referencing’.¹⁸ This would apply to both commercially published and in-house databases

16 op. cit., note 6.

17 See: www.opsi.gov.uk/advice/crown-copyright/copyright-guidance/reproduction-of-legislation.

within an organisation.¹⁹ Different licensing and charging structures were also applied according to whether the reproduction was to be in print or non-print media, mere extracts or substantial full text or, for certain Parliamentary copyright material, a particular category of work such as a Bill or Select Committee report or an extract from Hansard.²⁰

A central feature of the debate between the information industry and the Government was the impact of Crown copyright on the exploitation of public sector information. Publishers pointed to the more liberal regime in the United States where copyright was not asserted in respect of government information or court judgements. Legislation there in 1995²¹ ensured that exclusive licensing arrangements between agencies and publishers, the levying of fees above dissemination cost for access, or the placement of controls over the commercial exploitation and resale of such data would be prohibited unless specifically provided for by statute. It was argued that this *diversity approach*, whereby official information was treated as a national resource and generally made available for dissemination without restriction, had been beneficial to the growth of the US electronic publishing sector, which in turn had generated a number of significant benefits for the US economy.

In February 1996 the *Conservative* Government announced the establishment of the Information Society Initiative – the primary objective of which was to exploit the business benefits of ICT. This added a further dimension to the existing ten year Citizen’s Charter program, commenced in 1991 and re-launched in June 1997 by the *Labour* Government, designed to modernise and improve the quality of public services. At the same time the lobby was well underway to develop a *Freedom of Information* policy in Britain to secure more open government. It was in the context of these initiatives that the incoming Government decided to continue with the review of Crown copyright first announced in November 1996 by the then Chancellor of the Duchy of Lancaster Roger Freeman.²² The objective of the review, as initially stated, was to facilitate ‘the growth of new information services both in printed and electronic formats, in line with the Government’s policy of maximising public access to official information, and

18 *Dear Publisher Letter- Reproduction of Crown Copyright Material*, dated 21 February 1997, para. 4.2

19 The value-added requirement does not extend, however, to copying undertaken by libraries for academic use, or for research or private study.

20 *Dear Publisher Letter- Reproduction of Parliamentary Copyright Material*, dated 21 February 1997, para. 5.3 and *Annexes*. See now: www.opsi.gov.uk/official-publications/index.htm.

21 Paperwork Reduction Act 1995, 44 U.S.C. Ch. 35, Pub. Law 104–13, 104th Congress – 1st Sess., 109 Stat 163 (22 May 1995) sec. 3506(d)(4).

22 H.C. Hansard, 6 November 1996, Col. 510.

subject to the continuing need to protect the taxpayer's interest and the integrity of Crown copyright materials'.²³

The product of that review was the Green Paper of January 1998 – *Crown Copyright in the Information Age*.²⁴ The review team comprised officials from a number of relevant government departments and agencies which, in addition to its consultation with other parts of government also spoke to 'numerous private sector interests and professional bodies'.²⁵ The Report did not deal with publication on the Internet but concentrated upon an assessment of the nature and purpose of Crown copyright, the relationship between government and the private sector in respect of the publication of official material and the need, if at all, for the retention of Crown copyright. It noted that departments and agencies were increasingly publishing material on the Internet with some developing their own commercial publishing operations. Most departments now granted first publication rights to private sector publishers with the terms dependent on an assessment of the nature of the work and anticipated sales. Works thus produced that had a strong market potential would attract a royalty to the department. Other less marketable publications would not attract a royalty demand so, in these cases, the publisher would bear the risk but would retain the sales income in full. Sometimes a subsidy would be sought prior to publication. In the case of material produced by Executive Agencies a variety of arrangements might apply to enable the latter to recover operating costs and remain self-financing as frequently required by HM Treasury.

In March 1999 the Government published a White Paper – *The Future Management of Crown Copyright*,²⁶ outlining its response to the Green Paper and public comment on it. Responses had been submitted from business users, trade and professional bodies, private individuals, the academic and library community, the legal profession, public bodies and the media. With regard to the possible options for the future of Crown copyright the White Paper concluded that commercial information providers favoured its abolition. This viewpoint suggested that information should be 'disseminated at cost with minimal or no controls, allowing market discipline to ensure the accuracy of the material'.²⁷ Against that, however, was an apparent consensus among the relatively limited number of responses²⁸ in favour of retention of Crown copyright, provided waivers and re-

23 *ibid.*

24 *op. cit.*, note 6,

25 *ibid.*, p. 2.

26 *The Future Management of Crown Copyright*, Cm 4300, 1999. See: www.opsi.gov.uk/advice/crown-copyright/future-management-of-crown-copyright.pdf.

27 *ibid.*, para. 2.6.

28 *Annex A* to the *White Paper* lists a total of 70 responses to the *Consultation Docu-*

laxations were introduced in respect of a number of categories of works, as well as the introduction of a centralised administration, common standards and scales of charges. The watchwords for the future would be ‘coherence, transparency, access, simplification and liberalisation’.²⁹

Adhering to this approach HMSO would retain overall control of Crown copyright, but licensing of protected material might devolve to the originating department where that material was of a specialised nature such as ‘mapping, meteorological, scientific and statistical data’.³⁰ Reproduction of certain categories of work such as primary and secondary legislation, government press notices and forms, consultative documents and those featured on departmental web sites, certain statistical data and other published papers, would be freed from the need to obtain specific permission or licence provided its use was for a non-commercial purpose. Other material might be subject to standard forms of licensing that might be entered into online. Except in exceptional circumstances exclusive licensing would be prohibited.

Turning to the issue of commercial usage, the White Paper confirmed that the Government had no plans to relax the value-added requirement, already established, whereby commercial republishers of official material would first have to add value to it before permission to reproduce would be granted. This rule protected the public ‘from confusion over the availability of works which purport to be replica works and which have the potential to mislead’.³¹ It was also observed that the pre-condition would have an economic impact ensuring the ‘financial viability of official published works’.³² Presumably this was because additional private sector publication of such works in this form would, as a result of the pre-condition, be controlled. The requirement also ‘underpinned commercial arrangements’ between departments and private sector publishers competing under open tender.³³

The White Paper also addressed the issue of tradeable information and once more a definition was offered. This was information outside the categories to which value must first be added before commercial publishers could be permitted to reproduce. Whereas the latter, as illustrative of ‘non-tradeable’ information, was the product of the Government’s core activities, tradeable information was its by-product. Whether it had value added to it or was simply raw data gath-

ment plus a further five from authors requesting confidentiality.

29 *ibid.*, para. 3.1.

30 *ibid.*, para. 4.2.

31 *ibid.*, para. 5.1. In this sense the Government saw Crown Copyright as ‘a brand or kitemark of quality indicating the status and authority of much of the material produced’.

32 *ibid.*, para. 7.9.

33 *ibid.*

ered in, the fact that it happened to be produced by government was incidental to its creation. That being the case different considerations applied compared to information which was more directly related to the function and purpose of government. The White Paper envisaged five different publishing models for tradeable information: ‘Departments publish commercially material under their own imprint and sell via bookshops and distributors; ... Departments choose to publish official or departmentally endorsed versions of works in various forms via private sector publishers; ... departments enter into joint venture publishing agreements with private or public sector partners to develop publications and products, often in electronic media, where investment costs and risks can be high; ... departments supply information to customers as part of an electronic service; and ... departments may provide a service whereby data is transferred directly in electronic form’.³⁴

The Government took the view that, whichever model applied, an element of cost recovery would reduce the burden on taxpayers. However, wider policy objectives, including the benefits of disseminating the material should also be taken into account when pricing the information. Some respondents supported a differential charging arrangement according to intended usage but commercial respondents pointed to the difficulties of distinguishing between commercial and non-commercial exploitation. The Government noted these comments committing it to charging levels that would reflect its stated aims. New guidelines on tradeable information would be prepared as part of the Government’s Wider Markets Initiative designed to ‘provide a framework of policy and good practice for developing commercial activities using public sector assets’.³⁵

DEVELOPMENTS AFTER THE 1999 GREEN PAPER

It is clear that, in the aftermath of the White Paper, efforts were being maintained, both by government and the information industry, to deal with the problems that continued to concern both sides. From the Government’s point of view it pointed to the establishment by HMSO at that time of a Crown Copyright User Group (renamed the Advisory Panel on Public Sector Information (APPSI) in April 2003) with representatives drawn from a wide range of sectors.³⁶ Its original function was to ‘discuss the practical effects of implementing new policies on Crown

34 *ibid.*, paras. 9.8–9.12.

35 *HM Treasury - Selling into Wider Markets – A Policy Note for Public Bodies*, HM Treasury (Revision to 1998 Treasury Guidance) 2002, p. 1. See: www.hm-treasury.gov.uk/media/0/D/New_WM_Guidance.pdf

36 Members include the Controller of HMSO and other HMSO personnel, representatives of the information industry and of relevant organisations.

Copyright following the publication of the White Paper',³⁷ but its terms of reference were later widened to coincide with its new title:

to advise Ministers on how to encourage and create opportunities in the Information Industry for greater re-use of public sector information; advise the Director of OPSI and the Controller of HMSO about changes and opportunities in the Information Industry, so that the licensing of Crown copyright and public sector information is aligned with current and emerging developments; and advise on the impact of the complaints procedures under the re-use of Public Sector Information Regulations 2005 and to review and consider complaints under those regulations.³⁸

Among issues raised in the early days of the User Group were tradeable information, class licensing and charging policy. All sides at that time seemed to have accepted that the policy designed to encourage exploitation of tradeable information had not worked and that more needed to be done to stimulate its development. The decision to establish an Information Asset Register (IAR)³⁹ was welcomed as a first step towards the creation of a comprehensive listing of an organisation's hitherto unpublished information. This is described as 'a register of unpublished information holdings i.e. information or collections of information, held electronically or in hard copy, which have (usually) not been published or made publicly available. The IAR does not provide direct access to the information holdings themselves. It is a means of alerting the public to the existence of the unpublished information and whom to contact. Requests for the information will be dealt with in accordance with the Freedom of Information Act 2000. The IAR also supports initiatives to ensure the re-use of public sector information. In this sense it can be used by other Government departments to identify information resources which may be of interest'.⁴⁰ Guidelines for the preparation of IAR records have since been published.⁴¹

While the IAR will define the nature, location and form of potentially exploitable information in a much clearer manner and generally provide a shop

37 The CCUG was initiated in 1999.

38 See: www.appsi.gov.uk/.

39 The IAR is accessible through the Inforoute Web site which is to be the gateway to information held by UK Government. See: www.opsi.gov.uk/iar/index.htm.

40 From the website of the Department of Innovation, Universities & skills www.dius.gov.uk/foi/asset_register.html.

41 *Guidelines for the Preparation of IAR Records*, HMSO January 2000. See further: www.dius.gov.uk/foi/asset_register.html.

window for such content, this does not, in itself, resolve the economic and bureaucratic questions associated with its exploitation that have been consistently raised for a number of years now by the information industry. Efforts to tackle these fundamental issues have, since July 1998, been given added impetus following the Prime Minister's decision to set up the Strategy Unit within the Cabinet Office following an internal review of the effectiveness of the centre of government.⁴² The PIU and, since then, the Strategy Unit, has been charged with improving 'the capacity of government to address strategic, cost cutting issues and to promote innovation in the development of policy and in the delivery of the Government's objectives'.⁴³ In addition, HMSO, the former Department of Trade and Industry (DTI) and officials from HM Treasury began to discuss charging and licensing issues within Crown copyright regulation as part of the Wider Markets Guidance⁴⁴ announced by the Treasury in December 2002. This Guidance was designed to explain the Government's policy for selling services into wider markets, including information. Analysis of how to move forward on *Tradeable Information* was subsequently swept up within the broader dimensions of these initiatives, which embraced the abolition in 2004 of the Office of the e-Envoy and its replacement within the Cabinet Office by the e-Government Unit (now the Delivery and Transformation Group) whose remit now is to co-ordinate and lead e-Government and e-Commerce strategic thinking.⁴⁵ This is regarded as an evolution of the e-envoy's role in supporting public service reform.

Original Guidance in 1998 proposed that Government departments, agencies and non-departmental public bodies (NDPBs) should, be 'encouraged to make better use of their assets and, where appropriate, within certain rules, by engaging in commercial services based on them'. The policy would apply 'to the commercial exploitation of physical assets, including equipment, land and premises and non-physical assets: intellectual property, data and skills'. In addition it indicated that Departments, agencies and NDPBs should normally undertake more straightforward projects themselves, but many projects, 'particularly those which

42 This was carried out by Sir Richard Wilson through whom the PIU reports to the Prime Minister.

43 The PIU was merged with the PM's Forward Strategy Unit and parts of the Centre for Management and Policy Studies in 2002.

44 *Selling Government Services into Wider Markets - Policy and Guidance Note*, Enterprise and Growth Unit, HM Treasury, 2003. See: www.govopps.co.uk/guidance_db_files/guidances/Guidance04_03.pdf.

45 Government on the internet: progress in delivering information and services online HC 529 Session 2006–07 (National Audit Office, 13 July 2007). See: www.nao.org.uk/publications/nao_reports/06-07/0607529.pdf.

are larger and more complex, should be taken forward with the private sector'. Wider markets should be seen in large measure as one strand of wider policy on public private partnerships.⁴⁶

In September 1999 the issue was analysed in a report from the PIU⁴⁷ which advised the Government to extend its discussion with the private sector over Crown Copyright. The report welcomed the proposed framework for Crown copyright regulation announced in the White Paper but concluded that 'the lack of a consistent approach across government' placed 'unnecessary burdens' on publishers seeking to resell government data.⁴⁸ It recommended the development of class licensing arrangements as a replacement for specific licensing of Crown copyright material. Broadly speaking, this would offer standard terms and unrestricted access to any such material ending the practice of refusal to supply that some departments operated. However, administration and pricing issues were not addressed.

In July 2001 HM Treasury issued further Guidance for Government departments and other Crown bodies on the principles that should govern in charging for information which was subject to Crown copyright. The context for this was the implementation of the Freedom of Information Act 2000 and decisions arising from the Review of Government Information of December of that year.⁴⁹

The next stage in the process was the drafting of a proposed Class licence by members of the then Crown Copyright User Group. While some information industry representatives within the Group may have seen this as a positive step towards a more modern regime relating to UK government data, some were clearly disappointed that support for some form of generalised waiver of Crown copyright was not forthcoming as acknowledged in the responses to the Green Paper.⁵⁰ The PIU report made it clear that 'ensuring integrity of Government data and the ability for Government itself to trade in and add value to its information', ruled out any such consideration.⁵¹ The Government's view was that the waiver outlined in Chapter Five of the White Paper⁵² represented the limit of what could

46 See: www.hm-treasury.gov.uk/DOCUMENTS/PUBLIC_PRIVATE_PARTNERSHIPS/ppp_index.cfm.

47 *E-Commerce@its.best.uk* - A Performance and Innovation Unit Report, Cabinet Office. See: www.ictparliament.org/CDTunisi/ict_compendium/paes/uk/uk28.pdf.

48 *op. cit.*, para. 11.22.

49 *op. cit.*, note 11 ante.

50 *op. cit.*, note 6 ante.

51 *ibid.*, para. 11.21–22. The Government will say that such material must be accurately reproduced and not be misleading. It should also correctly acknowledge the source and status of the material.

52 The *waiver* extends to 'material of a legislative or consultative nature, where it is in

be done within the policy parameters just outlined. The response from parts of the private sector was that even material within the scope of this waiver remained subject to Crown copyright regulation and Guidance Note requirements and therefore offered only minimal relaxation.⁵³

In 2003, work that had been underway within the Advisory Panel on Public Sector Information and its predecessor on the development of a so-called *Fair Trading Charter for Public Sector Information*, led to the launch of the Information Fair Trader Scheme.⁵⁴ Full IFTS Accreditation is ‘aimed at major public sector information traders and trading funds. It is based on a full audit of information trading activities and is intended for bodies who wish to meet a very high standard of compliance with IFTS principles and the Re-use of Public Sector Information Regulations) (PSI Regulations). Full IFTS Accreditation ensures that re-users of public sector information can be confident that they will be treated reasonably and fairly by public sector information providers. Any public sector body may apply to become IFTS Accredited. However, all Crown bodies that have a full licensing delegation from the Controller of HMSO must become IFTS Accredited’. To be recognised as accredited Information ‘fair trader’, a public sector body must make a commitment to information fair trader principles; have the commitment independently verified; and agree to investigate complaints when it is alleged that the commitment has not been met.⁵⁵

This had been encouraged by the e-Envoy’s office that became the e-Government that in turn became Delivery and Transformation Group. The Group is part of the Cabinet Office and has responsibility to ensure that IT supports the ‘business transformation’ of government and thereby to secure ‘better and more efficient public services’. It is clear that the intent is to create a much broader set of guidance that goes beyond any licensing arrangement. A Review of the first two years of operation of the scheme reported in 2005.⁵⁶ In support of its Fair

the Government’s interest to encourage unrestricted use’ (*White Paper*, para. 5.1). Examples include *inter alia*: legislation, Government press notices and forms, ministerial speeches and articles and documents featured on official departmental Web sites.

53 For example, the *White Paper* indicates a licensing waiver for Government press notices, but has issued a *Guidance Note* in respect of their reproduction and use. See: www.opsi.gov.uk/advice/crown-copyright/copyright-guidance/reproduction-of-government-press-notices.htm.

54 The *Information Fair Trader Scheme* ‘sets and assesses standards for public sector bodies. It requires them to encourage the re-use of information and reach a standard of fairness and transparency’.

55 OPSI website www.opsi.gov.uk/ifts/full-ifts.htm.

56 *Information Fair Trader Scheme – The First Two Years* (Cabinet Office, HMSO, January 2005) at: www.opsi.gov.uk/ifts/first-two-years-report.pdf.

Trader principles, OPSI itself published in 2007 its Publication Scheme, providing details of how to access its publications and the charges involved in respect of the different publication classes.⁵⁷

RE-ORGANISATION OF PUBLIC SECTOR INFORMATION MANAGEMENT IN THE WAKE OF THE PSI REGULATIONS

In addition to its review of the knowledge economy, the Government also consulted on the future role and scope of a ‘repositioned’ HMSO as a regulatory body. It began the process in October 2001 with a Consultation Paper⁵⁸ raising policy options on the future arrangements for the licensing of Crown Copyright. The analysis of responses⁵⁹ and outcome⁶⁰ of that exercise were published in 2002. This proposed transparent pricing policies and indicated that unless HMSO won the consent of the information providers themselves ‘we do not believe that we will be able to achieve better dissemination and pricing’.⁶¹ On 16 May 2005 the Office of Public Sector Information (OPSI) commenced operations with HMSO operating within OPSI pursuing its core activities of the management of Crown Copyright and database rights, publication of legislation and provision of official publishing guidance.⁶²

More significant restructuring took place in late 2006 that will have an important impact on the future of UK information policy. This ‘quiet revolution’ affected institutions such as The National Archives (TNA), HMSO and The Stationery Office (TSO) as well as OPSI. OPSI was established in May 2005 when HMSO was effectively subsumed within OPSI. However, the formal office and titles of HMSO continued at that point including its responsibilities for the management of Crown copyright and the publication of legislation. OPSI was given

57 See also *Procedures for investigating complaints arising under the Re-use of Public Sector Information Regulations 2005*. See: www.opsi.gov.uk/advice/psi-regulations/advice-and-guidance/psi-complaints-procedure.doc.

58 *Licensing of Crown Copyright – HMSO Regulatory Framework*, HMSO October 2001. See: www.opsi.gov.uk/advice/crown-copyright/crown-copyright-licensing-consultation-outcome.pdf.

59 *Consultation on a Regulatory Framework for Crown Copyright – Analysis of Responses*, HMSO 2002. See: www.opsi.gov.uk/advice/crown-copyright/licensing-consultation.htm

60 *ibid.*

61 *ibid.*, para. 5.

62 S. Saxby *Crown Copyright Regulation in the UK – Is the Debate still Alive?* [2005] 13 IJLIT 299.

responsibility for co-ordinating information policy standards on the re-use of public sector information following UK implementation⁶³ of the EU Directive on re-use of public sector information in July 2005.⁶⁴

What has actually happened is that OPSI became in 2006, the ‘principal focal point for public sector information in the UK’⁶⁵ In October 2006 TNA and OPSI merged, with the former contributing its considerable expertise in information and records management. TNA maintains one of the largest national archives in the world, ‘spanning 1000 years of British history’ and has led the way in the development of electronic records management to replace paper systems as well as advising the wider public sector on best practice in this area. OPSI’s role will be to build on that expertise as ‘regulator of public sector information holders for their information trading activities’

Operating then from within OPSI is HMSO. A clickable link from OPSI’s main web page originally asked ‘Where has the HMSO website gone?’ The answer given when the link opened was that OPSI had ‘grown out of Her Majesty’s Stationery Office’. While OPSI’s role would be to regulate the re-use of public sector information, HMSO would continue to exist and ‘fulfil its core activities including responsibility for the publication of legislation and the management of Crown copyright’. In effect, says OPSI, it is the ‘re-branding of what was the HMSO website – HMSOnline’.⁶⁶

The final element in this latest round of changes concerned TSO. TSO specialises in the ‘creation, production and distribution of information in print, online and in electronic formats’ and was privatised from HMSO in 1996.⁶⁷ It claims to be the largest publisher in the UK by volume, publishing more than 15,000 titles per annum purchased by more than 350,000 customers. On 15 November 2006 TSO announced that it was being acquired by Williams Lea, a global provider of corporate information solutions, subject to satisfactory competition clearance from the authorities. The acquisition announcement reported that this ‘establishes Williams Lea in the rapidly expanding market of public sector document business process outsourcing, which is forecast to grow at 23.5% compound annual

63 *The Re-use of Public Sector Information Regulations 2005* (SI 2005 No. 1515). See: www.opsi.gov.uk/si/si2005/20051515.htm.

64 Directive 2003/98/EC of the European Parliament and of the Council on the re-use of public sector information (the Directive)(O.J. No. L 345, 31.12.2003, p. 90). See: ec.europa.eu/information_society/policy/psi/docs/pdfs/directive/psi_directive_en.pdf.

65 See further: www.opsi.gov.uk.

66 The only manifestation of HMSOnline was at: www.hmso.gov.uk/legislation/uk.htm (last updated in June 2004). See now: www.opsi.gov.uk/advice/crown-copyright/copyright-guidance/index.htm.

67 See: www.tso.co.uk.

growth rate to £1.3 billion by 2008. Demand is being driven by a growing number of government departments, changes in regulation and legislation and the desire to increase efficiencies within the public sector as a whole’.

These substantial changes will inevitably impact upon PSI policy in the UK. It would seem that uppermost in the Government’s mind is improved efficiency in sharing information services within the public sector and generating benefits from re-use of PSI. However, the issue is not just about efficiencies and cost savings but in placing appropriate information in the right form in the right place at the right time, so as to feed into policy development. The issue becomes even more important as governments begin to utilise spatial information for this purpose.

There is no doubt that development of a robust information policy for the management and distribution of public sector information is a key element of wider government plans for its transformational government program announced in November 2005.⁶⁸ This established an agenda for improving government services enabled by technology to ‘release efficiencies’ across the public sector⁶⁹ including better arrangements for data sharing, information management and information assurance. Also embedded within this program, and within OPSI’s remit, is the responsibility to set standards, deliver access and encourage re-use of public sector information and share best practice. APPSI believes that the merger in October 2006 of TNA⁷⁰ with OPSI will, through the greater resources and reach of TNA, ‘provide a far more effective platform from which OPSI can promote and regulate the exploitation of PSI’.

IMPORTANCE OF UK PSI AGAIN HIGHLIGHTED IN 2006

The commercial exploitation of PSI was again raised in 2006 from the unexpected source of the Office of Fair Trading – the UK’s consumer and competition authority – that had previously not entered the debate. The report, – *The Com-*

68 Transformational Government Enabled by Technology Cm6683 (Cabinet Office, November 2005). See: www.cio.gov.uk/documents/pdf/transgov/transgov-strategy.pdf.

69 Transformational Government Implementation Plan (Cabinet Office, March 2006) p. 14. See: www.cio.gov.uk/transformational_government/implplan/.

70 The National Archives (www.nationalarchives.gov.uk/) describes itself as being ‘at the heart of information policy - setting standards and supporting innovation in information and records management across the UK, and providing a practical framework of best practice for opening up and encouraging the re-use of public sector information’.

mercial Use of Public Information (OFT study)⁷¹ recommended that important changes were needed to the operation of the market for PSI. With the improvements proposed, OFT believes that the sector could double in terms of the ‘value it contributes to the UK economy to a figure of £1 billion annually’. This could be achieved by production of a ‘wider range of competitively priced goods and services for consumers and the generation of wider-spread productivity improvements across the economy’.

The OFT study noted that public sector information holders (PSIHs) were frequently the only source of the basic information they held. Such ‘unrefined information’ could not be readily substituted from other data sources. Once the PSIH processed the unrefined information in some way – a function that could potentially be also performed within the private sector – the information became ‘refined’. The report argued that, for the sector to succeed and do well, improvements were needed in the accessibility of unrefined information by businesses seeking to use it to ‘provide products or services to the public’.

Among the common issues identified was the inadequate availability of unrefined information with many businesses reporting their inability to obtain the latter in a sufficiently unrefined form to be usable for their purposes, or the offer of licensing terms that effectively resulted in the products and services envisaged not being financially viable.

The OFT study also assessed the response to the *HM Treasury Cross-Cutting Review of the Knowledge Economy*⁷² that reported in 2000, which had recognised the ‘central importance’ of PSI to the knowledge economy and its development. The review had reached many similar conclusions to the present study and it noted that some progress had been made in as a result of OPSI’s establishment and APPSI. However, despite these developments the OFT indicated that the steps so far taken had not been sufficient to address what needed to be done i.e. – ‘making PSI available on fair, consistent and non-discriminatory terms, with transparent pricing and licensing, in a timely manner and with the establishment of a quick and easily accessible complaints procedure’.

The OFT study then went on to consider a number of possible ways forward to implement what is desired e.g. to require PSIHs to ‘divest themselves of their refined information operations’, or to charge nothing for the re-use of unrefined PSI. However, while an equal access policy might be sound in competition policy terms, some PSIHs were clearly dependent on the ‘income from re-use to finance their operations’. It was also the case that some PSIHs handled their refined information operations in ‘a fair and transparent manner’ so the assumption that such an arrangement could never work was misplaced. Accordingly, the report sought

71 *The Commercial use of public information (CUIP)*, OFT861 (Office of Fair Trading, December 2006).

72 op. cit., note 11 ante.

a ‘proportionate solution’ that ‘builds on the existing framework’ to make it more effective. Among the recommendations that could be implemented without primary legislation was improved monitoring of the PSIHs that gain substantially from commercial exploitation of PSI, to ensure that key principles and guidance are followed. This should apply whether this was the main activity or only a by-product of the PSIH.

The OFT is also calling for more clarity about government policy on PSI, noting that the Re-use of Public Sector Information Regulations 2005, the Freedom of Information Act 2000, the Environmental Information Regulations 2004 and the Transformational Government initiative⁷³ all ‘aim to make as much PSI available as widely and cheaply as possible’. However, financing of some PSIHs as Trading Fund Operators – which imposed a duty to fulfil ‘income generating targets’ in the exploitation of PSI and also the Wider Markets Initiative (WMI)⁷⁴ – both encouraged PSIHs to seek income from selling and licensing PSI. The study suggests the incentives behind the Trading Fund model and WMI could ‘aggravate a situation where a monopoly supplier of PSI also engages in refined information activities, with insufficient scrutiny of their approach to equal access’. A consistent policy on PSI with corresponding clear guidance would ‘help to ensure that the PSI sector can reach its full potential’.

STRATEGIC REVIEW OF PSI INITIATED BY GOVERNMENT IN 2007

Following a policy review on future challenges for government, in February 2007, almost before the report could be digested, the then Minister for the Cabinet Office, Hilary Armstrong, asked Tom Steinberg, Director of MySociety – the charitable organisation involved in community web site development – and Ed Mayo, Chief Executive of the National Consumer Council, to explore in yet another study ‘the role of government in helping to maximise the benefits for citizens’ from the new patterns of online tools that ‘allow people to use, re-use and create information in new ways’. The review⁷⁵ was conducted through a wide

73 See further: *Transformational Government – Enabled by Technology – Annual Report 2006* (Cm 6970 The Cabinet Office, January 2007). See: www.cio.gov.uk/documents/annual_report_2006/trans_gov2006.pdf.

74 The Wider Markets Initiative was established by HM Treasury in 1998 to encourage the more intensive use of public assets including intellectual property. See further *The Wider Markets Initiative* – (Report by the Comptroller and Auditor General HC 799 Session 2005–06, 27 January 2006). See: www.partnershipsuk.org.uk/uploads/documents/pending/NAO_WMI_Jan_2006.pdf.

ranging literature review, three ‘in depth’ case studies⁷⁶ designed to illustrate the costs and benefits of more online public sector information exchange, and interviews with more than 60 stakeholders in central and local government, business and public bodies.

The report indicated that government was now in a position to ‘grasp the opportunities that are emerging in terms of the creation, consumption and re-use of information’ although current policy and action had proved inadequate in achieving this goal. A strategy was recommended in which government ‘engage with user-generated sites in pursuit of common social and economic objectives’; improve the supply of government-held information to potential re-use innovators when they need it in a way that maximises the long-term benefits for all citizens; and protect the public interest by assisting excluded groups to take advantage of these information flows while educating all citizens ‘for a world of plentiful (and sometimes unreliable) information’.

Fifteen practical recommendations were forthcoming in line with this strategy designed to achieve the step change that was recommended. They were categorised into suggestions for ‘exploring new opportunities’, ‘improving access to public sector information’, ‘protecting the public interest’ and ‘follow through and next steps’. With the need for clear leadership to act upon the proposals, the report recommended that OPSI report to the Cabinet Sub-Committee on Electronic Service Delivery (PSX(E)) by December 2007 on ‘departments’ plans for implementing this report’s recommendations, and report again on progress and results by December 2008’.

The Government response to the report appeared at first instance to be enthusiastic. Hilary Armstrong, who subsequently gave way to Prime Minister Gordon Brown’s appointment of Ed Miliband to the Cabinet Office, noted that, in the eight years to 2006, household use of the internet in the UK had risen from 9%-57% – for example, ‘a small group of mums can reach an audience of hundreds of thousands. They do not need a large organisation with an extensive IT support system or technological expertise. If 30,000 parents were meeting in a park or football stadium to share information and tips about parenting, government would take notice’.⁷⁷

The Government’s reply set out some elements of its thinking. Three main

75 *The Power of Information: An independent review* by Ed Mayo and Tom Steinberg (June 2007). See: www.opsi.gov.uk/advice/poi/power-of-information-review.pdf.

76 The topics were: the benefits of health communities; the impacts of publishing restaurant food safety ‘scores’; and options for an online income tax self-assessment advice facility.

77 The Government’s Response to *The Power of Information: An Independent Review* by Ed Mayo and Tom Steinberg (2007) Cm 7157 (Cabinet Office, June 2007). See: www.opsi.gov.uk/advice/poi/poir-government-response.pdf.

challenges were identified: ‘engaging in partnership with user-led online communities; ensuring that it fully understands and responds appropriately to changes in the information market; and advising civil servants on how best to participate in new media’. Somewhat unusually for government it admits that it is not going to be ‘expert at this overnight – we need to experiment and learn in partnership’ but it does express some disappointment that the reviewers did not recognise more fully ‘the Government’s progress to date’ accepting as it does the report’s general findings that ‘technological advances are increasing the value – especially the social and economic value – of information generated by the public sector’.

On the issue of charging, licensing and regulation and how these issues might fit into future strategy, the Government declared that it wanted more time. In particular it said it wanted to consider *The Power of Information Review* alongside the OFT study on the commercial use of public information,⁷⁸ just mentioned. For the time being, further work should take place on an ‘evidence base’ to test possible amendments to policy in relation to government bodies and the regulatory regime. However, the publishing climate was changing. The Government noted with interest that individual innovators and social entrepreneurs could now ‘create information goods and services that were once the preserve of large corporations’. This was an ‘important new segment’ of the knowledge economy and evidence of a ‘healthy climate of innovation that demand for public sector information is growing’.

Since the original response, the Central Office of Information (COI) has formed a strategic Delivery Coordination Group to implement the recommendations from the *Power of Information Review* and other reviews so as to co-ordinate the activities of central government and avoid duplication.⁷⁹

In what was almost its final act, prior to its replacement on 28 June 2007 by the Department of Business Enterprise and Regulatory Reform, the outgoing Department of Trade and Industry published the Government’s response to the OFT

78 op. cit., note 70 ante.

79 See *Interim Progress Report on Implementing the Government’s Response to the Power of Information Review* (Cm7157). These include the Government Communications Group Social Media Review www.publictechnology.net/print.php?sid=14994 and the National Audit Office (NAO) Report - *Government on the internet: progress in delivering information and services online* HC 529 Session 2006–07 (13 July 2007) at: www.governmentontheweb.org/downloads/report_2007/Government_On_The_Internet_Full-Report.pdf. The latest progress report is: *Government on the Internet: Progress in delivering information and services online – Sixteenth Report of Session 2007–08* HC 143 (House of Commons Committee of Public Accounts 29 April 2008). See: www.publications.parliament.uk/pa/cm/200708/cmselect/cmpubacc/143/143.pdf.

study that same month.⁸⁰ It welcomed the study as one that usefully built upon *HM Treasury's Cross-Cutting Review* of 2000 and the Cabinet Office *Power of Information Review*. The Government acknowledged the 'estimated economic benefits' highlighted in the OFT study but at the same time had to consider the costs, thereby 'ensuring the on-going financial provision of the information currently collected, the fiscal cost and the costs to the bodies affected by the OFT's recommendations'. It indicated that the likely scale of these costs remained 'unknown' and that more work would be needed to 'make sensible indicative assessments'.

Other key actions referred to in the OFT study were also taken up. Trading fund operators would now prepare an action plan 'setting out where they are now, and how they propose to open access to their information, further using the principles for improving pricing and dissemination set out in the *Knowledge Economy* report'. There would also be improved guidance for PSIHS, and accountability through OFT's competition enforcement activities and a statement in the annual accounts as to compliance with cost allocation and charging principles. The Government also declared that it was 'encouraged' that the IFTS already included a number of principles alluded to in the OFT study. It hoped that, as the scheme expanded, 'better practice will spread through the sector' including 'clear and fair licence terms' and complaints procedures that were 'fair, transparent and not punitive'. As far as other matters in the action plan were concerned, the response paper indicated that these could not be accepted at this time. In particular, further work was required by officials 'to consider the impact of changing data definitions and pricing policy, especially for trading funds, to ensure there are not adverse impacts on the ability to collect the information in the future and that the proposed benefit is sufficient to justify the fiscal cost'.

REVIEW OF TRADING FUND MODELS FOR THE PROVISION OF PSI?

The further accumulation of the evidence base that the Government called for before it could begin to contemplate decisions on future re-use strategy grew significantly in 2008. How information might be better exploited so as to improve its value and utility both to the public sector and the country at large was the focus of a major study, published in February 2008, by academics from Cambridge University. The group's remit was to examine the 'impact of adopting different models for the provision of public sector information by trading funds',⁸¹ such

80 *The Commercial Use of Public Information (CUPI) – The Government Response to the Office of Fair Trading Study* (DTI, June 2007). See: www.berr.gov.uk/files/file39966.pdf.

as the Meteorological Office, Ordnance Survey, the UK Hydrographic Office, the Land Registry, Companies House and the Driver Vehicle Licensing Agency. These were the six largest trading fund operators in terms of revenue generated. The study fulfils one of the recommendations in the OFT study⁸² and the *Power of Information Review*⁸³ that such work is required.

While the connection with information policy might at first sight appear obscure there have for some time been calls for the government to review the effectiveness of its policy that requires a direct economic return on the sale of PSI. Whereas the Cambridge study reported that this charging mechanism for the supply of PSI was producing £390 million per annum, according to latest figures available, an alternative scenario might be to examine the ‘downstream returns’ and other benefits to society that might be obtained if different models were considered. The study noted that ‘the demand for digital data as with other information services is likely to be high and growing’ and that ‘the case for pricing no higher than marginal cost (which, for most digital data will be zero) on basic products is very strong’. The study also remarked that the case for ‘hard budget constraints’ designed to ‘ensure efficient provision and induce innovative product development’ in information services was weak when the public enterprise concerned was engaged in provision of a monopoly service without fear of competition. So, while a ‘socially optimal policy’ would leave the charging regime in most cases unchanged in respect of ‘refined products’ built on unrefined data where there was already good commercial competition, for the bulk of unrefined digital data this should be freely available.

Such findings will be noted with interest by private sector information providers who have argued, along with the ‘Free our Data’ campaign⁸⁴ that there are greater benefits to be obtained for the UK, both financially and for individual users, if the information market were more open. At present, as with the rest of the EU, the principles governing re-use of PSI are regulated by EU Directive 2003/98/EC⁸⁵ and implemented by domestic regulation⁸⁶ that manages to preserve the present policy regime. The initial response of the Government to the Cambridge report, as indicated by HM Treasury in its Budget Report for 2008⁸⁷,

81 Prof David Newbery, Prof Lionel Bently and Rufus Pollock, *Models of Public Sector Information Provision via Trading Funds* (26 February 2008). Study commissioned jointly by the Department for Business, Enterprise and Regulatory Reform (BERR) and HM Treasury. See: www.berr.gov.uk/files/file45136.pdf.

82 op. cit., note 70 ante.

83 op. cit., note 74 ante.

84 See further: www.freeourdata.org.uk/

85 op. cit., note 63 ante.

86 op. cit., note 62 ante.

87 *Budget 2008 – Stability and opportunity: building a strong sustainable future* HC388

cautiously suggests that there is a need to look at PSI held by trading funds ‘to distinguish more clearly what is required by Government for public tasks and to ensure that this information is made as widely available as possible for use in downstream markets’. In the meantime, however, it restates the position that the need for access to such data must be ‘balanced with ensuring that customers pay a fair contribution to the cost of collecting this information in the long term’. If that is the eventual outcome of consideration of this issue within the planned Spending Review then the status quo will of course have been substantially maintained.

THE REVIEW OF EU DIRECTIVE 2003/98/EC AND THE PSI REGULATIONS

UK policy towards PSI has now of course been decanted into the broader environment of EU policy. Having progressed from the first tentative steps on re-use of PSI in 1989, with non binding guidelines⁸⁸ which aimed to ‘strengthen the position of the private sector in the European information market and limiting the role of the public sector bodies to the supply of raw data’, this progressed nearly a decade later in 1998 to a Green Paper on PSI.⁸⁹ Subsequently, a proposal for a directive was published ultimately leading to the PSI Directive in 2003.⁹⁰ The UK Government had prepared well for the implementation of the Directive having secured its economic position on policy towards Crown copyright, trading fund operators as holders of PSI, and acceptance of its schemes for identifying and cataloguing available data for access and re-use.⁹¹

Progress in implementing the Directive in the UK was reviewed in 2007 by OPSI. (Re-use report).⁹² This analysis ran side by side with the other studies previously mentioned and the organisational changes within OPSI – all part of a

(HM Treasury, March 2008) para. 3.49. See: www.hm-treasury.gov.uk/media/9/9/bud08_complereport.pdf.

88 *Guidelines for enhancing synergy between public and private sectors* (non binding) 1989. See further: www.egovbarriers.org/?view=Subject&subject=psi.

89 *Public Sector Information: A Key Resource for Europe*, European Commission COM(1998)585. See: ftp.cordis.lu/pub/econtent/docs/gp_en.pdf.

90 op. cit., note 80 ante.

91 For the time being implementation of the PSI Directive is being co-ordinated from a portal - ePSIplus www.epsiplus.net/. – described as ‘a practical ‘one-stop shop’ for key information on PSI re-use across Europe’. This support mechanism will operate in the build up to the expected review of the PSI Directive in 2008.

92 The United Kingdom Implementation of the European Directive on the Re-use of Public Sector Information (OPSI July 2007). See: www.opsi.gov.uk/advice/psi-regulations/uk-implementation-first-years.pdf.

process that in part were designed to better operate and manage the 2005 PSI Regulations. The effect of these regulations is summarised as follows:

The main aim of the PSI Regulations is to maximise the re-use of public sector information and to stimulate the economy. Within the spirit of the PSI Regulations, a public sector information holder (PSIH) is expected to encourage re-use of its information. Although the PSI Regulations impose no obligation on a PSIH to allow re-use of its information, the purpose of the Regulations is to establish a framework that provides for the effective re-use of public sector information. If re-use is allowed, a PSIH should:

- Publish a list of the main documents available for re-use;
- Respond promptly to requests for re-use;
- Put in place copyright and licensing arrangements;
- Ensure that any conditions on re-use do not unnecessarily restrict re-use or competition;
- Ensure there is no discrimination between applicants. If a public sector body wishes to re-use a document for activities which fall outside its public task, the same conditions shall apply to that re-use as would apply to re-use by any other applicant for comparable purposes;
- Discourage exclusive arrangements; and
- Set up appropriate internal complaints procedures. There is also the option of asking OPSI to investigate the PSIH's actions and this should be made clear in the internal procedures.⁹³

The Re-use report concluded that the UK's PSI assets were 'extremely valuable yet often under-utilised' and that policy and action taken by OPSI and others now needed to be placed 'within the wider information policy context'. Among the further actions proposed to 'ensure the UK grasps the opportunities to maximise the potential of PSI' were a new look at the PSI Regulations in the light of the EU review planned for 2008⁹⁴ and clarification of the distinction between the production of PSI in the performance of a public task and its re-use within the public sector. The Re-use report noted that in the interests of fairness it was not always

93 *Office of Public Sector Information Report on its investigation of a complaint (SO42/8/4): Intelligent Addressing and Ordnance Survey* (OPSI July 2006). See: www.opsi.gov.uk/advice/psi-regulations/complaints/SO-42-8-4.pdf.

94 See further: www.epsplus.net/.

apparent ‘whether an activity carried out by a public sector organisation’ was a ‘public task or a re-use activity’. It also declared that OPSI would ‘clarify the UK approach’ towards use of third party copyright material in PSI in the wake of the outcome of a complaint (see below) in 2006 against the national mapping agency Ordnance Survey concerning the licensing of its product AddressPoint to a third party and Ordnance Survey’s subsequent use of its product.⁹⁵

In addition, OPSI has undertaken to clarify the distinction between access and re-use of PSI. This distinction can cause confusion and is important in the relationship between the Information Commissioner’s responsibilities under the Freedom of Information Act, the Environmental Information Regulations⁹⁶ and the Data Protection Act 1998 which focuses on ‘access’ issues; and the responsibilities of OPSI under the PSI Regulations, which relate to the re-use of information once access has been granted or where it is already accessible. The issue can be relevant in determining who should handle complaints.

Another matter that OPSI has resolved to look into is the effect of the absence in both the PSI Directive and Regulations of an obligation on the part of the PSIH to facilitate re-use of documents. The re-use report finds evidence of a lack of awareness of re-use compliance rules among some PSIH’s despite the fact that the PSI Regulations forbid discrimination in any conditions imposed and similar treatment where the public sector body has used the information itself as part of a public task. OPSI has undertaken to look at better ways of ensuring greater compliance with the rules.⁹⁷

OPSI further commits to enhance awareness of its ‘Click-use’ Licence launched in 2001⁹⁸ in consultation with private sector re-users for a ‘wide range of public sector information’. The re-use report notes that more than 13000 such licences have been taken out since it started, permitting many forms of re-use ‘from research by private individuals to commercial publishing by multi-national companies’ but subject of course in some cases to payment of royalties. OPSI also wants to extend the IFTS⁹⁹ to all PSIH’s generating more than £100,000 in-

95 *ibid.* AddressPoint is a dataset that ‘defines and locates residential, business and public postal addresses in Great Britain. It is created by matching information from Ordnance Survey digital map databases with addresses recorded in the Royal Mail Postal Address File (PAF)’. See: www.ordnancesurvey.co.uk/oswebsite/products/addresspoint/.

96 *op. cit.*, note 62 *ante*.

97 This applies particularly to the ‘highly competitive’ market in property searches currently undertaken by both public and private sector bodies where the Report suggests that ‘many local authorities do not apply the same terms for their own re-use as they do to others’.

98 See further: www.opsi.gov.uk/click-use/index.htm.

99 www.opsi.gov.uk/ifts/index.htm.

come from the licensing of its material and to ‘continue working with other parts of government to ensure a unified and integrated approach to managing information assets’. It also undertakes to review complaints procedures in consultation with APPSI in the light of the first two years’ experience of the scheme.

What is evident here is an attempt within OPSI to fine tune existing arrangements so as to make them more effective and adhered to. Whether this will lead to any fundamental relaxations of policy towards access depends on the extent to which a good economic case can be made and proven for enhanced access and re-use rights. It is clear that APPSI, in its role as a non departmental public body, has commented on a wide range of policy issues at the heart of the PSI agenda. However, the question remains to what extent government is prepared to engage with APPSI at the highest level. In its 2006 Annual Report it comments that:

Most APPSI members have been disappointed in the past year with our inability to stimulate and secure Ministerial interest in PSI at the Cabinet Office. It will be recalled that many of our recommendations in last year’s report required Ministerial engagement. Perhaps because APPSI did not make its case forcefully enough or perhaps because Cabinet Office Ministers had other, more pressing and mainstream demands on their time, the reality is that APPSI has not met with any Minister over the past 18 months, despite attempts to set up meetings. Still less have Ministers actively pursued any PSI initiatives. Were it not for our relocation to the Department of Constitutional Affairs (DCA), APPSI would focus very much more on this issue in this report. However, given we have been relocated, and the interests of APPSI seem so well aligned with the DCA, our approach here is to be positive and look forward to developing a healthy relationship with DCA and its Ministers.¹⁰⁰

While later APPSI reports are not yet available it is quite evident that some progress has been made in gaining the Government’s attention to aspects of information policy at least in the context of recent administrative blunders that directly led to the loss of significant amounts of personal data by the public sector. Whether this extends to senior ministers and to the broader issues of access, re-use and charging arrangements within the scope of information policy remains to be seen. With the EU planning a review of the PSI Directive in 2008 this may

100 *Realising the Value of Public Sector Information – Annual Report 2006* (APPSI, 2006). Since 9 May 2007 the responsibilities of the DCA have transferred to the new Ministry of Justice. See: www.justice.gov.uk/.

raise information policy to a higher level on the Government's political agenda. Nevertheless, APPSI remains an important independent voice on information policy able to draw the public and the Government's attention to the broader issues that no single department or group could otherwise achieve without access to the kind of impartial expertise that is available to APPSI.

PSI REGULATIONS ON RE-USE TESTED IN COURT

An interesting illustration of how the present policy is working in practice can be seen from a case in 2007 in the Chancery Division involving HMSO, Ordnance Survey (OS) and an alleged unauthorised use of its mapping data.¹⁰¹ The court ruled that Crown Copyright infringement took place when the defendant Green Amps Ltd., employed a university student to access mapping data which should have been available to the student only for educational purposes. The defendant's business lay in the provision of wind turbines in the UK for the generation of renewable energy. OS provided map data to provide a networked data base service known as EDINA to members of the UK tertiary education and research community. One of the resources offered was called DIGIMAP which allowed access to OS digital maps (Digimaps) the use of which was licensed as part of the service. One of its licensees in 2005 was the University of Southampton to whom the student was affiliated. In the Easter and summer vacations of 2005 the defendant employed the student who continued to have access to the data in question. The student had further admitted using a fellow student's password and log in details having failed to understand the subscription process for accessing the data.

The student used EDINA both for the purposes of his degree course and to assist him in the tasks which he was asked to perform for the defendant. As a result digital maps for the whole of Great Britain in three formats were downloaded without permission in circumstances where the annual licence fees for a single computer terminal for these products would have exceeded £16,000. In order to download the DIGIMAP product the defendant would have observed on the screen the claimant's copyright terms and conditions which notified the user that the OS data within DIGIMAP was subject to Crown copyright. The defendant would also have had to click on an icon agreeing to the terms and conditions which made it clear (*inter alia*) that access to the DIGIMAP service was restricted to further and higher educational institutions and for education purposes, defined as 'education, teaching, distance learning, private study and/research'.

In the court's view it was clear that the defendant's acts were not licensed and there was no dispute that, unless justified by provisions of the CDPA 1988

101 *Her Majesty's Stationary Office (HMSO) & Anor. v. Green Amps Ltd.* [2007] EWHC 2755 (Ch) (05 November 2007).

or other provisions of the law, that the defendants had infringed copyright. The defence case was mainly conducted on interpretation of the PSI Regulations and the fair use defence set out in Section 29 of the CDPA 1988. Paragraph 15 of the Regulations, implements the PSI Directive and permits a public sector body to charge for re-use of PSI and, so far as reasonably practicable, to establish standard charges for this purpose. The defendant argued that the regulation permitted the claimants to charge only the cost of reproducing the maps plus a reasonable return on the amount expended in doing this. The basis of this submission was said to be the view expressed in the OPSI report on its investigation of a complaint by Intelligent Addressing Limited that OS's activity of maps supply fell within its 'public task' with the result that the Regulations applied to it.¹⁰²

The court remarked that OS's 'public task' was 'clearly a difficult one'. However, it was clear from the PSI Directive and from the Regulations that the claimants were 'entitled to base their charges on all the expenditure incurred in the collection of information, mapping and other activities carried out in order to provide the end product, together with a reasonable return on that expenditure, which represents their investment'. The court emphasised the point that even if a public sector body sought to levy charges in excess of permissible charges, this would not give a member of the public the right to use the information free of charge. The Regulations provided for an internal complaints procedure and when this was exhausted for a complaint to the OPSI, then finally to review by an advisory panel.

On the issue of fair dealing the defendant had argued that its purpose was to develop a mapping tool which was ultimately to be used in planning applications for wind turbines and was 'essential in correlating the different mapping layers incorporated' in the environmental statements which formed part of such applications. In its view the mapping tool had a research and development status within the terms of their use and once it came to be used commercially it became a function of the quasi judicial planning process and therefore exempt from copyright infringement under Section 45(1) of CDPA 1988. The court rejected this on the grounds that the fair use exemption in Section 29 required that what would otherwise be an act of infringement must be 'for the purposes of research' and that the research should be 'for a non commercial purpose' to avoid liability. The second of these requirements had plainly not been satisfied since the defendant was a commercial company in which even if its initial use of the mapping data had been for research, the end product of that research was for commercial purposes. The objective standard of fair dealing, namely whether a fair minded and honest

102 *op. cit.* note 92 *ante*. See: www.agi.org.uk/pooled/articles/BF_NEWSART/view.asp?Q=BF_NEWSART_211067. On this occasion OPSI found that the terms of the OS licence 'unnecessarily restricted the way in which (the original data) could be re-used and unnecessarily restricted competition'.

person would have dealt with the copyright work in the manner in which the defendant did, produced a clear answer.

Among the main factors, said the court, to be taken into account were the degree to which the infringement involved competition with the exploitation of the copyright work by the owner, and the extent and importance of the copying. In the court's view, 'by both of these criteria, the defendant's infringement comes very high on the scale. Add to this the covert manner in which the information was downloaded'. Those that did it must have known it was illegitimate. The court went on to dismiss all other arguments in the amended defence and concluded that the defendant had no arguable defence to the claim. Accordingly judgment was given in default of defence.

EVALUATION OF THE COST RECOVERY REGIME – THE CASE OF ORDNANCE SURVEY

How the pricing approach for access to PSI should be judged is entirely dependent upon which economic model for exploitation of PSI is adopted. Arguments could be made that a more relaxed regime would stimulate the market for new products and services. On the other hand so long as the funding mechanisms continue that bind trading fund operators to seek a return on their PSI holdings, issues like this will continue to arise and be litigated. It remains a complex issue. The 'free our data campaign', on the other hand, argues that the policy inhibits innovation and penalises the taxpayer:

On March 9 2006 the Guardian's [Newspaper] Technology supplement carried an article called 'Give us back our crown jewels'. The argument is simple: government-funded and approved agencies such as the Ordnance Survey and UK Hydrographic Office and Highways Agency are government-owned agencies; they collect data on our behalf. So why can't we get at that data as easily as we can Google Maps or the Xtides program? Even though OS and the UK Hydrographic Office are designated as trading funds (which means that they operate as self-contained commercial entities receiving no direct tax funding), substantial parts of their income – up to 50% in the case of OS – comes from the public sector; meaning, in effect, they are part-paid by taxes. Yet they charge for that data, with onerous copyright restrictions that prevent the re-use of the data. That restricts innovation and artificially restricts the number and variety of organisations that can offer services based on that most useful data – which our taxes have helped to collect.

Making that data available for use for free – rather as commercial companies such as Amazon and Google do with their catalogue and maps data – would vastly expand the range of services available. It cannot make any sense that Google, an American organisation, is presently more popular with people aiming to create new map applications.¹⁰³

OS, however, as one of the trading funds most heavily criticised, argues that the issues are more complex than the campaigners would suggest.¹⁰⁴ OS comments that maintenance of its map data is a vital issue with some 5000 changes per working day to its large scale map data for Great Britain. OS suggests in its defence that there is no such thing as ‘free data’ since the collection, maintenance and distribution of its data cost OS £105 million in 2004–05 being the most up to date figure available. OS argues that it is very unlikely that HM Treasury would agree to fund such work and that ‘no political will from any of the mainstream political parties to return to funding national geographic data collection’ was discernable.

With regard to innovation and the argument that its present policies stifle new ideas OS argues that it has more than 500 commercial partners with which it has been working over the past five years to 2006. It points to US experience which the campaign argues provides a better model, since PSI is made more freely available, and reminds the campaign that US central government mapping is of variable quality with much of the data remaining unrevised for 30 years or more. Moreover, the private sector in the US has ‘no obligation to map either to consistent national standards, consistent currency or even to provide complete coverage’. OS concludes that the present model of funding and licensing its products has enabled the organisation to retain not only its position as a ‘leading edge, technologically driven organisation and a world leader in the national mapping agency sector’ maintaining one of the world’s largest geospatial databases, but also facilitated its membership of OPSI’s IFTS thereby delivering substantial amounts of freely accessible small scale map data online to the general public as well as a free OS Explorer map to every 11 year old child in Britain!

Perhaps partly as a response to the high profile of the PSI issue as a result of the campaign and the particular concerns raised about OS, it was not surprising that at some stage Parliament would decide to investigate. This took place following the decision in 2008 of the House of Commons Communities and Local Government Select Committee to review the alleged confusion between OS’s public service and commercial roles in relation to PSI.¹⁰⁵ Whereas OS argued that

103 See www.freeourdata.org.uk/.

104 *Free Our Data: Articles: the Ordnance Survey official response* at: www.freeourdata.org.uk/ordnancereply.php.

a clear distinction between the two roles was impossible, the Select Committee wanted to find out whether the regulatory frameworks in place to mitigate the difficulties arising from the dominant position of OS in the field of geographic information provision were, as had been alleged, ‘difficult to use and ineffective’.

The Select Committee discovered that OS did in fact cost the tax payer nothing as it returned an annual profit to HM Treasury. However, the fact that it is required to fund both its public and commercial activities from its own revenues did make it difficult to determine where its public duty ended and its competition in the market commenced. Whereas the committee noted that most of the funding to support OS came from licensing re-use of its information, international experience suggested that ‘any diminution in its funding levels could affect the quality of the information it provides its customers’. However, the Committee was critical of some licensing practices particularly clauses with competitors that restricted their rights to compete. No such conditions should be included in such licences in future as had been found in the Intelligent Addressing complaint.¹⁰⁶ In general OS’s licences were ‘too complex and inflexible’ and needed to be much more transparent. Licences needed to fit the needs of customers while protecting OS’s intellectual property.

The Committee was also concerned over the extent to which the PSI Regulations applied to OS activities and the failure of the arbitration process to overcome these hurdles.¹⁰⁷ The Committee believed that products to which OS had added value and which were being marketed commercially, should be part of its private portfolio. However, the base information in OS’s hands, in its capacity as the national mapping agency, should be ‘as easily and widely available as possible, allowing for cost recovery’. It was possible that the Regulations, as currently drafted, might be ‘inadequate’ in ensuring that base information was easily accessible and it called upon the Government to remedy any deficiencies that existed.

The Committee also welcomed the creation of a Geographic Information Panel for geo-spatial PSI, similar in some respects to APPSI’s role in the wider domain, since its main role was to give ‘high-level advice to [Office of Deputy Prime Minister¹⁰⁸] Ministers on geographic information issues of national impor-

105 *Ordnance Survey House of Commons Communities and Local Government Committee Fifth Report of Session 2007–08* HC 268 [Incorporating HC 1039, Session 2006–07]; The Stationery Office 21 January 2008.

106 *op. cit.*, note 101 ante. See: www.publications.parliament.uk/pa/cm/200708/cmselect/cmcomloc/268/268.pdf.

107 *op. cit.*, note 92 ante.

108 Note that the Department for Communities and Local Government, formed in May 2006, is the successor department to the Office of the Deputy Prime Minister (ODPM). It describes itself as ‘an expanded department with a powerful new remit

tance for the United Kingdom'. This included identifying 'the key medium to long-term geographic information issues; advising Government through regular short reports to Ministers; encouraging more effective, extensive and systematic use of geographic information, led by the example of Government Departments and other public bodies where appropriate; facilitating a co-ordinated position on potential legislation, both national and international, that might impact on the geographic information market; and promoting a coherent approach to the management of geographic information in the United Kingdom'. Again, similar to APPSI, the Panel is advisory only and has no regulatory role.

Clearly the Committee feels that there are issues about the working of the PSI Regulations that need to be clarified such as the exact nature of what is a 'public task' in the midst of departmental or trading fund commercial activity where issues about compliance and non discrimination are not altogether clear. Certainly, in the context of spatial data more work needs to be done among all those involved to overcome these concerns particularly as implementation of the Inspire directive establishing an EU infrastructure for spatial information must be in place by 15 May 2009.¹⁰⁹

CONCLUSION

In summing up the situation it is clear that serious work continues to assess the impact of different policies towards the ownership and licensing of PSI. The perception of government in the past has been of a public sector that sees PSI as government property that it is fully entitled and indeed under a duty to the taxpayer to regulate, licence and sell. Now we have the transformation agenda where additional pressures exist to use information to achieve results, reduce costs and particularly to engage the public in a form that satisfies both the business case for government efficiency and legal requirements such as adherence to freedom of information rules.

The debate will continue with the information industry however, as to the merits and demerits of a policy that still requires compliance with the regulatory

to promote building more and better homes, reducing homelessness, improving local public services, regenerating areas to create more jobs, working to produce a sustainable environment and tackling anti-social behaviour and extremism'.

109 This European directive will 'require governments to make geographical data available more easily, in order to underpin common policies to protect the environment. The idea is to ensure that environmental data is collected to the same standards and scales across Europe and is freely available to all'. See e.g.: www.guardian.co.uk/technology/2006/jul/27/public.guardianweeklytechnologysection.

bureaucracy for the exploitation and use of PSI. While Government has recognised the need for much more flexible arrangements in the digital environment, difficulties still remain for example in overcoming the confused position that operated within departments and trading funds over pricing, access and identification of their information assets. The private sector will of course always want the policy to go further towards the diversity model of the United States that imposes virtually no restrictions on the use and re-publication of official information. In pure economic terms it is difficult to assess the benefits of the US approach as statistics are hard to produce. Up to now HM Treasury has formulated its own model which lays down that departments and trading fund operators must, as far as possible, operate financially in a self-sufficient way. PSI, then, is a commodity that can be sold or licensed for a fee which will contribute to public sector funding. Perhaps the way forward might be to look closely at the Information Asset Register and to consider whether all categories of data must be treated alike. It may well be that while, for a variety of reasons, some specialist categories of material must be retained within a commercial licensing regime, other data can be released without significant economic consequences. Whereas geospatial digital map and meteorological data may be extremely valuable to the trading funds that produce them there may be alternatives to the present funding models under which such data are exploited. But there will be substantial volumes of other official information for which no such argument applies in their present form but only when value is added.

The issue of access to public sector information and the commercial interests in adding value for the purposes of its exploitation is one that will, however, continue to bear down on government policymakers as they continue to set access and pricing structures. Whereas, in the past, one might have been forgiven for drawing the assumption that most of the data was likely to be in written form, today there is the added dimension of spatial data. In 2007 the EU passed a directive 2007/2/EC¹¹⁰ designed to establish a framework for a spatial data infrastructure in Europe. The latter is data which includes a reference to a two or three dimensional position in space, otherwise known as geographic or geospatial information, and has many important potential applications both within and outside the public sector. The intellectual property rights to such data already belong to trading funds such as OS and this will not change for the moment. However, the rapid growth of online services linked to such products as Google Earth is indicative of the importance of establishing European groundrules for the creation of a framework for such data that will maximise their utility and value in a wide range of public sector activities. Implementation of the provisions of the directive must be complete

110 Directive 2007/2/EC of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). See: www.ec-gis.org/inspire/directive/1_10820070425en00010014.pdf.

by May 2009 and while existing intellectual property rights remain unaffected by the directive it would seem that pressure on governments such as the UK to relax pricing policies or other restrictions on access and exploitation of spatial data can only increase.

The UK government has always maintained a desire that some forms of public sector information should generate a direct economic return. While other operating models have been applied elsewhere, the UK has, to a large extent, retained its present policies but subject to some relaxations where the social or economic benefits of access and use have outweighed the demands for cost recovery. However, it is clear that at present the policy is under sharper scrutiny than ever before, since the pool of research data is now growing that will sharpen the debate on the way forward. It does seem then that evidence as to the impact of alternative approaches to present pricing policy is at least mounting, although the upheaval facing the major trading fund operators of any significant changes should not be under-estimated. New fiscal arrangements would have to be found by central government to fund these service providers. Given the pressure on the UK position implied by EU access policy, the Government is going to have to build a compelling case if it is to retain present structures completely unaltered and intact.

Finally, it should be noted that a policy that grants the private sector access to PSI may not avoid controversy either. Often it is not the case of the public sector simply handing over PSI to the commercial provider, but some sort of collaboration such as that which is currently taking place with the collection and online provision of Parliamentary Papers via ProQuest – a commercial information provider in association with the education and research support body – the Joint Information Systems Committee (JISC). Issues such as public access rights and charges for access can surface even among this type of initiative. It is easy to forget then that the ultimate goal of PSI should be to use it so as to produce both better government and a more informed general public and business user. Within that objective lies the conundrum of how to achieve the best economic return for PSI as well as widespread access. That may or may not involve up front charging when compared to the downstream results that may be gained from cascading information into the public domain through a variety of channels and forms. It remains to be seen whether the government has struck the right balance with its present policy or whether further change is simply inevitable.

EDITORIAL NOTE

Professor Saxby has recently completed further analysis of major UK developments in public sector information policy with a paper to be published early in 2011 entitled: 'Three Years in the Life of UK National Information Policy – The

Politics and Process of Policy Development' (*International Journal of Private Law* 4: 1/2 2011, Inderscience Enterprises Ltd; www.inderscience.com).

CHAPTER TEN

GOVERNMENT DATA AND THE INVISIBLE HAND*

David Robinson, Harlan Yu, William P. Zeller and Edward W. Felten

INTRODUCTION

If the current Presidential administration really wants to embrace the potential of Internet-enabled government transparency, it should follow a counter-intuitive but ultimately compelling strategy: *reduce* the federal role in presenting important government information to citizens. Today, government bodies consider their own Web sites to be a higher priority than technical infrastructures that open up their data for others to use. We argue that this understanding is a mistake. It would be preferable for government to understand providing re-usable data, rather than providing Web sites, as the core of its online publishing responsibility.

In the latest Presidential cycle, all three major candidates indicated that they thought the federal government could make better use of the Internet. Barack Obama's platform went the furthest, and explicitly endorsed 'making government data available online in universally accessible formats'.¹ Hillary Clinton, meanwhile, remarked that she wants to see much more government information online.² John McCain's platform called for a new Office of Electronic Government.³

But the situation to which these candidates are responding – the wide gap between the exciting uses of Internet technology by private parties, on the one hand, and the government's lagging technical infrastructure, on the other – is not new. A minefield of federal rules and a range of other factors, prevent government Web masters from keeping pace with the ever-growing potential of the Internet.

In order for public data to benefit from the same innovation and dynamism

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- 1 Barack Obama and Joe Biden: Technology, www.barackobama.com/issues/technology/ (last visited Dec. 2, 2008).
 - 2 *Meet the Press* (NBC television broadcast Jan. 13, 2008), available at www.msnbc.msn.com/id/22634967.
 - 3 JohnMcCain.com: Technology, www.johnmccain.com/Informing/Issues/cbcd3a48-4b0e-4864-8be1-d04561c132ea.htm (last visited Dec. 2, 2008).

that characterise private parties' use of the Internet, the federal government must reimagine its role as an information provider. Rather than struggling, as it currently does, to design sites that meet each end-user need, it should focus on creating a simple, reliable and publicly accessible infrastructure that 'exposes' the underlying data. Private actors, either non-profit or commercial, are better suited to deliver government information to citizens and can constantly create and re-shape the tools individuals use to find and leverage public data. The best way to ensure that

Our approach follows the engineering principle of separating data from interaction, which is commonly used in constructing Web sites.⁴ Government must provide data, but we argue that Web sites that provide interactive access for the public can best be built by private parties. This approach is especially important given recent advances in interaction, which go far beyond merely offering data for viewing, to providing services such as advanced search, automated content analysis, cross-indexing with other data sources, and data visualisation tools. These tools are promising but it is far from obvious how best to combine them to maximise the public value of government data. Given this uncertainty, the best policy is not to hope government will choose the one best way, but to rely on private parties in a vibrant marketplace of engineering ideas to discover what works.

1. FEDERAL INTERNET PRESENCE: THE STATE OF PLAY

The Internet's transformative political potential has been clear to astute nontechnical observers since at least the mid-1990s, but progress toward that transformation has been sporadic at best. In January of 1995, when the Republicans regained a Congressional majority, they launched THOMAS, a Web site that details every bill in Congress.⁵ But by 2004, the site was so out of date that seven senators cosponsored a resolution to urge the Library of Congress to modernise it.⁶

* First published as Robinson, David G., Yu, Harlan, Zeller, William P. and Felten, Edward W., *Government Data and the Invisible Hand* (2009). *Yale Journal of Law & Technology*, Vol. 11, p. 160, 2009. Available at SSRN: ssrn.com/abstract=1138083.

4 Most sophisticated Web sites use separate software programs for data and interaction, for example storing data in a database such as MySQL, while interacting with the user via a Web server such as Apache. Many government Web sites already use such a separation internally. Government sites that currently separate these functions are already partway to the goal we espouse.

5 Library of Congress, About THOMAS, thomas.loc.gov/home/abt_thom.html (last visited Jan. 3, 2009).

The Federal Communications Commission – the agency most closely involved in overseeing digital communications – has a Web site whose basic structure has remained unchanged since 2001.⁷ Regular users of the system report that in order to obtain useful information, they must already know the docket number for the proceeding in which they are interested.⁸ Materials can be searched by a few criteria such as the date of submission or name of the submitting attorney, but the site does not allow users to search the actual content of comments and filings *even when these filings have been submitted to the agency in a computer-searchable file format*.⁹ Even Google, which is severely handicapped by its lack of access to the agency’s internal databases, does a significantly better job of identifying relevant information.¹⁰

Federal Web masters are eager to embrace the Internet’s full potential, and in some cases, they have been remarkably successful in the context of their challenging environment. Compared to technologists in the private sector, federal Web masters face a daunting array of additional challenges and requirements. An online compliance checklist for designers of federal Web sites identifies no fewer than twenty-four different regulatory regimes with which all public federal Web sites must comply.¹¹ Ranging from privacy and usability to FOIA compliance to the demands of the Paperwork Reduction Act and, separately, the Government Paperwork Elimination Act, each of these requirements alone is, considered on its own, a thoughtfully justified federal mandate. Each one reflects the considered judgment of our political process, informed by the understanding of information technology that was available when it was written. But the cumulative effect of

6 S. Res. 360, 108th Cong. (2004) (‘A resolution expressing the sense of the Senate that legislative information shall be publicly available through the Internet’).

7 Compare Wayback Machine Internet Archive for www.fcc.gov from September 17, 2001, web.archive.org/web/20010917033924/www.fcc.gov/, with Federal Communications Commission, www.fcc.gov/ (last visited Dec. 2, 2008).

8 See Posting of Jerry Brito to Tech. Liberation Front, FCC.gov: The Docket that Doesn’t Exist, techliberation.com/2007/11/01/fccgov-the-docket-that-doesnt-exist/ (Nov. 1, 2007); Posting of Cynthia Brumfield to IP Democracy, The FCC is the Worst Communicator in Washington, www.ipdemocracy.com/archives/002640the_fcc_is_the_worst_communicator_in_washington.php (Sept. 5, 2007, 09:17 EST).

9 Jerry Brito (2007), ‘Hack, Mash & Peer: Crowdsourcing Government Transparency’, *Columbia Science and Technology Law Review* 9: 119, pp. 123–25, available at www.stlr.org/html/volume9/brito.pdf.

10 Posting of Jerry Brito to Tech. Liberation Front, FCC.gov: Searching in Vain, techliberation.com/2007/10/29/fccgov-searching-in-vain (Oct. 29, 2007).

11 Web Content Managers Advisory Council, Requirements Checklist for Government Web Managers, www.usa.gov/webcontent/reqs_bestpractices/reqs_checklist.shtml (last visited Dec. 2, 2008).

these requirements, taken together, is to place federal Web designers in a compliance minefield that makes it hard for them to avoid breaking the rules – while diverting energy from innovation into compliance. The stultifying compliance climate is an undesirable side effect, not a choice Americans endorsed through our political process.¹² Indeed, there is no guarantee that these requirements interact in such a way as to make total compliance with all of them possible, even in principle.¹³

These problems attend any individual federal Web site; a second layer of challenges can emerge when the federal government seeks to impose coordination or consistency across the remarkably broad range of rulemaking processes and data. This happened with Regulations.gov, a government-wide docket publishing system created in response to the E-government Act of 2002 and launched in 2003. It is used today by ‘nearly all Departments and Agencies’¹⁴ – in fact, the policy of the Office of Management and Budget (OMB) not only requires its use but also precludes the agencies from using ‘ancillary and duplicative’ docketing and rulemaking systems of their own design.¹⁵ This exclusivity rule, combined with the difficult interagency politics involved in honing system features, have led to a bare-bones approach that leaves out the agency-tailored functionality found in many of the systems it replaced. Concerns about cost-sharing have also led the system to omit even features whose usefulness and desirability is a matter of broad consensus.¹⁶

12 For example, several different requirements that were developed independently of one another require certain content to be included on homepages. Overall, these rules prevent certain kinds of simple, intuitive interfaces that might in fact be desirable. Our proposal, by reducing the importance of homepages, helps resolve this issue. By making all data available and allowing non-governmental actors to structure interactions around their own aims, information technology professionals can avoid the problem of being mandated to clutter their homepages with boilerplate disclosures.

13 And compliance is, in any case, a difficult practical challenge. One survey found that only 21% of federal agencies post on the Web all four types of FOIA data required under the 1996 Electronic Freedom of Information Act Amendments. See Kristin Adair et al., *File Not Found: Ten Years After E-FOIA, Most Federal Agencies Are Delinquent*, 2007 NAT'L SECURITY ARCHIVE 7, available at www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB216/index.htm.

14 Regulations.gov, What Is on This Site, www.regulations.gov/search/this_site.jsp (last visited Dec. 2, 2008).

15 See Office of Mgmt. & Budget, Executive Office of the President, *Expanding E-Government: Partnering for a Results Oriented Government* 4 (2004), available at www.whitehouse.gov/omb/budintegration/expanding_egov12-2004.pdf.

16 Our discussion of Regulations.gov draws heavily on a recent report by the ABA-

Regulations.gov was launched with a limited search engine and no browsing capability, so that only those who already knew the terms of art used to categorise rulemaking documents were able to use it effectively.¹⁷ Five years later, a re-launched version of the site offered up its limited inventory of computer-readable data directly to the public (in this case, using a single RSS feed) which allowed any interested person or group to create an alternative, enhanced version of the Web site.¹⁸ This has permitted the creation of OpenRegulations.org, which competes with Regulations.gov by offering ‘paired [sic] down, simple-to-navigate listings of new agency dockets’ and a more sensible set of RSS feeds, one for each individual agency.¹⁹

However, because the engine behind Regulations.gov gathers and integrates only very basic information about the many documents it displays – such as a title, unique identifier, and author name – the decision to share this information with the public can offer only limited benefits. Most of the information relevant to the rulemaking process remains locked away in computer files that are images of printed documents, which cannot be easily re-used. A recent ABA-sponsored report concluded that Regulations.gov ‘continues to reflect an ‘insider’ perspective’²⁰ and lacks a comprehensive, full-text search engine over all regulatory data.²¹ The same report also emphasised that individual executive branch entities such as the Environmental Protection Agency and the Department of Transportation have been forced to close down their own more advanced systems, which offered deeper insight into docket materials, in order to comply with the prohibition on redundancy.²² A Congressional panel was similarly critical, finding that ‘[m]any aspects of this initiative are fundamentally flawed, contradict underlying

chartered Committee on the Status and Future of e-Rulemaking. Cynthia Farina, *Achieving the Potential: The Future of Federal e-Rulemaking*, 2008 SEC. ADMIN. L. & REG. PRAC. AM. BAR ASS’N 1, available at ceri.law.cornell.edu/erm-comm.php [hereinafter Farina et al.].

- 17 Ctr. for Democracy & Tech, *A Briefing on Public Policy Issues Affecting Civil Liberties Online*, 9 CDT POLICY POST No. 3 (2003), www.cdt.org/publications/pp_9.03.shtml.
- 18 Posting of Heather West to PolicyBeta, *Regulations.gov Unleashes Wealth of Information for Users*, blog.cdt.org/2008/01/15/regulationsgov-unleashes-wealth-of-information-for-users (Jan. 15, 2008); *Regulations.gov, Welcome to the New Regulations.gov!*, www.regulations.gov/fdmspublic/component/pubFooter_userTips (last visited Dec. 2, 2008).
- 19 *OpenRegulations.org, About This Site*, www.openregulations.org/about/ (last visited Dec. 2, 2008).
- 20 Farina et al., *supra* note 16, at 20.
- 21 Farina et al., *supra* note 16, at 30.
- 22 Farina et al., *supra* note 16.

program statutory requirements and have stifled innovation by forcing conformity to an arbitrary government standard'.²³

There are a number of potential ways to improve Regulations.gov. These include changing the funding model so that government users will not face higher costs if they encourage their stakeholders to make more extensive use of the system and streamlining the decision making process for new features. If the ban on ancillary agency systems were also relaxed, the focus on structured, machine-readable data that we suggest here could be used to explore new functionality while still continuing to contribute documents to the existing Regulations.gov infrastructure.²⁴

The trade-off between standardisation and experimentation, and the concerns about incomplete or inaccurate data in centralised government repositories such as Regulations.gov, are inherently difficult problems. USASpending.gov, created by legislation co-sponsored by Barack Obama and Tom Coburn in 2006,²⁵ presents another example: There, the desire to increase data quality by adopting a uniform method of identifying the recipients of federal funds has led to proposed amendments to the original legislation, aimed at improving data accuracy and standardisation across agencies.²⁶ It is encouraging to see legislators take note of these intricate but significant details.

As long as government has a special role in the presentation and formatting of raw government data, certain desirable limits on what the government can do become undesirable limits on how the data can be presented or handled. The inter-agency group that sets guidelines for federal Web masters, for example, tells Web masters to manually check the status of every outbound link destination on their Web sites at least once each quarter.²⁷ And First Amendment considerations would vastly complicate, if not outright prevent, any effort to moderate online fora related to government documents. Considerations like these tend to make wikis, discussion boards, group annotation, and other important possibilities impracticable for government Web sites themselves.

23 H.R. REP. No. 109-153, at 138 (2006).

24 Farina et al., *supra* note 16, detail specific steps toward a better Regulations.gov. These lie beyond the scope of our paper.

25 Federal Funding Accountability and Transparency Act of 2006, Pub. L. No. 109-282, 120 Stat. 1186, available at frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_public_laws&docid=f:publ282.109.pdf.

26 Strengthening Transparency and Accountability in Federal Spending Act of 2008, S. 3077, 110th Cong. (2008), available at www.ombwatch.org/fedspending/ociiasintroduced.pdf.

27 Web Managers Advisory Council, Establish a Linking Policy, www.usa.gov/web-content/managing_content/organizing/links/policy.shtml (last visited Dec. 2, 2008).

Meanwhile, private actors have demonstrated a remarkably strong desire and ability to make government data more available and useful for citizens – often by going to great lengths to reassemble data that government bodies already possess but are not sharing in a machine-readable form. Govtrack.us integrates information about bill text, floor speeches and votes for both houses of Congress by painstakingly reprocessing tens of thousands of Web pages.²⁸ It was created by a graduate student in linguistics in his spare time.²⁹ Carl Malamud, an independent activist, painstakingly took the SEC’s data online³⁰ and is now attempting to open up judicial records,³¹ which are currently housed behind subscription sites.

In some cases and to some degree, government bodies have responded to these efforts by increasing the transparency of their data. Key Congressional leaders have expressed support for making their votes more easily available,³² and the SEC is moving toward a format called XBRL that would increase the transparency of its own data.³³ In 2004, the OMB even asked that government units ‘to the extent practicable and necessary to achieve intended purposes, provide all data in an open, industry standard format permitting users to aggregate, disaggregate, or otherwise manipulate and analyse the data to meet their needs’.³⁴ We argue below for a stronger impetus to provide open data: not ‘to the extent ... necessary to achieve intended purposes’ but as the main intended purpose of an agency’s online publishing.

The federal government’s current steps toward re-usable data are valuable and admirable. But these efforts are still seen and prioritised as afterthoughts to the finished sites. As long as government bodies prioritise their own Web sites over infrastructures that will open up their data, the pace of change will be re-

28 Govtrack.us: Tracking the U.S. Congress, www.govtrack.us (last visited Dec. 2, 2008).

29 Govtrak.us, About Govtrack.us, www.govtrack.us/about.xpd (last visited Dec. 2, 2008).

30 Posting of Taxpayer Assets, tap@essential.org, to listserv@essential.org, SEC’s EDGAR on Net, What Happened and Why (Nov. 30, 1993, 10:36:34 EST), available at w2.eff.org/Activism/edgar_grant.announce.

31 John Markoff, ‘A Quest to Get More Court Rulings Online, and Free’, *New York Times*, Aug. 20, 2007, at C6.

32 OMB Watch, Open House Project Calls for New Era of Access, www.ombwatch.org/article/articleview/3837/1/1?TopicID=1.

33 *US SEC to Weigh XBRL Adoption Schedule on April 21*, REUTERS, Apr. 16, 2007, www.reuters.com/article/marketsNews/idUSN1642465120080416.

34 Clay Johnson III, Office of Mgmt. & Budget, Executive Office of the President, OMB Memorandum: Policies for Federal Agency Public Websites 4 (2004), available at www.whitehouse.gov/omb/memoranda/fy2005/m05-04.pdf.

tarded.

2. INNOVATING FOR CIVIC ENGAGEMENT

Our goal is to reach a state where government provides all of its public data online³⁵ and there is vigorous third party activity to help citizens interact and add value to that data. Government need not – and should not – designate or choose particular parties to provide interaction. Instead, government should make data available to anyone who wants it, and allow innovative private developers to compete for their audiences.

GOVERNMENT PROVIDES DATA

Government should provide data in the form that best enables robust and diverse third party use. Data should be available, for free, over the Internet in open, structured, machine-readable formats to anyone who wants to use it. Using ‘structured formats’ such as XML makes it easy for any third party service to gather and parse this data at minimal cost.³⁶ Internet delivery using standard protocols such as HTTP provides immediate real-time access to this data to developers. Each piece of government data, such as a document in XML format, should be uniquely addressable on the Internet in a known, permanent location.³⁷ This permanent address allows both third party services, as well as ordinary citizens, to link back to the primary unmodified data source as provided by the government.³⁸

35 Freedom of Information Act, 5 U.S.C. §552 (2002), as amended by Electronic Freedom of Information Act of 1996, Pub. L. No. 104–231, 110 Stat. 3048.

36 To the extent that nontrivial decisions must be made about which formats to use, which XML schemas to use, and so on, government can convene public meetings or discussions to guide these decisions. In these discussions, government should defer to the reasonable consensus view of private site developers about which formats and practices will best enable development of innovative sites.

37 Using the usual terms of art, the architectural design for data delivery must be RESTful. REST (short for Representational State Transfer) defines a set of principles that strives for increased scalability, generality, and data independence. The REST model adopts a stateless and layered client-server architecture with a uniform interface among resources. See Roy Thomas Fielding, ‘Architectural Styles and the Design of Network-based Software Architectures’ (2000) (unpublished Ph.D. dissertation, University of California, Irvine) (on file with author), available at www.ics.uci.edu/~fielding/pubs/dissertation/top.htm.

38 Concerns about data integrity—for example, possible modification by an intermediate service—can be addressed by using digital signatures. The originating

All public data, in the highest detail available, should be provided in this format in a timely manner. As new resources are made available, government should provide data feeds, using open protocols such as RSS, to notify the public about the additions. These principles are consistent with the Open Government Working Group's list of eight desirable properties for government data.³⁹

In an environment with structured data, the politics of what to put on a home page are avoided, or made less important, because the home page itself matters less. And technical staff in government, whose hard work makes the provision of underlying data possible, will have the satisfaction of seeing their data used widely – rather than lamenting interfaces that can sometimes end up hiding valuable information from citizens.

PRIVATE PARTIES PRESENT DATA TO CITIZENS

The biggest advantage of third party data processing is to encourage the emergence of more advanced features, beyond simple delivery of data. Examples of such features include

advanced search: The best search facilities go beyond simple text matching to support features such as multidimensional searches, searches based on complex and/or logical queries, and searches for ranges of dates or other values. They may account for synonyms or other equivalences among data items, or suggest ways to refine or improve the search query, as some of the leading Web search services already do.

RSS feeds: RSS, which stands for 'Really Simple Syndication', is a simple technology for notifying users of events and changes, such as the creation of a new item or an agency action. The best systems could adapt the government's own feeds (or other offerings) of raw data to offer more specialised RSS feeds for individual data items, for new items in a particular topic or department, for replies to a certain comment, and so on. Users can subscribe to any desired feeds, using RSS reader software, and those feeds will be delivered automatically to the user. The set of feeds that can be offered is limited only by users' taste for tailored notification services.

Department or Agency can sign each primary source in such a way that data is verifiable and modification by an intermediary can be detected by the data recipient.

39 The group identified that government data must be complete, primary, timely, accessible, able to be processed by machines, non-discriminatory, non-proprietary and license-free. See Open Government Working Group, Open Government Data Principles, wiki.opengovdata.org/index.php/OpenDataPrinciples (last visited Dec. 2, 2008).

- *links to information sources*: Government data, especially data about government actions and processes, often triggers news coverage and active discussion online. An information service can accompany government data with links to, or excerpts from, these outside sources to give readers context into the data and reactions to it.
- *mashups with other data sources*: To put an agency's data in context, a site might combine that data with other agencies' data or with outside sources. For example, MAPlight.org combines the voting records of members of Congress with information about campaign donations to those members.⁴⁰ Similarly, the non-profit group Pro Publica offers a map showing the locations of financial institutions that have received funds from the Treasury Department's Troubled Asset Relief Program (TARP).⁴¹
- *discussion fora and wikis*: A site that provides data is a natural location for discussion and user-generated information about that data; this offers one-stop shopping for sophisticated users and helps novices put data in context. Such services often require a human moderator to erase off-topic and spam messages and to enforce civility. The First Amendment may make it difficult for government to perform this moderation function, but private sites face no such problem, and competition among sites can deter biased moderation.
- *visualisation*: Often, large data sets are best understood by using sophisticated visualisation tools to find patterns in the data. Sites might offer users carefully selected images to convey these patterns, or they might let the user control the visualisation tool to choose exactly which data to display and how.⁴² Visualisation is an active field of research and no one method is obviously best; presumably sites would experiment with different approaches.
- *automated content and topic analysis*: Machine-learning algorithms can often analyse a body of data and infer rules for classifying and grouping data items.⁴³ By automating the classification of data, such models can aid search and foster analysis of trends.
- *collaborative filtering and crowdsourced analysis*: Another approach to filtering and classification is to leverage users' activities. By asking each user to

40 Maplight.org., www.maplight.org (last visited Dec. 2, 2008).

41 Pro Publica, Map: Show Me the TARP Money, www.propublica.org/special/bailout-map (last visited Jan. 12, 2009).

42 'Many Eyes,' for example, makes it simple for non-experts to dynamically visualise any custom dataset in a variety of different styles. Many Eyes, manyeyes.alphaworks.ibm.com/manyeyes/ (last visited Dec. 2, 2008).

43 For example, software developed by Blei and Lafferty computed a topic model and classification of the contents of the journal *Science* since 1880. See David M. Blei & John D. Lafferty (2007), 'A Correlated Topic Model of Science', *Annals of Applied Statistics* 1: 17.

classify a small amount of data, or by inferring information from users' activities on the site (such as which items a user clicks), a site might be able to classify or organise a large data set without requiring much work from any one user.

Exactly which of these features to use in which case, and how to combine advanced features with data presentation, is an open question. Private parties might not get it right the first time, but we believe they will explore more approaches and will recover more rapidly than government will from the inevitable missteps. This collective learning process, along with the improvement it creates, is the key advantage of our approach. Nobody knows what is best, so we should let people try different offerings and see which ones win out.

For those desiring to build interactive sites, the barriers to entry are remarkably low once government data is conveniently available. Web hosting is cheap, software building blocks are often free and open source,⁴⁴ and new sites can iterate their designs rapidly. Successes thus far, including the Govtrack.us site that Joshua Tauberer built in his spare time,⁴⁵ show that significant resources are not required to enter this space. If our policy recommendations are followed, the cost of entry will be even lower.

3. PRACTICAL CONSIDERATIONS: HOW DO WE GET THERE FROM HERE?

Our proposal is simple: The new administration should specify that the federal government's primary objective as an online publisher is to provide data that is easy for others to re-use, rather than to help citizens use the data in one particular way or another.

The policy route to realising this principle is to require that federal government Web sites retrieve their published data using the same infrastructure that they have made available to the public. Such a rule incentivises government bodies to keep this infrastructure in good working order, and ensures that private parties will have no less an opportunity to use public data than the government itself does. The rule prevents the situation, sadly typical of government Web sites today, in which governmental interest in presenting data in a particular fashion distracts from, and thereby impedes, the provision of data to users for their own purposes.

44 For example, the 'LAMP stack,' consisting of the Linux operating system, the Apache Web server, the MySQL database software, and the PHP scripting language, are available for free and widely used.

45 About Govtrack.us, www.govtrack.us/about.xpd (last visited Dec. 2, 2008).

Private actors have repeatedly demonstrated that they are willing and able to build useful new tools and services on top of government data, even if – as in the case of Joshua Tauberer’s Govtrack.us⁴⁶ or Carl Malamud’s SEC⁴⁷ and court document⁴⁸ initiatives – they have to do a great deal of work to reverse engineer and recover the structured information that government bodies possess, but have not published. In each case, the painstaking reverse engineering of government data allowed private parties to do valuable things with the data, which in turn created the political will for the government bodies (the SEC and Congress, in these cases) to move toward publishing more data in open formats.

When government provides re-usable data, the practical costs of re-use, adaptation, and innovation by third parties are dramatically reduced. It is reasonable to expect that the low costs of entry will lead to a flourishing of third party sites extending and enhancing government data in a range of areas – rulemaking, procurement, and registered intellectual property, for example.

This approach could be implemented incrementally, as a pilot group of federal entities shift their online focus from finished Web sites to the infrastructure that allows new sites to be created. If the creation of infrastructure causes superior third party alternatives to emerge – as we believe it typically will – then the government entity can cut costs by limiting its own Web presence to functions such as branded marketing and messaging, while allowing third parties to handle core data interaction. If, on the other hand, third party alternatives to the government site do not satisfactorily emerge – as may happen in some cases – then the public site can be maintained at taxpayer expense. The overall picture is that the government’s IT costs will decline in those areas where private actors have the greatest interest in helping to leverage the underlying data, while the government’s IT costs will increase in those areas where, for whatever reason, there is no private actor in the world to step forward and create a compelling Web site based on the data. We expect that the former cases will easily outnumber the latter.

One key question for any effort in this area is the extent of flexibility in existing regimes. A number of recent laws have explicitly addressed the issue of putting government information on ‘Web sites’. The E-Government Act of 2002, for example, asks each agency to put its contributions to the Federal Register, as well as various other information, on a public *Web site*.⁴⁹ This opens up a ques-

46 Govtrack.us: Tracking the U.S. Congress, www.govtrack.us (last visited Dec. 2, 2008).

47 U.S. Sec. & Exch. Comm’n., Electronic Data-Gathering, Analysis, and Retrieval (EDGAR) Database, www.sec.gov/edgar/searchedgar/webusers.htm (last visited Dec. 2, 2008).

48 John Markoff, ‘A Quest to Get More Court Rulings Online, and Free’, *New York Times*, Aug. 20, 2007, at C6.

tion of construal: Does an Internet location that contains machinereadable XML – which can be displayed directly in a Web browser and deciphered by humans but is designed to be used as input into a presentation system or engine – count as a ‘Web site’?⁵⁰

If not, these statutory requirements may require government bodies to continue maintaining their own sites. It could be argued that XML pages are not Web pages because they cannot be conveniently understood without suitable software to ‘parse’ them and create a human-facing display. But this objection actually applies equally and in the same way to traditional Web pages themselves: The plain text of each page contains not only the data destined for human consumption, but also information designed to direct the computer’s handling or display of the underlying data, and it is via parsing and presentation by a browser program that users view such data.

One virtue of structured data, however, is that software to display it is easy to create. The federal government could easily create a general ‘government information browser’ which would display any item of government information in a simple, plain, and universally accessible format. Eventually, and perhaps rapidly, standard Web browsers might provide such a feature, thereby making continued government provision of data browsing software unnecessary. Extremely simple Web sites that enable a structured data browser to display any and all government information may satisfy the letter of existing law, while the thriving marketplace of third party solutions realises its spirit better than its drafters imagined.

We are focused in this paper on the government’s role as a publisher of data, but it also bears mention that governmental bodies might well benefit from a similar approach to *collecting* data – user feedback, regulatory comments, and other official paperwork. This could involve private parties in the work of gathering citizen input, potentially broadening both the population from which input is gathered and the range of ways in which citizens are able to involve themselves in governmental processes. But it would raise a number of questions, such as the need to make sure that third party sites do not alter the data they gather before it reaches the government. These issues deserve further exploration but are beyond the scope of this paper.

49 E-Government Act of 2002, Pub. L. No. 107–347, 116 Stat. 2902, available at frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_public_laws&docid=f:publ347.107.pdf.

50 Requirements that data be put ‘on the Internet’ suffer no such ambiguities—providing the data in structured, machine-readable form on the Internet is sufficient to meet such a requirement.

4. ALTERNATIVES AND COUNTERARGUMENTS

We argue that when providing data on the Internet, the federal government's core objective should be to build open infrastructures that enable citizens to make their own uses of the data. If, having achieved that objective, government takes the further step of developing finished sites that rely on the data, so much the better. Our proposal would reverse the current policy, which is to regard government Web sites themselves as the primary vehicle for the distribution of public data, and open infrastructures for sharing the data as a laudable but secondary objective.

The status quo has its virtues. As long as government Web sites themselves are the top priority, there is no risk that a lack of interest by private parties will limit citizens' access to government data. Instead, the government creates a system that every citizen can use (if not from home, then from a library or other public facility) without the need to understand the inner workings of technology. It might be argued that government ought to take a proprietary interest in getting its data all the way to individual citizens, and that relying on private parties for help would be a failure of responsibility. There is also a certain economy to the current situation: Under the current system, the costs of developing an open infrastructure for third party access are typically incurred in response to specific interest by citizens in accessing particular data – for example, Carl Malamud's campaign to move SEC data online.⁵¹

But, as described above, the status quo also has marked drawbacks. The institutional workings of government make it systematically incapable of adapting and improving Web sites as fast as technology itself progresses. No one site can meet as many different needs as well as a range of privately provided options can. And the idea that government's single site for accessing data will be a well-designed one is, as noted in Part I, optimistic at best. Moreover, the government already relies heavily on private parties for facilitating aspects of core civic activities – travelling to Washington, calling one's representatives on the phone, or even going to the library to retrieve a paper public record all require the surrounding infrastructure within which the federal government itself is situated.

Another strategy – always popular in single-issue contexts – would be trying to 'have our cake and eat it too' by fully funding *both* elaborate government Web sites and open data infrastructures. We have no quarrel with increasing the overall pool of resources available for federal Web development, but we do not think that any amount of resources would resolve the issue fully. At some point in each federal IT unit, there is apt to be someone who has combined responsibility for the

51 Posting of Taxpayer Assets, tap@essential.org, to listserver@essential.org, SEC's EDGAR on Net, What Happened and Why (Nov. 30, 1993, 10:36:34 EST), available at w2.eff.org/Activism/edgar_grant.announce.

full range of outward-facing Internet activities, whether these include an open infrastructure, a polished Web site, or both. Such people will inevitably focus their thoughts and direct their resources to particular projects. When open infrastructures drive Web sites, the infrastructure and site each rely on what the other is doing; it is extremely difficult to innovate on both levels at once.

Some people might want government to present data because they want access to the ‘genuine’ data, unmediated by any private party. As long as there is vigorous competition between third party sites, however, we expect most citizens will be able to find a site provider they trust. We expect many political parties, activist groups, and large news organisations to offer, or endorse, sites that provide at least bare-bones presentation of government data. A citizen who trusts one of these providers or endorsers will usually be satisfied. To the extent that citizens want direct access to government data, they can access the raw data feeds directly. Private sites can offer this access, via the ‘permalinks’ (permanent URLs) which our policy requires government-provided data items to have. If even this is not enough, we expect at least some government agencies to offer simple Web sites that offer straightforward presentation of data.

To the extent that government processes define standardised documents, these should be part of the raw data provided by the government, and should have a permanent URL. To give one example, U.S. patents should continue to be available, in standardised formats such as PDF, at permanent URLs. In addition, the Patent and Trademark Office should make the raw text of patents available in a machine-readable form that allows structured access to, for example, the text of individual patent claims.

Where it is necessary for a citizen to convince a third party that a unit of government data is genuine, this can be accomplished by using digital signatures.⁵² A government data provider can provide a digital signature alongside each data item. A third party site that presents the data can offer a copy of the signature along with the data, allowing the user to verify the authenticity of the data item by verifying the digital signature without needing to visit the government site directly.

52 Digital signatures are cryptographic structures created by one party (the ‘signer’) that can be verified by any other party (the ‘verifier’) such that the verifier is assured that the signature could only have been created by the signer (or someone who stole the signer’s secret key), and that the document to which the signature applies has not been altered since it was signed. See, e.g., NAT’L INST. OF STANDARDS & TECH., U.S. DEP’T. OF COMMERCE, FIPS PUB NO. 186-2, DIGITAL SIGNATURE STANDARD (DSS) (2000), available at csrc.nist.gov/publications/fips/fips186-2/fips186-2-change1.pdf.

CONCLUSION

In this paper, we have proposed an approach to online government data that leverages both the American tradition of entrepreneurial self-reliance and the remarkable low-cost flexibility of contemporary digital technology. The idea, though it can be implemented in a comfortably incremental fashion, is ultimately transformative. It leads toward an ecosystem of grassroots, unplanned solutions to online civic needs.

Throughout the discussion, we have operated on the premise that citizen interaction with government data requires an intermediary: the federal government or, more effectively, third party innovators. In the long run, as the tools for interacting with data continue to improve and become increasingly intuitive, we may reach a state in which citizens themselves interact directly with data without needing any intermediary.

The federal government's current Web presence falls far short of what is possible. The energy and opportunity for change that comes with a new President could easily lead to an episodic upgrading of government Web sites, a sudden shift, after which sites will continue to drift out of date. If the administration instead steps forward to adopt the grassroots model we suggest, then the federal government's Internet presence will be *permanently* improved – citizen access to government data will keep pace with technology's progress indefinitely into the future.

CHAPTER ELEVEN

POLICY GUIDELINES FOR THE DEVELOPMENT AND PROMO- TION OF GOVERNMENTAL PUBLIC DOMAIN INFORMA- TION

EXECUTIVE SUMMARY

PART 1: WHY GOVERNMENTAL PUBLIC DOMAIN INFORMATION IS IMPORTANT

One of the ultimate goals of any society is the empowerment of all its citizens through access to and use of information and knowledge, as a corollary to the basic rights of freedom of expression and of participation in the cultural life and scientific progress. In support of this goal, more and more governmental information is being produced and made available through the Internet and the World Wide Web. Some of this information has restrictions on public access and use because of intellectual property (IP) protection, national security, privacy, confidentiality, and other considerations. A great deal of it, however, can be openly disseminated through the Internet, libraries, and other means to citizens and to a broad range of development actors such as businesses and schools. Whereas the focus of most policy analyses and law-making is typically on the protection of proprietary information, the role and value of public domain information, especially of information produced by the public sector, is not widely enough addressed and is generally poorly understood. The purpose of these Policy Guidelines is to help develop and promote information in the public domain at the government level, with particular attention to such information in digital form.

The UNESCO Recommendation on Promotion and Use of Multilingualism and Universal Access to Cyberspace provides the following definition: ‘Public domain information refers to publicly accessible information, the use of which does not infringe any legal right, or any obligation of confidentiality. It thus refers on the one hand to the realm of all works or objects of related rights, which can be exploited by everybody without any authorisation, for instance because protection is not granted under national or international law, or because of the expiration

of the term of protection. It refers on the other hand to public data and official information produced and voluntarily made available by governments or international organisations’.

Under this definition, information in the public domain covers two distinct notions:

- On the one hand, ‘public domain information’ can be defined as what is left outside the scope of copyright or other forms of statutory protection: it covers all that is not eligible or not eligible anymore, to such protection.
- On the other hand, ‘public domain information’ also refers to information of an intrinsically public nature; that is, certain types of information that are produced by public authorities (‘government’ in the broad sense) in the course of their duties, and that are seen as a public good. This ‘governmental public domain information’ at the national and sub-national levels, to which can be assimilated some public domain information produced by public international organisations, is not, in principle, subject to appropriation.

Governmental public domain information is part of a broader category of ‘public sector information’. Certain public sector information may be protected on specific grounds.

The body of governmental – and other – information in the public domain is massive and may be credited with contributing broadly to the economic and social development of the entire world, as illustrated by the following examples:

- One of the greatest values associated with placing governmental information in the public domain is *transparency* of governance and the promotion of democratic ideals: equality, democracy, openness. The more information that is openly available from the government and about the government, the less likely that government will be able to hide illegal acts, corruption and misrule.
- Open and unrestricted dissemination of public information also enhances public health and safety, and the general social welfare, as citizens become better able to make informed decisions about their daily life, their environment, and their future.
- Governmental public domain information can serve essential scientific and technical research functions in every society. Factual databases, many of which are collected by government entities or with government funding, are fundamental to the progress of science, to the advancement of technological

* First published as *Policy Guidelines for the Development and Promotion of Government Public Domain Information*. United Nations Educational, Scientific and Cultural Organization (UNESCO) Paris, 2004. Available at unesdoc.unesco.org/ulis/cgi-bin/ulis.pl?catno=137363

innovation, and to an effective educational system.

Much of the value of public domain information derives from its use by the public. The positive effects of public domain information can be increased by enormous proportions when such information is placed on global digital networks.

Despite the great advances that have been made in ICT and information management technologies, well-documented and serious global imbalances exist in the form of a 'digital divide'. The development and promotion of access to public information can help bridge that gap in two significant ways:

- *At the national level:* In developing countries, where the production of information in the private sector may not be as active as that of the government, the information in the public sector typically constitutes a very large portion of the information produced within and about the country and can be an especially important resource for development.
- *At the international level:* Because the Internet is an international network of networks that transcends all political boundaries, all public information that is placed online immediately becomes a part of the global information commons, available for exploitation for the benefit of developing countries and their citizens.

In both these cases, however, one of the greatest barriers to the use of available information is likely to be linguistic, requiring strategies to reduce obstacles to accessing the multicultural human heritage available on the Internet and through other communication media.

PART 2: HOW TO DEVELOP AND PROMOTE GOVERNMENTAL PUBLIC DOMAIN INFORMATION

Governments have a critical leadership role in expanding access to and use of public domain information. To fulfil this role, governments need to develop an integrated and comprehensive national information policy to develop and promote the production, dissemination, and use of governmental information in the public domain. The establishment of such a policy involves decisions in three main areas:

Scope of information to be made available

As a guiding principle, information produced by public entities in all branches and at all levels should be presumed to be available to the public, and any formal exceptions preventing citizens from accessing public information should

be specifically justified and formulated as narrowly as possible. National governments should be encouraged to expand access to various types of public information resources and, if necessary, to re-assess the balance between the existing policies and practices for making those information resources available and the legal protections that restrict use or re-use of such information. In addition, all publicly funded inter-governmental organisations should provide open access to all their publications and public databases, especially to potential users in developing countries, free of charge.

Access to and use of public information as a legal principle

One of the major elements of a comprehensive approach to promoting access to and use of governmental public domain information is the adoption of a national 'Freedom of Information' (FOI) law, providing for access by citizens on request to the information held by the government that is not otherwise made routinely available. Countries that do not yet have a FOI law for their public information should adopt one, following a comparative analysis of such similar laws in other countries, while those countries that already do have such a law may wish to further revise their existing legislation. Any exceptions to the principle of availability, such as national security restrictions, and the protection of personal privacy and of trade secrets, should be carefully balanced.

Freedom of Information laws are, however, not in themselves sufficient. In practice, such laws typically involve a bureaucratic, cumbersome, and relatively expensive process that the citizen must undertake in order to obtain information that is legally in the public domain and should be made public. Therefore, the government should also develop a comprehensive Information Policy Framework for the management and active dissemination of governmental information, as outlined below.

Comprehensive governmental Information Policy Framework.

The Policy Framework that addresses information management and dissemination should be broad enough to encompass information in both paper and digital formats, and should provide special guidance regarding electronic management and dissemination. The focus should always be on producing and disseminating public information that meets the needs of citizens as openly and inexpensively as possible, with special attention to multicultural or disadvantaged communities. Three main areas of action need to be addressed in developing the national public Information Policy Framework:

- Creating the appropriate public information management structure;
- Defining the public information management policy requirements; and

- Adopting strategies on information systems and information technology management.

The following key procedural elements should be taken into account in developing the national Information Policy Framework:

1. The Policy Framework must reference all supporting reports and laws on which it is based.
2. In developing the Policy Framework and associated detailed implementation plan at the national level, it is essential to involve representatives of all major stakeholder groups in a consultative process.
3. Analytical factors that need to be considered are: legal, economic, institutional, social and cultural, research and educational. Specific applications areas or sectors with special information objectives and implementation requirements, such as health, environment, energy, transportation, finance and defence, also need individual consideration.
4. Following the completion and formal approval of the Information Policy Framework, the Chief Information Officers (CIOs) of all major government entities need to develop detailed plans for implementation of all the guiding policies within the context of the official activities and subject matter purview of these entities.
5. Because of the rapid changes continuously taking place in the information and communication sectors, the Information Policy Framework should be periodically reviewed and updated to keep it relevant and useful. Such a review should take place perhaps every 4–5 years, on a schedule fixed by the Framework.
6. A useful supplementary activity is a review of the policy approaches to public information management and technology taken by other countries. The lessons learned from the experiences of other governments in this area can help the national authorities to avoid some of the failures or difficulties experienced elsewhere, and to identify successful legal and policy models that might be adapted to the specific national context.

PART 3: ACCESS TO AND USE OF GOVERNMENTAL INFORMATION THAT IS PROTECTED BY INTELLECTUAL PROPERTY LAWS

Copyright and other forms of IP protection are granted in some jurisdictions to public authorities for their works. Although these Policy Guidelines do not recommend this approach for the reasons presented above, a nation may decide to protect works produced by public entities because of traditions or to achieve na-

tional economic and cultural objectives in light of the costs and benefits.

It is important to emphasise that the application of IP laws to public information does not necessarily exclude the public from access to such information. Although IP laws can place extensive limits on the public's re-use of that information, these laws do give public entities a broad range of options on how to organise access to the information for the public good, taking account of the citizens' interests. Thus, government entities whose public information is protected by IP laws can provide open access to their information resources, or can even use permissive licenses that derogate from the full enforcement of available IP rights in order to allow greater freedom in the re-use of their information.

The information products and services provided by the private sector are frequently more efficient and of higher quality than those of the public sector, so that public-private partnerships can be highly beneficial in producing or distributing information on behalf of a government entity. However, if the protection of IP laws applies to such information, the government should carefully consider the balance between the legitimate IP restrictions on the access to and use of the information on the one hand, and the citizens' rights and the broader social and economic interests of the nation on the other.

PART 1: WHY GOVERNMENTAL PUBLIC DOMAIN INFORMATION IS IMPORTANT

1.1. PURPOSE AND SCOPE OF THE GUIDELINES

According to article 19 of the Universal Declaration of Human Rights¹, the right to freedom of opinion and expression 'includes the freedom to seek, receive and impart information and ideas through any media and regardless of frontiers'. Article 27(1) of the same Declaration provides for the 'right freely to participate in the cultural life of the community ... and to share in scientific advancement and its benefits'. Thus, one of the ultimate goals of any society striving for human development is the empowerment of all its citizens through access to and use of information and knowledge. In the current information revolution and the emerging knowledge societies, 'universal access' to information and communication technology (ICT), and particularly to global digital information networks² exemplified by the Internet, is essential for achieving this goal. Moreover, multilingualism in cyberspace is of vital and strategic importance in ensuring the right

1 United Nations General Assembly (1948), referenced in the Selected Bibliography.

2 i.e. networks combining informatics and telecommunications, also sometimes referred to as 'telematics' networks.

to information and cultural diversity.

Today, more and more governmental information is being produced and made available through the Internet and the World Wide Web. Some of this information has restrictions on public access and use because of intellectual property (IP) protection, national security, privacy, confidentiality, and other considerations. A great deal of it, however, can be openly and usefully disseminated through the Internet, libraries, and other means to citizens and to a broad range of development actors such as businesses and schools. Whereas the focus of most policy analyses and law-making is typically on the protection of proprietary information, the role and value of public domain information, especially of information produced by the public sector, is not widely enough addressed and is generally poorly understood. Furthermore, consideration of the role of such information should not be limited to a national context, because the emerging knowledge societies, as well as the basic human rights cited above, support the building of a global cross-border network of information and knowledge for the broader benefit and progress of humanity.

There are numerous official resolutions, declarations, and reports issued by the United Nations and its specialised agencies, as well as by individual Member States, that support and justify the formulation of Policy for the Development and Promotion of Governmental Public Domain Information. Among the most directly relevant sources, listed in the Selected Bibliography at the end of these Guidelines, special mention should be given to the UNESCO Recommendation on Promotion and Use of Multilingualism and Universal Access to Cyberspace adopted in 2003,³ and the provisions of the Declaration of Principles⁴ and the Plan of Action⁵ adopted later in that year by the World Summit on the Information Society (WSIS). The purpose of these Policy Guidelines is to build on this impetus to help develop and promote information in the public domain at the government level, with particular attention to information in digital form. The Policy Guidelines aim to better define governmental public domain information

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- 3 See UNESCO (21 November 2003) in the Selected Bibliography, particularly the section on ‘Development of Public Domain Content’.
 - 4 WSIS (2003) in the Selected Bibliography; see in particular Article 26 specifies that ‘A rich public domain is an essential element for the growth of the Information Society, creating multiple benefits such as an educated public, new jobs, innovation, business opportunities, and the advancement of sciences. Information in the public domain should be easily accessible to support the Information Society, and protected from misappropriation ...’.
 - 5 WSIS (2003) in the Selected Bibliography, see in particular Action Line C3, paragraph 10.a) specifying the need to ‘Develop policy guidelines for the development and promotion of public domain information as an important international instrument promoting public access to information’.

and to describe its role and importance, specifically in the context of developing countries; to suggest principles that can help guide the development of policy, infrastructure and services for provision of information produced by governments to the public; to assist in fostering the production, archiving and dissemination of government electronic public domain information for development, with emphasis on ensuring multicultural, multilingual content; and to help promote access of all citizens, especially including disadvantaged communities, to information required for individual and social development.

The scope of these Policy Guidelines is limited to the discussion of key issues, principles, policies and procedures that can help to develop and promote the production, dissemination, preservation, and use of governmental public domain information within developing and least developed countries at the national level. The Policy Guidelines do not address public-domain information issues in the private sector and civil society, notably those concerning access to works of private creators.

The Policy Guidelines are divided into three parts. Part 1 presents the definitions, context and rationale for developing and promoting governmental information in the public domain. Part 2 provides specific principles, policies, and procedures for producing, disseminating, and preserving governmental public domain information. Part 3 briefly addresses access to and use of governmental information that is protected by IP laws.

1.2. UNESCO'S DEFINITION OF PUBLIC DOMAIN INFORMATION

A review of the history of the term 'public domain' shows that it has traditionally been associated with public land and has never had a universally accepted meaning in the context of information. Indeed, there is little in official public documents or even in the scholarly literature that deals definitively with this subject⁶. Most legal scholars would define public domain information by what it is not; that is, any information that is not proprietary, the *yin* to the proprietary *yang*. But such a definition is insufficient, for it does not adequately characterise or describe what public domain information in fact is, and provides no basis on which to evaluate its positive role and its value to knowledge societies, especially in the context of economic and social development.

The UNESCO Recommendation on Promotion and Use of Multilingualism and Universal Access to Cyberspace provides the following definition:⁷ 'Public

6 However, for a recent, extensive treatment of the many important facets of public domain information, see Boyle, James, special editor (2003) in the Selected Bibliography.

domain information refers to publicly accessible information, the use of which does not infringe any legal right, or any obligation of confidentiality. It thus refers on the one hand to the realm of all works or objects of related rights, which can be exploited by everybody without any authorisation, for instance because protection is not granted under national or international law, or because of the expiration of the term of protection. It refers on the other hand to public data and official information produced and voluntarily made available by governments or international organisations’.

Under this definition, information in the public domain covers two distinct notions:

On the one hand, ‘public domain information’ can be defined as what is left outside the scope of any form of statutory protection including intellectual property rights, the protection of national security or public order, privacy laws and obligations of confidentiality.

With respect to intellectual property, this means all information that is not eligible, or not eligible anymore, to protection, including:

- All subject matter that previously fulfilled the conditions to be placed under copyright or other forms of intellectual property protection (such as patents or trade secrets) and was formerly protected, but that is not protected anymore because the term of protection has expired. For example, under copyright law, during the period of protection, the authors get economic rewards for their creations, but after the end of protection, everybody can freely access and use the work. Thus, once the period of statutory protection is over,⁸ copyrighted works join the vast and ever-increasing body of literature, art, music, and other forms of expression included within the world’s common cultural and intellectual heritage. The plays of William Shakespeare or old children’s stories that are in the public domain are well-known examples. The opportunities afforded to every individual who has access to this common human heritage are vast

7 UNESCO (21 November 2003), *op. cit.*, note 3, see the Appendix (Definitions).

8 The minimum term of copyright protection is 50 years after the creator’s death, cf. the Berne Convention for the Protection of Literary and Artistic Works, Paris Act of 24 July 1971, as amended on 28 September 1979 (www.wipo.int/treaties/en/ip/berne/index.html). In the United States and the European Union, the term of protection is life of the author, plus 70 years. In addition, in the United States, the statutory period of protection for corporate works (works made for hire) is either 95 years from the first publication, or 120 years from creation, whichever is shorter. Many developing countries have enacted only the minimum terms of protection. Other forms of statutory protection, such as classification of documents under national security statutes, personal privacy, and other confidential information have various periods of protection as well. These other forms of statutory restrictions on governmental information are discussed in more detail in section II.3.

and profound;

- All types of information elements that are genuinely ineligible for protection under any intellectual property right (e.g. those which cannot be considered as ‘works’ under copyright law or as ‘inventions’ under patent law) or do not fulfil the conditions set by IP laws (such as originality under copyright law).

On the other hand, ‘public domain information’ also refers to information of an intrinsically public nature; that is, certain types of information that are produced by public authorities (‘government’ in the broad sense) in the course of their duties, and that are seen as a public good. This ‘governmental public domain information’ at the national and sub-national levels, to which can be assimilated some public domain information produced by public international organisations, is not, in principle, subject to appropriation.

1.3. PUBLIC SECTOR INFORMATION

Governmental public domain information is part of a broader category of ‘public sector information’. Public authorities at the intergovernmental, national, provincial and local government levels produce vast amounts of information. For example, there are policy documents written by government departments, national archives and records, national registers (e.g. electoral roles, land transfer records, housing and land valuations, automobile registrations and business registrations). There are the minutes and records of meetings, ordinances and laws, judicial decisions, myriad scientific databases, statistical compilations, cultural surveys, results of many kinds of research projects, official reports, and innumerable other data and information products produced by government entities for public purposes.

In these Guidelines ‘public sector information’ is defined as any *information* that is *produced* by a *public sector entity*.

The terms used in this definition can be defined as follows:

(i) A *public sector entity* is a national, sub-national or local level government body, or in certain cases an international organisation. The national government should certainly take the lead in organising access and dissemination of public information at the national level, but the role and importance of information produced by sub-national or local public authorities must not be underestimated, since it represents a large part of public sector information in every nation.

The notion of public sector differs from one country to another, deeply influenced by culture and history and, can for example, be considered to be composed of:

- Organisations charged by law with State authority or public service functions (functional definition);

- Organisations that are specifically stated to be part of the public sector in a specific law (institutional definition); or
- All bodies substantially financed with public funds (financial definition).⁹

Existing Freedom of Information (FOI) Laws,¹⁰ can be of help in understanding the vision of many Member States regarding their definition of the public sector. Although the definition of public sector must be left to each Member State, a broad definition, for example, encompassing all three of the above definitions, would tend to enlarge the domain of available public sector information for the public good.

(ii) Public sector information must be *produced* by, or under the direction of, public authorities. The notion of production certainly includes active participation in the creation of data and information. It may also refer to the collection of information or to the funding of information and data creation under specific contractual arrangements. Some public authorities may produce public sector information by outsourcing to private companies.¹¹ A broad definition of production similarly would tend to enlarge the amount of public sector information and of governmental public domain information.

(iii) The definition of *information* itself also should be considered in determining what type of public-sector information should be accessible for the public good. ‘Information’ should not in any case be limited to just ‘news’ or ‘facts’. The present Policy Guidelines adopt a definition of information proposed by the European Commission: ‘any content whatever its medium (written on paper, or stored in electronic form, or as a sound, visual, or audiovisual recording)’.¹² Several criteria can be used to categorise public sector information:

- Information produced by the public sector can be categorised as *administrative* information or *non-administrative* information. Administrative information includes administrative procedures, or explanations made by a public entity concerning its procedures, or other information related to governmental functions. Non-administrative information refers to information related to the ‘external world’, and gathered or generated by public entities when performing their public functions (e.g. commercial, cultural, technical, medical, scientific, environmental, statistical, geographical, or touristic information).
- Public sector information also can be categorised according to its potential *interest and audience*: Does it interest the general public, or does it exclusively

9 Commission of the European Communities (1999), Chapter III (referenced in the Selected Bibliography).

10 For a more complete discussion of FOI laws, see section II.3.

11 See Part III for a brief discussion of such public-private relationships.

12 Commission of the European Communities (2001), p. 16 (referenced in the Selected Bibliography).

interest a few people or groups of people? In particular, some ‘official information’ is necessary for all citizens to exercise their democratic rights, e.g. laws and regulations, or judicial decisions.

- Finally, public sector information may have an *economic value* for a specific market. Public bodies may produce information which is subsequently used or developed by the private sector which adds value, or public sector information can be further developed by the public sector directly, or through public-private partnerships.

The relationships among different types of public sector and private information can be summarised in the following table:

	PUBLIC SECTOR INFORMATION	PRIVATE INFORMATION
PUBLIC DOMAIN INFORMATION	<p><i>Governmental public domain information</i></p> <p>Information produced and voluntarily made available without protection by governments or international organisations. As a general principle, information produced by the public sector may be presumed to be part of the governmental public domain, unless expressly protected.</p>	<p><i>Unprotected information of private origin</i></p> <p>Public domain information which is not in the governmental public domain. This includes information which is no longer protected, is unprotectable, or is expressly placed in the public domain by private rights holders.</p>
PROTECTED INFORMATION	<p><i>Protected governmental information</i></p> <p>Public sector information protected by intellectual property or by other measures, such as laws protecting national security or personal privacy.</p>	<p><i>Protected private information</i></p> <p>Information owned by private parties which is protected by intellectual property, by laws such as those protecting personal property or confidentiality (e.g. trade secret), or by contract.</p>

As stated above, governmental public domain information is that part of public

sector information that is publicly accessible and whose use does not infringe any national security restrictions, nor any legal right, nor any obligation of confidentiality. The decision on which types of public sector information are placed in the public domain is very much dependent on each country's approach to governance and information policies, as well as on its information dissemination capacity and practices (particularly concerning the Internet).¹³

In some jurisdictions, for instance, works created by public authorities which fulfil the usual conditions of originality and fixation are covered by copyright¹⁴, while in others, such works are in the government public domain by statutory provision¹⁵. Many countries have for example chosen to deny copyright protection to official texts of a legislative, administrative and legal nature, and to official translations of such texts, which is permitted by international law. In practice, this choice generally derives from legal tradition.

These Policy Guidelines recommend that information produced by public entities in all branches and at all levels be presumed to be in the public domain, unless another policy option (e.g. a legal right such as an IP right or personal privacy) is adopted and clearly documented,¹⁶ preventing it from being freely accessible to all. However, government copyright and other forms of IP protection do not prevent a government from making its protected works openly accessible and usable by citizens, and thus may be functionally similar to governmental public domain information. Therefore, while Part 2 of these Policy Guidelines formally addresses governmental information in the public domain, the key elements related to governmental information policy could also be applied in an environment of public sector information protected by IP laws. Part 3 concludes by addressing the issue of access to and use of governmental information that is protected by IP laws.

1.4. THE IMPORTANCE OF GOVERNMENTAL PUBLIC DOMAIN INFORMATION

The body of governmental – and other – information in the public domain as

13 See Longworth, Elizabeth (2000) in the Selected Bibliography.

14 e.g., in the UK, the copyright in material produced by a government department ('public bodies with Crown Status') belongs to the Crown. Her Majesty's Stationary Office (HMSO) manages and licenses Crown copyright material.

15 e.g., in the United States, federal government information is excluded from copyright protection under Title 17 of the United States Code, section 105 (2000). For a compilation of national copyright laws see UNESCO (2004) in the Selected Bibliography.

16 See section II.3 and Part III.

defined above is massive and may be credited with contributing broadly to the economic and social development of the entire world. In the context of the global information society, the objective is to provide universal access and to close the gap between the information-rich and information-poor. One important element of such a strategy is to expand the amount and quality of information in the public domain, particularly information that is created in the public sector or by public-interest institutions, and then to facilitate open and equitable access for all citizens to the knowledge and benefits to be derived from that information commons. But before these Guidelines address how this might be done, it is important to understand more fully why it should be done, both in economic and non-economic terms.

1.4.1. Benefits to society ¹⁷

The benefits of public domain information are perhaps easiest to describe in non-economic terms. For information produced by governments, one of the greatest non-economic values associated with placing governmental information in the public domain is *transparency* of governance and the promotion of democratic ideals: equality, democracy, openness. The more information that is openly available from the government and about the government, the less likely will it be that government is able to hide illegal acts, corruption and misrule. Conversely, excessive secrecy breeds tyranny.

Open and unrestricted dissemination of public sector information also enhances public health and safety, and the general social welfare, as citizens become better able to make informed decisions about their daily life, their environment, and their future. Indeed, there is a wide range of social objectives underlying the provision of public content. At one end of the spectrum are the 'public good' or 'public interest' policy objectives. In this context the public's welfare will be better served through access to or disclosure of information, rather than a paternalistic approach, in which decisions are made by the government on behalf of the people without informing or consulting them. An example is making information available concerning health services in cases where the health service provider, such as a laboratory or a hospital, has failed to provide diagnostic services or treatment at an adequate standard. Irrespective of the public or private ownership or status of that service provider, citizens are entitled to access this information for a number of reasons, such as to enable them to avoid risks to their health, or to choose another provider, or to apply pressure to rectify the failure. The same reasoning applies to concerns about environmental pollution, to the misuse of public funds, and so on.

17 This section is based primarily on the study by Elizabeth Longworth (2000) – see the Selected Bibliography.

The amount of public sector information is growing in response to what is known as consumer protection demands. The growth of consumer protection laws has had the effect of increasing the volume and categories of information in the public domain. There are now numerous reporting requirements in many countries for both private and public organisations that are designed to regulate certain behaviour or activities for the public's welfare. These include laws to ensure that consumers and shareholders have access to financial and market information to enable them to improve the quality of their economic decision-making. Another objective is to make it harder for agencies to monopolise and hide information to the detriment of the public.

The promotion of each nation's social capital is another reason for expanding the information commons through public domain information. There are many social benefits to be derived from a more knowledgeable population. Public funding of libraries, archives, museums, educational bodies and research institutes are all manifestations of recognition of these benefits, even if much of the information held by these institutions, although generally accessible, is protected by copyright. Public authorities have a critical role to play in each of these capacity-building areas, including by making available as much government-produced information in the public domain as possible.

Finally, governmental public domain information can support essential scientific and technical research functions in every society. The scientific and engineering communities are at the forefront of creating the information and technologies that advance the world's economy and development. Factual databases, many of which are collected by government entities or with government funding, are fundamental to the progress of science, to the advancement of technological innovation, and to an effective educational system. The open availability of publicly funded scientific data and the public domain status of unprotected factual information are one of the cornerstones of basic research.¹⁸

1.4.2. The economic role and value of governmental public domain information

Neither the economic role nor the value of public domain information is easy to quantify. There are several reasons for this. One is that much of the information that is originally created in the public domain – either by government entities or through government funding – is created outside the market forces that govern the creation and dissemination of information covered by IP rights in the private sector. The value of information created at taxpayer expense for public-interest

18 See further comments on database protection in Part III, and generally OECD (2004) and National Research Council (1997, 2003, and forthcoming, 2004) - referenced in the Selected Bibliography.

purposes is not always readily calculable. Part of the problem lies in distinguishing those public domain information products with redeeming economic or social value from others without such value or even having negative effects (e.g. erroneous, fraudulent, or malicious intent and results). But even when the information clearly has positive effects, these can be difficult to describe with much accuracy.

An indicative approach to estimating the value of governmental public domain information is just to add up the costs of producing it. For example, the United States federal government's fiscal year budget for 2004 is over US\$ 2.3 *trillion*, of which a substantial fraction, totalling many *billions* of dollars, is spent on producing information that is in the public domain. Much of that information is now available online, freely and globally accessible.¹⁹ If one adds the money invested by all the world's governments at all levels (intergovernmental, national, provincial, and local) in creating public domain information every year, on a continuing basis, one can obtain a simple understanding of the vast value of non-proprietary information.

But the analysis does not end here, as it should include secondary or 'spin-off' uses as well as primary use. Take, for example, meteorological data and information, which are collected and disseminated by government agencies in all countries as a public service. In the United States, the agency that collects and disseminates weather information, the National Weather Service of the National Oceanic and Atmospheric Administration, provides the data openly, without any legal IP or contractual protection. This has resulted in a huge public user base in many sectors of application, including education and research, and has enabled the development of a robust private, value-adding weather information sector, which generates over US\$ 500 million annually in economic activity.²⁰

In some other countries, the public-sector meteorological offices and weather satellite organisations sell or license their data at commercial rates and protect their data products with intellectual property laws. In those countries, the underdevelopment of the private weather information businesses raises economic questions: Are these businesses able to compete using the government's high-priced, IP-protected data, and can they generate profitable activity?²¹ Legal questions may also be raised, for example in Europe where a public body can be compelled, by a court decision founded on the 'essential facilities' principle, to give access to public information at a reasonable price, despite copyright protection. Some other

19 See the U.S. federal government information portal at: www.firstgov.gov/.

20 Weiss, Peter (2003), 'Borders in Cyberspace: Conflicting Government Information Policies and Their Economic Impact', in National Research Council (2003) - referenced in the Selected Bibliography.

21 A similar comparison and result can be made with regard to publicly generated geo-spatial data and other categories of information – see Pira International (2000), referenced in the Selected Bibliography.

countries have taken no decisions yet about whether and under what conditions the information produced by public authorities is accessible by the private sector in order to generate substantial private revenue.

Beyond the 'value' of information based on the costs of producing it and the sales generated by it, its value to the larger economy and society is magnified greatly by the economically productive and socially beneficial uses to which the information is put.²² Information with the lowest barriers to access and use will potentially have the widest audience, and the positive effects of public domain information can be increased by enormous proportions when such information is placed on global digital networks (e.g. the Internet) with their rapidly expanding user base. Like telephones and fax machines, digital networks have a high positive feedback and strong amplification of value with increased numbers of users. In economic terms, this is known as a network effect. This factor, alone, provides a compelling argument in favour of increasing network connectivity in the developing world and increasing the amount of information available at no cost and without restrictions on re-use.

1.5. GRAND CHALLENGES AND OPPORTUNITIES

1.5.1. Bridging the digital divide

Much has been written about the broad and, in many cases, widening gap between the information-rich and information-poor, both at the national and international levels. Despite the great advances that have been made in ICT and in information management techniques, well-documented and serious global imbalances persist.²³

There are many factors and approaches that can help to bridge that gap that are beyond the scope of these Policy Guidelines. However, the development and promotion of access to governmental public domain information can help in two significant ways. First, *at the national and sub-national levels*, every country has a great deal of information, important for both the general public and economic actors, that is produced by the public sector, either by government agencies themselves or with government funding. In developing countries, where the production of information by the private sector may not be as active as that by the government, the information in the public sector typically constitutes a very large portion of the information produced within and about the country. The broad and open availability of such public information is an important part of building par-

22 See Pira International (2000) op. cit., note 21.

23 See in the Selected Bibliography, The World Bank (1999) and United Nations Development Programme (2001).

icipatory democracy, fostering open debate, and promoting effective government processes. It also provides all citizens with a means to learn about their country, their fellow citizens, and their government that in many cases will not be available from any other source. Moreover, easy access to public information supports the growth of the private sector, especially small businesses, for which information costs can represent a real difficulty.

Secondly, *at the international level*, because the Internet is an international network of networks that transcends all political boundaries, all public sector information that is placed online immediately becomes a part of the global information commons. This, too, has important implications for economic and social development and for bridging the digital divide. In particular, it means that all of the world's public domain materials become a shared or common resource and constitute a global heritage for the benefit of all people. To the extent that the more economically developed, 'knowledge-based' societies produce and make available a much larger amount of information in the public domain; they contribute a larger proportion of the openly pooled information that potentially can be exploited beneficially by all developing countries and their citizens. Although a lot of information may be location-specific and not of broad interest or useful application, much of it is nonetheless relevant beyond the immediate institutional or community borders where it was produced.

In both these cases, one of the greatest barriers to the use of available information is likely to be linguistic. Language, of course, constitutes the foundation of communication between people and is also part of their cultural heritage and tradition. For this reason, a user's language should not constitute an obstacle to accessing the multicultural human heritage available through the Internet and other communication media. Harmonious development of knowledge societies and economies is thus promoted by the availability of multilingual and multicultural information. Many countries have two, and in some cases many more, official as well as unofficial languages used within their jurisdiction. The diversity of the population in terms of different languages and traditions raises substantial public information management challenges.

1.5.2. Promoting the production, dissemination, and preservation of digital information in the public domain

Governments have a critical leadership role in expanding access to and use of public domain information. A major challenge is attitudinal. Policymakers must have a willingness to consider the benefits of making public information available.²⁴ This requires an appreciation of the implications of access to information

24 See Longworth, Elizabeth (2000) in the Selected Bibliography.

for good governance, for the development of social capital, and for economic welfare. To serve these goals, governments need to develop an integrated and comprehensive national information policy that commits to a coordinated plan of action in each of the key areas of legislation and regulation; technical, human, and institutional infrastructure development; information management; and research. While some governments already have a comprehensive national information policy in place, many still do not or are only now beginning to develop one.

Although improving access to ICT and to all types of information is a crucial goal in the quest for social, cultural and economic development, it is also important not to oversell the concept. Universal access to such information resources is a necessary, but insufficient, condition for development. ICT and the information it delivers will not bring instantaneous literacy, cure diseases, feed the hungry, or eliminate poverty. They do, however, provide key resources needed to effectively and sustainably promote the economic and social benefits described above, and can eventually lead to the evolution of a knowledge-based societies based on good governance values. Attention given to these issues now will be rewarded many times over in the future.

Part 2 focuses on important issues identified as priority areas by UNESCO as part of any comprehensive Information Policy Framework at the national level. Specifically, it identifies principles and policies that can: help guide the development of infrastructure and services for provision of governmental information to the public; assist in fostering the production, archiving and dissemination of an electronic public domain of information, with emphasis on ensuring multi-cultural, multilingual content; and promote access of all citizens, and especially disadvantaged communities, to information required for individual and social development. Because each country has its own particular development situation and requirements, these principles and policies provide only general guidance to be adapted and implemented in the context of specific national systems of governance and culture.

PART 2: HOW TO DEVELOP AND PROMOTE GOVERNMENTAL PUBLIC DOMAIN INFORMATION

2.1. KEY POLICY ELEMENTS AND UNDERLYING ASSUMPTIONS

A comprehensive legislative and administrative policy approach is needed to successfully develop and promote the production, dissemination, and use of

governmental information in the public domain. A national information policy requires the following three main elements to be successfully implemented:

- Define the Scope of information of a public nature that should be made available according to the nation's needs (section II.2);
- Establish access to and use of public information as a legal principle (section II.3); and
- Develop and implement programs for the management of information resources and dissemination of public information, through a comprehensive governmental Information Policy Framework (section II.4).

The rationale for, and implementation of, these elements are based on the following assumptions:

- a. Public sector information is a valuable national resource. The open availability of this information, recognised by law, helps to ensure the citizens' freedom of expression, as well as the accountability of government and its public bodies to manage the government's operations, to maintain the healthy performance of the economy, and to provide essential services to society. Maximising the open and unrestricted flow of information between the government and the public is a fundamental aspect of a democratic society and for the promotion of good governance.
- b. In almost every country, the public sector is the largest single producer, collector, consumer, and disseminator of information. Because of the extent of public sector information activities, and the dependence of those activities upon public cooperation, the management of public sector information resources is an issue of continuing importance to all government entities and the public.
- c. It is essential for the government, and other public bodies whose duties involve creating and making available information, to minimise the cost and burden on the public of its information activities, and to maximise the usefulness of its information. In order to do this successfully, the expected public and private benefits derived from public sector information should exceed the public and private costs of the information, recognising, however, that the benefits may not always be quantifiable.
- d. A nation can benefit from information that is openly disseminated, not only by government entities at the national level, but by sub-national governmental entities at different levels, and in general by any public sector organisation. Because sub-national entities are important producers of public information for many sectors such as education, health, agriculture, environmental protection, social welfare, labour, and transportation, the national government should cooperate with them in the management of information resources. In particular, attention must be given to avoiding unnecessary duplication of ef-

- fort by collecting information two or more times.
- e. The strategic and systematic management of the official records of public organisations is essential. The long-term preservation of records protects the public entities' historical records, helps to ensure public accountability, and protects the legal and financial rights of the public sector and the public.
 - f. Since the public disclosure of public sector information is essential to the operation of well-run national and local governments founded on democratic principles, the public's right of access to and use of this information should be ensured. At the same time, every citizen's right to privacy must be protected in all public information activities that involve personal information.
 - g. Open and efficient access to public scientific and technical information funded by the public sector, subject to applicable national security controls and the rights of others deriving from obligations of confidentiality, intellectual property and privacy protection, fosters excellence in research and effective use of public research and development funds.
 - h. Information technology is not an end in itself, but just one set of resources that can improve the effectiveness and efficiency of the services performed by public organisations. Nevertheless, the application of up-to-date information technology presents opportunities improve public organisations, their work processes, and their interactions with the public. The availability of public sector information in diverse media, especially in digital formats, permits greater flexibility in using the information for both government workers and the public. In this context, public entities should be aware of the importance of choosing the most appropriate format for ensuring the long-term preservation of the information.
 - i. Both the producers and users of public information resources must have the requisite skills, knowledge, and training to effectively perform their functions and make optimal use of those resources.
 - j. The willingness of government to promote access to information and to establish a comprehensive policy is essential. An effective, modern public information policy, however, requires the implementation of a national technical information infrastructure.

2.2. FIRST KEY ELEMENT: DEFINE THE SCOPE OF AVAILABLE PUBLIC DOMAIN INFORMATION PRODUCED BY GOVERNMENTS ACCORDING TO THE NATION'S NEEDS

As discussed in Part 1, there are many reasons for making the greatest possible amount of information produced by government entities openly available at the lowest possible cost to the public. It is worthwhile to summarise them:

- Transparency of governance and democratic values are undermined by restricting citizens' access to and use of public data and information. As a corollary, citizens' rights of freedom of expression are compromised by restrictions on re-dissemination of public sector information, and particularly of factual data. It is no coincidence that the most repressive political regimes have the lowest levels of available information and the greatest restrictions on expression;
- The tax-payer pays for the production of the information. Therefore, a government entity needs no legal incentives from exclusive property rights that are conferred by intellectual property laws to create or invest in the production of information, unlike authors or investors in the private sector. Both the activities that the government undertakes, and the information produced by the government through those activities, have 'public good' characteristics;
- There are numerous supplementary benefits that can be realised on an accelerated basis by the open dissemination of public domain data and information on the Internet. Many such benefits are not quantifiable and extend well beyond the economic sphere to include social welfare, educational, cultural, and good governance values – all supportive of national development objectives.²⁵

These benefits of openness in the management of public sector information and the legal designation of that information as being freely available are not absolute, however. They must be balanced against legitimate countervailing and superseding interests arising from the protection of national security, personal privacy, obligations of confidentiality, and private intellectual property rights. The level of active dissemination of public sector information also should be considered in the broader framework of national policies and priorities.

Nevertheless, as a guiding principle, information produced by public entities in all branches and at all levels should be presumed to be available to the public, and any formal exceptions preventing citizens from accessing public information should be specifically justified and formulated as narrowly as possible. National governments should be encouraged to expand access to various types of public information resources and, as appropriate, to re-assess the balance between the existing policies and practices for making those information resources available and the legal protections that restrict use or re-use of such information.²⁶ In addition, all publicly funded inter-governmental organisations should provide open

25 Uhler, Paul, 'Discussion Framework,' in National Research Council (2003), p. 6 - referenced in the Selected Bibliography.

26 See, for example, Council of the European Union, 29 January 2002, Directive on public access to environmental information, Brussels, 11878/01 REV 1, promoting open or low-cost access to and minimum restrictions on re-use of environmental information by the E.U. Member States.

access to all their publications and public databases, especially to potential users in developing countries, free of charge.

2.3. SECOND KEY ELEMENT: ESTABLISH THE LEGAL RIGHT OF ACCESS TO AND USE OF PUBLIC INFORMATION

One of the major features of a comprehensive approach to promoting access to and use of governmental public domain information is the adoption of a positive legal right of access through national legislation. This could be called either a 'Freedom of Information' (FOI) law, or a 'Freedom of access to public information' law.

There has, in fact, been a recent global trend toward greater government openness with public information. Over the past decade, many countries have enacted such legislation, which is an essential aspect of this trend. Over 40 countries now have legislation that facilitates access to governmental information and over 30 more are in the process of enacting such a law.²⁷

Freedom of Information laws reverse the presumption of government secrecy in favour of a principle of availability. Under such laws, the information held by the government that is not otherwise made routinely available can be accessed by its citizens on request. FOI laws are intended to guarantee the right of citizens to access the information that was created by their government on their behalf.

Therefore, countries that do not yet have a Freedom of Information law for their public information should adopt one, following a comparative analysis of such similar laws in other countries.²⁸ Those countries that already do have such

27 See Banisar, David (2002) in the Selected Bibliography.

- a. The right of citizens to access governmental information should have its basis in law through the national Constitution, and be implemented by statute;
- b. The type of governmental information that should be actively disseminated should be defined. It is also important for the legal system to recognise the legal value and authenticity of electronic formats. The concerned information sources should be defined as well. In this process, there is a great opportunity for a nation to achieve a more complete understanding and appreciation of its information richness and diversity.
- c. A public body requested to give access to a given item of information should not control the particular interest the requestor has in accessing it.
- d. Exceptions to the principle of availability should be carefully balanced. There may well be interests that justify the withholding of certain governmental information, just as there may be for not designating certain types of information as being in the public domain. For this reason, FOI laws contain exemptions to allow a public entity to refuse to release requested information on the specific grounds set out in the law.

Common reasons for withholding governmental information are: to protect the privacy of individuals, to safeguard a country's intelligence and national security secrets, to avoid prejudicing a criminal investigation, to enable advisers to give frank advice to their ministers, or to protect a commercial confidence or private proprietary information. Provisions that restrict access to protected governmental information are frequently enforced by the use of criminal penalties. Specific considerations in this context include the following:

National security restrictions. Many developing countries still protect the vast majority of their governmental information under national security and administrative confidentiality statutes, thereby withdrawing most governmental information from public domain status and availability to the public. While legitimate national security priorities must be protected through information confidentiality, national security concerns should not be used to create unnecessary secrecy over governmental information.²⁹ Any classification regime also must include a declassification schedule that establishes a timetable for placing previously restricted information in the public domain.

Protection of personal privacy. Many countries have already enacted legal protection for data related to individuals. The protection is usually based on legislation covering data held by both the private and public sectors. The UN guidelines³⁰ on the matter state several basic principles that Member States need to take into account when implementing national rules:

- The lawfulness and fairness of data collection and processing;
- The accuracy and relevance of the data;
- Respect for the purpose served by the information, which means *inter alia* that personal data cannot be used or disclosed without the consent of the person concerned;
- Access to the data by the person concerned (with the right to obtain the change or deletion of inaccurate personal information);
- No compilation of data likely to give rise to unlawful or arbitrary discrimination;
- Exceptions to protect national security, public order, public health or morality, or the rights and freedom of others are allowed, but only within limits and safeguards given by the domestic law (and by the Universal Declaration of Human Rights for cases related to the prohibition of discrimination); and
- Effective data security.

If a nation has already adopted personal data protection legislation, this legislation and the FOI law should be mutually consistent.

Protection of trade secrets. Secrecy over commercial know-how can also be a legitimate reason to restrict access to information held by the government. A trade secret is commercially valuable information that is legally protected as long as it remains secret, by laws that prevent the acquisition of the secret by com-

mercially unfair means or through unauthorised disclosure. In the context of government activities, a public entity must protect a private sector trade secret that is disclosed to the government in confidence. Also, in many jurisdictions, a trade secret can be protected by a publicly-funded organisation, such as a state-owned company.

- e. If the information is not directly accessible through an electronic network, the public authority allowing or denying access should be required to take its decision in a certain specified period, and the reasons for denying access should be sufficiently detailed, so that the requestor can determine the basis for an appeal of the decision.
 - f. An independent office needs to be established to handle appeals of decisions denying access to the information. This office may be referred to as ‘ombudsman’. The boundaries for determining what information can be released and what should remain confidential to the government can in some cases be quite subtle, however, and difficult to apply. The approach adopted in many FOI laws has been to apply a ‘harm test’, which allows the government to withhold the disclosure of the information, and the concept of an overriding public interest, or ‘public-good test’, to require the disclosure of the requested information.
 - g. The process by which the ombudsman is asked to intervene has to be clearly stated and must be performed on a reasonably expeditious basis and be sufficiently transparent. States should define whether the ombudsman’s decisions are binding or not, and establish a mechanism for a final review of access denials. An effective model should avoid charges for filing an FOI request that are so high as to amount to a barrier to access preventing ordinary citizens from obtaining requested information.
 - h. Although Freedom of Information laws are an essential factor in implementing the presumption that governmental information is of a public nature, and in promoting an open society and transparency in governance, they are not in themselves sufficient. In practice, such laws typically involve a bureaucratic, cumbersome, and relatively expensive process that the citizen must undertake in order to obtain information that is legally in the public domain and should be made public. Moreover, the citizen also may need to investigate what information the government may have in order to identify what information to request. Government bureaucracies frequently resist the release of their information and the access and enforcement mechanisms may be weak or unenforceable. Finally, political pressures on either the government entity that holds the information, or on the citizen requesting its release, may make a FOI request ineffective or even unwise.³¹ Such situations can be alleviated by the development of a comprehensive Information Policy Framework for the management and active dissemination of governmental information, as outlined in section II.4 below.
- 29 See, e.g., the Open Society Institute’s Justice Initiative and the Campbell Public Affairs Institute of Syracuse University, ‘National Security and Open Government: Striking the right balance’, at: www.maxwell.syr.edu/campbell/opengov/.
- 30 United Nations High Commissioner for Human Rights’ Guidelines for the Regulation of Computerised Personal Data Files (Resolution 45/95 of 14 December 1990) at: www.unhchr.ch/html/menu3/b/71.htm - the guidelines concern computerised

a law may wish to further revise their existing legislation. The following guidelines should be considered:

- a. The right of citizens to access governmental information should have its basis in law through the national Constitution, and be implemented by statute;
- b. The type of governmental information that should be actively disseminated should be defined. It is also important for the legal system to recognise the legal value and authenticity of electronic formats. The concerned information sources should be defined as well. In this process, there is a great opportunity for a nation to achieve a more complete understanding and appreciation of its information richness and diversity.
- c. A public body requested to give access to a given item of information should not control the particular interest the requestor has in accessing it.
- d. Exceptions to the principle of availability should be carefully balanced. There may well be interests that justify the withholding of certain governmental information, just as there may be for not designating certain types of information as being in the public domain. For this reason, FOI laws contain exemptions to allow a public entity to refuse to release requested information on the specific grounds set out in the law.

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personal data files (from both public and private sectors) and leave to Member States an option to extend the guidelines to manual files. See also, OECD (1980) in the Selected Bibliography.

31 Banisar, *op. cit.*, note 27.

restricted information in the public domain.

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 - Access to the data by the person concerned (with the right to obtain the change or deletion of inaccurate personal information);
 - No compilation of data likely to give rise to unlawful or arbitrary discrimination;
 - Exceptions to protect national security, public order, public health or morality, or the rights and freedom of others are allowed, but only within limits and safeguards given by the domestic law (and by the Universal Declaration of Human Rights for cases related to the prohibition of discrimination); and
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- e. If the information is not directly accessible through an electronic network, the public authority allowing or denying access should be required to take its decision in a certain specified period, and the reasons for denying access should

29 See, e.g., the Open Society Institute's Justice Initiative and the Campbell Public Affairs Institute of Syracuse University, 'National Security and Open Government: Striking the right balance', at: www.maxwell.syr.edu/campbell/opengov/.

be sufficiently detailed, so that the requestor can determine the basis for an appeal of the decision.

- f. An independent office needs to be established to handle appeals of decisions denying access to the information. This office may be referred to as ‘ombudsman’. The boundaries for determining what information can be released and what should remain confidential to the government can in some cases be quite subtle, however, and difficult to apply. The approach adopted in many FOI laws has been to apply a ‘harm test’, which allows the government to withhold the disclosure of the information, and the concept of an overriding public interest, or ‘public-good test’, to require the disclosure of the requested information.
- g. The process by which the ombudsman is asked to intervene has to be clearly stated and must be performed on a reasonably expeditious basis and be sufficiently transparent. States should define whether the ombudsman’s decisions are binding or not, and establish a mechanism for a final review of access denials. An effective model should avoid charges for filing an FOI request that are so high as to amount to a barrier to access preventing ordinary citizens from obtaining requested information.
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30 United Nations High Commissioner for Human Rights’ Guidelines for the Regulation of Computerised Personal Data Files (Resolution 45/95 of 14 December 1990) at: www.unhchr.ch/html/menu3/b/71.htm - the guidelines concern computerised personal data files (from both public and private sectors) and leave to Member States an option to extend the guidelines to manual files. See also, OECD (1980) in the Selected Bibliography.

31 Banisar, *op. cit.*, note 27.

2.4. THIRD KEY ELEMENT: DEVELOP AND IMPLEMENT A COMPREHENSIVE GOVERNMENTAL PUBLIC INFORMATION POLICY FRAMEWORK FOR THE MANAGEMENT AND DISSEMINATION OF PUBLIC INFORMATION RESOURCES

The third major aspect of public information policy is a comprehensive national Information Policy Framework that addresses information management and dissemination.³² This framework should be broad enough to encompass information in both paper and digital formats, and should provide special guidance regarding electronic management and dissemination. The policy framework outlined below identifies only the high-level principles, issues, and objectives, and concludes with an outline of the main procedural considerations for implementation. Specific details based on each country's situation and needs must be developed as appropriate. However, the focus should always be on producing and disseminating public information that meets the needs of citizens as openly and inexpensively as possible, with special attention to multicultural or disadvantaged communities.

Three main areas of action need to be addressed in developing the national public Information Policy Framework:

- Creating the appropriate public information management structure;
- Defining the public information management policy requirements; and
- Adopting strategies on information systems and information technology management.

2.4.1. Creating the appropriate public information management structure

The creation of an effective management structure requires:

- Assignment of key responsibilities;
- Development of a workforce capable of effectively implementing policy and managing the national public information infrastructure; and
- Determination and allocation of the appropriate budgets.

2.4.1.1. Assignment of key responsibilities

Assignment of the major responsibilities from the highest to the operational levels

32 This section is based on section 8(a) of the U.S. Office of Management and Budget Circular A-130 (referenced in the Selected Bibliography).

has to be appropriately structured and organised, as follows:

- a. Establishment of a high-level executive office for national public information policy

There are several compelling reasons for creating a high-level oversight and coordination position. First, a national information policy requires a comprehensive vision supporting common goals and aspirations. Second, the ability to create a national policy framework for access to information requires a national authority. Third, a high-level arbiter is needed to resolve disputes between government organisations, in order to ensure that the national interest will prevail over the parochial interests of administrative entities that only serve the needs of their specific organisation. Finally, overseeing and coordinating the public information policy for the nation, while reducing bureaucracy and administrative inefficiency, requires strong leadership.

Therefore, the direction of the development, implementation, coordination, and oversight of the public Information Policy Framework at the national level requires the establishment of an office and the appointment of an individual and a related office at a high level in the executive branch of government, together with a budget and mandate sufficient to carry out the assigned tasks. This person may be called the Director of National Information Policy and Programmes (referred to as ‘the Director’ below) or some equivalent title, reporting directly to the chief executive of the nation. The Director would also be the chair of a governmental Council of Chief Information Officers, whose individual functions are described below.

- b. Designation of a Chief Information Officer in each major government organisation

Every major government organisation should appoint a Chief Information Officer (CIO) and supporting staff who will:

- i. Have primary responsibility for managing the organisation’s information resources and technical infrastructure.
- ii. Ensure that the information policies, principles, standards, guidelines, rules, and regulations prescribed by the overarching national policy are implemented appropriately.
- iii. Develop internal organisational information policies and procedures, and oversee, evaluate, and otherwise periodically review the organisation’s information resources management activities for conformity with the established national policies.
- iv. Oversee the acquisition and inventory of the information

technology for the entire organisation.

v. Implement and enforce applicable records management policies and procedures, including requirements for archiving information maintained in electronic format, particularly in the planning, design and operation of information systems.

vi. Identify to the Director any statutory, regulatory, and other impediments to efficient management of the government's information resources and recommend to the Director legislation, policies, procedures, and other measures to improve such management.

vii. Support the work of the Director by making services, personnel, and facilities available for specific tasks and high-level projects, to the extent practicable.

viii. Prepare and present to the Director an annual report on the organisation's implementation of the national information policy, including a description of instances of failure to comply with the policy and their resolution.

c. Designation of a Chief Information Officer in each major local public entity

Local public information programs also need to be developed and implemented, taking account of the national Information Policy Framework. Locally appointed CIOs, in local governing bodies and administrative entities, should be in charge of defining and applying local policies, consistent with and in coordination with the information policy at the national level.

d. Establishment of responsible entities for other specific functions

Additional offices or positions may need to be created to fully implement all elements of the national Information Policy Framework and related programs. These should be assessed systematically. It is vital for the success of the information policy that the workforce be able to provide the proper knowledge, abilities and expertise in all key functional areas, as defined in sections II.4.2 and II.4.3 below.

2.4.1.2. Developing an effective work force

In order to enable the nation to effectively promote access to and dissemination of public information on a continuing basis, the government needs to institute policies and programs to prepare a sufficient number of future graduates and young professionals to apply and maintain all aspects of information policy. Toward this end, the Director and the Council of CIOs should work with the education sector to ensure that this requirement receives adequate attention. Opportunities for

continuing education and lifelong learning should be developed for the existing workforce as well.

2.4.1.3. Determining and allocating the appropriate budgets

The Director, in consultation with the Council of CIOs, must determine an annual budget for implementing all the priority elements of the national Information Policy Framework, and allocate it as appropriate. The development of multi-year budget projections should be part of the annual budget planning process as well.

2.4.2. Defining the public information management policy requirements

The following functions need to be addressed in the development of a national and local information management policy:

- Providing access to governmental information for use by the public;
- Providing the best possible access to and use of information by multilingual or disadvantaged communities at a local level;
- Avoiding improperly restrictive practices on dissemination and use of public information;
- Information resource management planning;
- Management of information dissemination activities;
- Electronic information dissemination;
- Safeguards for public information.

Additional specific details and their implementation will depend on each nation's circumstances and needs.

2.4.2.1. Providing information to the public

All government entities have a responsibility to provide information to the public consistent with their legislative and regulatory missions. They should fulfil this responsibility by:

- a. Providing information that describes their organisation, activities, programs, meetings, systems of records, and other information holdings, and how the public may obtain access to their information resources.
- b. Providing access to their records under provisions of the *Freedom of Information Act* (see section II.3 above), subject to the protections and limitations provided for in this Act.
- c. Making available such other information as is necessary or appropriate for the proper performance of the organisation's functions.

- d. In determining whether and how to disseminate information to the public, each government entity shall:
- i. Disseminate information in a manner that achieves the best balance between the goals of maximising the usefulness of the information and minimising the cost to the government and the public;
 - ii. Disseminate information on equitable and timely terms;
 - iii. Take advantage of all dissemination channels in government at all levels, libraries, private-sector entities, and media that are appropriate to the dissemination function for each particular type of information; and
 - iv. Help the public locate governmental information maintained by or for the government entity.

In order to facilitate these actions, it is necessary for public authorities to identify exhaustively all their accessible and useful resources through comprehensive online directories or searchable databases, containing all necessary metadata. Metadata means information on the information (such as: name of public authority, date of creation, content summary, terms of access, document updates, and format).

2.4.2.2. Providing the best possible access to and use of information by multilingual or disadvantaged communities at the local level

The following specific objectives should be implemented to address needs in providing access to and use of information by multilingual or disadvantaged communities at the local level:

- a. All national and sub-national entities should seek to avoid linguistic segregation in providing access to their public information.
- b. It is necessary to take advantage of technologies that facilitate access to and use of information in all the national languages in order to ensure maximum self-expression, and to promote education, science, culture and communication. Public information must be produced and disseminated in appropriate formats, and access strategies must involve disadvantaged communities in the production and use of locally relevant information. The introduction of modern information and communication technologies, such as digital networks, should complement the continued use of existing communication networks (such as local community centres and libraries) and small-scale audio-visual

- equipment (e.g. radio, audiocassettes, and video). The country's significant traditional modes of communication also need to be utilised.
- c. The appropriate government entities should adopt a strategy to develop freely accessible language education materials, and disseminate those materials freely online and through other appropriate means. At the same time, the translation of the highest priority public information resources into local languages and dialects needs to be undertaken.
 - d. Private-sector initiatives that develop multilingual content and its dissemination, particularly to disadvantaged communities at the local level, should be encouraged and supported.
 - e. The appropriate government entities should work with national and international experts in the development of:
 - i. Internet search engines and Web browsers with extensive multilingual capabilities;
 - ii. Online dictionaries and reference materials;
 - iii. Automatic Language Treatment (ATL) services such as software for automatic translation, including speech processing aimed at augmenting human capacity for communication through speech, and natural language processing, aimed at augmenting capacity for understanding language; and
 - iv. Information products and services that can meet the special needs of people with physical disabilities.
 - v. 2.4.2.3. Avoiding improperly restrictive practices on dissemination and use of public information

Information costs are of several kinds, and relate to data collection as well as information production, organisation, updating, retrieval, printing, dissemination, and archiving, among others. Indisputably, the question of the price of public information is a critical matter for both citizens and the private sector. Producing available, but high-priced, information can be an insurmountable barrier to public access to information, especially in disadvantaged communities.

In setting the terms and conditions for the dissemination and use of public information, government entities should:

- a. Avoid establishing, or permitting others to establish on their behalf, exclusive, restricted, or other distribution arrangements that hinder the availability of information dissemination products on a timely and equitable basis.
- b. Avoid restrictions or regulations, including the charging of fees or royalties, on the re-use, resale, or re-dissemination of public information products by the public.

- c. Set user charges for information dissemination products at a level no higher than what is sufficient to recover the cost of dissemination (i.e. the marginal cost of fulfilling a user request). They should exclude from calculation the costs associated with the production of the information. Exceptions to this policy could be:
 - i. Where other statutory requirements are at variance with the policy;
 - ii. Where the organisation collects, processes, and disseminates the information for the benefit of a specific identifiable group of users whose needs and resources can be accurately determined;
 - iii. Where the organisation plans to establish user charges at less than the cost of dissemination because of a determination that higher charges would constitute a significant barrier to properly performing its functions, including reaching members of the public whom the agency has a responsibility to inform; or
 - iv. Where the information is digital and disseminated online, in which case it should be provided free of charge, since the marginal cost of providing the information to each additional user is close to zero.

2.4.2.4. Information resource management planning

All government entities subject to the national information policy should:

- a. Adopt an integrated life-cycle approach to the management of information resources; that is, from the planning stage, to production, organisation, dissemination, use, preservation and, in appropriate circumstances, purging (i.e. removing from official sources of availability, but not necessarily destroying the information that is outdated).
- b. Consider the effects of the decisions and actions taken under this policy on members of the public and on other government entities, and ensure consultation with all relevant stakeholders.
- c. Fulfil new information needs through partnerships for sharing of information, or through commercial sources, where appropriate, before creating or collecting new information.
- d. Record, preserve, and make accessible sufficient information to ensure the effective management and accountability of government activities, and to protect the government's legal and financial interests.
- e. Incorporate records management and archival functions into the design, development, and implementation of information systems, including the following

requirements:

i. Provide for public access to records where required or appropriate.

ii. Collect or create information that is necessary for the proper performance of approved government functions, and that either has practical utility or addresses citizens' identified needs.

iii. Use electronic information collection and creation techniques where such techniques reduce burdens on the public, increase the efficiency of public programs, reduce costs or provide better service to the public. Conditions favourable to electronic collection or creation include the following:

- The information involves the production of a large volume of data, or needs to be disseminated to a large portion of the public;
- The information production is performed on a recurring basis;
- There is a need to routinely convert the information to electronic format;
- A substantial number of the affected public are known to have ready access to the necessary information technology; and
- Conversion to electronic reporting, if mandatory, will not impose substantial costs or other adverse effects on the public, especially for sub-national government and small business entities.

Each government organisation or entity should maintain and implement a management system for dissemination of all its public information, which will, at a minimum:

- a. Assure the dissemination of information products which are necessary for the proper performance of the organisation's functions.
- b. Consider whether an information product available from other government sources is equivalent and reasonably fulfils the organisation's dissemination responsibilities.
- c. Establish and maintain inventories of all of the organisation's information products. These need to be linked with a searchable electronic repository or databases that will help to identify the available information.
- d. Develop other aids to locating the organisation's information dissemination products, including catalogues and directories, which will help to achieve its dissemination objectives.
- e. Identify in its information products the source of the information, if coming from another organisation.
- f. Ensure that members of the public with disabilities, whom the organisation has

- a responsibility to inform, have a reasonable ability to access the information.
- g. Establish and maintain communications with members of the public and with other government entities so that the organisation creates information products that meet their respective needs.
 - h. Provide adequate notice when initiating, substantially modifying, or terminating significant information products.
 - i. Ensure that a prompt and orderly transition to compliance with the requirements of organisational and national policy is made with regard to any existing inconsistencies.

2.4.2.6. Electronic information dissemination

Government entities should use electronic media and formats, including both public and private networks, as appropriate and within budgetary constraints, in order to make their information more easily accessible and useful to the public. As a general matter, government dissemination of electronic information on digital networks, now frequently referred to as ‘E-Governance’ services, have already improved governmental information services to citizens and businesses in many countries, and have improved the efficiency and effectiveness of both individual government organisations and intragovernmental activities.³³ The use of electronic media and formats for information dissemination may be justified by any of the following conditions, which are analogous to those provided for the electronic collection or creation of information under section 2.4.2.4 (e) (iii), above:

- a. The organisation develops and maintains the information electronically.
- b. Electronic media or formats are practical and cost-effective ways to provide public access to a large, highly detailed volume of information.
- c. The organisation disseminates the information product frequently.
- d. The organisation knows that a substantial portion of users have ready access to the necessary information technology and training to use electronic information dissemination products.
- e. A change to electronic dissemination, particularly as the sole means of disseminating the information product, will not impose undue acquisition or training costs on users.

Attention must be given to the accuracy and updating of information, because disseminating inaccurate or outdated information is contrary to the public mission of an organisation and may result in unnecessary problems to the public. The date

33 For a listing and description of E-Governance initiatives worldwide, see: www.egovlinks.com/.

of any updates should always be identified.

2.4.2.7. Security of public information

It also is important to implement appropriate safeguards in the management of public information, both to protect any confidentiality, privacy, national security, or intellectual property rights in the information, and to ensure the long-term preservation of the information. Government entities should:

a. Protect the security of the information by:

i. Ensuring that information is protected commensurate with the risk of harm that would result from the loss, misuse, or unauthorised access to, or modification of, such information. Also, government entities should consider the effects of actions taken under the national information policy on the privacy rights of individuals, and ensure that appropriate legal and technical safeguards are implemented.

ii. Limiting the collection of information that identifies individuals to not more than what is legally authorised and necessary for the proper performance of the entity's functions.

iii. Limiting the sharing of information that identifies individuals, or is protected by national security statutes or intellectual property rights, to situations in which this is legally or contractually authorised, and imposing appropriate conditions on use where a continuing obligation to ensure the confidentiality of the information exists.

iv. Providing individuals, upon request, with access to records about them maintained in the organisation's records, and permitting them to amend any records that contain errors.

b. Preserve the information through appropriate management and retrieval facilities for all official public records that should be retained permanently. Government entities subject to this policy should:

i. Ensure that their records management programs provide adequate and proper documentation;

ii. Ensure the ability to access records, regardless of their form or medium;

iii. Establish appropriate selection and retention criteria as well as accession schedules for permanent archiving of records, in

consultation with the national archives and in accordance with legislative requirements;

iv. Provide training and guidance as appropriate to all public officials, employees, and contractors regarding their records management responsibilities; and

v. Recognise that current electronic formats and tools cannot guarantee that digital information can be preserved in its original form for decades without being transferred to new formats and media³⁴, and make strategic choices that take this constraint into account.

2.4.3. Adopting strategies on information systems and information technology management

The proper management of information systems and technology requires information resource managers to:

- Develop management and technology frameworks;
- Strategically plan information resources management;
- Provide information systems management oversight; and
- Evaluate and measure performance.

2.4.3.1. Develop management and technology frameworks

Government entities should create and maintain management and technical frameworks for using information resources that ensure linkages among mission needs, information content and information technology capabilities. These frameworks should guide both strategic planning and operational management of information resources. They should also address steps necessary to create an open systems environment. Government entities should implement the following principles:

a. Develop information systems in a manner that facilitates interoperability, application portability, and scalability of computerised applications across networks of heterogeneous hardware, software, and communications platforms. In order to facilitate the preservation of the information, as well as

34 For information about the UNESCO program for the Preservation of Digital Heritage, see Abid, Abdelaziz, and Boyan Radoykov, 'Access and Preservation in the Information Society', *Museum International*, Sept. 2002, p. 64.

the exchange of information between public bodies and/or interoperability between the different networks or portals, public entities should choose a common model of information exchange, based on a common standard (e.g. XML). This should be done keeping in mind that cross-border exchange should be made possible and promoted, and that public domain information should be accessible by anybody from anywhere in the world. Also, as far as possible, choices regarding information systems should be made taking account of the fact that access to and use of the information should not be dependent on specific software, which could create a barrier to effective access and use.

- b. Ensure that the improvement of existing information systems and the development of new systems do not duplicate unnecessarily those within the same organisation, within other government entities, or available from the private sector. It is important to share available information systems and technological capabilities with other government entities to the extent practicable and legally permissible.
- c. Establish a level of security for information systems that is commensurate with the risk of harm resulting from the loss, misuse or unauthorised access to or modification of the information contained in these information systems (see II.4.2.7).
- d. Promote the use of public sector information through national initiatives involving the users of the information.

2.4.3.2. Strategically plan information resources management

Government entities should establish and maintain strategic planning processes for information resources management, which include the following components:

- a. Strategic planning that addresses how the management of information resources promotes the fulfilment of the organisation's mission. The planning process should reflect and anticipate changes in the organisation's mission, policy direction, technological capabilities, and resource levels.
- b. Consideration and promotion of the use of information throughout its life cycle to maximise its usefulness, minimise the burden on the public, and preserve the integrity, availability, and confidentiality of the information.
- c. Operational planning that links information technology to anticipated program and mission needs, and forms the basis for budget requests. This process should result in the preparation and maintenance of an up-to-date plan, consistent with the government's planning cycle for other programs, which includes:

- i. a listing of major existing and planned information systems
 - ii. a listing of planned information technology acquisitions
 - iii. an explanation of how the listed major information systems and planned information technology acquisitions relate to each other and support the achievement of the organisation's mission
 - iv. an analysis of the situation concerning computer security systems and procedures
 - v. coordination with other government organisations' planning processes, including consideration of human and financial resources.

2.4.3.3. Provide information systems management oversight

Government entities should establish information system management oversight mechanisms that:

- a. Ensure that each information system meets the organisation's mission requirements.
- b. Provide for periodic review of information systems to determine:
 - i. how mission requirements might have changed;
 - ii. whether the information system continues to fulfil ongoing and anticipated mission requirements; and
 - iii. the level of maintenance needed to ensure that the information system meets mission requirements on a cost effective basis.
- c. Ensure that the official who administers a program encompassing an information system is responsible and accountable for the management of that information system throughout its life cycle.
- d. Provide for appropriate training for users of public information resources.
- e. Ensure that information system requirements do not unduly restrict the prerogatives of other national or sub-national public bodies or groups within the country that have certain autonomous legal rights and standing.
- f. Promote universal access to digital networks using broadband infrastructures to the greatest extent possible, paying particular attention to rural and disadvantaged areas, and provide services for access to public sector information that are in so far as possible independent of the specific technologies used.
- g. Ensure that major information systems proceed in a timely fashion towards agreed-upon milestones, and deliver intended benefits to the organisation and users, through coordinated decision-making on the information itself as

well as on human, financial, and other supporting resources.

2.4.3.4. Evaluate and measure performance

Government entities should promote effective management of their public information resources through various review procedures, including the following:

- a. Seek opportunities to improve the effectiveness and efficiency of public sector information activities, and particularly the application of information technology, through periodic reviews of the work process,
- b. Prepare, and update as necessary throughout the information system life cycle, a cost-benefit analysis for each information system which is:
 - i. at a level of detail appropriate to the size of the investment
 - ii. consistent with a formal, recognised methodology
 - iii. based on systematic measures of mission performance, including the effectiveness of program delivery, the efficiency of program administration, and the reduction of burdens imposed on the public including information-collection requirements.
- c. Conduct analyses of investments in major information systems on an organisation-wide basis to maximise return on investment and minimise financial and operational risk
- d. Conduct post-implementation reviews of information systems to validate estimated benefits and document effective management practices for broader use.

2.4.4. Key procedural elements for the development of a national Information Policy Framework

- a. The national Information Policy Framework must reference all supporting reports and laws on which it is based. In those areas in which legislation is either outdated or missing, it may be necessary to enact to have enabling legislation before promulgating the framework. The public domain information policy is an important part of the broader national Information Policy Framework.
- b. In developing a national Information Policy Framework and associated detailed implementation plan, it is essential to involve representatives of all major stakeholder groups in a consultative process. Such a consultative approach will help ensure that key issues are identified and addressed, and that the consulted groups feel some ownership in the final results.
- c. A number of factors need to be systematically addressed for each individual

policy element. Analytical factors that need to be considered are: legal, economic, institutional, social and cultural, research and educational. Specific application areas or sectors with special information objectives and implementation requirements, such as health, environment, energy, transportation, finance and defence, many of which correspond to the mandates of the nation's major ministries, departments or agencies, also need individual consideration. Policy formation and implementation factors should respond to the following specific questions:

- i. What is the specific policy element being recommended?
 - ii. Why is it being proposed (i.e. what is the current situation and why does it need to be changed)?
 - iii. Who needs to be involved in the formation, approval and implementation of the policy (i.e. key individuals, institutions, and stakeholder groups)?
 - iv. At which level does the policy implementation need to take place (i.e. the international, regional, national, sub-national levels)?
 - v. When does the policy need to be implemented and updated?
 - vi. How, specifically, should the policy be implemented (the procedures or mechanisms by which the policy will be brought into effect)?
- d. Following the completion and formal approval of the Information Policy Framework, CIOs of all major government entities need to develop detailed plans for implementation of all the guiding policies within the context of their official activities and purview. The development of specific implementation plans will help ensure that the policies are acted upon, and that they are implemented in an appropriate and efficient manner consistent with the specific conditions and needs of each organisation's activities. These separate implementation plans should be completed soon after the formal adoption of the Framework (e.g. within one year).
- e. Because of the rapid changes continuously taking place in the information and communication sectors, the Information Policy Framework should periodically be reviewed and updated to keep it relevant and useful. Such a review should take place perhaps every 4–5 years, on a schedule fixed by the Framework.
- f. A useful supplementary activity that should be considered in the development of the Information Policy Framework is a review of the policy approaches to public information management and technology taken by other countries. The lessons learned from the experiences of other governments in this area

should help the national authorities to avoid some of the failures or difficulties experienced elsewhere, and to identify successful legal and policy models that might be adapted to the specific national context.

PART 3: ACCESS TO AND USE OF GOVERNMENTAL INFORMATION THAT IS PROTECTED BY INTELLECTUAL PROPERTY LAWS

Throughout the world, original literary and artistic works are protected by copyright. Copyright protection applies to the expression of ideas resulting in original works, but not to the ideas themselves. Such protection is now broadly recognised as important to promoting human creativity through the production of all types of original works. It provides creators with incentives in the form of recognition and the possibility to derive fair economic rewards for their works. It also encourages broad dissemination by helping to assure that creative works can be made available to the public with legal protection against unauthorised copying or redistribution.

Copyright is intended as a means to enrich the cultural, social and economic development of a nation by protecting the personal recognition and economic rewards of the author.³⁵ Yet, the right granted to the author or to the subsequent rights holder is not absolute, but rather subject to limitations in favour of specific uses by third parties under certain conditions. Thus, as copyright law has evolved, a proper balance between the rights of the author or other rights holder, and the broader interests of society, has been of paramount concern.

As noted in Part 1, in some jurisdictions copyright protection and other forms of IP rights are granted to public authorities for their works. Although these Policy Guidelines do not recommend this approach for the reasons presented in sections 1–3 of Part 2, a nation may decide to protect works produced by public entities because of traditions or for other reasons, such as protecting the moral rights of authors.

For example, the Member States and Affiliated Member States of the European Union generally allow application of copyright protection to most types of public information, while excluding from such protection official texts of a legislative, administrative or legal nature, and their official translations, pursuant to the discretion provided by article 2(4) of the Berne Convention.³⁶

35 While in the ‘droit d’auteur’ system prevalent in continental Europe, ‘copyright law is based on respect for the artist’s creative work and is centred on the author’, the Anglo-American tradition aims rather at the proper exploitation of the work – see Lepage, Anne (2003) in the Selected Bibliography.

The European Union also has adopted a Directive on the Legal Protection of Databases,³⁷ which has established a new exclusive property right for database producers in the compilations of non-copyrightable information. The objective of this Directive was to promote and protect substantial investments in such compilations, in light of the perceived lack of protection for costly collections of unoriginal information. The right created under this Directive protects the database producer against unauthorised extraction or re-use of substantial parts of the database's content. This protection also may be applied to information collected and organised in databases by public entities.

This Directive, which has been implemented in the national legislation of all European Union Member States and most Affiliated States, has been criticised by some legal scholars, and by some scientific and library communities, for greatly diminishing the amount of factual information in the public domain by imposing restrictions on the use of otherwise unprotected data.³⁸ At the same time, the states that have adopted this new law have not to date reported any serious difficulties in its implementation.

Nevertheless, it is important to emphasise that the application of IP laws to public information does not necessarily exclude the public from access to such information. Although IP laws can place considerable limits on the public's re-use of that information, these laws do give public entities a broad range of options on how to organise access to the information for the public good, taking account of the citizens' interests. Thus, government entities whose public information is protected by IP laws can provide open access to their information resources, or can even use permissive licenses that derogate from the full enforcement of available IP rights in order to allow greater freedom in the re-use of their information.

Open access may be defined as a means to make protected information openly and freely available online or through other media by the rights holder, who retains some, or all, of the exclusive rights that are granted under statutory IP laws (e.g. the right to be named as author every time the work is quoted). All types of public and private sector sources may provide open access to their information products. Open access is therefore an important option for making IP-protected public information broadly available to the public, particularly using the Internet, and greatly improving its potential to support economic and social development.³⁹ It is also possible to use a permissive license to place an IP-protected work in the public domain, with an express waiver of all economic rights.

36 European Commission (1999), *op. cit.*, note 9, p. 15.

37 Directive 96/9/EC of the European Parliament and of the Council on 11 March 1996 on the Legal Protection of Databases, 1996 O.J. (L77) 20.

38 See generally, Reichman, J.H. (2002) in the Selected Bibliography.

39 See, Commission on Intellectual Property Rights, United Kingdom (2002) in the Selected Bibliography. See also, National Research Council (forthcoming 2004).

The public domain status of the information in this case must be actively created by the rights holder.⁴⁰ Permissive, public-use licenses may be used as well to establish user rights that fall between all rights reserved under copyright and pure public domain status.⁴¹

Finally, governments are free to select the appropriate approach, or mixture of approaches, to manage their public domain or proprietary information in order to achieve national economic and cultural objectives in light of the costs and benefits.

The important potential role of the private sector in creating information for a government entity or for distributing public information needs to be considered as well. The information products and services provided by the private sector are frequently more efficient and of higher quality than those of the public sector, so that public-private partnerships can be highly beneficial, so long as the public interest in any such arrangement is adequately considered and protected. Public-private partnerships can play an important role in creating and widely disseminating databases integrating public domain and proprietary information, for example in connection with large-scale digitisation projects of information in national archives, libraries and museums.

At the same time, as the Commission of the European Communities has pointed out: ‘in some cases, the commercial re-use of public sector information may however raise questions as to the boundaries and limitations on the role of the different actors. Once private sector interests enter the market for public information the safeguarding of access for all citizens may become more difficult’.⁴² This may occur when a Freedom of Information Act establishes access to and use of public information as a principle, without clearly specifying any responsibilities of or restrictions on the requestors concerning further dissemination or exploitation of the particular information requested. It also can happen in the case where a government entity provides an exclusive license to a single private-sector entity to distribute its public information, or where a private-sector entity obtains public information that subsequently becomes unavailable from the original government source.⁴³

In conclusion, in those situations in which either the government applies the protection of IP laws to the public information that it produces, or the private-sector is involved in producing or distributing information on behalf of a government entity, the government should carefully consider the balance between legitimate IP restrictions on the access to and use of the information on the one hand, and

40 See, e.g., the permissive public-use licensing options developed by the Creative Commons at: www.creativecommons.org/.

41 *ibid.* See also Reichman, J.H. and Paul F. Uhlir (2003) in the Selected Bibliography.

42 Commission of the European Communities (1999), *op. cit.*, note 9, p. 7.

43 See section 2.4.2.3.1 above.

citizens' rights and the broader social and economic interests of the nation on the other, as outlined above in these Policy Guidelines.

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CHAPTER TWELVE

RATIONALE FOR ACCESS TO PUBLIC SECTOR INFORMATION

Fiona Stanley
INTRODUCTION

New technological methods and computer capacity now permit the acquisition, storage, linkage and analysis of large data sets from public sector agencies. The most challenging and ‘wicked’ problems (social or environmental) facing our society demand the best data to ascertain longitudinal trends accurately and across all groups in the population to enable the most cost effective decision making. If we have the capacity to improve situations for people, deliver more effective services, prevent diseases or other problems, avoid or ameliorate damaging environmental problems and so on, and if we do not do so, we are negligent. Public sector agencies collect a significant amount of information, much of which is not used or used simplistically or ineffectively to address major problems or to make public agencies more effective and accountable to the communities they serve. In Australia, such data exist in both Federal and state agencies, non-government organisations and within academic institutions. This paper makes the case for increased access to, and better use of, such data, with examples that are vital to Australia’s future success and prosperity.

THE CHALLENGES OF ‘WICKED’ PROBLEMS IN TODAY’S SOCIETY

Australia, along with other developed countries, is facing increases in major problems such as environmental degradation, climate change, child abuse and neglect, mental health problems and disengaged youth. We have data to show that these problems exist and are increasing; that they share certain characteristics of so called ‘wicked’ problems¹: they are difficult to clearly define, have many inter-

1 Australian Public Service Commission (APS) (2007). *Tackling Wicked Problems. A Public Policy Perspective. Contemporary Government Challenges*. Canberra.

dependencies and multiple causes, are often not stable, have no clear solution and are socially complex. Some wicked problems are characterised by chronic policy failure and hardly ever sit within the responsibility of only one organisation or one set of professionals. Figure 1 lists some of these ‘wicked’ societal challenges which appear to be increasing in Australia and in other developed countries.

Poor Health and Wellbeing

- Low birth weight
- Complex diseases (asthma, diabetes, obesity)
- Mental ill health
- Substance abuse
- Teenage pregnancy
- Disabilities

Social Dis-ease

- Child abuse/domestic violence
- Behavioural problems/unrest
- Educational problems
- Juvenile crime
- Workplace stress
- Reduced social human capital
- Terrorism

Environment

- Climate change
- Degradation
- Water
- New and emerging infections

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- Child abuse/domestic violence
- Behavioural problems/unrest
- Educational problems
- Juvenile crime
- Workplace stress
- Reduced social human capital
- Terrorism

Figure 1: Societal changes

Our research is suggesting that these problems are not only increasing in incidence but also in severity and complexity (e.g. children are more likely to have more than one problem), are occurring at younger ages than they used to, they share complex antecedents, are costly to treat or manage and are causing crises in the various services (health, mental health, education, justice, child protection).² We have also some data on the risk and protective factors for these problems – interestingly we may be able to explain most of their increases by the changes we have observed in families, communities and the global environments which now impact (either negatively or positively) on the trajectories for the development of children.³ Figure 2 suggests those larger ‘drivers’ of risk or protective factors which either enable or disable the capabilities of our families and communities to provide environments which positively influence child health, development and wellbeing. The list on the left describes the enhancing cultural attributes which make for a civil society and those on the right are more likely to result in damaging inequalities and poor outcomes for children – an uncivil society.⁴ Such complex problems demand complex information to monitor, study and prevent them. We need to use all the data at our disposal to guide the best services, give parents and the community the best information on what to do to turn around these enormously worrying trends.

A similar case could be made for our response to the environmental chal-

2 Stanley F., Richardson S. & Prior M (2005). *Children of the Lucky Country?* Sydney: Pan Macmillan Australia.

3 OECD (2008). www.oecd.org/document/51/0,3343,en_21571361_31938349_37115187_1_1_1_1,00.html [accessed 31 October 2008].

4 Stanley (2005).

lenges facing Australia. Whilst not my area of expertise, we used this as an example in our presentation to the Prime Minister’s Science, Engineering and Innovation Council (PMSEIC) in our 2006 presentation Data for Science.⁵ It was clear that this complex problem (or set of problems) facing our environments needed timely, joined up, longitudinal and complex data to enable us to monitor, investigate, evaluate and mitigate in scientifically rigorous ways. The State of the Environment report was a frightening example of data not being accessed or accessible (in some cases not even available) to enable our scientists, public servants and the general public to be guided as to the best solutions.

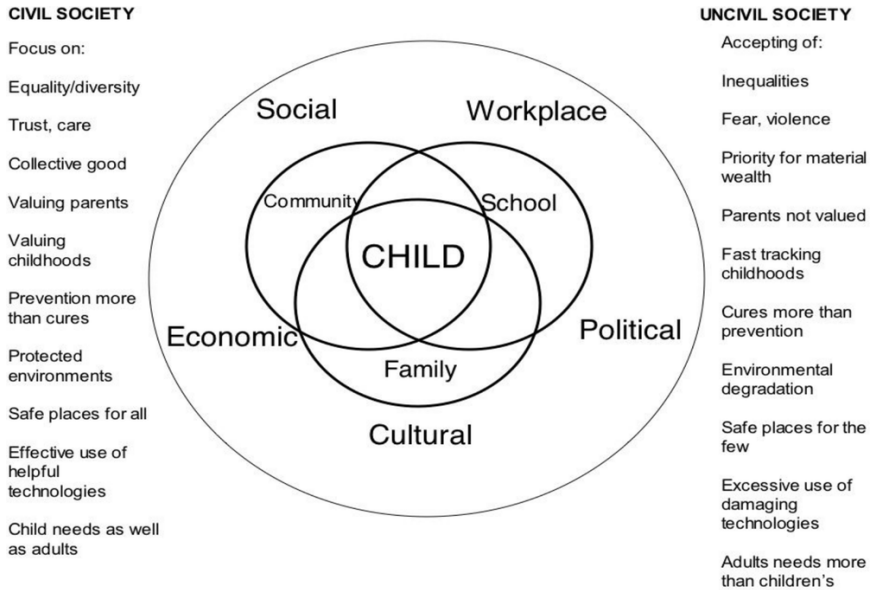


Figure 2: Factors influencing the development of children.

5 DEST (2006). www.dest.gov.au/sectors/science_innovation/publications_resources/profiles/Presentation_Data_for_Science.htm [accessed 31 October 2008]. Also www.innovation.gov.au/Section/pmseic/Pages/DataForScience.aspx

TURNING DATA INTO WISDOM NOW ACHIEVABLE VIA TECHNOLOGY AND CULTURAL CHANGES

In Western Australia we have a unique system of population data bases from health and other government agencies, with disease and problem registers, surveys and special data collections which we can link together to enable complex and intelligent ‘mining’ and analysis. This system has been established for over 30 years with considerable improvement and increasing capacity and sophistication as technology, analytical capacity and storage rapidly improved.

Figure 3 shows the WA Data Linkage capacity. This has enabled a large number of outputs which have been fed back into the public system to improve health and other services.

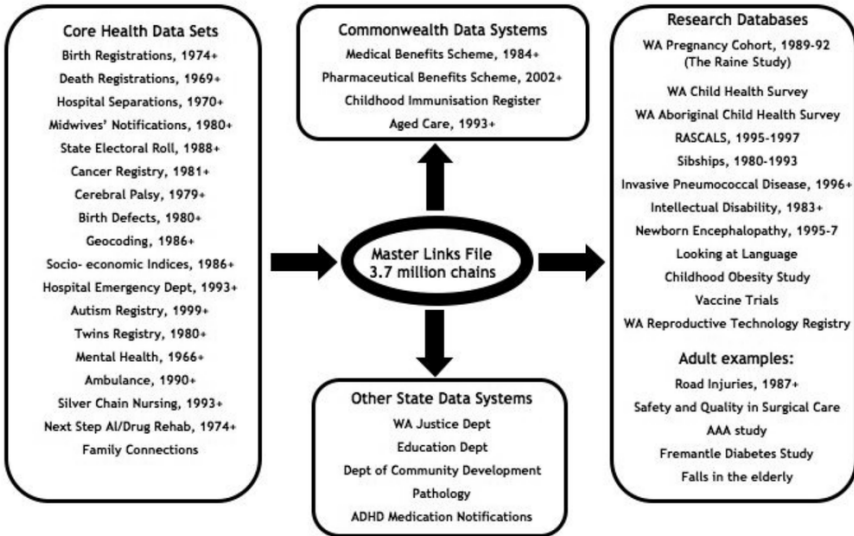


Figure 3: WA Data Linkage capacity.

The National Collaborative Infrastructure Strategy has funded this model to be rolled out nationally to enable similar analyses and uses for the whole nation.

‘DATA FOR SCIENCE’ – INTERNATIONAL TRENDS AND RECOMMENDATIONS FROM THE PMSEIC PRESENTATION

The recommendations put forward by the PMSEIC working group on Data for Science⁶ relate, broadly, to three areas: 1) the whole of the research system – a national strategic framework, a national network of digital repositories, data access and sharing protocols and the need to ensure that privacy and intellectual property regulations do not impede data sharing; 2) cultural and institutional change – which covers how to encourage better data management practices; and 3) how to develop the skills required for researchers and others to be able to work within the emerging information infrastructure and the new data environments.

The first set of recommendations from this report covered the need for a National Strategic Framework for Scientific Data which includes all data in government agencies and data in all areas of science such as social sciences, humanities and Indigenous knowledge. We recommended that this would need leadership, improved capacity for data management within agencies, best practices, infrastructure and considerable public funding to enable a national network of repositories of data with appropriate access.

In order to get to better data management, access, sharing of data across jurisdictions to tackle these major problems, we need to change the culture within public sector agencies and within academia, and encourage partnerships between them to encourage better use and re-use of publicly funded data.

One recommendation was: ‘That standards and standards-based technologies be adopted and that their use be widely promoted to insure interoperability between data, metadata, and the data management systems, providing authentic users of the data with appropriate processes and safeguards’. These are essential prerequisites to better use and sharing of data.

A most important recommendation related to making data more freely available – the topic of this paper ‘That the principle of open equitable access to publicly-funded scientific data be adopted wherever possible and that this principle be taken into consideration in the development of data for science and programmes’.

As part of this strategy, and to enable current and future data and information resources to be shared, mechanisms to enable the discovery of, and access to, data and information resources must be encouraged.

In relation to academic researchers and those that might obtain research grants to use agency data the following recommendation is relevant ‘That funding agencies offer incentives to encourage researchers and institutions to:

6 *ibid.*

- Develop data management plans for each research grant application involving data collection and generation, and that standards be made freely available and widely disseminated as to encourage best practice in data management
- Introduce policies and practices to encourage collaboration and sharing of data across Australia's research institutions and across agencies
- Analyse and re-use existing data⁷.

There is another point here, which is that research funding agencies must fund more analysis of existing data, rather than their seemingly preferred option of funding new research grants in order to collect new data. The use of preciously collected existing data sets may actually be best practice, and many of them are under-utilised resources.

There were a set of recommendations around the need to remove any regulatory impediments to the use of data: 'That funding agencies such as the NHMRC and ARC ensure that best practices and policies are developed and followed that allow bona fide researchers to access individual population data, including the linking of data from multiple sources, whilst protecting privacy, and ensuring that ethics committees fully understand these policies and their rationale'; and 'That in the context of developing the strategic framework for scientific data management, Australia's intellectual property approaches be checked to ensure they do not impede the sharing of data'.

We felt that it was important that, in particular Australia, should follow the OECD Committee for Scientific and Technological Policy guidelines on access to research data and the International Council for Science statements about the benefits of sharing data. Sharing data is now international best practice and the intellectual property issues relate to discoveries that result from the data rather than the data itself.

These ideas and recommendations are re-iterated and stressed in the recently released National Innovation Review⁷ which suggests that collaborations and sharing of data and resources are essential prerequisites to enable Australian innovation – for both research and development and innovation for challenging societal problems.

PRIVACY ISSUES

Concerns about privacy are often raised; fear of unauthorised disclosure and of individual data being used for malicious, political, or commercial interests is perceived as directly conflicting with the use of these data for monitoring, evaluation

⁷ www.innovation.gov.au/innovationreview/Pages/home.aspx [accessed 31 October 2008].

and research. Discussions in the media about the collection, linkage, and use of data on the various aspects of individuals usually focus on the threats to privacy and rarely understand or discuss the huge opportunities for public good that are increasingly possible from such information and could be lost if such access is not allowed. If not adequately addressed these fears have the potential to hinder improvements in the health and well being of both individuals and populations and to effectively tackle the ‘wicked’ problems referred to earlier.

It has been accepted for over half a century that ‘*the highest attainable standard of health*’ is a fundamental human right for which governments have a responsibility to help their peoples achieve,⁸ – individual health is a matter of social justice and fundamental to the common good of nations. The same may be said of education and employment. If we acknowledge that collective action is required for the promotion of the health and well-being of populations then we need to recognise the importance of partnership, citizenship, and community in the development of a healthier nation.⁹ That this may require some relinquishing of self-interest for the greater good comes right up against the increasing demand for individual rights in today’s developed societies.

If we recognise that both privacy and health are fundamental human rights, can we avoid them conflicting and as proposed by Gostin (2001),¹⁰ balance both of these goals so that both are enhanced?

McCallum et al. (1993) conducted focus groups to identify what concerns Australians had about data linkage.¹¹ The people interviewed reported that they valued high profile health research that potentially has public benefit, trusted medical research undertaken by Universities, and recognised that there was a low risk to them from academic uses of their data. In this study, even people who initially refused consent to have their data linked agreed to participate following open discussion of the issues and an opportunity to weigh up and balance the potential risks and public health benefits. This clearly indicates the need to educate the public about this issue, particularly to give them examples of the public good (or the harm of not improving health services, for example).

8 WHO (1948). *Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, 19–22 June 1946*, World Health Organization, New York.

9 Gostin, L. O. (2004). ‘Law and ethics in population health’, *Australian and New Zealand Journal of Public Health*, 28: 1, pp. 7–12.

10 Gostin, L. O. (2001). ‘Health information: reconciling personal privacy with the public good of human health’, *Health Care Analysis*, 9: 3, pp. 321–35.

11 McCallum J., Lonergan J. & Raymond C. (1993). *The NCEPH Record Linkage Pilot Study: A preliminary examination of individual Health Insurance Commission records with linked data sets*, Working Paper Number 1, National Centre for Epidemiology and Population Health, The Australian National University, Canberra.

A recent Australian survey indicated that 66% of the general public and 64% of health consumers support data linkage by researchers while the proportion increases to 82% and 86% (respectively) for data linkage where a unique number rather than a name is used.¹² Overall, survey participants recognised the importance of data linkage for improving health care and public health

The Australian Law Reform Commission Report¹³ has reviewed the situation of access to public sector information and responded to the considerable sway of opinion that public good must be made of these public sector databases. They say:

‘Greater facilitation of research’

The *Privacy Act* allows researchers to obtain and use personal information for health or medical research, without the consent of the individuals concerned, where approved by a Human Research Ethics Committee.

The ALRC heard many concerns, however, from researchers in the health and medical field – as well as social scientists, criminologists and others – that an overly cautious approach to the application of the *Privacy Act* was inhibiting the conduct of research, even where the threat to individual privacy was limited or non-existent and the potential value of the research was very high. For example, epidemiological research can play a very valuable role in planning and promoting public health campaigns and in allocating scarce resources. In such cases, researchers are not concerned with the identity or information of individuals within the sample, but rather are seeking to identify broad trends and patterns in the population.

The ALRC also recognises that there are other forms of research that provide benefits to the community that require access to personal information in situations where it is difficult to obtain consent – such as research on child protection or factors associated with criminal behaviour.

The ALRC recommends that the research exception to the ‘Collection’ and ‘Use and Disclosure’ principles in the model UPPs allow information to be collected, used and disclosed for research purposes – including in areas other than health and

12 NHMRC (2005). *Getting in on the Act: The review of the private sector provisions of the Privacy Act 1988*, Australian Government, Office of the Privacy Commissioner, Sydney, NSW.

13 www.austlii.edu.au/au/other/alrc/publications/reports/108/ [accessed 31 October 2008].

medical research – where a number of conditions are met, including approval by a Human Research Ethics Committee.

Figure 4 is from the Australian Productivity Commission report on Overcoming Indigenous Disadvantage.¹⁴ It shows the pathways to improving outcomes and the data required to monitor whether we are implementing those things which will improve the situation for Aboriginal people. It illustrates the power of data to both inform public policy and monitor whether or not services and government activities are achieving their required outcomes. It is the best way to ensure government accountability to the communities and people they serve. These could even be used as Key Performance Indicators for those responsible for service delivery.

OECD WORLD FORUM ON FOSTERING AND MEASURING THE PROGRESS OF SOCIETIES

In June 2007, the OECD held a major forum in Istanbul on How to Foster and Measure the Progress of Societies.¹⁵ Major international agencies such as UNESCO, UNICEF, WHO and UNDP met with senior politicians, bureaucrats, economists, researchers and government statisticians to decide on how best their countries could introduce and measure those things which enhanced our societies. It was a most important meeting with the following themes:

- Data to build modern democracies and civil societies (human rights)
- Data (power) to the people: accountability, governance, culture
- Sustainable development, inequalities
- Demographic change, work, migration
- Climate change, biodiversity, technology, energy, water
- The world's children, families, poverty, gender differences, Millennium Development Goals
- Health, education, data to knowledge to policy
- Globalisation, economic, financial, corporate and NGO roles
- Data leads to knowledge leads to policy.

14 www.pc.gov.au/gsp/indigenous [accessed 31 October 2008].

15 OECD (2008).

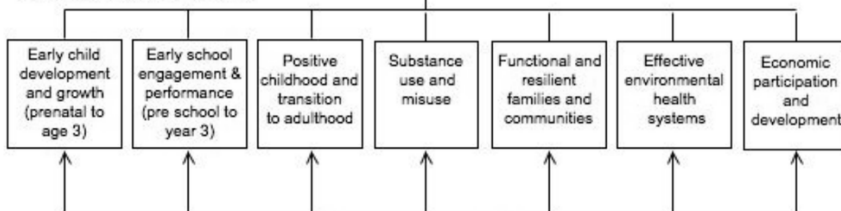
Priority Outcomes



Headline Indicators

- Life expectancy at birth	- Life expectancy at birth	- Substantiated child protection notifications
- Rates of disability and/or core-activity restriction	- Rates of disability and/or core activity restriction	- Deaths from homicide and hospitalisations for assault
- Years 10 and 12 retention and attainment	- Years 10 and 12 retention and attainment	- Victim rates for crime
- Post-secondary education – participation and attainment	- Post-secondary education – participation and attainment	- Imprisonment and juvenile detention rates

Strategic areas for action



Strategic change indicators

Figure 4: Overcoming Indigenous Disadvantage: Indicator Framework

The Istanbul Declaration fits beautifully with the points I am trying to make in this paper. The declaration suggested:

- Measurements of progress go beyond GDP per capita (e.g. MDGs)
- Societal welfare (wellbeing) is dependent on evidence based and accountable policy making
- Statistical indicators (social, environmental and economic) disseminated to citizens enables democracy
- Official statistics are a key ‘public good’ to foster progress of societies.

This declaration and the debates had in Istanbul are exactly the messages I want to convey in this paper.

SUMMARY AND CONCLUSIONS

We have never had such an era where the need for data is so urgent, nor the capacity to produce and use it is so great. The only things holding us back from using public sector data are ignorance, fear, lack of funding and a poor understanding of the power of data by data custodians and public sector workers, most of who stand to benefit most from its wider accessibility and use.

I would like to end with a quote from Professor Lawrence O Gostin from the University of Georgetown.¹⁶

In the late 20th century, scholars and politicians posed a key question. ‘What desires and needs do you have as an autonomous rights bearing person to privacy, liberty and free enterprise?’ Now it is important to ask another kind of question. ‘What kind of community do you want and deserve to live in, and what personal interests are you willing to forgo to achieve a good and healthy society?’

16 Gostin, L. O. (2004).

CHAPTER THIRTEEN

PUBLIC SECTOR INFORMATION ACCESS POLICIES IN EUROPE

Frederika Welle Donker
INTRODUCTION

In the digital age geo-information has become embedded in our daily lives, such as navigation systems, community platforms, real estate information and weather forecasts. Everybody uses geo-information for their day-to-day decision making. Therefore, access to geo-information is of vital importance to the economic and social development of the nation. Most geoinformation, especially the more valuable large scale geo-information is owned by governments all over the world. Government bodies create, collect, develop and disseminate geo-datasets and geo-information to support their public tasks. Although this information is primarily created and collected for internal use, it forms a rich resource for other public sector bodies, citizens and the private sector.

There have been a number of initiatives within the European Union (EU) to provide access to and re-use of this public sector information in order to create a free flow of information and services within the EU. Initially aimed at paper documents, these initiatives had little effect on geo-information. Geo-information existed as paper maps or geo-information systems requiring specialised software. But in the last decade improved computer processing capabilities, broadband internet and interoperability of systems have lead to mass digitalisation and thus better availability of information in general. EU initiatives to improve access to information, especially the 1993 Directive on re-use of public sector information, the so-called PSI Directive (2003/98/EC), should have had a flow-on effect on geo-information. But five years after adoption, its impact has not quite lead to the expected surge of value added geo-information products and services as predicted by some (e.g. PIRA 2000, RAVI 2000). The private sector still faces legal, financial and organisational obstacles when trying to access public sector information (e.g. MICUS 2003 and 2008, Groot et al. 2007).

So, maybe access to public sector geo-information is still not as simple as EU legislation intended it to be. The level playing field as envisioned by EU legislation may not be apparent in the geo-sector. What impact has the EU framework

had on access to public sector geo-information to date? This paper will provide a description of the current EU framework. A brief history of public sector geo-information availability will be presented, and a description of the current situation in a number of European countries. The paper will finish with some conclusions and recommendations.

GEO-INFORMATION

GEO-INFORMATION USE AND USERS

What is geo-information exactly and why is it so different from other products? To start with, there are many different descriptions of geo-information, depending on the country and the application. Also, the terms ‘geo-information’, ‘geo-data’, ‘spatial information’ and ‘spatial data’ are interchangeably used as synonyms. For the purpose of this paper only the term geo-information (GI) will be used. There are many definitions for the concept of GI. MICUS (2008) defines GI fairly narrowly as ‘topographical data in all scales, cadastral information (including address coordinates and aerial photography’ because these are the categories with the highest re-use rates. In the EU GI is defined as ‘any data with a direct or indirect reference to a specific location or geographic area’ (EU 2007). After a literature study, Longhorn & Blakemore (2008) came up with possibly the broadest definition:

‘Geo-information is a composite of spatial data and attribute data describing the location and attributes of things (objects, features, events, physical or legal boundaries, volumes, etc.), including the shapes and representations of such things in suitable two-dimensional, three-dimensional or four-dimensional (x, y, z, time) reference systems (e.g. a grid reference, coordinate system reference, address, postcode, etc.) in such a way as to permit spatial (place-based) analysis of the relationship between and among thing so described, including their different attributes’.

GI may exist as static information such as aerial images, topographic maps, statistical data, land administration data or census data, but also as dynamic information such as meteorological radar data. In short, GI is more than just digital maps or cadastral information, it also includes administrative information such as address codes, environmental data, government spatial planning and legal system information. Because of its broad scope GI has become a valuable resource in current society.

One of the most efficient ways of making GI available is through an infrastructure. In the EU it will be mandatory for Member States to set up geo-information infrastructures (GIIs) in order to share public sector geo-information

(PSGI) between governments. It is envisaged that such infrastructures will also be used by other users. Van Loenen (2006) distinguishes four types of users of a GII, namely primary users (the collector and major users); secondary users (incidental users for similar purposes as the primary user); tertiary users (users that use the dataset for other purposes than the purposes for which the information was collected and the dataset created); and end-users. Van Loenen (2006) asserts that the tertiary users will be the main drivers of the development of a GII. The private geo-sector, including firms that add value to existing GI and resell those products and services, the so-called value added resellers (VARs), form a large proportion of this tertiary users group. But also the end-users are becoming more influential in the development of GIIs. By exploring the viewing possibilities of GIIs they provide essential feedback. This is why consistent access policies are vital for the development of GIIs.

LIMITATIONS

Geo-information – like all other forms of information – has economic aspects which sets it apart from other products. In the case of large scale GI, the fixed production costs of creating information are high and there are also substantial sunk costs. Sunk costs are costs which must be incurred to compete in a market but are not recoverable on exiting the market. The variable costs of reproducing information are low and do not increase if additional copies are produced, i.e. the marginal costs are low. There are also no natural capacity limits to the number of copies produced (Shapiro & Varian, 1999). As such, information shows characteristics of a public good, i.e. a good that is non-rivalrous and non-excludable. Consumption of information does not reduce its availability for consumption by others, and in principle no-one can be excluded from consuming the good. However, because of the high investments costs consumption of GI may be limited by legal and/or technological means such as copyright and digital rights management. Thus, by making GI excludable, GI becomes a club good, i.e. a non-rivalrous but excludable good. By claiming intellectual property rights (IPRs) such as copyright – and in the EU also database rights – (re)use of GI can be controlled and commercially exploited through licences. Restricting use with licence conditions and charging a fee allows for recouping some of the investments made. If the public sector makes GI available, fees may vary from marginal cost recovery, e.g. the costs of burning a DVD and postage, to full cost recovery including all investment costs and personnel costs. Especially large scale GI may end up costing millions of Euros for land-covering datasets.

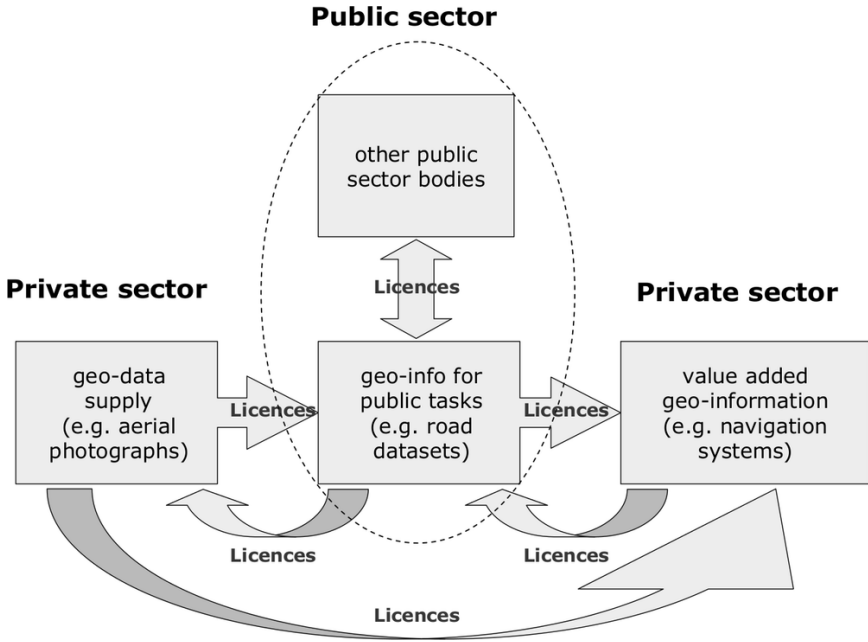


Figure 1: Flow of geo-information between public and private sector (F. Welle Donker, 2009)

GI may consist of many base datasets to make a total package. Integrating and analysing the many varied types of data may be time-consuming, and the process of updating is complex (Longley et al. 2001). Also, these individual base datasets are often from different sources and owned by different parties. These parties may or may not claim IPRs. Therefore, even if only one party supplying only a small part to the total information limits use by IPR, then the entire information will be limited as well. For example, a government agency produces a file containing information related to roads. The information includes datasets such as type of road surface, maintenance schedules, topographical layers, address coding, et cetera. The topographical layers are created by another public sector agency and are derived from aerial photographs. The aerial photographs are supplied by a private firm, specialised in such products. The firm claims copyright as a way to commercially exploit their images. The firm may stipulate that for each government agency a separate contract has to be negotiated. The firm may also stipulate that the derived products may not be made available to third parties because the same firm also sells the same aerial images to these third parties.

Another reason why re-use of GI may be limited is that GI may contain data that are subject to privacy protection legislation, e.g. data linked to a natural per-

son. Data may also be limited because of security issues, e.g. satellite images showing army bases or GI may be linked to sensitive information such as breeding sites of endangered animals. As such, GI may have to be adapted before it is made available for (re)use, or may even be withheld or withdrawn from publication altogether.

PUBLIC SECTOR GEO-INFORMATION

GI, and especially large scale GI, is primarily used by the public sector for public tasks such as policy making, spatial planning, flood prediction and relief, emergency services, environmental assessments and many other applications. Large-scale GI generally refers to geographic datasets (to a scale of approximately 1:1,000) in densely populated areas. The scale of a dataset, its technical characteristics, and type are among the factors that determine the cost of data collection, which can vary significantly. A 1:1,000 dataset with comprehensive content for a complete jurisdiction is expensive compared to a 1:1,000,000 dataset that covers only one type of data for a sub-jurisdiction (Van Loenen 2006). Also, large scale GI needs to be updated frequently to be useful. Due to the high investment costs, there are only a few private sector enterprises that are able to produce large scale GI. Therefore, producing large scale GI is most often done by the public sector because of the economies of scale. The public sector may also create large scale GI for historic reasons (e.g. producing topographical maps traditionally for military purposes).

Large scale GI is usually produced for a specific purpose. Sometimes the public sector body acquires base data from the private sector to produce large scale GI, e.g. aerial photographs. These private sector enterprises usually make the data available to the public sector under a licence agreement. After the original purpose has been fulfilled, the public sector geo-information (PSGI) can be (re)used by others, either with or without licence conditions. The largest group of PSGI re-users consists of other public sector organisations. These organisations will adapt the PSGI again to suit their own purposes. Depending on the original licence conditions, they may or may not make this PSGI available for re-use by e.g. the private sector. The private sector can use this PSGI for their own business purposes (e.g. soil data for engineering firms) or they can enrich and add value to the existing PSGI for commercial purposes. This last category of companies is known as the so-called value added resellers (VARs) as they create differentiated products and services, both for the public sector and the market. However, VARs will not be able to produce value added products if the purchase price is too high or the licence conditions too strict. Thus a vicious circle can arise: the public sector starts to develop value added products themselves because the private sector is not doing so to a satisfactory extent (Groot et al. 2007).

ACCESS REGIMES FOR PUBLIC SECTOR GEO-INFORMATION

OPEN ACCESS

There are two funding regimes for financing public sector bodies that produce PSGI. The first model is the so-called marginal costs regime. With this regime PSGI is funded out of general revenue, and then made available for re-use for no more than the costs of dissemination and with a minimum of restrictions. Disseminating information for free with no user restrictions is called an open access model. The philosophy behind this model is that once taxpayers have paid for producing PSGI, the information belongs to the taxpayers and they should not have to pay again to re-use this information. This regime is applied to e.g. geo-information of United States (US) federal agencies. The expectations are that with an open access model the knowledge economy will be stimulated, more value-added products will be produced and thus revenue will flow back to the government in the form of taxes such as value added taxes and company taxes (Van Loenen 2006). With the marginal costs regime the costs are shared by all the taxpayers. However, this funding regime is sensitive to political decisions. If funding for a public sector body out of the general budget is reduced, the update frequency and quality of the datasets may be reduced. Also, there is no guarantee that revenue raised from taxation will be returned to the appropriate public sector body (Longhorn & Blakemore 2008).

There is another possible hitch with the open access model, especially when a public sector agency decides to switch to an open access model. Making PSGI available may be deemed to be an economic activity, even if it is for free. As such, it may be in breach with national Fair Trade Legislation in some countries as it may constitute an act of unfair trading practices if the private sector already has made vast investments to create similar datasets. The Dutch Department of Public Works ran into a dispute with some geo-companies after the Department made their National Roads Dataset available for free, in line with existing policy. The geo-companies had produced similar datasets for car navigation producers and for emergency services. The Department of Public Works withdrew the dataset after the geo-companies threatened to sue for unfair trading practices because the free National Roads dataset was competing with the fee-based datasets.

COST RECOVERY

The other regime for funding PSGI is by recovering all costs incurred in production and dissemination of the PSGI from the actual users, i.e. a user-pay

system. The fees may include a return on investments. The information is only made available for (re)use under, often restrictive, licence conditions. The pricing model may be a fee per area, subscription fees, fixed access fees, royalties or a combination of these models (Welle Donker 2009). Providing fee-based access to information is called a cost recovery access model. This model is applied to e.g. data from United Kingdom Trading Funds¹ such as the Ordnance Survey (the British Mapping Authority). The advantage of this regime is that all costs incurred in producing the information, are shared by the actual users. Also, the appropriate public sector body can use the revenue raised for updating and improving the information thus guaranteeing continuous high-quality information. However, when the number of likely (re)users is not known in advance, it may be difficult to set reasonable fees based on cost-recovery (Welle Donker 2009). There is no natural ceiling for prices as the public sector body often enjoys monopolistic advantages. Also, setting fees is complicated because the value of GI depends on many factors and assumptions (Longhorn & Blakemore 2008). Another risk with this regime is the boundary between public and private tasks is becoming blurred as the public sector body is also a market party.

The funding regimes described above are two extremes on a sliding scale. In the EU most governments employ a form of cost recovery regime for GI. In some countries a mixture of open access and cost recovery regimes is employed, sometimes even within the same level of government.

EUROPEAN UNION LEGAL FRAMEWORK

Until the 1990's, there was no formal framework for marketing PSI. With each country setting their own policies, there was a variety of different policies with a variety of fees and user conditions. From about the mid 1990's a general rethink occurred in a number of EU countries. Studies carried out in Europe and the US indicated that PSI would be a rich resource for creating value added products and services produced by the private sector (e.g. PIRA 2000). As such, PSI has

1 A trading Fund is an operation of a government department that has been established by a Trading Fund Order in accordance with the Government Trading Fund Act 1973 (as amended by the Government Trading Act 1990). A Trading Fund may be established where a Minister of the Crown judges that the revenue of an operation could 'consist principally of receipts in respect of goods or services provided in the course of the operations in question', and that setting one up would lead to 'improved efficiency and effectiveness of the management of those operations'. Trading Funds are required by statute to principally recover their costs (i.e. to recover a majority of their costs) through income derived from operations within the trading fund (Cambridge University 2008).

a potential economic value worth thousands of million Euros. However, due to restrictions in availability, exploitation of PSI in Europe is lagging in comparison to the US. The potential economic value of PSI in general was estimated to be between 28 and 134 thousand million Euros in 1999 (PIRA 2000). Similar national studies came up with comparable figures (e.g. RAVI 2000; MICUS 2001), although other studies came up with more conservative estimates (MEPSIR 2006, OFT 2006). Even with more conservative estimates, the potential value ranges from 10 to 48 billion Euros (MEPSIR 2006).

CREATING A LEVEL PLAYING FIELD

The current legal framework related to PS(G)I is not so straight forward in Europe. Countries that are members of the EU have to abide to EU Directives and Treaties, national legislation and policies. A number of older EU Member States such as Germany and the United Kingdom already have established national legislation such as a Freedom of Information Act, Fair Trade legislation and Copyright Act, as well as specific statutes such as Cadastre Acts or Anti Terrorism legislation. Other EU countries, especially the newer Member States from Eastern Europe, may not have such an advanced legislative framework yet. However, by adopting and implementing the EU directives a general EU-wide framework is slowly emerging.

There are a number of Treaties and Directives which attempt to create a level playing field for businesses and to provide access to information within the EU. The Treaty establishing the European Community (EC Treaty), the Aarhus Convention, the PSI Directive, the INSPIRE Directive and the framework for the protection of intellectual property probably contribute most to setting a general framework. A brief description will follow below. There are additional EU Directives and Guidelines which are in some way relevant to PSI access models. This includes, inter alia, legislation relating to the protection of information and of personal data; broadband Internet access; the need for transparency within financial transactions and supervision by government agencies and the establishment of a regulatory framework for electronic communications networks and services. However, these will not be dealt with in this paper.

THE TREATY ESTABLISHING THE EUROPEAN COMMUNITY AND THE TREATY OF MAASTRICHT

The Treaty establishing the European Economic Community of 1957 (in 1992 the name was changed to the Treaty establishing the European Community) pro-

vided two fundamental freedoms, namely the freedom of establishment and the freedom to provide services. After incorporation of the EC Treaty into the Treaty of Maastricht in 1993², the number of fundamental freedoms were extended to four, namely (1) free movement of goods; (2) free movement of persons, including free movement of workers and freedom of establishment; (3) free movement of services; and (4) free movement of capital. Both treaties seek to establish a level playing field for a European internal market. These fundamental freedoms are further specified in various directives and guidelines. The Treaties also deal with aspects such as State Aid in order to set a rough framework for governments and agencies when competing with the private sector.

THE PSI DIRECTIVE

The 2003 Directive on the re-use of Public Sector Information (2003/98/EC), the so-called PSI Directive, was established in order to set a general framework for governing the re-use of public sector information and to ensure fair, proportionate and non-discriminatory conditions for re-use. The objectives of the PSI Directive are twofold: 1) to provide access to and use of public sector information as an important ingredient for EU-residents to be well-informed and to participate in the democratic process; and 2) to facilitate the creation of Community-wide information products and services based on public sector information and to enhance the effective cross-border use of public sector information by the private sector in order to create value-added information products and services. The PSI Directive cannot enforce publication or re-use of information. The decision to authorise re-use remains with the Member State or the public sector body concerned. The PSI Directive does stipulate that information should be made available in electronic formats as much as possible. The PSI Directive leaves IPRs unaffected. A public sector body may continue to use licences and/or charge fees for re-use of PSI if they were already doing so in the past. Where charges are made, the total income should not exceed the total costs of collecting, producing, reproducing and disseminating documents, together with a reasonable return on investment. Unfortunately, what exactly is deemed to be a reasonable rate on investment is not specified in the Directive. Any conditions applicable to re-use and charges must be pre-established and published through electronic means where possible. Upon

2 The Treaty of Maastricht consolidated a number of older treaties related to various European Communities that were forerunners of the European Union. Since then, the Treaty of Maastricht was amended to some extent by the Treaty of Amsterdam (1999) and the Treaty of Nice (2003). The Treaty will most likely be amended again in the near future when the Treaty of Lisbon (signed in December 2007) will be ratified, although the target date of January 1, 2009 was not met.

request, a public sector information holder (PSIH) has to give an account of how the charges were calculated and which costs were taken into account. The PSI Directive does not deal with redress issues, leaving that to individual Member States.

THE INSPIRE DIRECTIVE

Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), adopted in 2007, intends to establish a common framework for annotating and sharing geographic data between Member States, thus setting a framework for a geo-information infrastructure (GII). The Directive emphasises the environmental reasons to *share* data between official agencies in different EU countries, rather than focusing on *access* to that data as a way of promoting wider cross-border usage of geo-information. This INfra-structure for SPatial InfoRmation in Europe (INSPIRE) will be based on (N)GIIs created by Member States that are made interoperable with common implementing rules. The Directive applies to all PSGI used for carrying out public tasks. The INSPIRE Directive leaves IPR claims and the PSI Directive unaffected as far as access regimes and charges are concerned. However, it should be possible to at least view information without incurring fees. As far as INSPIRE is concerned, it will be necessary to facilitate access to PSGI that extend over national or administrative borders, in order to stimulate the development of value-added services by third parties. This should be achieved by developing technical standards to improve cross-border interoperability. Although INSPIRE describes all environmental information to be included in a NGII, it foresees a limited number of policy domains in which specific risks can occur when disclosing certain information, e.g., bird breeding grounds on military sites. The INSPIRE Directive has yet to be transposed into national legislation with the first step due in May 2009.

COPYRIGHT FRAMEWORK

Intellectual property is divided into two categories, namely industrial property (trademarks, patents, trade secrets) and creative works (copyright and related rights, database rights). Copyright was originally conceived as a way to restrict printing by granting exclusive rights to make copies. Nowadays copyright should provide an incentive for the creation of, and investment in, works such as music, films, print media, software, and their economic exploitation. There is no EU Directive establishing copyright as such as Member States already had established national Copyright Acts. The EU Directive on the harmonising of certain

aspects of copyright and related rights in the information society (2001/29/EC), the so-called Copyright Harmonisation Directive, merely harmonises terms of copyright protection within the EU. The Copyright Harmonisation Directive specifies the exceptions and limitations to the rights. The Directive also adapts the existing framework to reflect technological developments and allows digital rights management to control access to works. The Copyright Harmonisation Directive implements the framework of the World Intellectual Property Organisation (WIPO) Treaties of 1996. However, the Copyright Harmonisation Directive leaves Member States national legislation unaffected.

COPYRIGHT CHANGES

The European Commission announced in July 2008 that some more changes will be made to copyright legislation, mainly to bring performers' protection more in line with that already given to authors. The European Commission also released a Green Paper on Copyright in the Knowledge Economy. In this Green Paper the Commission has highlighted the need to promote free movement of knowledge and innovation in the EU single market. According to the Green Paper, the free movement of knowledge and innovation should be considered to be the fifth fundamental freedom in the EU. The Green Paper will now focus on how research, science and educational materials are disseminated to the public and whether knowledge is circulating freely in the internal market. The consultation document will also look at the issue of whether the current copyright framework is sufficiently robust to protect knowledge products and whether authors and publishers are sufficiently encouraged to create and disseminate electronic versions of these products (Commission EC 2008)

SPIN-OFF DOCTRINE

Public sector bodies regularly claim database right to recoup investments made for producing public sector databases. Some national courts in the EU have interpreted the substantial investment test in such a way that it rules out investment in 'spun-off' databases (i.e. databases that are created to support its own operations or that are created as a result of these operations but not created as a core activity), the so-called spin-off doctrine. On November 9, 2004 the European Court of Justice (ECJ) had to rule in four closely related cases brought before it by a number of national courts. The ECJ confirmed the spin-off doctrine and thereby denied protection to producers of single-source databases. Only if the database in question was

produced with the sole purpose of commercial exploitation, can database right be invoked, see, e.g. *British Horseracing Board v William Hill* (ECJ joint cases C-46/02, C-338/02 and C-442/02).

The ECJ ruled in cases against private sector and semi-public sector operators but the spin-off doctrine is also applicable to public sector organisations. In the Netherlands, the spin-off doctrine was confirmed by the District Court of Amsterdam on February 11, 2008 in the case of the *Municipality of Amsterdam v Landmark Ltd*. Landmark Ltd, a private company, had requested a file pertaining to soil pollution under the Freedom of Information Act. Initially the Municipality of Amsterdam refused to make the file available, claiming it was not public information. After Landmark Ltd lodged a formal complaint about breaching the Freedom of Information Act, the Municipality of Amsterdam decided to make the file available after all but charged a hefty fee by invoking database rights. Landmark Ltd sued the Municipality of Amsterdam claiming that database rights were not applicable. The District Court of Amsterdam ruled that a government or public sector body could not invoke database rights because the investments made to produce the database had not carried a substantial risk as such, even though the Municipality of Amsterdam had made a considerable investment to create the file. The soil database had been produced with public money for a specific public task, and not for commercial purposes (Amsterdam District Court, reg. no. LJN BG1554). The Municipality of Amsterdam lodged an unsuccessful appeal as the Council of State, the highest Dutch Court of Appeal for Administrative Law, upheld the District Court's decision on April 29, 2009 (Raad van State, case nr. 200801985/1).

DATABASE DIRECTIVE

Europe, unlike the US, has recognised that creating databases requires vast investments. But databases are not subject to copyright protection as databases fail to comply with the creativity requirement. Some EU countries already had incorporated a 'sweat of the brow' doctrine in their Copyright Acts, i.e. having invested a substantial amount of resources to produce a work like a database, the creator could claim copyright. The 1996 Directive on the legal protection of databases (96/6/EC) established a *sui generis*³ right granting a 15 year protection period from date of publication or completion. Any change which could be con-

3 Sui generis means 'of its own kind' in Latin.

sidered to be a substantial new investment will lead to a new 15 year term. A database is defined as ‘a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means’. A database may contain all sorts of works or materials. The contents are described as ‘information’ in the widest sense of that term (EU 1996). Database rights prevent the unauthorised extraction and re-use of the entire or substantial part of the contents of the database. Since most GI is stored in some form of database and these databases are continually updated, the protection period is almost perpetual.

The objective of the Database Directive was to encourage investment in the information industry by providing protection from copying. However, the protection provided by the Database Directive has had an anticompetitive effect on the information market (Hugenholz 2005). In effect, all databases are prevented from (re)use because of the ambiguity of terms like ‘substantial’. Even government bodies claim database rights so licence restrictions and fees for re-using PSI can be imposed. In recent years, the EU national Courts, by adopting the Spin-Off Doctrine, have given some clarity as to when a database may be protected. The Spin-Off Doctrine questions if the requirement of ‘substantial investment’ is fulfilled when the database is generated as a by-product of other activities (spin-off), i.e. a database can only invoke rights if all investments are made solely to produce that specific database. The mere fact that substantial costs were made to collect the data is not enough to invoke protection under the Database Directive (see box Spin-Off).

THE AARHUS CONVENTION

The Convention on Access to Information, Public Participation in Decision making and Access to Justice in Environmental Matters, was adopted in Aarhus, Denmark, on 25 June 1998. The Aarhus Convention is a United Nations Economic Commission for Europe (UNECE) environmental agreement and links environmental rights to human rights. It links government accountability and environmental protection. The Aarhus Convention specifies that governments should not only grant *passive* access to environmental information (giving access to information after an application has been lodged) but also *active* access (publishing reports, environmental registries, et cetera). The INSPIRE Directive recognises these principles and have adopted similar terms. Although most European countries have ratified the Aarhus Convention, they have adopted different interpretations. Some countries are setting up websites or web services showing environmental information. Some governments are using the Aarhus Convention as a lever to change existing access policies for environmental information. The Norwegian Government passed legislation making all environmental thematic in-

formation available for free. The Dutch government is in the process of setting up a web service which will allow viewing and combining information related to one's direct environment for free. This web service will include PSGI that is currently fee-based.

OBSTACLES TO ACCESSIBILITY

In spite of the EU framework there are still obstacles to accessibility of PSGI. PSGI is difficult to find as it is scattered throughout different public sector organisations. Often public sector organisations claim IPRs to maintain control over (re)use of PSGI. Each organisation applies its own licence conditions and pricing regime. A survey of PSGI licences in the Netherlands in 2006 revealed that most PSGIHs employ a wide variety of licences, all vastly different in length and phrasing. The licences varied from a couple of paragraphs in plain language to dozens of pages in legalese. The restrictions varied from only having to attribute the source, to having to supply a fully developed business plan showing what the user intends to use the data for. The fees also varied from free to hundreds of thousands of Euros for large scale land covering datasets (Welle Donker & van Loenen 2006). It is this inconsistency and non-transparency in user conditions that forms one of the biggest obstacles for VARs in their decision to (re)use public sector geo-information for their activities (see Groot et al. 2007, STIA 2001, RAVI 2000). Other obstacles frequently mentioned by VARs are unfavourable pricing and restrictive licence conditions (see e.g. MICUS 2008). As a consequence, value-added use remains limited.

Another obstacle to re-use of PSGI is that some public sector organisations will act as a VAR themselves by combining and enriching their datasets, and promoting these in the market. After the privatisation and unbundling wave of the last decade or so, a number of public sector organisations have become (semi-)private enterprises that are required to recover their operating costs. These organisations are also often PSGIHs such as the British Ordnance Survey. In some cases the geo-datasets were part of a privatisation 'dowry'. Thus the original costs of collection and creation are reduced to zero, leaving only ongoing costs for maintenance, development and dissemination. Because of the cost recovery requirements, their GI is traded as a commodity with user restrictions. So, not only does the private sector find it hard to obtain GI from the public sector, they may also have to compete with the same public sector that may enjoy advantages private sector enterprises do not have. This may constitute distortion of the internal European market.

PSGI AVAILABILITY IN EUROPE

Although all EU Member States have to abide by the PSI Directive, there are still quite some differences with respect to access and licence conditions. Information regarding Nord Rhein Westfalen (Germany), Norway, France and the United Kingdom was collected as part of a study (Van Loenen et al. 2007). Information regarding the Netherlands was collected as part of earlier research by the author. In this chapter a brief summary of access policies of these countries will be provided.

North Rhine Westphalia (Germany)

Background

Germany is a federal republic with 16 States that have a high level of autonomy. The German federal government acknowledges the economic, political and societal importance of the availability of GI. The federal program Deutschland on-line has incorporated the GII, the so-called GDI-DE. Implementation of GDI-DE at the federal level is coordinated by the Inter-Ministerial Committee for Geo Information (IMAGI). IMAGI is supported by the GDI-DE Steering Committee and set about developing collaborations with the private sector and academia. IMAGI is now responsible for developing and operating a meta-information system as part of a federal geo-portal. Each German federal authority or agency currently defines its own data policy on a case-by-case basis under the direction of the appropriate Minister. The GDI-DE Steering Committee and IMAGI are – directly or indirectly – working towards the development of a harmonised and simplified licensing framework and a comparable pricing regime for GI (SADL 2008).

Each of the 16 states in Germany is responsible for its own topographic service, land and property register, environmental and statistical information collection, and in general for information policies. Information collection is largely decentralised and carried out mostly on the regional and local level. The different states have issued laws (‘Surveying and Cadastral Acts’) that regulate the work and the mandate of the surveying and mapping authorities, including defining the production of cartographic material as a public task. With regard to GII development, the developments of the GDI-NRW is closely watched by other states and IMAGI, as it may be an example for other state GIIs and GDI-DE.

North Rhine Westphalia (NRW) is one of the 16 states in the west of Germany and borders the Netherlands, Belgium and France. It covers about 34,600 km² and has a population of over 28 million. Since March 2005 there is an Act stipulating that all PSI must be available for sharing between all levels of government and agencies. The government structure has three distinct levels of public

authority: national, regional and local, all of which generate and hold PSGI. The levels are organised as follows: at the national level a State government; at the regional level 5 Regierungsbezirke (larger districts) and 54 Kreis government (small districts); at the local level Gemeinden (municipalities). In NRW small scale topographical information (e.g. 1:10,000) is the responsibility of the State Topographical Service. The Kreisen are responsible for large scale geo-information (e.g. 1:1,000). Municipalities are users and the Regierungsbezirke will oversee that the Cadastre Reform Act is adhered to and will assist the Kreisen on a technical level. A Kreis cannot collect its own taxes and is financially dependent on the State (income and property taxes) and Gemeinden (company tax).

Access to PSGI

Access to PSGI is largely controlled by the Cadastre Reform Act and corresponding legislation. GI not covered by the Cadastre Reform Act, the so-called non-geo base data, e.g. aerial photography of the districts, is covered by local policies. All local governments claim copyright and database rights in their information and only grant a 'limited use' licence for re-use. Use of geo-base data is free within the public sector. Other users pay a fee based on cost recovery regime. There are different tariffs depending on the format, category of the layers, size of the area required and information density. Different types of users also pay different fees. The pricing structure as set down in the Tariff Regulation is complicated and difficult to understand. Also, prices can be quite steep: a copy of the ALK (Automated Property Map) covering entire NRW amounted to about €3,400,000 in 2006. The private sector has indicated that the Tariff Regulation's complexity is one of the main obstacles to re-using PSGI. Also, the Tariff Regulation is too inflexible to be of use for web service applications (MICUS 2003).

Because of the barriers re-use of PSGI for developing value added products and services by the private sector remains limited. Some of the Gemeinden, like the City of Aachen, have developed value added services to fill the gap. The Cadastre Reform Act does have a clause which allows experimental use of geo-data. This allows the State government to provide private companies with free access to explore the possibilities of PSGI. If a product appears successful then the free supply of PSGI will be stopped and a contract will be negotiated. An example of one experiment was e.g. www.mySDI.com by Con Terra and Vodafone. However, PSGI is mostly used by other public sector organisations and semi-public sector organisations such as utilities. Another problem for VARs in NRW is access to thematic data. Socio-economic data are not available from one single access point and are therefore harder to obtain. In addition, as production of topographical information is defined as a public task, the State Surveying Authority considers creating spin-off services such as leisure maps also to be a public task (MICUS 2008).

Some Gemeinden and Kreisen provide on-line access to PSGI via Web Mapping Services (WMSs) but they are not obliged to do so. The State government provides online access to its topographic and cadastral information via a web service called TIM-online (www.tim-online.nrw.de). Private use of the web service is free but downloading the reference information is illegal. A user can view information via a WMS. The user can also merge further geodata via a Web Feature Service (WFS)⁴. Due to the popularity of TIM online and feedback provided by users, the update frequency of TIM online has increased from annually to fortnightly. In addition, the popularity of TIM online has raised awareness of the value of GI at the decision making levels, although this has not resulted (yet) in major policy changes or additional finances.

Norway

Background

Norway is a mountainous long stretched country with an extensive coastline of over 2,000 km and an area of 307,000 km². Norway is part of Scandinavia and is located in the north-west of Europe. Norway is a monarchy with a State government, 19 counties (both as regional units of the state government and as a local government) and 431 kommuner (municipalities). Most of its population of 4.6 million reside in the southern part and is otherwise less populated. Norway is not a member of the EU but has strong ties with the EU. Therefore Norway adheres to general EU policy and implements most European Directives, probably even faster than most Member States. However, implementation of the PSI Directive took longer because it was tied to a renewal of the Norwegian FoI Act. The PSI Directive is now implemented in the Act on the right to access to objects in the public sector (public law), which came into effect on 1 January 2009. The new Act sets an upper limit for pricing of public sector information by stipulating that that the right to take a profit can only be used in special cases (www.epsiplus.net/news/psi_re_use_innovation). The Norwegian Ministry of Trade and Industry released a White Paper on 5 December 2008, in which it re-stated its commitment to establish favourable conditions for wealth creation based on sound solutions in the public sector and the increased use of public data as a driver for innovation

4 There are many technical differences between a WMS and a WFS. The main difference is that with a WMS an image is generated on screen from raster data but no actual data transferred to the user, whereas with a WFS actual data is transferred to the user. WMSs are often used for free web services because the image generated is of a low resolution. WFSs are used for vector data so that the data can be manipulated and analysed. Because features of the data are transferred to the user, WFSs are most often used for fee-based services.

(Norwegian Ministry of Trade & Industry 2008). In Norway, it is generally accepted that thematic GI is freely available. For environmental information, this has been enshrined in domestic Norwegian law since 1993.

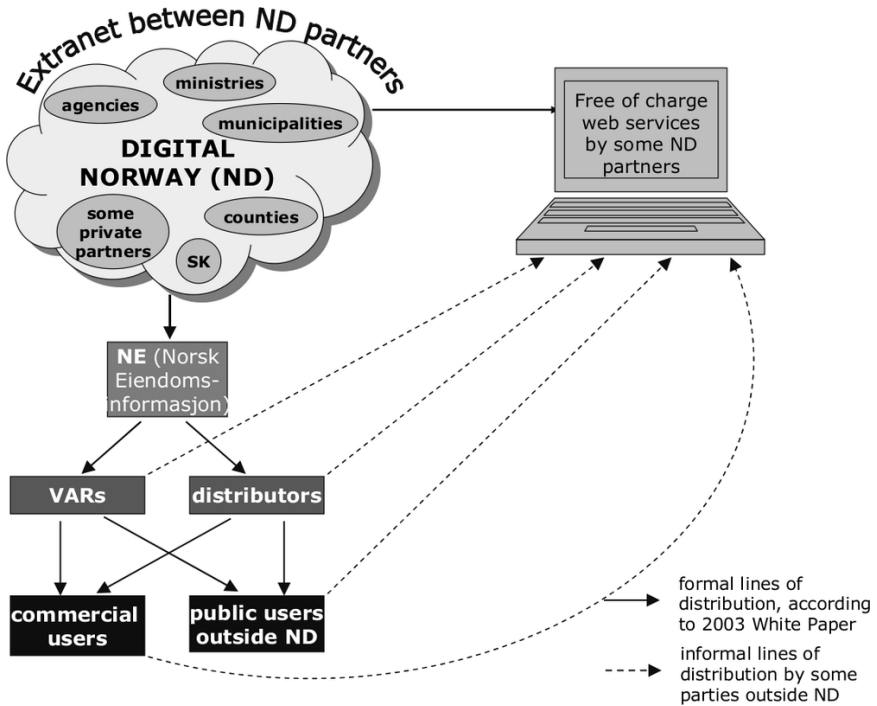


Figure 2: Norway Digital access model, formal and informal lines of distribution, (F. Welle Donker, 2009)

Both the State and local government have such data available on-line. Often this data is only on-line in raster formats but upon request it is possible to obtain the vector version as well. This principle seems to precede the Aarhus Convention (Van Loenen et al. 2007).

Access to PSGI

Within the public sector several organisations handle GI. The Norwegian Mapping and Cadastre Authority (*Statens Kartverk SK*), residing under the Ministry of Environment, is responsible for the coordination of the Norwegian GII. In 2003, a White Paper authorised GI sharing within the public sector by setting up a GII. This program, called Norge Digitalt (Digital Norway, www.GeoNorge.no),

provides not only a portal but also a framework for cooperation within the public sector. Nearly all state departments and agencies, as well as local governments, have joined or are in the process of joining Norge Digitalt (ND). After paying a contribution, the government organisation then makes its GI available free of charge to other participating organisations. The contribution paid is related to the importance of base geo-data and the size of the organisation. Within ND all participants can use free GI for its own internal business processes. More than 30 state and almost all local government organisations are a member of ND. For historic reasons, some private sector organisations are allowed to join ND.

If the private sector wants to use PSGI, it can buy datasets from a government-owned intermediary, the Norsk Eiendominformasjon (NE). The NE acts as a one-stop shop for VARs to get the data and resell it to end-users. A contract is drafted with the NE and NE pays royalties to ND. NE uses the same (restrictive) licence conditions for all information it resells. However, there are some unresolved issues with this system. As part of the decision to let SK coordinate the ND, the marketing activities of SK were sold off. A private firm, Uglund IT, now has an exclusive right to produce certain map series. SK is not allowed to sell its own GI to the private sector, as this was handed over to NE. However, other members of ND are still allowed to market their own GI. Several public sector organisations provide this GI for free through WMSs. Until 1 January 2007, all SK services were freely available on the web. To be in line with the access policy from the 2003 white paper, SK had to limit free access to ND partners only. NE does not have a publicly known pricing policy. In order for ND to operate more transparently, GI should be made available to outsiders under clear and equal conditions. NE was set up as a one-stop shop for VARs and distributors but is increasingly selling to end-users as well. By doing so NE acts more and more as a market party, thus blurring the separation between public and private sector. Because there is no legal framework for ND as such (only a white paper) there are no clear boundaries.

France

Background

The Republic of France is the largest country in Western Europe. Mainland France (excluding overseas territories of the French Republic) has an area of approximately 543,965 km² and a population of circa 65 million. France is governed by a centralised government, presiding over 22 Regions that are further subdivided into 96 Departments. These Departments are then further divided into Arrondissements and Communes. Most of PSGI is collected and used by these administrative divisions. Designing a common access policy in France is not so simple. The administrative divisions, especially the Communes have a high level

of autonomy. Thus, a top-down approach has to be carefully implemented as the Communes cannot be compelled to adopt a Central Government policy, they can only be asked to participate in the interests of the Republic. A number of initiatives have commenced in order to modernise the French government's approach to access to (national) PSI and services to citizens. One of those initiatives is the Direction Générale pour la Modernisation de l'Etat (DGME) initiative which was launched in January 2006. The Ministry of Public Works, Infrastructure and Land Planning is now working on an intranet geo-catalogue / geo-portal system for internal Ministry usage with a view to making this service available to other ministries in the future.

Access to PSGI

Within the DGME initiative, Geoportail has been set up as the main PSGI portal (www.geoportail.fr). There are three organisations responsible for the implementation and maintenance of Geoportail. The overarching organisation is the DGME, since Geoportail is a part of the DGME initiative. The DGME is responsible for coordinating the policies necessary to ensure that public sector bodies (and where possible local governments and the private sector) make their data available to Geoportail. The Ministry of Geology (BRGM) is the second organisation responsible for the implementation of Geoportail. BRGM's role is to design, implement and maintain the catalogue component (Le Geocatalogue) of Geoportail. With the catalogue function, datasets can be located. The third organisation involved in Geoportail is the Institut Géographique National (IGN). IGN's function is to implement the other main component of Geoportail, the visualisation component (the Visualiser). With the Visualiser, datasets can be viewed and downloaded. Viewing is free of charge but only custodians of the datasets can download data for free. Other parties like the private sector can download data on a subscription basis. With an API, Geoportail is available for the private sector to upload their own information. Geoportail is envisaged to become a community-oriented and development platform (IGN 2008).

Since its inception in July 2007, Geoportail has attracted millions of viewers with numbers now hovering around 1.2 million users per month (IGN 2008). Most of the datasets accessible through Geoportail belong to BRGM, IGN and some partners and contains topographical, cadastral, hydrographic and thematic information, and historical maps. The Visualiser allows 2D and 3D viewing, rivaling private sector platforms such as Google Earth in speed and performance. Thus, Geoportail far exceeds the requirements of INSPIRE. To increase the performance, images are stored as tiles on the server(s) in advance, requiring Terabytes of storage capacity. Geoportail requires 3 Gbps broadband capacity, two 50 Tb caches and a 100 Tb storage capacity (IGN 2008). Although Geoportail is set up to make PSGI accessible for re-use by both the public and the private sec-

tor, it is unclear to what extent revenue through downloads will help to recover the costs of development (circa 6 million Euros) and the annual operating costs (circa 1.5 million Euros). Also, as the lower governments cannot be compelled to participate, the success of Geoportail will depend on their willingness to make their datasets available. Funding will have to be made available to the lower governments to make their data compatible to Geoportail. Already a number of the local authorities have their own web services to provide access to local PSGI. Linking their websites to Geoportail may produce volumes of traffic that these sites were not designed to handle (Van Loenen 2007).

England and Wales (United Kingdom)

Background

The United Kingdom (UK) is an island nation in north-western Europe located between the Atlantic Ocean and the North Sea, to the west of France, Belgium and the Netherlands. The total area of the UK is circa 245,000 km² and its population is nearly 61 million. The UK is a constitutional monarchy and is centrally governed by a national government. Furthermore, there are three Executives (the governments of Northern Ireland, Scotland and Wales), and a complex system of local government. England, the largest country of the UK, has no devolved executive and is administered directly by the UK government on all issues. There are nine Government office regions, each further divided into boroughs, counties, district councils and unitary authorities, about 500 in total. Policy decisions are made by the central government and their agencies. Local governments are mainly responsible for local planning and everyday operations of their areas. The larger local authorities, such as the City of London, have a greater autonomy. The Executives of Scotland and of Northern Ireland have strong levels of independence. The Welsh Executive has more limited powers. For this paper England and Wales are combined as their access policies are very similar.

In the UK, there are different copyright regimes applicable to GI. The main copyright law affecting PSGI is the Crown Copyright. Crown Copyright applies to PSGI produced by central government agencies referred to as Crown Bodies. However, it is not always easy to distinguish which public sector organisations are Crown Bodies and thus affected by Crown Copyright because of technical legal reasons (APPSI 2004). Therefore different central government agencies will have different copyright regimes regulating their information, resulting in different rules for re-use.

Access to PSGI

Because of the centralised structure, the central government and its agencies re-

quire access to detailed information at both local and national level. The public sector is therefore the biggest producer of information. To support the service-orientated market, the UK government has implemented a number of initiatives to encourage the use and re-use of PSI. These are:

- the promotion by the Cabinet Office of the re-use of PSI to enhance the knowledge economy and the quality of government in the UK
- the initiatives of HM Treasury to leverage PSI to generate revenue and reduce the cost of government
- the Efforts by the DCA to promote transparent government through the Freedom of Information Act
- the DTI efforts to enhance the competitiveness of the UK information sector and the join-up government policy (APPSI 2004).

However, some of these initiatives show conflicts of interest with each other (APPSI 2004). In 2006, as part of a general review, the Advisory Panel on Public Sector Information (APPSI) had its mandate changed to a non-departmental public body of the Ministry of Justice to – among other things – review and consider complaints related to re-use of PSI.

Most PSGI is generated by the Ordnance Survey (OS), although other parties like the United Kingdom Hydrographic Office (UKHO), Her Majesty Land Registry (HMLR) and the Royal Mail Group are also active. OS, UKHO and HMLR are all classified as Trading Funds and are required to generate a surplus. Therefore, these agencies all use restrictive licence conditions and fees to make their datasets available for re-use. There is no single access policy for PSI in the UK. UKHO use a network of VARs which re-use hydrographic information on a royalty basis. OS also have licence agreements with various VARs on a royalty basis.

As far as re-use within the public sector is concerned, OS uses a system of Collective Licensing Agreements (CLAs) to make their PSGI available to other public sector organisations. A CLA is a contract between OS and a group of public bodies whereby access is given to OS information for a set fee. There are at least four distinct CLAs between OS and the public sector. These are:

1. The Pan-Government Agreement (PGA). This is a contractual arrangement between the OS and Central Government Agencies
2. Mapping Services Agreement (MSA). This is the contractual arrangement between OS and Local Government Agencies for the provision of GI
3. London Government Agreement (LGA). The contractual agreement between the Local Government Authority of London and OS for the provision of GI
4. National Health Services Agreement (NHSa). This a blanket agreement amongst the different health sectors of England and the OS for the provision of GI.

The advantage of a CLA is that participants collectively only have to negotiate

once with OS to get quick access to high quality information. However, the information may only be used for internal purposes. The public body concerned is not even allowed to place the information on its website. Within a CLA there may be sublicenses for large scale and small scale GI. Central government agencies with different sublicenses are not allowed to share OS information.

In the UK there is no central portal for PSGI but the major suppliers of PSGI offer GI web services with – where applicable – click-through licences. On-line access can be obtained to OS and UKHO datasets via their websites but the access is not open to the general public, only to business partners. There are GI web services that are freely accessible to the general public for viewing such as GI Gateway (www.gigateway.org.uk). GI Gateway is a free web service aimed at increasing awareness of and access to GI in the UK.

INTELLIGENT ADDRESSING V ORDNANCE SURVEY

Intelligent Addressing (IA), as partner of a joint venture with Local Government Information House Ltd, needed a database called AddressPoint to produce the National Land and Property Gazetteer (NLPG). Local governments can obtain data for the NLPG through the Mapping Services Agreement (MSA) with Ordnance Survey (OS) but IA is not a party to the MSA. IA claimed that OS offered licence terms which unnecessarily restricted competition. OS claimed the database was not a document as defined in the Re-use Regulations because the file contained third party (Royal Mail) proprietary postal coding address file. Therefore OS did not have to abide by the Re-use Regulations. In February 2006, IA lodged a complaint to the Office of Public Sector Information (OPSI), the regulatory body for PSI regulations and Fair Trade schemes, about breaches of the Re-use Regulations. In their defence OS claimed that as Royal Mail held third party IPR, the database was not a document as such. Oddly enough, OS's claim that commercialisation of the information held by OS to be 'a core part of its task' was not contested by IA. If commercially marketing of PSI is a public task then the Re-use Regulations should have applied. OPSI ruled in July 2006 that OS had breached the Re-use Regulations. It was then mutually agreed that APPSI would review the findings of OPSI. APPSI ruled in April 2007 that the Regulations did not apply to AddressPoint because Royal Mail held third party IPR. APPSI also ruled that producing value added products was not a public task. Because the Re-use Regulations did not apply, the case was referred to the Office of Fair Trade (OFT).

Implementation of the PSI Directive

The PSI Directive was implemented in the UK in the form of the Re-use of Public Sector Information Regulations 2005 (the Re-use Regulations), dealing with re-use of government documents. Although the term ‘document’ is broadly defined and explicitly includes ‘any part’ of any content (art. 2), the Re-use Regulations do not apply to a document where supply of the document is not part of a public task (art.5(1)a) or if a third party owns relevant IPR in the document (art.5(1)b). The concept of ‘public task’ is not defined in the Regulations. The Re-use Regulations were quickly tested when in 2006 a private firm called Intelligent Addressing complained about the way in which OS licensed its address database called AddressPoint (see box Intelligent Addressing v Ordnance Survey).

From about 2007 there has been a marked increase across central government in the level of interest and debate in the re-use of PSI, including a debate about the position of the Trading Funds (APPSI 2007). Reports like the so-called Cambridge Report (2008) concluded that in most cases a marginal cost recovery regime would be welfare improving and would not have a detrimental effect on the quality of the data. Although OS, UKHO and the Met Office would have to receive additional funding from central government, the benefits would be commensurably bigger (Cambridge 2008). In its 2008 pre-Budget Report, the UK government stated that the Treasury will publish some key principles for the re-use of PSI, consider how these currently apply in each of the trading funds and how they might apply in the future, and the role of the OPSI in ensuring that government policy is fully reflected in practice. For OS, this will involve consideration of its underlying business model – (www.hm-treasury.gov.uk/prebud_pbr08_index.htm).

Netherlands

Background

The Netherlands, located in north-western Europe, is a low-lying densely populated country of about 41,500 km² and circa 16.4 million inhabitants. The Netherlands is a constitutional monarchy with a national government, 12 Provincial Councils, 26 Waterschappen (democratically elected water boards) and 441 Gemeenten (municipalities) as per 1 January 2009. The lower governments have a fairly high level of autonomy enshrined in legislation. Politics and governance in the Netherlands are characterised by an effort to achieve broad consensus on major issues. Therefore, the process of policy forming and governance may appear slow but generally, final outcomes are broadly supported by all parties involved. The Ministry of Housing, Spatial Planning and the Environment (Volkshuisvesting, Ruimtelijke Ordening & Milieubeheer (VROM)) is responsible for coordinating GI and the establishment of a NGII. Most of the PSGI is collected

and used by lower levels of government although VROM, some other Ministries and their related agencies hold large scale base datasets. Some of these PSGI agencies, such as Kadaster (Netherlands Cadastre, Land Registry & National Mapping Agency) and National Co-operation Large Scale Base Map of the Netherlands (LSV GBKN), are public sector enterprises, i.e. they are self-funded public bodies that generate revenue from sales of their products and services. Other PSGI agencies such as the Department of Public Works are funded out of consolidated revenue. Lower levels of government are self-funded through levies and rates, and receive subsidies from the national government for delegated tasks.

Access to PSGI

Until the 1990 there was no overriding policy for access to PSI or government bodies engaging in market activities. After many complaints from the private sector about unfair trading practices by enterprising public sector organisations, an inquiry was held in 1995. This inquiry resulted in a policy document in 1998, the so-called Guidelines for Economic Activities by National Public Sector Bodies (Guidelines), pending formulation of overarching legislation. The Guidelines state that a national public sector body may only engage in economic activities if the private sector will not or cannot (due to e.g. security reasons). If a public sector agency engages in economic activities, then all costs incurred in collecting, processing and disseminating must be passed on to the customer and the agency must pay all due taxes (VAT, etc). The Guidelines only apply to national public sector bodies not covered by specific legislation. Lower levels of government do not have to abide by the Guidelines.

Some national agencies are governed by specific legislation with varying mandates. For instance, Kadaster – as a self-funded public sector enterprise – is allowed to employ a cost recovery regime and may produce value-added products from its own data as enshrined in the Cadastre Act. This means that the PSIHS of the more desirable datasets such those of Kadaster and the municipalities are not covered by the Guidelines. Also, the Guidelines only have the status of pseudo-legislation. In the few (lower) court cases where breach of the Guidelines was contested, the courts have set the Guidelines aside. The overarching legislation, although rewritten a number of times, has not proceeded beyond the draft stage to date.

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- 5 Members of the National Co-operation are the Federation of Energy Providers; Kadaster; KPN (former public and still largest telecom provider in the Netherlands); Union of Waterschappen; the Association of Water Providers; and the Association of Municipalities. In association with The Department of Public Works the LSV GBKN produces and maintains the most detailed large scale base map of the Netherlands.

Access to PSI in the Netherlands is covered since 1991 by the Freedom of Information Act (FoIA). The FoIA provides for access to public information, i.e. all information within government except information relating to national security, the security of the Crown, trade secrets, and information covered by privacy legislation. The general pricing regime is dissemination costs only. PSI covered by specific legislation, such as by the Cadastre Act, is subject to its own pricing regime. The dissemination costs regime also does not apply to data for which the policy line would result in financial problems for the supplier of the information. The FoIA was amended in 2006 when the PSI Directive was implemented as a separate chapter, 5A, in the FoIA. Chapter 5A stipulates that for re-use of PSI subject to IPR the total income out of supply of information should not exceed the costs of collection, production, reproduction and distribution, increased by a reasonable return on investments. With the ever decreasing blur between access to PSI and re-use of PSI in a web based environment, the duality of pricing regimes in the FoIA⁶ is confusing to both the public and the private sector. For national public sector bodies there is an additional clash between the policy line of no more than dissemination costs and the earlier mentioned Guidelines, which state that all costs made must be passed to customers. Provincial Councils and Waterschappen adopted the dissemination costs regime around 2006. Municipalities, however, use a variety of cost regimes. The larger municipalities, such as Amsterdam and Rotterdam, use full cost recovery regime for making their GI available because they have to finance their surveying departments. Most PS-GIIs with a cost recovery regime basis, market their GI for area based pricing or on a subscription basis. The only exception is the Dutch Hydrographic Service which markets its GI to a set number of VARs on a royalty basis.

In the Netherlands there is a portal for all government information, but only for administrative documents such as copies of legislation (www.overheid.nl). There is no NGII as such, although serious efforts have been undertaken in the past to establish one. Currently – as part of INSPIRE requirements – Geonovum, the Dutch NGII Executive Committee is in the process of setting up a geo-catalogue service as precursor to an NGII. At the moment if one wants to find specific PSGI one still has to muddle through search engines. Most PSGIIs have their own web services, usually offering (samples of) PSGI free for viewing. Downloading is usually only possible after a paper contract has been signed.

6 The FoIA is currently under review again and it is expected that all information covered by the current Act will be made available for dissemination costs only, unless it is a threat to the direct revenue of a public sector organisation. Although the amendment will not affect the pricing regime of most national public sector enterprises, the amendment will affect the pricing regime of the municipalities. The amendment was adopted by the Lower Chamber on 24 March 2009 but still has to be passed by the Upper Chamber.

Base Registers

The Dutch national government is in the process of establishing a system of base registers. The idea is that authentic public information is only collected once and re-used many times. For instance, municipalities will be responsible for maintaining a single register for residents and addresses in its district. These 441 municipal registers are then combined into one national register. Other governmental bodies at all levels must re-use data from that register so that citizens do not have to resubmit name and address details every time they deal with a public sector body. Municipalities will be responsible for the quality of the data, and other government bodies must report back any mistakes to the municipality. The Dutch government has designated ten base registers so far, another three are nominated and will most likely follow suit. The base registers will include GI datasets such as the 1:10,000 Topographic Map of the Netherlands (TOP10NL), Cadastral Register, Cadastral Map, DINO (data pertaining to the subsoil) and the Large Scale Base Map. The base registers are interrelated, i.e. information out of one register will form an essential part of another register. For example, property ownership information from the municipal Buildings & Addresses Register will be combined with the definition of property objects from the national Cadastral Register and type of usage, e.g. commercial usage, to form the basis of a Register for Property Values (see figure 4).

As far as financing the roll-out of the base registers is concerned, the national government has made funding available. Future funding for maintenance and quality control of all the base registers is not guaranteed yet. Kadaster, the agency responsible for the TOP10NL, Cadastral Map and Cadastral Register, may continue charging other public sector bodies for their information⁷ even though re-use is compulsory. The base registries are primarily aimed at sharing authentic information between the different public sector bodies. Once fully established, re-use by the private sector may be considered for the public datasets. The base registries will have to be adapted before making them available to the non-public sector so that only aggregated information will be provided. A survey completed in 2007 indicated that the private sector regards base register information as the most valuable resource for creating value added products (Groot et al. 2007).

7 In 2008 the Ministry of VROM and Kadaster started negotiation about future funding of their base registers. Although formal agreement still has to be reached, the Ministry will most likely allow Kadaster to charge only dissemination costs and the Ministry will foot the bill for maintenance, etc. so that fees will not be an impediment to other public sector organisations for compulsory re-use. LSV GBKN will receive an additional 7 million Euros annually to allow re-use within the public sector for dissemination costs.

CONCLUSION

The EU has tried to promote a level playing field for the private sector by setting conditions for the free flow of information and services. This legal framework includes a number of Treaties and Directives such as the Aarhus Convention, the PSI Directive and the INSPIRE Directive. Different Member States have implemented this legal framework in different ways. Some countries such as Norway and the Netherlands have used the legal framework, including the Aarhus Convention, to make thematic geo-information available for free, at least for viewing purposes. France has taken the requirement of the PSI Directive to make PSI available in electronic format, one step further by setting up a geo-portal rivalling Google Earth. Most Member States use the cost recovery clause of the PSI and INSPIRE Directives to use raised revenue to maintain a continuous level of quality. In most comparisons between the EU and the US, the US marginal cost regime is often lauded as a best-practice example. However, the US marginal cost regime only applies to federal PSGI. It is debatable to what extent the quality of PSGI can be guaranteed if funding is dependable on political decisions. In the US some federal PSGI has not been updated for years. The Dutch Kadaster nearly went bankrupt at the end of the last century. Only by changing its organisational structure to that of an independent administrative agency with a cost-recovery regime could Kadaster guarantee the continuation of services and quality.

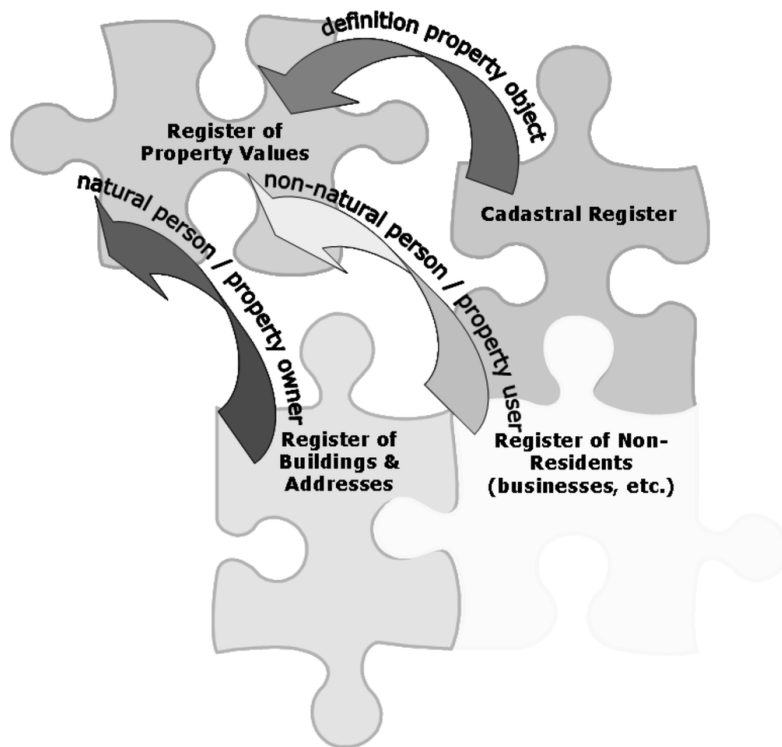


Figure 3: Interrelationship between Dutch Base Registers (F. Welle Donker, 2009)

The PSI Directive has been in force in the EU since 2003, but transposition into a national framework has taken longer with some Member States only having finished implementation in 2008. The effects of the PSI Directive are slowly starting to emerge, in spite of the fact that awareness of the existence of the PSI Directive among re-users is very low (MICUS 2008). But the PSI Directive and its evaluation in 2008 show that Member States are now reviewing their pricing regimes and policies. Some Member States are making more PSGI available for dissemination costs only or have reduced their fees significantly. For example, the Austrian National Mapping and Cadastral Agency (Bundesamt für Vermessungswesen BEV) has decreased its prices for digital orthophotos by 97%. Due to the fact that sales volume has increased by up to 7,000%, the total turnover of the BEV has remained more or less stable. New users from small to medium sizes enterprises are now purchasing data from BEV (MICUS 2008). The Dutch New Map of the Netherlands (a GIS file containing planning information from all levels of government) had its access regime changed from cost recovery to

open access and was made available for free in April 2006. Since then the number of regular users has significantly increased (Welle Donker & Van Loenen 2006). Thus, by decreasing prices total revenue will in most cases be offset by increases in the number of new users. Especially when the additional revenue to the government in the form of value added taxes, company, income taxes, is taken into account, the total revenue will actually increase in the long term (Van Loenen 2006).

The PSI and INSPIRE Directives have been instrumental in improving access to PSGI. In the past users of PSGI have indicated that the biggest obstacles to re-using PSGI was poor accessibility – both in terms of access rights and physical access – inconsistent and non-transparent access policies, differences in pricing, liability regimes and user conditions (e.g. KPMG 2001, RAVI 2000, PIRA 2000). Thanks to the PSI and INSPIRE Directives and technological advances, physical access to PSGI is improving. PSGIHs are setting up portals and WMS/WFSs that allow information from different sources to be combined. If those web services are also used to sell downloadable information, care should be taken to ensure that the pricing mechanism does not become too complex to calculate (MICUS 2003). Setting up geo-catalogues as part of NGIIs is a big step towards being able to find appropriate PSGI.

But there are still some more obstacles for (re)users. The biggest obstacle still appears to be restrictive and non-transparent licence conditions. PSGI has little value to users if the information cannot be re-used to create new products, either because the licence conditions are unclear or because the user is not allowed to re-use the PSGI. This is not just a problem for VARs which will have to obtain the necessary information from other sources. End-users wanting to re-use PSGI for their personal websites or community platforms may encounter the same problems. Already, community-driven initiatives to develop parallel GI are emerging. One such initiative is Open StreetMap which was originally set up in the UK in 2004 because OS did not allow their data to be re-used on community websites. Open StreetMap is a project whereby volunteers go out with GPS units to produce open source street maps for free usage. Open StreetMap now operates in many countries on six continents. Some private geo-companies have donated cartographic information or money to the project as well in return for their data or as a platform for innovative applications (www.opengeodata.org/?p=223). Open StreetMap is a prime example of an alternative GI platform purely developed because local PSGI just is not accessible for end-users.

Complicated and inconsistent licence conditions are a particular problem when combining different datasets. The INSPIRE Data and Services Sharing Drafting Team (2008) has come up with a guideline for licence implementing rules, including types of licences and a model for specific licences. Unfortunately this is only a guideline as the implementing rules are not compulsory. The model is a step forward because it addresses issues such as re-use by third parties. The

model also contains an Emergency Use clause and a Transparency clause, similar to the transparency clause in the PSI Directive. The Creative Commons system of licensing can also be applied to free PSGI since the Creative Commons does not allow financial gain to be made. Creative Commons also provides a useful template to adapt the licensing framework to fee-based PSGI (Welle Donker & Van Loenen 2006).

Finally, there is a conflict of interest when public sector agencies act as VARs themselves, especially when in direct competition with the private sector. In the UK, Trading Funds act as VARs because they are required to recoup their costs. In Germany, production of topographical information is defined as a public task. Therefore creating spin-off services such as cycling maps are also deemed to be a public task, thus effectively locking the private sector out. In Norway when ND was set up, the SK was forced to sell its marketing activities. But other ND-participants can still sell their own data, making it more confusing for the private sector because of varying pricing and licensing regimes. In the Netherlands, Kadaster is legally mandated to produce value added products and services but only from their own data. Because of its monopoly position Kadaster takes part in many co-operative organisations. Within those co-operations Kadaster produces value added services using non-Kadaster data as well, and then sells those services to third parties. Just as OS does in the UK, Kadaster is pushing the boundaries of its legal mandate.

If there is to be a true free flow of geo-information and geo-services in the EU, there is still a long way to go. The legal framework is paving the way but the devil is in the interpretation into national legislation. Every Member State has its own legacy of PSGI access policies. Concepts like ‘public task’ are interpreted in different ways. What is deemed to be a public task in one Member State is deemed to be a task for the private sector in another. All the EU Member States have different legally mandated PSGI bodies with different cost regimes and different existing policies and legislation. Changing access policies will require extra funding and may also run into unforeseen problems. If a public sector body changes its access policy to unrestricted re-use for free, it may be in breach of national Fair Trade legislation if the supply of PSGI is deemed to be an economic activity. So, even if the Directives are transposed in their most liberal sense, they may still be in breach of existing national legislation. Whilst developing a functioning framework in the EU is a long term goal, legacy systems may slow down the required changes. Although it will take a long time before a level playing field is truly developed, at least the PSI Directive has had the effect that Member States are now seriously looking at and harmonising access policies in the EU. INSPIRE will probably give an additional impetus when it becomes operational.

LIST OF ABBREVIATIONS

ALK	Automatisierten Liegenschaftkarte (Computerised Property Map)
APPSI	Advisory Panel on Public Sector Information
BEV	Bundesamt für Vermessungswesen (Austrian National Mapping & Cadastral Agency)
BRGM	The Ministry of Geology
CLA	Collective Licence Agreement
DGME	Direction Générale pour la Modernisation de l'Etat
E(E)C	European (Economic) Commission
ECJ	European Court of Justice
EU	European Union
FoIA	Freedom of Information Act
GI(I)	Geo Information (Infrastructure)
HMLR	Her Majesty Land Registry
IA	Intelligent Addressing
IGN	Institut Geographique National (National Cadastral & Mapping Agency)
IMAGI	Inter-Ministerial Committee for Geo Information
INSPIRE	INfrastructure for SPatial InfoRMation in Europe
IPR	Intellectual Property Rights
LSV	Landelijk Samenwerkingsverband Groot-schalige Basiskaart Nederland (National Co-operation Large Scale Base Map of the Netherland)
GBKN	land (National Co-operation Large Scale Base Map of the Netherland)
ND	Norge Digitalt (Digital Norway)
NE	Norsk Eiendominformasjon
(N)GII	(National) Geo Information Infrastructure
NLPG	National Land and Property Gazetteer
NRW	Nord Rhein Westfalen (North Rhine Westphalia)
OFT	Office of Fair Trading
OPSI	Office of Public Sector Information
OS	Ordnance Survey
PS	Public Sector
PS(G)I	Public Sector (Geo) Information
PSGIH	Public Sector Geo Information Holder
SK	Statens Kartverk (Norwegian Mapping & Cadastre Authority)
TOP10NL	Topographic Map 1:10,000 of the Netherlands
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UNECE	United Nations Economic Commission for Europe
US	United States
VAR	Value Added Reseller
VROM	Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (Dutch

	Ministry of Housing, Spatial Planning and the Environment)
WFS	Web Feature Service
WIPO	World Intellectual Property Organisation
WMS	Web Map Service

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CHAPTER FOURTEEN

DATA ACCESS IN CANADA: CIVICACCESS.CA*

Tracey P. Lauriault and Hugh McGuire

Data constitutes a critical national resource, one whose value increases as the data become more readily and broadly available.¹

There is a global movement to liberate government-‘owned’ data sets, such as census data, environmental data, and data generated by government-funded research projects. This open data movement aims to make these datasets available, at no cost, to citizens, citizen groups, non-governmental-organisations (NGOs) and businesses. The arguments are many: such data spur economic activity, help citizens make better decisions, and help us understand better who we are and where we are going as a country. Further, these data were collected using tax dollars, yet the government holds a monopoly which makes data available only to those able to pay the high access fees, while some data are not made available at all.

The open data movement is lagging in Canada as demonstrated by exorbitant fees for such basics as the data set of postal codes correlated to electoral districts. This data could be used for any number of civic engagement projects, but it costs thousands of dollars due to Statistics Canada’s policies of cost recovery.

Currently, access to government data is hampered by four main factors: i) the high cost of available data sets; ii) arbitrary decisions about availability of data sets to the public; iii) restrictive licenses; and iv) inaccessible data formats.

Formed in 2007, Citizens for Open Access to Civic Information and Data² is a loose grouping of academics, activists, and citizens concerned with promoting data liberation in Canada. The grouping includes lawyers, copyright experts, librarians, archivists, cartographers, engineers, communications activists, open source programmers, and new media designers. The two main objectives of Civi-

1 www.nap.edu/catalog.php?record_id=id4871.

2 www.civicaccess.ca

cAccess are:

- encourage all levels of governments (e.g. federal, provincial, municipal) and sectors (health, environmental, education) to make civic data and information available to citizens without restrictions, at no cost, in usable open formats
- encourage the development of citizen projects using civic data and information.

The long-term vision is a country in which citizens, specialists, professionals, academics, community groups and even businesses can work together, developing innovative information

WHAT ARE CIVIC DATA?

Civic data are a public good, and more specifically, are ‘numerical quantities or other factual attributes generated by scientists, derived during the research process through observations, experiments, calculations and analysis’.³ They are also ‘facts, ideas, or discrete pieces of information, especially when in the form originally collected and unanalysed’,⁴ and also, from the Report of the National Science Board, ‘numbers, images, video or audio streams, software and software versioning information, algorithms, equations, animations, or models/simulations’. Distinctions are made between raw or level 0 data and derived, refined, synthesised or processed data. Raw data are normally unprocessed; examples include digital signals from a sensor or an instrument (e.g. unprocessed satellite image, thermometer), facts derived from a sample collected for an experiment (e.g. blood sample, ice core), and facts collected by human observation (e.g. mine tailings, census). Computations and data manipulations are related to research objectives and methodologies. Refined or processed data are raw data that have been manipulated, undergone computational modelling, been filtered through an algorithm, sorted into a table or rendered into a map. In these cases, access to the models is as important as access to the output results of those data.

Civic data are the data created and maintained by public organisations and paid for by the public purse as part of the ongoing day-to-day activities of governing. Public data can include crime data at the neighbourhood scale, the

* First published as Lauriault, Tracey P. & McGuire, Hugh, ‘Data Access in Canada: civicaccess.ca’, The Open Source Business Resource, *Open Data*, February 2008. A version is available under a Creative Commons Attribution 3.0 Unported licence at www.osbr.ca/ojs/index.php/osbr/article/view/514/473.

3 nsf.gov/pubs/2005/nsb0540/.

4 www.archivists.org/glossary/.

number of traffic violations for certain streets, election results, census data, road networks, non-private health data, government expenditure data, school board catchment area boundaries, aggregated test results, environmentally sensitive or contaminated areas, or basic framework map data that include census areas, administrative boundaries, postal code areas and geo-referenced satellite images. Framework data are particularly important as these are the foundational data sets upon which other datasets can be organised. Civic data also includes those created as part of government funded research organisations such as the Social Sciences and Humanities Council of Canada (SSHRC) and the Natural Sciences and Engineering Research Council (NSERC) or any other outsourced publicly funded data and information creation activity.

TYPES OF OPEN DATA?

Some aspects of the open data movement include the following:

- Open Access (OA,⁵ which aims to end restrictive licenses on university research and data as seen in initiatives such as Open Access News)
- data visualisation projects which combine design and data in creative ways to make information more accessible, such as Gapminder⁶
- grassroots citizen projects using government data sets to improve cities and towns, such as FixMyStreet.⁷

CIVIC DATA ACCESS IN CANADA

Access to civic data in Canada depends on how much money you have, to which organisations you are a member, and for what purpose you want to use the data.

If you are a university professor or tuition paying university student in Canada, access to data is quite good. This is largely the result of work done by the Data Liberation Initiative (DLI) which is a data purchasing consortium.⁸ DLI consortium members pay an annual subscription fee that allows their faculty and students unlimited access to numerous Statistics Canada public use microdata files, databases and geographic files. If you are a student or teacher in Ontario, you may access data from the new Ontario Data Documentation, Extraction Service and Infrastructure Initiative (ODESI)⁹ which will target Statistics Canada

5 wikipedia.org/wiki/Open_access.

6 gapminder.org/.

7 www.fixmystreet.com/.

8 statcan.ca/english/Dli/dli.htm.

datasets, datafiles from Gallup Canada and other polling companies, public-domain files such as the Canadian National Election Surveys, and selected files from the Inter-University Consortium for Political and Social Research (ICPSR). Both the DLI and ODESI provide access to a small subset of Canadian citizenry. Their license is very specific about who authorised users are, exclusivity, and how data products cannot be used such as ‘in the pursuit of any contractual or income-generating venture either privately, or under the auspices of the educational institution’.¹⁰

If you work for a government, access to data varies depending on which department and level of government you are in, the rationalisation you have for acquiring that data, and the budget your department or section has. For instance, Environment Canada shares its data quite openly, as does Natural Resources Canada via the GeoConnections¹¹ GeoGratis.ca or the Geobase.ca¹² programs. In fact, Geobase.ca has one of the most progressive data licensing¹³ programs so far seen in the Government of Canada. At the Canadian provincial or city scale, things start to get confusing as licenses differ, as do cost recovery and access policies. Land Information Ontario (LIO) has many data sets in their downloadable catalogue;¹⁴ however, these data are only available through a Government of Ontario Intranet or between and among members of the Ontario Geospatial Data Exchange (OGDE).¹⁵ Municipalities suffer from very restrictive or non-existent data sharing policies that are not uniform across departments.

As an example, the City of Ottawa has different categories of clients for its GIS data:

- category A, internal municipal clients: no charge for data and rarely require a license agreement
- category B, external municipal clients: are charged a fee to reflect the staff resources consumed in the preparation of the data and sometimes require a license agreement
- category C, external groups needing data for specific projects: are usually charged the same fee as category B clients and must also enter into a signed data license agreement naming a specific project or use
- category D, external groups wishing to commercially market the data: category D clients are expected to pay a fair market rate for any data they want to

9 odesi.uoguelph.ca/wiki/index.php/Main_Page.

10 www.statcan.ca/english/Dli/caselaw/assess.htm.

11 www.geoconnections.org/.

12 www.geobase.ca/.

13 www.geobase.ca/geobase/en/licence.jsp.

14 tinyurl.com/yufhn5.

15 www.lio.gov.on.ca/en/Exchange.htm.

commercialise.

‘for all requests it is expected that the client can demonstrate a legitimate use of the data. This provision ensures that staff resources are not unduly expended on frivolous requests. Additionally, the license must refer to a specific project or use as this helps the City track how the data is being used and by whom’.¹⁶

There is no ‘citizen’ category. How you can use, re-use, and represent data is quite restrictive. It would seem logical to have data discoverable and accessible via a data portal. This would result in the City not having to work so hard to micro manage the use of our public data.

Things get really confusing when different levels and departments of government repeatedly sell each other the same data sets with public money. Governments do not have intra-governmental data portals that centralise data acquisitions and share data assets amongst public servants. Duplication of effort and multiple layers of bureaucracy and accounting could be done away with by simply making all the data free to not only citizens but also their governments!

If you are from an NGO, data access is cost prohibitive. Many small NGOs pool their resources and develop data purchasing consortia such as the Canadian Council on Social Development Community Social Data Strategy.¹⁷ However, like the DLI, these entities remain closed and exclusive shops. Statistics Canada allows a variety of companies to resell civic data and has also licensed a number of civic data value added distributors.¹⁸

As a citizen, you have access to incomplete data sets from the Depository Service Program¹⁹ available to you in public libraries. These are suitable for high school projects but not for public participation in a democracy. What we really need is a concerted lobby in Canada that will free public data.

[Note: Since this chapter was written, the City of Ottawa has become a Canadian Open Data City (www.ottawa.ca/online_services/opendata/index_en.html).]

WHY FREE CIVIC DATA?

In a wider, less technical sense, ‘data’ are what we use to make decisions, so they are a public good. We use data sets to make decisions about how we as individuals should act, and how we as a society ought to do things. All the rules that govern our societies, from agricultural practices to cooking, to our law systems

16 www.ottawa.ca/calendar/ottawa/citycouncil/occ/2010/05-12/csedc/08-DOC1-IT Policy - Data Dissemination.pdf

17 www.ccsd.ca/subsites/socialdata/home.html.

18 www.statcan.ca/english/reference/data.htm.

19 dsp-psd.pwgsc.gc.ca/Reference/guides-e.html.

and social interactions, are the result of our interpretation of the interaction between different data sets over time.

Our ability to collect, analyse and interpret these data, and to make decisions based on them, is what gives humans our particular ability to solve societal problems such as food shortages, disease infestations, and resource depletion.

Democracy has a number of fundamental ideals, including free speech, free press, transparency of government, separation of powers, rule of law, public education, and free markets. All these principles are based on openness of information, or openness of data. In a sense, the basis of democracy is to open up the decision-making process to everyone.

By opening data to more people, you get more interpretations, more proposals of different solutions, better decisions about the best solutions, and in the long run, more successfully-solved problems. We have reached a time when the cost to share datasets is no longer cost prohibitive.

The processing power available on a desktop computer can do an enormous amount with even large datasets. Skilled designers have the ability to interpret, redesign, repackage, and display data in new and important ways, and the social web allows others to contribute to that process.

Transparency and accountability are essential elements of a functional participative democracy, and access to data and information is imperative. Transparency increases as quality data are widely and freely disseminated. Government and the private sector often miss important types of analyses, particularly local, cross boundary or jurisdictional research. For instance, it is cost-prohibitive and technically difficult for a community group to discover and access neighbourhood-scale data from different levels of government to conduct any kind of local community market or demographic analysis. An entrepreneur developing a business plan for a company to operate in four cities in two provinces would quickly discover restricted access to the basic data and information required to understand their market niche, clients, and competitors.

The basic digital data and information upon which we depend are rarely accessible, rarely interoperable, rarely in open formats, and are often prohibitively expensive. Moreover, regressive licensing regimes impede the sharing of data, or worse, there are no licensing regimes at all, which leaves citizens at the whim of the decisions of public servants. This is particularly true at the municipal and school board levels where a lack of clear guidelines often means no access to data for fear of releasing the wrong thing. For Canadian citizens this means that much innovation and knowledge is being thwarted. Worse, we often are forced to pay exorbitant prices for data to study important issues such as poverty,²⁰ homelessness,²¹ or to assess the cost to the health care system of poor air quality.²²

20 datalibre.ca/2007/11/30/paying-for-data-to-study-poverty/.

CIVIC DATA PROJECTS

Wikipedia was launched in 2001, and in seven years has displaced Britannica, the gold-standard English language reference encyclopaedia since 1768. Wikipedia has more articles, is more up-to-date, and, while the accuracy of the information in Wikipedia is a constant work-in-progress, Nature's December 2005 study of scientific articles in the two encyclopaedia found the accuracies to be roughly equivalent.²³ Wikipedia is the most useful encyclopaedia in the world, if, by useful we mean, 'the encyclopaedia that most people use'.

We are beginning to see more examples of civic projects. One example gets right to the nitty-gritty of municipal politics: potholes. Launched in February 2007, the UK project FixMyStreet.com 'is a site to help people report, view, or discuss local problems they've found to their local council by simply locating them on a map'.²⁴ The project targets such problems as potholes, broken street-lights, and graffiti. It has revolutionised municipal maintenance planning by putting the data collection into the hands of citizens and opening up the planning and decision-making process to many concerned citizens. Problem reports are there for all to see, providing municipal councils more incentive to fix the problems. Another amateur project that turns a light on the political process itself is howtheyvote.ca, which tracks how Canadian members of parliament vote on individual bills – information that should be fundamental to our understanding of our representatives in Parliament.

Crimereports.com²⁵ is a US site built to help citizens get more information about the locations and frequencies of crime incidents in their cities.

These examples of progressive initiatives suggest that we are in the early days of the movement towards opening up government data. Open data allows citizens to build tools that can address issues important to them. More tools of civic engagement through data are starting to appear on the web, and there is much to be done.

WHAT IS CIVICACCESS.CA DOING?

Civicaccess.ca²⁶ is about liberating public data from public institutions and find-

21 datalibre.ca/2008/01/18/housing-and-homelessness-data-in-canadian-cities/.

22 www.oma.org/phealth/icap.htm.

23 tinyurl.com/yotjyh.

24 fixmystreet.com/.

25 crimereports.com/.

26 civicaccess.ca/.

ing new ways to make data accessible and useful. Individual members are doing incredible things. However, as a collective we have not tackled any big projects. We provide a mailing list²⁷ with over 200 members across the country that exchange information on issues, innovations, projects and ideas.

The authors of this paper also co-author DataLibre.ca, a CivicAccess.ca inspired blog, to fill a void on this topic. Its readership has been increasing and we are seeing traffic coming from key players in the open access movement, the open data and open source communities, along with members from library and archives associations. Ultimately, CivicAccess.ca is firing up the conversation on access to public data in Canada and we hope to discover and support the creation of innovative open public data projects. So come and join us!

CONCLUSION

Innovation comes from many drivers and sources, but there are two essential prerequisites: a problem in need of solving, and information and data. With a few other ingredients such as intelligence, creativity, and resources, innovation will occur. But the fundamental ingredients in innovation are always human desires to improve something, and figuring out, based on information, how to improve it.

Solving problems is one fundamental role of governments. By opening up civic data, and allowing citizens and citizen-groups to participate in problem solving, we believe that we will start to see more innovative and better solutions to the problems facing society.

Doing any form of research requiring cross jurisdictional civic data sources that cross domains, sectors and topics is very difficult in Canada. We have discussed the underlying reasons, examined some of the many bottlenecks and roadblocks, and highlighted examples of some progressive initiatives.

The technological solutions to provide free access to Canada's civic data are readily available and relatively inexpensive.²⁸ What is more difficult is finding the political will to make our civic data public.

RECOMMENDED RESOURCES

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27 lists.pwd.ca/mailman/listinfo/civicaaccess-discuss.

28 library2.usask.ca/gic/v2n4/mcmahon/mcmahon.html.

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UK Guardian Free Our Data Campaign. Available at: www.freeourdata.org.uk/.

PodCast about CrimeReports.com. Available at: itc.conversationsnetwork.org/shows/detail3459.html.

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CHAPTER FIFTEEN

AN EVIDENCE-FREE ZONE*

Jamie Boyle

Perhaps some of the arguments in this book have convinced you. Perhaps it is a mistake to think of intellectual property in the same way we think of physical property. Perhaps limitations and exceptions to those rights are as important as the rights themselves. Perhaps the public domain has a vital and tragically neglected role to play in innovation and culture. Perhaps relentlessly expanding property rights will not automatically bring us increased innovation in science and culture. Perhaps the second enclosure movement is more troubling than the first. Perhaps it is unwise to extend copyright again and again, and to do so retrospectively, locking up most of twentieth-century culture in order to protect the tiny fragment of it that is still commercially available. Perhaps technological improvements bring both benefits and costs to existing rights holders – both of which should be considered when setting policy. Perhaps we need a vigorous set of internal limitations and exceptions within copyright, or control over content will inevitably become control over the medium of transmission. Perhaps the Internet should make us think seriously about the power of non-proprietary and distributed production.

Saying all this gives us some guidance in how we should think. It points out certain patterns of error. But its prescriptions are not simple. Precisely because it is not a rejection of intellectual property rights, but rather a claim that they only work well through a process of consciously balancing openness and control, public domain and private right, it still leaves open the question of where that point of balance is and how to strike it.

In this chapter I want to offer a suggestion that in any other field would be stunningly obvious, boring even, but in the funhouse mirror of intellectual property appears revolutionary. We should make our policy based on empirical evidence of its likely effects and there should be a formal requirement of empirical reconsideration of those policies after they have been implemented to see if they are working. Why is this a good idea?

Imagine a process of reviewing prescription drugs that goes like this: representatives from the drug company come to the regulators and argue that their drug

works well and should be approved. They have no evidence of this beyond a few anecdotes about people who want to take it and perhaps some very simple models of how the drug might affect the human body. The drug is approved. No trials, no empirical evidence of any kind, no follow-up. Or imagine a process of making environmental regulations in which there were no data, and no attempts to gather data, about the effects of the particular pollutants being studied. Even the harshest critics of regulation would admit we generally do better than this. But this is often the way we make intellectual property policy.

So how do we decide the ground rules of the information age? Representatives of interested industries come to regulators and ask for another heaping slice of monopoly rent in the form of an intellectual property right. They have doom-laden predictions, they have anecdotes, carefully selected to pluck the heartstrings of legislators, they have celebrities who testify – often incoherently, but with palpable charisma – and they have very, very simple economic models. The basic economic model here is ‘If you give me a larger right, I will have a larger incentive to innovate. Thus the bigger the rights, the more innovation we will get. Right?’

As I have tried to show here using the words of Jefferson and Macaulay and examples such as term extension, software copyrights, and garage door openers, this logic is fallacious. Even without data, the ‘more is better’ idea is obviously flawed. Copyrighting the alphabet will not produce more books. Patenting $E=mc^2$ will not yield more scientific innovation. Intellectual property creates barriers to, as well as incentives toward, innovation. Jefferson agonised over the issue of when the benefits exceed the costs of a new right. ‘I know well the difficulty of drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not’. It is not clear that contemporary policymakers approach issues with anything like the same sophistication or humility. But it would be an equal mistake to conclude, as some do, that expansions of intellectual property are never justified. Extensions of rights can help or hurt, but without economic evidence beforehand and review afterward, we will never know. This point should be obvious, banal, even deeply boring, but sadly it is not.

From Jefferson and Macaulay and Adam Smith, I derived a second point. In the absence of evidence on either side, the presumption should be against creating a new, legalised monopoly. The burden of proof should lie on those who claim, in any particular case, that the state should step in to stop competition, outlaw copying, proscribe technology, or restrict speech. They have to show us that the

* First published as *The Public Domain: Enclosing the Commons of the Mind*, Yale University Press (2008) as Chapter 9. A version is available under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 Unported licence at www.thepublicdomain.org/download/

existing protection is not enough. But this presumption is a second-best solution and the empirical emptiness of the debates frustrating.

This makes an occasion where there is some evidence a time for celebration. What we need is a test case in which one country adopts the proposed new intellectual property right and another similarly situated country does not, and we can assess how they are both doing after a number of years.

There is such a case. It is the ‘database right’.

OWNING FACTS?

Europe adopted a Database Directive in 1996 which gave a high level of copyright protection to databases and conferred a new ‘sui generis’ database right even on unoriginal compilations of facts. In the United States, by contrast, in a 1991 case called *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991), the Supreme Court made it clear that unoriginal compilations of facts are not copyrightable.

What does all this mean? Take the phone directory – that was the product at issue in the Feist case. A white pages directory is a database of names and numbers, compiled in alphabetical order by name. Does anyone have an intellectual property right over it? Not the particular dog-eared directory lying next to your phone. Does the phone company that compiled it own the facts, the numbers inside that directory? Could they forbid me from copying them, adding others from surrounding areas, and issuing a competing directory that I believed consumers would find more valuable? This was an important issue for Feist because it went to the heart of their business. They issued regional telephone directories, combining records from multiple phone companies. In this case, all the other companies in the region agreed to license their data to Feist. Rural did not, so Feist copied the information, checked as many entries as possible, adding addresses to some of the listings, and published the combined result. Rural sued and lost. The Supreme Court declared that mere alphabetical listings and other unoriginal assemblies of data cannot be copyrighted.

It may seem unfair that much of the fruit of the compiler’s labour may be used by others without compensation. As Justice Brennan has correctly observed, however, this is not ‘some unforeseen by-product of a statutory scheme’. It is, rather, ‘the essence of copyright’, and a constitutional requirement. The primary objective of copyright is not to reward the labour of authors, but ‘to promote the Progress of Science and useful Arts’. To this end, copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work. This principle, known as the idea/expression or fact/expression dichotomy, applies to all works of authorship. As applied to a factual compilation, assuming the absence of original written expres-

sion, only the compiler's selection and arrangement may be protected; the raw facts may be copied at will. This result is neither unfair nor unfortunate. It is the means by which copyright advances the progress of science and art.¹

Feist was not as revolutionary as some critics claimed it to be. Most of the appeals courts in the United States had long held this to be the case. As the Court pointed out in the passage above, it is a fundamental tenet of the U.S. intellectual property system that neither facts nor ideas can be owned. Feist merely reiterated that point clearly and stressed that it was not just a policy choice, it was a constitutional requirement – a limit imposed by the Constitution's grant of power to Congress to make copyright and patent laws.

Daily politics cares little for the limitations imposed by constitutions or for the structural principle the Court describes – that we should leave facts free for others to build upon. Since 1991, a few database companies have lobbied the Congress strenuously and continuously to create a special database right over facts. Interestingly, apart from academics, scientists, and civil libertarians, many database companies, and even those well-known property haters, the U.S. Chamber of Commerce, oppose the creation of such a right. They believe that database providers can adequately protect themselves with contracts or technical means such as passwords, can rely on providing tied services, and so on. Moreover, they argue that strong database protection may make it harder to generate databases in the first place; the facts you need may be locked up. We need to focus on the inputs as well as the outputs of the process – a point I have tried to make throughout this book. The pressure to create a new right continues, however, aided by cries that the United States must 'harmonize' with Europe, where, you will remember, compilations of facts are strongly protected by intellectual property rights, even if their arrangement is unoriginal.

So here we have our natural experiment. One major economy rejects such protection and resists pressure to create a new right. A different major economic region, at a comparable level of development, institutes the right with the explicit claim that it will help to produce new databases and make that segment of the economy more competitive. Presumably government economists in the United States and the European Union have been hard at work ever since, seeing if the right actually worked? Well, not exactly.

Despite the fact that the European Commission has a legal obligation to review the Database Directive for its effects on competition, it was more than three years late issuing its report. At first, during the review process, no attention was paid to the actual evidence of whether the Directive helps or hurts the European Union, or whether the database industry in the United States has collapsed or flourished. That is a shame, because the evidence was there and it was fairly

1 *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991).

shocking. Yet finally, at the end of the process, the Commission did turn to the evidence, as I will recount, and came to a remarkable conclusion – which was promptly stifled for political reasons. But we are getting ahead of ourselves.

How do we frame the empirical inquiry? Intellectual property rights allow the creation of state-backed monopolies, and ‘the general tendency of monopolies’, as Macaulay pointed out, is ‘to make articles scarce, to make them dear, and to make them bad’. Monopolies are an evil, but they must sometimes be accepted when they are necessary to the production of some good, some particular social goal. In this case, the ‘evil’ is obviously going to be an increase in the price of databases and the legal ability to exclude competitors from their use – that, after all, is the point of granting the new right. This right of exclusion may then have dynamic effects, hampering the ability of subsequent innovators to build on what went before. The ‘good’ is that we are supposed to get lots of new databases, databases that we would not have had but for the existence of the database right.

If the database right were working, we would expect positive answers to three crucial questions. First, has the European database industry’s rate of growth increased since 1996, while the U.S. database industry has languished? (The drop-off in the U.S. database industry ought to be particularly severe after 1991 if the proponents of database protection are correct; they argued the Feist case was a change in current law and a great surprise to the industry.)

Second, are the principal beneficiaries of the database right in Europe producing databases they would not have produced otherwise? Obviously, if a society is handing over a database right for a database that would have been created anyway, it is overpaying – needlessly increasing prices for consumers and burdens for competitors. This goes to the design of the right – has it been crafted too broadly, so that it is not being targeted to those areas where it is needed to encourage innovation?

Third, and this one is harder to judge, is the new right promoting innovation and competition rather than stifling it? For example, if the existence of the right allowed a one-time surge of newcomers to the market who then use their rights to discourage new entrants, or if we promoted some increase in databases but made scientific aggregation of large amounts of data harder overall, then the database right might actually be stifling the innovation it is designed to foment.

Those are the three questions that any review of the Database Directive must answer. But we have preliminary answers to those three questions and they are either strongly negative or extremely doubtful.

Are database rights necessary for a thriving database industry? The answer appears to be no. In the United States, the database industry has grown more than twenty-five-fold since 1979 and – contrary to those who paint the Feist case as a revolution – for that entire period, in most of the United States, it was clear that unoriginal databases were not covered by copyright. The figures are even more interesting in the legal database market. The two major proponents of data-

base protection in the United States are Reed Elsevier, the owner of Lexis, and Thomson Publishing, the owner of Westlaw. Fascinatingly, both companies made their key acquisitions in the U.S. legal database market after the Feist decision, at which point no one could have thought unoriginal databases were copyrightable. This seems to be some evidence that they believed they could make money even without a database right. How? In the old-fashioned way: competing on features, accuracy, tied services, making users pay for entry to the database, and so on.

If those companies believed there were profits to be made, they were right. Jason Gelman, a former Duke student, pointed out in a recent paper that Thomson's legal regulatory division had a profit margin of over 26% for the first quarter of 2004. Reed Elsevier's 2003 profit margin for LexisNexis was 22.8%. Both profit margins were significantly higher than the company average and both were earned primarily in the \$6 billion U.S. legal database market, a market which is thriving without strong intellectual property protection over databases. (First rule of thumb for regulators: when someone with a profit margin over 20% asks you for additional monopoly protection, pause before agreeing.)

What about Europe? There is some good news for the proponents of database protection. As Hugenholtz, Maurer, and Onsrud point out in a nice article in *Science* magazine, there was a sharp, one-time spike in the number of companies entering the European database market immediately following the implementation of the Directive in member states.² Yet their work, and 'Across Two Worlds',³ a fascinating study by Maurer, suggests that the rate of entry then fell back to levels similar to those before the directive. Maurer's analysis shows that the attrition rate was also very high in some European markets in the period following the passage of the directive – even with the new right, many companies dropped out.

At the end of the day, the British database industry – the strongest performer in Europe – added about two hundred databases in the three years immediately after the implementation of the directive. In France, there was little net change in the number of databases and the number of providers fell sharply. In Germany, the industry added nearly three hundred databases immediately following the directive – a remarkable surge – about two hundred of which rapidly disappeared. During the same period, the U.S. industry added about nine hundred databases. Bottom line? Europe's industry did get a one-time boost and some of those firms have stayed in the market; that is a benefit, though a costly one. But database growth rates have gone back to predirective levels, while the anticompetitive costs of database protection are now a permanent fixture of the European land-

2 Stephen M. Maurer, P. Bernt Hugenholtz, and Harlan J. Onsrud, 'Europe's Database Experiment,' *Science* 294 (2001): 789–90.

3 Stephen M. Maurer, 'Across Two Worlds: US and European Models of Database Protection,' paper commissioned by Industry Canada (2001).

scape. The United States, by contrast, gets a nice steady growth rate in databases without paying the monopoly cost. (Second rule of thumb for regulators: Do no harm! Do not create rights without strong evidence that the incentive effect is worth the anticompetitive cost.)

Now the second question. Is the Database Directive encouraging the production of databases we would not have gotten otherwise? Here the evidence is clear and disturbing. Again, Hugenholtz et al. point out that the majority of cases brought under the directive have been about databases that would have been created anyway – telephone numbers, television schedules, concert times. A review of more recent cases reveals the same pattern. These databases are inevitably generated by the operation of the business in question and cannot be independently compiled by a competitor. The database right simply serves to limit competition in the provision of the information. Recently, the European Court of Justice implicitly underscored this point in a series of cases concerning football scores, horse racing results, and so on. Rejecting a protectionist and one-sided opinion from its Advocate General, the court ruled that the mere running of a business which generates data does not count as ‘substantial investment’ sufficient to trigger the database right. It would be nice to think that this is the beginning of some scepticism about the reach of the directive. Yet the court provides little discussion of the economic reasons behind its interpretation; the analysis is merely semantic and definitional, a sharp contrast to its competition decisions.

So what kinds of creations are being generated by this bold new right? The answer is somewhere between bathos and pathos. Here are some of the wonderful ‘databases’ that people found it worthwhile litigating over: a Web site consisting of a collection of 259 hyperlinks to ‘parenting resources’, a collection of poems, an assortment of advertisements, headings referring to local news, and charts of popular music. The sad list goes on and on. The European Commission might ask itself whether these are really the kind of ‘databases’ that we need a legal monopoly to encourage and that we want to tie up judicial resources protecting. The point that many more such factual resources can be found online in the United States without any legalised database protection also seems worthy of note. At the very least, the evidence indicates that the right is drawn much too broadly and triggered too easily in ways that produce litigation but little social benefit.

Now, in one sense, these lawsuits over trivial collections of hyperlinks and headlines might be seen as irrelevant. They may indicate we are handing out rights unnecessarily – did we really need a legal monopoly, and court involvement, to get someone to compile hyperlinks on a Web page? But it is hard to see social harm. As with the patents over ‘sealed crustless’ peanut butter sandwiches or ‘methods of swinging on a swing’, we may shake our heads at the stupidity of the system, but if the problems consist only of trivial creations, at least we are not likely to grieve because some vital piece of information was locked up. But we should not be so quick to declare such examples irrelevant. They tend to show

that the system for drawing the boundaries of the right is broken – and that is of general concern, even if the issue at hand is not.

Finally, is the database right encouraging scientific innovation or hurting it? Here the evidence is merely suggestive. Scientists have claimed that the European database right, together with the perverse failure of European governments to take advantage of the limited scientific research exceptions allowed by the directive, have made it much harder to aggregate data, to replicate studies, and to judge published articles. In fact, academic scientific bodies have been among the strongest critics of database protection. But negative evidence, by its nature, is hard to produce; ‘show me the science that did not get done!’ Certainly, both U.S. science and commerce have benefited extraordinarily from the openness of U.S. data policy. I will deal with this issue in the next part of this chapter.

If the United States does not give intellectual property protection to raw data, to facts, how is it that the database industry has managed to thrive here and to do better than in Europe, which has extremely strong protection? The economists described in Chapter 1 would surely tell us that this is a potential ‘public goods’ problem. If it is hard to exclude others from the resource – it is cheap and easy to copy – and if the use of the resource is not ‘rival’ – if I don’t use up your facts by consulting them – then we ought to see the kind of dystopia economists predict. What would that consist of? First it might result in underproduction. Databases with a social value higher than their cost of creation would not get made because the creator could not get an adequate return on investment. In some cases it might even lead to the reverse – overproduction, where each party creates the database for itself. We get a social overinvestment to produce the resource because there is no legal right to exclude others from it. If you gave the first creator an intellectual property right over the data, they could sell to subsequent users at a price lower than their own cost to create the database. Everyone would win. But the United States did not give the intellectual property right and yet its database industry is flourishing. There are lots of commercial database providers and many different kinds of databases. How can this be? Is the economic model wrong?

The answer to that is no, the model is not wrong. It is, however, incomplete and all too often applied in sweeping ways without acknowledging that its basic assumptions may not hold in a particular case. That sounds vague. Let me give a concrete example. Westlaw is one of the two leading legal database providers and, as I mentioned before, one of the key proponents of creating intellectual property rights over unoriginal databases. (There is considerable question whether such a law would be constitutional in the United States, but I will pass over that argument for the moment.) Westlaw’s ‘problem’ is that much of the material that it provides to its subscribers is not covered by copyright. Under Section 105 of the U.S. Copyright Act, works of the federal government cannot be copyrighted. They pass immediately into the public domain. Thus all the federal court decisions, from district courts all the way up to the Supreme Court, all the fed-

eral statutes, the infinite complexity of the Federal Register, all this is free from copyright. This might seem logical for government-created work, for which the taxpayer has already paid, but as I will explain in the next section of the chapter, not every country adopts such a policy.

West, another Thomson subsidiary that owns Westlaw, publishes the standard case reporter series. When lawyers or judges refer to a particular opinion, or quote a passage within an opinion, they will almost always use the page number of the West edition. After all, if no one else can find the cases or statutes or paragraphs of an opinion that you are referring to, legal argument is all but impossible. (This might seem like a great idea to you. I beg to differ.) As electronic versions of legal materials became more prevalent, West began getting more competition. Its competitors did two things that West found unforgivable. First, they frequently copied the text of the cases from West's electronic services, or CD-ROMs, rather than retyping them themselves. Since the cases were works of the federal government, this was perfectly legal provided the competitors did not include West's own material, such as summaries of the cases written by its employees or its key number system for finding related issues. Second, the competitors would include, within their electronic editions, the page numbers to West's editions. Since lawyers need to cite the precise words or arguments they are referring to, providing the raw opinion alone would have been all but useless. Because West's page numbers were one of the standard ways to cite case opinions, competitors would indicate where the page breaks on the printed page would have been, just as West did in its own databases.

West's reaction to all of this was exactly like Apple's reaction in the story I told in Chapter 5 about the iPod or like Rural's reaction to the copying of its phone directory. This was theft! They were freeloading on West's hard work! West had mixed its sweat with these sites, and so should be able to exclude other people from them! Since it could not claim copyright over the cases, West claimed copyright over the order in which they were arranged, saying that when its competitors provided its page numbers for citation purposes, they were infringing that copyright.

In the end, West lost its legal battles to claim copyright over the arrangement of the collections of cases and the sequence in which they were presented. The Court held that, as with the phone directory, the order in which the cases were arranged lacked the minimum originality required to sustain a copyright claim.⁴ At this stage, according to the standard public goods story, West's business should have collapsed. Unable to exclude competitors from much of the raw material of its databases, West would be undercut by competitors. More importantly, from the point of view of intellectual property policy, its fate would deter po-

4 *Matthew Bender & Co. v. West Publishing Co.*, 158 F.3d 674 (2nd Cir. 1998).

tential investors in other databases – databases that we would lose without even knowing they could have been possible. Except that is not the way it turned out. West has continued to thrive. Indeed, its profits have been quite remarkable. How can this be?

The West story shows us three ways in which we can leap too quickly from the abstract claim that some information goods are public goods – nonexcludable and nonrival – to the claim that this particular information good has those attributes. The reality is much more complex. Type www.westlaw.com into your Internet browser. That will take you to the home page of West's excellent legal research service. Now, I have a password to that site. You probably do not. Without a password, you cannot get access to West's site at all. To the average consumer, the password acts as a physical or technical barrier, making the good 'excludable' – that is, making it possible to exclude someone from it without invoking intellectual property rights. But what about competitors? They could buy access and use that access to download vast quantities of the material that is unprotected by copyright. Or could they? Again, West can erect a variety of barriers, ranging from technical limits on how much can be downloaded to contractual restrictions on what those who purchase its service can do ('No copying every federal case', for example).

Let's say the competitor somehow manages to get around all this. Let's say it somehow avoids copying the material that West does have a copyright over – such as the headnotes and case synopses. The competitor launches their competing site at lower prices amidst much fanfare. Do I immediately and faithlessly desert West for a lower-priced competitor? Not at all. First of all, there are lots of useful things in the West database that are covered by copyright – law review articles and certain treatises, for example. The competitor frequently cannot copy those without coming to the same sort of agreements that West has with the copyright holders. For much legal research, that secondary material is as important as the cases. If West has both, and the competitor only one, I will stick with West. Second, West's service is very well designed. (It is only their copyright policies I dislike, not the product.) If a judge cites a law review article in a case, West will helpfully provide a hyperlink to the precise section of the article she is referring to. I can click on it and in a second see what the substance of the argument is. The reverse is true if a law review article cites a statute or a case. Cases have 'flags' on them indicating whether they have been overruled or cited approvingly in subsequent decisions. In other words, faced with the competitive pressure of those who would commoditise their service and provide it at lower cost, West has done what any smart company would: added features and competed by offering a superior service. Often it has done so by 'tying' its uncopyrightable data structures to its huge library of copyrighted legal material.

The company that challenged Westlaw in court was called Hyperlaw. It won triumphantly. The courts declared that federal cases and the page numbers in the

West volumes were in the public domain. That decision came in 1998 and Westlaw has lobbied hard since then to reverse it by statute, to create some version of the Database Directive in the United States. To date, they have failed. The victor, Hyperlaw, has since gone out of business. Westlaw has not.

This little story contains a larger truth. It is true that innovation and information goods will, in general, tend to be less excludable and less rival than a ham sandwich, say. But, in practice, some of them will be linked or connected in their social setting to other phenomena that are highly excludable. The software can easily be copied – but access to the help lines can be restricted with ease. Audiences cannot easily be excluded from viewing television broadcasts, but advertisers can easily be excluded from placing their advertisements in those programs. The noncopyrightable court decisions are of most use when embedded within a technical system that gives easy access to other material – some of it copyrighted and all of it protected by technical measures and contractual restrictions. The music file can be downloaded; the band's T-shirt or the experience of the live concert cannot. Does this mean that we never need an intellectual property right? Not at all. But it does indicate that we need to be careful when someone claims that 'without a new intellectual property right I am doomed'.

One final story may drive home the point. When they read *Feist v. Rural*, law students often assume that the only reason Feist offered to license the white pages listings from Rural is because they (mistakenly) thought they were copyrighted. This is unlikely. Most good copyright lawyers would have told you at the time of the Feist case that the 'sweat of the brow' decisions that gave copyright protection based on hard work were not good law. Most courts of appeals had said so. True, there was some legal uncertainty, and that is often worth paying to avoid. But switch the question around and suppose it is the day after the Supreme Court decides the Feist case, and Feist is heading off into another market to try to make a new regional phone directory. Do they now just take the numbers without paying for them, or do they still try to negotiate a license? The latter is overwhelmingly likely. Why? Well, for one thing, they would get a computer-readable version of the names and would not have to retype or optically scan them. More importantly, the contract could include a right to immediate updates and new listings.

The day after the Feist decision, the only thing that had changed in the telephone directory market was that telephone companies knew for sure, rather than merely as a probability, that if they refused to license, their competitors could laboriously copy their old listings without penalty. The nuclear option was no longer available. Maybe the price demanded would be a little lower. But there would still be lots of good reasons for Feist to buy the information, even though it was uncopyrighted. You do not always need an intellectual property right to make a deal. Of course, that is not the whole story. Perhaps the incentives provided by other methods are insufficient. But in the U.S. database industry they do not seem to have been. Quite the contrary. The studies we have on the European

and the American rules on database rights indicate that the American approach simply works better.

I was not always opposed to intellectual property rights over data. Indeed, in a book written before the enactment of the Database Directive, I said that there was a respectable economic argument that such protection might be warranted and that we needed research on the issue.⁵ Unfortunately, Europe got the right without the research. The facts are now in. If the European Database Directive were a drug, the government would be pulling it from the market until its efficacy and harmfulness could be reassessed. At the very least, the Commission needed a detailed empirical review of the directive's effects, and needs to adjust the directive's definitions and fine-tune its limitations. But there is a second lesson. There is more discussion of the empirical economic effects of the Database Directive in this chapter than in the six-hundred-page review of the directive that the European Commission paid a private company to conduct, and which was the first official document to consider the issue.

That seemed to me and to many other academics to be a scandal and we said so as loudly as we could, pointing out the empirical evidence suggesting that the directive was not working. Yet if it was a scandal, it was not a surprising one, because the evidence-free process is altogether typical of the way we make intellectual property policy. President Bush is not the only one to make 'faith-based' decisions.

There was, however, a ray of hope. In its official report on the competitive effects of the Database Directive, the European Commission recently went beyond reliance on anecdote and industry testimony and did something amazing and admirable. It conducted an empirical evaluation of whether the directive was actually doing any good.

The report honestly described the directive as 'a Community creation with no precedent in any international convention'. Using a methodology similar to the one in this chapter on the subject, the Commission found that 'the economic impact of the *'sui generis'* right on database production is unproven. Introduced to stimulate the production of databases in Europe, the new instrument has had no proven impact on the production of databases'.⁶

In fact, their study showed that the production of databases had fallen to pre-directive levels and that the U.S. database industry, which has no such intellectual property right, was growing faster than the European Union's. The gap appears to be widening. This is consistent with the data I had pointed out in newspaper

5 James Boyle, *Shamans, Software, and Spleens: Law and the Construction of the Information Society* (Cambridge, Mass.: Harvard University Press, 1996).

6 First evaluation of Directive 96/9/EC on the legal protection of databases, *DG Internal Market and Services Working Paper* (Brussels, Belgium: Commission of the European Communities, 2005), 5.

articles on the subject, but the Commission's study was more recent and, if anything, more damning.

Commission insiders hinted that the study may be part of a larger – and welcome – transformation in which a more professional and empirical look is being taken at the competitive effects of intellectual property protection. Could we be moving away from faith-based policy in which the assumption is that the more new rights we create, the better off we will be? Perhaps. But unfortunately, while the report was a dramatic improvement, traces of the Commission's older predilection for faith-based policy and voodoo economics still remain.

The Commission coupled its empirical study of whether the directive had actually stimulated the production of new databases with another intriguing kind of empiricism. It sent out a questionnaire to the European database industry asking if they liked their intellectual property right – a procedure with all the rigor of setting farm policy by asking French farmers how they feel about agricultural subsidies. More bizarrely still, the report sometimes juxtaposed the two studies as if they were of equivalent worth. Perhaps this method of decision making could be expanded to other areas. We could set communications policy by conducting psychoanalytic interviews with state telephone companies – let current incumbents' opinions determine what is good for the market as a whole. 'What is your emotional relationship with your monopoly?' 'I really like it!' 'Do you think it hurts competition?' 'Not at all!'

There are also a few places where the reasoning in the report left one scratching one's head. One goal of the database right was to help close the gap between the size of the European and U.S. database markets. Even before the directive, most European countries already gave greater protection than the United States to compilations of fact. The directive raised the level still higher. The theory was that this would help build European market share. Of course, the opposite is also possible. Setting intellectual property rights too high can actually stunt innovation. In practice, as the Commission's report observes, 'the ratio of European / U.S. database production, which was nearly 1:2 in 1996, has become 1:3 in 2004'.⁷ Europe had started with higher protection and a smaller market. Then it raised its level of protection and lost even more ground. Yet the report was oddly diffident about the possibility that the U.S. system actually works better.

In its conclusion, the report offered a number of possibilities, including repealing the directive, amending it to limit or remove the 'sui generis' right while leaving the rest of the directive in place, and keeping the system as it is. The first options are easy to understand. Who would want to keep a system when it is not increasing database production, or European market share, and, indeed, might be actively harmful? Why leave things as they are? The report offers several reasons.

7 *ibid.*, 22.

First, database companies want to keep the directive. (The report delicately notes that their ‘endorsement ... is somewhat at odds with the continued success of U.S. publishing and database production that thrives without ... [such] protection’, but nevertheless appears to be ‘a political reality’.) Second, repealing the directive would reopen the debate on what level of protection is needed. Third, change may be costly.

Imagine applying these arguments to a drug trial. The patients in the control group have done better than those given the drug and there is evidence that the drug might be harmful. But the drug companies like their profits and want to keep the drug on the market. Though ‘somewhat at odds’ with the evidence, this is a ‘political reality’. Getting rid of the drug would reopen the debate on the search for a cure. Change is costly – true. But what is the purpose of a review if the status quo is always to be preferred?

The final result? Faced with what Commission staff members tell me was a tidal wave of lobbying from publishers, the Commission quietly decided to leave the directive unchanged, despite the evidence. The result itself is not remarkable. Industry capture of a regulatory apparatus is hardly a surprise. What is remarkable is that this is one of the first times any entity engaged in making intellectual property policy on the international level has even looked seriously at the empirical evidence of that policy’s effects.

To be sure, figures are thrown around in hearings. The software industry will present studies showing, for example, that it has lost billions of dollars because of illicit copying. It has indeed lost profits relative to what it could get with all the benefits of cheaper copying and transmission worldwide and with perfect copyright enforcement as well. (Though the methodology of some of the studies, which assumes that each copier would have paid full price – is ridiculous.) But this simply begs the question. A new technology is introduced that increases the size of your market and decreases your costs dramatically, but also increases illicit copying. Is this cause for state intervention to increase your level of rights or the funds going toward enforcement of copyright law, as opposed to any other law enforcement priority? The question for empirical analysis, both before and after a policy change, should be ‘Is this change necessary in order to maintain incentives for production and distribution? Will whatever benefits it brings outweigh the costs of static and dynamic losses – price increases to consumers and impediments to future innovators?’ The content companies might still be able to justify the extensions of their rights. But they would be doing so in the context of a rational, evidence-based debate about the real goals of intellectual property, not on the assumption that they have a natural right to collect all the economic surplus gained by a reduction in the costs of reproduction and distribution.

DOES PUBLIC INFORMATION WANT TO BE

FREE?

The United States has much to learn from Europe about information policy. The ineffectively scattered U.S. approach to data privacy, for example, produces random islands of privacy protection in a sea of potential vulnerability. Until recently, your video rental records were better protected than your medical records. Europe, by contrast, has tried to establish a holistic framework, a much more effective approach. But there are places where the lessons should flow the other way. The first one, I have suggested, is database protection. The second is a related but separate issue: the legal treatment of publicly generated data, the huge, and hugely important, flow of information produced by government-funded activities – from ordnance survey maps and weather data to state-produced texts, traffic studies, and scientific information. How is this flow of information distributed? The norm turns out to be very different in the United States and in Europe.

In one part of the world, state-produced data flows are frequently viewed as revenue sources. They are often copyrighted or protected by database rights. Many of the departments which produce them attempt to make a profit or at least to recover their entire operating costs through user fees. It is heresy to suggest that the taxpayer has already paid for the production of this data and should not have to do so twice. The other part of the world practices a benign form of information socialism. By law, any text produced by the central government is free from copyright and passes immediately into the public domain. The basic norm is that public data flows should be available at the cost of reproduction alone.

It is easy to guess which area is which. The United States is surely the profit and property-obsessed realm, Europe the place where the state takes pride in providing data as a public service? No, actually, it is the other way around.

Take weather data. The United States makes complete weather data available to all at the cost of reproduction. If the superb government Web sites and data feeds are insufficient, for the cost of a box of blank DVDs you can have the entire history of weather records across the continental United States. European countries, by contrast, typically claim government copyright over weather data and often require the payment of substantial fees. Which approach is better? I have been studying the issue for fifteen years, and if I had to suggest a single article it would be the magisterial study by Peter Weiss called ‘Borders in Cyberspace’, published by the National Academies of Science.⁸ Weiss shows that the U.S. approach generates far more social wealth. True, the information is initially provided for free, but a thriving private weather industry has sprung up

8 In *Open Access and the Public Domain in Digital Data and Information for Science: Proceedings of an International Symposium* (Washington, D.C.: National Academies Press, 2004), 69–73, available at books.nap.edu/openbook.php?record_id?11030&page?69.

which takes the publicly funded data as its raw material and then adds value to it. The U.S. weather risk management industry, for example, is more than ten times bigger than the European one, employing more people, producing more valuable products, generating more social wealth. Another study estimates that Europe invests 9.5 billion Euros in weather data and gets approximately 68 billion back in economic value – in everything from more efficient farming and construction decisions to better holiday planning – a sevenfold multiplier. The United States, by contrast, invests twice as much – 19 billion – but gets back a return of 750 billion Euros, a thirty-nine-fold multiplier.

Other studies suggest similar patterns elsewhere, in areas ranging from geospatial data to traffic patterns and agriculture. The ‘free’ information flow is better at priming the pump of economic activity.

Some readers may not thrill to this way of looking at things because it smacks of private corporations getting a ‘free ride’ on the public purse – social wealth be damned. But the benefits of open data policies go further. Every year the monsoon season kills hundreds and causes massive property damage in Southeast Asia. One set of monsoon rains alone killed 660 people in India and left 4.5 million homeless. Researchers seeking to predict the monsoon sought complete weather records from the United States and Europe so as to generate a model based on global weather patterns. The U.S. data was easily and cheaply available at the cost of reproduction. The researchers could not afford to pay the price asked by the European weather services, precluding the ‘ensemble’ analysis they sought to do. Weiss asks rhetorically, ‘What is the economic and social harm to over 1 billion people from hampered research?’ In the wake of the outpouring of sympathy for tsunami victims in the same region, this example seems somehow even more tragic. Will the pattern be repeated with seismographic, cartographic, and satellite data? One hopes not.

The European attitude may be changing. Competition policy has already been a powerful force in pushing countries to rethink their attitudes to government data. The European Directive on the Re-use of Public Sector Information takes large strides in the right direction, as do studies by the Organization for Economic Co-operation and Development (OECD) and several national initiatives.⁹

9 Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the Re-use of Public Sector Information, Official Journal of the European Union, L 345 (31.12.2003): 90–96; Public Sector Modernisation: Open Government, Organization for Economic Co-operation and Development (2005), available at www.oecd.org/dataoecd/1/35/34455306.pdf; The Socioeconomic Effects of Public Sector Information on Digital Networks: Toward a Better Understanding of Different Access and Reuse Policies (February 2008 OECD conference), more information at www.oecd.org/document/48/0,3343,en_2649_201185_40046832_1_1_1_1,00.html; and the government sites of individual coun-

Unfortunately, though, most of these follow the same pattern. An initially strong draft is watered down and the utterly crucial question of whether data should be provided at the marginal cost of reproduction is fudged or avoided. This is a shame. Again, if we really believed in evidence-based policy making, the debate would be very different.

BREAKING THE DEAL

What would the debate look like if we took some of the steps I mention here? Unfortunately there are very few examples of evidence-based policy making, but the few that do exist are striking.

In 2006, the government-convened Gowers Review of intellectual property policy in the United Kingdom considered a number of proposals on changes to copyright law, including a retrospective extension of sound recording copyright terms.¹⁰ The copyright term for sound recordings in the United Kingdom is fifty years. (It is longer for compositions.) At the end of the fifty-year period, the recording enters the public domain. If the composition is also in the public domain – the great orchestral works of Beethoven, Brahms, and Mozart, for example, or the jazz classics of the early twentieth century – then anyone can copy the recording. This means we could make it freely available in an online repository for music students throughout Britain – perhaps preparing the next generation of performers – or republish it in a digitally cleansed and enhanced edition. If the composition is still under copyright, as with much popular music, then the composer is still entitled to a licensing fee, but now any music publisher who pays that fee can reissue the work – introducing competition and, presumably, bringing down prices of the recording.

The recording industry, along with successful artists such as Sir Cliff Richard and Ian Anderson of Jethro Tull, wished to extend the fifty-year term to ninety-five years, or perhaps even longer – the life of the performer, plus seventy years. This proposal was not just for new recordings, but for the ones that have already been made.

Think of the copyright system as offering a deal to artists and record companies. ‘We will enlist the force of the state to give you fifty years of monopoly over your recordings. During that time, you will have the exclusive right to distribute and reproduce your recording. After that time, it is available to all, just as you benefited from the availability of public domain works from your predecessors

tries in the European Union such as Ireland (www.psi.gov.ie/).

10 Andrew Gowers, *Gowers Review of Intellectual Property* (London: HMSO, 2006), available at www.hm-treasury.gov.uk/media/6/E/pbr06_gowers_report_755.pdf.

sors. Will you make records under these terms?’

Obviously, fifty years of legalised exclusivity was enough of an incentive to get them to make the music in the first place. We have the unimpeachable evidence that they actually did. Now they want to change the terms of the deal retrospectively. They say this will ‘harmonise’ the law internationally, give recordings the same treatment as compositions, help struggling musicians, and give the recording industry some extra money that it might spend on developing new talent. (Or on Porsches, shareholder dividends, and plastic ducks. If you give me another forty-five years of monopoly rent, I can spend it as I wish.)

Change the context and think about how you would react to this if the deal was presented to you personally. You hired an artist to paint a portrait. You offered \$500. He agreed. You had a deal. He painted the painting. You liked it. You gave him the money. A few years later he returned. ‘You owe me another \$450’, he said.

You both looked at the contract. ‘But you agreed to paint it for \$500 and I paid you that amount’. He admitted this was true, but pointed out that painters in other countries sometimes received higher amounts, as did sculptors in our own country. In fact, he told you, all painters in our country planned to demand another \$450 for each picture they had already painted as well as for future pictures. This would ‘harmonise’ our prices with other countries, put painting on the same footing as sculpture, and enable painters to hire more apprentices. His other argument was that painters often lost money. Only changing the terms of their deals long after they were struck could keep them in business. Paying the money was your duty. If you did not pay, it meant that you did not respect art and private property.

You would find these arguments absurd. Yet they are the same ones the record industry used, relying heavily on the confusions against which this book has warned. Is the record companies’ idea as outrageous as the demands of my imaginary painter? It is actually worse.

The majority of sound recordings made more than forty years ago are commercially unavailable. After fifty years, only a tiny percentage is still being sold. It is extremely hard to find the copyright holders of the remainder. They might have died, gone out of business, or simply stopped caring. Even if the composer can be found, or paid through a collection society, without the consent of the holder of the copyright over the musical recording, the work must stay in the library. These are ‘orphan works’ – a category that probably comprises the majority of twentieth-century cultural artefacts.

Yet as I pointed out earlier, without the copyright holder’s permission, it is illegal to copy or redistribute or perform these works, even if it is done on a non-profit basis. The goal of copyright is to encourage the production of, and public access to, cultural works. It has done its job in encouraging production. Now it operates as a fence to discourage access. As the years go by, we continue to lock

up 100% of our recorded culture from a particular year in order to benefit an ever-dwindling percentage – the lottery winners – in a grotesquely inefficient cultural policy.

Finally, fifty years after they were made, sound recordings enter the public domain in the United Kingdom (though as I pointed out earlier, licensing fees would still be due to the composer if the work itself was still under copyright). Now anyone – individual, company, specialist in public domain material – could offer the work to the public. But not if the record companies can persuade the government otherwise. Like my imaginary painter, they want to change the terms of the deal retrospectively. But at least the painter's proposal would not make the vast majority of paintings unavailable just to benefit a tiny minority of current artists.

The recording industry's proposal for retrospective extension was effectively a tax on the British music-buying public to benefit the copyright holders of a tiny proportion of sound recordings. The public loses three times. It loses first when it is forced to continue to pay monopoly prices for older, commercially available music, rather than getting the benefit of the bargain British legislators originally offered: fifty years of exclusivity, then the public domain. The public loses a second time when, as a side effect, it is denied access to commercially unavailable music; no library or niche publisher can make the forgotten recordings available again. Finally, the public loses a third time because allowing retrospective extensions will distort the political process in the future, leading to an almost inevitable legislative capture by the tiny minority who find that their work still has commercial value at the end of the copyright term they were originally granted. As Larry Lessig has pointed out repeatedly, the time to have the debate about the length of the copyright term is before we know whose works will survive commercially.

The whole idea is very silly. But if this is the silly idea we wish to pursue, then simply increase the income tax proportionately and distribute the benefits to those record companies and musicians whose music is still commercially available after fifty years. Require them to put the money into developing new artists – something the current proposal does not do. Let all the other recordings pass into the public domain.

Of course, no government would consider such an idea for a moment. Tax the public to give a monopoly windfall to those who already hit the jackpot, because they claim their industry cannot survive without retrospectively changing the terms of its deals? It is indeed laughable. Yet it is a far better proposal than the one that was presented to the Gowers Review.

What happened next was instructive. The Review commissioned an economic study of the effects of copyright term extension – both prospective and retrospective – on recorded music from the University of Cambridge's Centre for Intellectual Property and Information Law. The resulting document was a model of its kind.¹¹

With painstaking care and a real (if sometimes fruitless) attempt to make economic arguments accessible to ordinary human beings, the study laid out the costs and benefits of extending the copyright term over sound recordings. It pointed out that the time to measure the value of a prospective term extension is at the moment the copyright is granted. Only then does it produce its incentive effects. The question one must ask is how much value today does it give an artist or record company to have their copyright extended by a year at the end of the existing period of protection. Then one must look to see whether the benefits of the added incentive outweigh the social costs it imposes. To put it another way, if the state were selling today the rights to have protection from year fifty to year ninety-five, how much would a rational copyright holder pay, particularly knowing that there is only a small likelihood the work will even be commercially available to take advantage of the extension? Would that amount be greater than the losses imposed on society by extending the right?

Obviously, the value of the extension is affected by our ‘discount rate’ – the annual amount by which we must discount a pound sterling in royalties I will not receive for fifty-one years in order to find its value now. Unsurprisingly, one finds that the value of that pound in the future is tiny at the moment when it matters – today – in the calculation of an artist or distributor making the decision whether to create. Conservative estimates yield a present value between 3% and 9% of the eventual amount. By that analysis, a pound in fifty years is worth between three and nine pence to you today, while other estimates have the value falling below one penny. This seems unlikely to spur much creativity at the margin. Or to put it in the more elegant language of Macaulay, quoted in Chapter 2:

I will take an example. Dr Johnson died 56 years ago. If the law were what my honourable and learned friend wishes to make it, somebody would now have the monopoly of Dr Johnson’s works. Who that somebody would be it is impossible to say; but we may venture to guess. I guess, then, that it would have been some bookseller, who was the assign of another bookseller, who was the grandson of a third bookseller, who had bought the copyright from Black Frank, the Doctor’s servant and residuary legatee, in 1785 or 1786. Now, would the knowledge that this copyright would exist in 1841 have been a source of gratification to Johnson? Would it have stimulated his exertions? Would it have once drawn him out of his bed be-

11 University of Cambridge Centre for Intellectual Property and Information Law, *Review of the Economic Evidence Relating to an Extension of Copyright in Sound Recordings* (2006), available at www.hm-treasury.gov.uk/media/B/4/gowers_cipilreport.pdf.

fore noon? Would it have once cheered him under a fit of the spleen? Would it have induced him to give us one more allegory, one more life of a poet, one more imitation of Juvenal? I firmly believe not. I firmly believe that a hundred years ago, when he was writing our debates for the Gentleman's Magazine, he would very much rather have had twopence to buy a plate of shin of beef at a cook's shop underground.¹²

The art form is different, but the thought of a 1960s Cliff Richard or Ian Anderson being 'cheered under a fit of the spleen' by the prospect of a copyright extension 50 years hence is truly a lovely one.

Considering all these factors, as well as the effects on investment in British versus American music and on the balance of trade, the Cambridge study found that the extension would cost consumers between 240 and 480 million pounds, far more than the benefits to performers and recording studios. (In practice, the report suggested, without changes in the law, most of the benefits would not have gone to the original recording artist in any case.) It found prospective extension led to a clear social welfare loss. What of retrospective extension?

The report considered, and found wanting, arguments that retrospective extension is necessary to encourage 'media migration' – the digitisation of existing works, for example. In fact, most studies have found precisely the reverse – that public domain works are more available and more frequently adapted into different media. (Look on Amazon.com for a classic work that is out of copyright – Moby-Dick, for example – and see how many adaptations and formats are available.) It also rejected the argument that harmonisation alone was enough to justify extension – retrospective or prospective – pointing out the considerable actual variation in both term and scope of rights afforded to performers in different countries. Finally, it warned of the 'hidden 'ratcheting' effect of harmonisation which results from the fact that harmonisation is almost invariably upwards'. Its conclusion was simple:

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[R]etrospective term extensions reduce social welfare. Thus, in this case, it would seem that basic theory alone is sufficient to provide strong, and unambiguous, guidance for policy-makers ... We therefore see no reason to quarrel with the consensus of the profession on this issue which as summed up by Akerlof et al. ... [states] categorically that ... [retrospective] extension provides essentially no incentive to create new works. Once a work is created, additional compensation to the producer is simply a windfall.¹³

13 *ibid.*

provide strong, and unambiguous, guidance for policy-makers ... We therefore see no reason to quarrel with the consensus of the profession on this issue which as summed up by Akerlof et al. ... [states] categorically that ... [retrospective] extension provides essentially no incentive to create new works. Once a work is created, additional compensation to the producer is simply a windfall.¹³

The Gowers Review agreed. Its fourth recommendation read simply, ‘Policy makers should adopt the principle that the term and scope of protection for IP rights should not be altered retrospectively’. Perhaps more important, though, was the simple paragraph at the front of the document captioned ‘The Approach of the Review’. It begins thus: ‘The Review takes an evidence-based approach to its policy analysis and has supplemented internal analysis by commissioning external experts to examine the economic impact of changes’.

Why specify that one was taking an ‘evidence-based’ approach? At first, the comment seems unnecessary. What other approach would one take? Anecdotal? Astrological? But there is a framework in which empirical evidence of the effects of policy simply seems irrelevant – one based on natural right. When the Review was given to the House of Commons Select Committee on Culture, Media and Sport, that frame of mind was much in evidence:

The Gowers Review undertook an extensive analysis of the argument for extending the term. On economic grounds, the Review concluded that there was little evidence that extension would benefit performers, increase the number of works created or made available, or provide incentives for creativity; and it noted a potentially negative effect on the balance of trade ... Gowers’s analysis was thorough and in economic terms may be correct. It gives the impression, however, of having been conducted entirely on economic grounds. We strongly believe that copyright represents a moral right of a creator to choose to retain ownership and control of their own intellectual property. We have not heard a convincing reason why a composer and his or her heirs should benefit from a term of copyright which extends for lifetime and beyond, but a performer should not ... Given the strength and importance of the creative industries in the U.K., it seems extraordinary that the protection of intellectual property rights should be weaker here than in many other

13 *ibid.*

countries whose creative industries are less successful.¹⁴

A couple of things are worth noting here. The first is that the Committee is quite prepared to believe that the effects of term extension would not benefit performers or provide incentives for creativity, and even to believe that it would hurt the balance of trade. The second is the curious argument in the last sentence. Other countries have stronger systems of rights and are less successful. We should change our regime to be more like them! Obviously the idea that a country's creative industries might be less successful because their systems of rights were stronger does not occur to the Committee for a moment. Though it proclaims itself to be unaffected by economic thought, it is in fact deeply influenced by the 'more rights equals more innovation' ideology of maximalism that I have described in these pages.

Nestling between these two apparently contradictory ideas is a serious argument that needs to be confronted. Should we ignore evidence – even conclusive evidence – of negative economic effects, harm to consumers, and consequences for the availability of culture because we are dealing with an issue of moral right, almost natural right? Must we extend the rights of the artists who recorded those songs (or rather the record companies who immediately acquired their copyrights) because they are simply theirs as a matter of natural justice? Do performers have a natural right to recorded songs either because they have laboured on them, mixing their sweat with each track, or because something of their personality is forever stamped into the song? Must we grant an additional forty-five years of commercial exclusivity, not because of economic incentive, but because of natural right?

Most of us feel the pull of this argument. I certainly do. But as I pointed out in Chapter 2, there are considerable problems with such an idea. First, it runs against the premises of actual copyright systems. In the United States, for example, the Constitution resolutely presents the opposite picture. Exclusive rights are to encourage progress in science and the useful arts. The Supreme Court has elaborated on this point many times, rejecting both labour-based 'sweat of the brow' theories of copyright and more expansive visions based on a natural right to the products of one's genius – whether inventions or novels. Britain, too, has a history of looking to copyright as a utilitarian scheme – though with more reference to, and legal protection of, particular 'moral rights' than one finds in the United States. But even in the most expansive 'moral rights' legal systems, even in the early days of debate about the rights of authors after the French Revolution, it is accepted that there are temporal limits on these rights. If this is true of authors,

14 House of Commons Select Committee on Culture, Media and Sport, Fifth Report (2007), available at www.publications.parliament.uk/pa/cm200607/cmselect/cmcmums/509/50910.htm.

it is even more true of performers, who are not granted the full suite of author's rights in moral rights jurisdictions, being exiled to a form of protection called 'neighbouring' rights.

In all of these schemes, there are time limits on the length of the rights (and frequently different ones for different creators – authors, inventors, performers, and so on). Once one has accepted that point, the question of how long they should be is, surely, a matter for empirical and utilitarian analysis. One cannot credibly say that natural rights or the deep deontological structure of the universe gives me a right to twenty-eight or fifty-six or seventy years of exclusivity. The argument must turn instead to a question of consequences. Which limit is better? Once one asks that question, the Gowers Review's economic assessment is overwhelming, as the Select Committee itself recognised. In the end, the government agreed – noting that a European Union study had found precisely the same thing. The sound recording right should not be extended, still less extended retrospectively. The evidence-free zone had been penetrated. But not for long. As this book went to press, the European Commission announced its support for an even longer Europe-wide extension of the sound recording right. The contrary arguments and empirical evidence were ignored, minimised, explained away. How can this pattern be broken?

In the next and final chapter, I try to answer that question. I offer a partial explanation for the cognitive and organisational blindnesses that have brought us to this point. I argue that we have much to learn from the history, theory, and organisational practices of the environmental movement. The environmental movement taught us to see 'the environment' for the first time, to recognise its importance, and to change the way we thought about ecology, property, and economics in consequence. What we need is an environmentalism of mind, of culture, of information. In the words of my colleague David Lange, we need to 'recognize the public domain'. And to save it.

CHAPTER SIXTEEN

INFORMATION INTEROPERABILITY, GOVERNMENT AND OPEN STANDARDS

Anne Fitzgerald and Kylie Pappalardo
INTRODUCTION

The activities of governments, by their very nature, involve interactions with a broad array of public and private sector entities, from other governments, to business, academia and individual citizens. In the current era, there is a growing expectation that government programs and services will be delivered in a ‘simple, seamless and connected’ manner,¹ leading to increased efficiency in government operations and improved service delivery.² Achieving ‘collaborative, effective and efficient government and the delivery of seamless government services’ requires the implementation of interoperable technologies and procedures.³ Standards, which aim to enable organisations, platforms and systems to work with each other, are fundamental to interoperability.

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- 1 Australian Government Information Management Office (AGIMO), *The Australian Government Business Process Interoperability Framework*, July 2007, p. 2, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf.
 - 2 See Queensland Government, Department of Public Works, *Queensland Government Enterprise Architecture Framework 2.0* (QGEA Framework 2.0), Queensland Department of Public Works, April 2009, p. ii, www.qgcio.qld.gov.au/QGCIO/ARCHITECTURE/ANDSTANDARDS/GEA/Pages/index.aspx and *ICT: building a better Queensland*, September 2009, available at www.qgcio.qld.gov.au/SiteCollectionDocuments/Strategies/ICTbuildingabetterQueensland090909.pdf.
 - 3 Australian Government Department of Finance and Administration, Australian Government Information Management Office (AGIMO), *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, April 2006, p. 3, available for download at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html at 13 July 2009.

In establishing connected and seamless systems and services, governments are concerned with the interoperability of technologies, processes⁴ and information. Governments prescribe standards that must be adopted by government agencies, as well as non-government parties engaging with the public sector. The unique role of government demands that it should avoid becoming locked into particular technologies or systems and refrain from imposing requirements on those who engage with it to use specific technologies or systems. As non-government parties interacting with government will often need to adopt the same standards as those used or mandated by government, the goals of interoperability and ensuring democratic access to government information and systems will often only be achievable if open standards are used.⁵ If government information is published in document formats that impose licensing obligations on users (for example, the payment of royalties to use proprietary software), the information can no longer be regarded as openly available to the public.⁶

The interoperability frameworks developed by many governments in Australia and elsewhere are based on open standards. According to Neelie Kroes, (former) European Commissioner for Competition Policy, the rejection of closed standards by governments is justified as much on democratic considerations as it is by the need for sound economic management:

[T]here is more to this than ensuring our commercial decisions are taken in full knowledge of their long term effects. There is a democratic issue as well. When open alternatives are available, no citizen or company should be forced or encouraged to use a particular company's technology to access government information. No citizen or company should be forced or encouraged to choose a closed technology over an open one, through a government having made that choice first. These democratic principles are important. And an argument is particularly compelling when it is supported both by democratic principles and by sound economics.⁷

4 This aspect of interoperability is also referred to as business or enterprise interoperability.

5 See generally, Berkman Center for Internet and Society, Harvard Law School, *Roadmap for Open ICT Ecosystems*, undated (circa 2006), available at cyber.law.harvard.edu/epolicy/roadmap.pdf.

6 See Joshua Tauberer, *Open Data is Civic Capital: Best Practices for 'Open Government Data'*, version 1.1, 20 July 2009, available at razor.occams.info/pubdocs/opendataciviccapital.html.

7 Ibid.

DEVELOPMENT OF STANDARDS

Standards aim to ensure that systems can be harmonised within and among organisations, that different parties can independently develop technologies that work together, that consumers and users can be instantly familiar and comfortable with new systems, products and technologies and that new players can more easily enter the market. An extremely wide range of things is standardised, from the colour of traffic lights and the shape of electrical plugs to digital file formats such as mp3 and document formats such as PDF. The first standard for electronic data communications is International Morse Code which was standardised at the International Telegraphy Conference in Paris in 1865 and later adopted as a standard by the International Telecommunication Union.⁸

Standards Australia⁹ - the peak body in the development, approval and management of standards in Australia – defines ‘standard’ as ‘a published document which sets out specifications and procedures designed to ensure that a material, product, method or service is fit for its purpose and consistently performs in the way it was intended.’¹⁰ There are various kinds of standards, which can be broadly classified as de jure, de facto and proprietary, depending on how they come into existence.

- De jure (or formal) standards are developed by industry or sector participants, through a voluntary, consensus process facilitated by standards bodies operating at the national or international level (these are known as Standards Setting Organisations (SSOs) or Standards Setting Bodies (SSBs)). Examples of such

8 See item on Morse Code in Wikipedia at en.wikipedia.org/wiki/Morse_code.

9 Standards Australia Ltd is an independent company limited by guarantee and has no direct association with the federal or State governments, although government bodies are represented among its membership. The organisation is managed by a Chief Executive and governed by a Board of Directors elected by the Standards Australia Council. The Council is comprised of representatives of the members of the company who are nominees of the State and federal governments, industry, professional and community organisations. Under a Memorandum of Understanding entered into with the federal government in 1988, Standards Australia is responsible for providing national leadership in establishing documentary Australian standards. In 2003, Standards Australia sold its commercial operations to its wholly owned subsidiary, SAI Global Ltd, which it licensed to publish, distribute and market its products. Standards Australia’s collection of more than 7,000 Australian Standards and associated publications are available in a variety of formats through SAI Global, see infostore.saiglobal.com/store.

10 Standards Australia (2008) *Submission to the Review of the National Innovation System*, www.innovation.gov.au/innovationreview/Documents/427-Standards_Australia.pdf.

bodies are the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). De jure standards typically include provisions requiring owners of intellectual property covered by the standard to make it available on a non-discriminatory, royalty-free or reasonable royalty basis to all users.

- De facto standards are standards that have acquired recognition as such by the relevant industry or sector through protocols and common practice, even though they have not gone through an accredited standards development process or been officially endorsed by a standards body. They are also known as ‘industry standards’, ‘non-consensus standards’ and ‘company standards’. In essence, de facto standards attain widespread market approval even though they have not been officially defined, researched and prescribed. Industry standards are commonly found in the information technology sector and most industry standard software is proprietary.¹¹
- Proprietary standards are distinguished through ownership. As the term suggests, these standards are the property of a party (an individual or an organisation) that can exercise its rights to restrict access to and use of the standard. De facto standards are often proprietary, as exemplified by Microsoft’s FAT (File Allocation Table) format, a file storage system crucial to the operation of Windows. Microsoft has obtained a portfolio of patents around the FAT format, which was promoted and became accepted as a de facto industry standard before Microsoft began demanding royalty payments from users of the standard in 2003.¹²

Governments are very much involved in standardisation, through their roles as both a participant in the development of standards and as an implementer of standards. Some government agencies develop governmental standards for adoption on a whole-of-government or agency-specific basis or mandate standards by means of legislation or regulation. An example of whole-of-government standards is the suite of Information Standards developed by the Queensland Government,¹³ while the detailed, mandatory specifications for plans of survey

11 Brian Kahin explains: ‘IT standards are so critical, so time sensitive, so market-oriented and strategic that they do not fit well within the traditional institutional model [and] many IT standards are developed outside the formal international standards system...’; see Kahin, B (2007) *Common and Uncommon Knowledge: Reducing Conflict Between Standards and Patents*, Computer and Communications Industry Association, www.cciainet.org/docs/papers/Kahin%20on%20Standards&Patents.pdf.

12 See further, B Fitzgerald and A Fitzgerald, *Internet and E-Commerce Law: Technology, Law and Policy*, Chapter 5, Patents, at pp 382-283, Thomson, Sydney, 2007.

13 Queensland Government, Department of Public Works, Chief Information Office, see www.qgcio.qld.gov.au/qgcio/architectureandstandards/

constitute a statutorily-defined standard which must be complied with strictly in order to produce a registrable land title.¹⁴ Governments commonly adopt existing standards developed external to government by SSBs, incorporating them by reference into the governments' practices or standards. With a view to encouraging interoperability and the more widespread adoption of internal standards or practices, government agencies actively engage as participants in the development of new, consensus-based standards, contributing knowledge and materials generated in the development of the government-specific standard. When governments adopt, or participate in the development of, an external standard it will typically be a de jure standard developed by a standards body operating at the national or international level, rather than a de facto or proprietary standard.

STANDARDS AND GOVERNMENT

In carrying out their functions, Governments develop and use standards-based interoperable technologies and systems. Some of the standards adopted by governments are developed internally by government agencies but, more typically, are developed by non-government bodies. Government departments and agencies may develop their own internal standards to facilitate interoperability within or among departments and agencies.¹⁵ There seems to be a widely held view, in Australia and elsewhere, that governments should use existing voluntary, consensus standards (such as those developed by SSOs) to the extent feasible in their procurement and regulatory activities and should only develop government-specific standards in the absence of equivalent voluntary consensus standards or if the use of such standards would be problematic. The *Australian Government Technical Interoperability Framework* requires Australian government agencies to deploy existing Australian and international standards.¹⁶ It states that 'government interoperability draws on established standards' and that 'existing Aus-

informationstandards/Pages/index.aspx.

14 See *Land Act 1994* (Qld), Chapter 6 – Registration and dealings.

15 For example, the United States Federal Geographic Data Committee (FGDC) states that it develops geospatial data standards for implementing the National Spatial Data Infrastructure (NSDI), in consultation with State, local, and tribal governments, the private sector and academic community and, to the extent feasible, the international community: see www.fgdc.gov/standards A list of FGDC-endorsed standards is at www.fgdc.gov/standards/projects/FGDC-standards-projects/fgdc-endorsed-standards.

16 Australian Government, *Australian Government Technical Interoperability Framework*, 2005, pp2a and 3c, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html.

tralian and international standards will be adopted wherever available and appropriate'.¹⁷ The *Australian Government Information Interoperability Framework* advises government agencies to 'identify and adopt appropriate existing standards wherever possible' and, where there is a specific requirement not adequately met by generic standards, proceed to develop specific-purpose standards on a whole-of-government basis.¹⁸ The *National Government Information Sharing Strategy*¹⁹ advises that the use of Australian standards should first be explored and, if none are available, international (ISO) standards should be used; if none of the existing standards apply, new standards may be developed.²⁰ In the United States, Circular A-119 issued by the Office of Management and Budget²¹ requires all federal government agencies to use de jure voluntary consensus standards (both domestic and international) rather than government-unique standards in their procurement and regulatory activities, unless doing so would be inconsistent with the law or otherwise impractical.²²

It is commonplace for a government standard to incorporate existing stan-

17 Australian Government, *Australian Government Technical Interoperability Framework*, 2005, p2a, para 2.1, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html.

18 Australian Government, *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, 2006, pp34 and 40, available for download at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html.

19 Australian Government, Department of Finance and Deregulation, Australian Government Information Management Office (AGIMO), *National Government Information Sharing Strategy: Unlocking Government information assets to benefit the broader community*, (NGISS) August 2009, available at www.finance.gov.au/publications/national-government-information-sharing-strategy/index.html.

20 *ibid.*, p. 21.

21 Office of Management and Budget, *Memorandum for Heads of Executive Departments and Agencies: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, Circular No. A-119, revised 10 February 1998, available at www.whitehouse.gov/omb/circulars_a119/#3. This requirement is given legislative effect by the *National Technology Transfer and Advancement Act* of 1995.

22 *ibid.*, para 6. If it is necessary to use a government-unique standard instead of a voluntary consensus standard, the government agency must submit a report describing the reason for doing so to the Office of Management and Budget through the National Institute of Standards and Technology (NIST). 'Impractical' is explained as including 'circumstances in which such use would fail to serve the agency's program needs; would be infeasible; would be inadequate, ineffectual, inefficient, or inconsistent with agency mission; or would impose more burdens, or would be less useful, than the use of another standard'.

dards, wholly or partially, as the basis of their own standards and guidelines. For example, the Canadian Government's Standard on Geospatial Data comprises two ISO standards (ISO 19115²³ and ISO 19128²⁴) which had already been endorsed by the national GeoConnections program for use in the Canadian Geospatial Data Infrastructure.²⁵ Existing international standards have been incorporated into the Information Standards developed by the Queensland Government to 'assist Government agencies by defining and promoting best practice in the acquisition, development, management, support and use of the information systems and technology infrastructure which support Queensland Government business processes and service delivery.'²⁶ The Queensland Government Information Standards address topics including information security (IS18), intellectual property (IS25), the internet (IS26), the use of metadata (IS34) and recordkeeping (IS40).²⁷

The guidelines for the development and management of Queensland Government Information Standards²⁸ expressly envisage that 'external' standards whether developed at the international, national or local level will be implemented to the fullest extent possible, as appropriately interpreted to suit the requirements of the Queensland Government:²⁹

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- 23 ISO 19115 (Geographic information – metadata). For an Australian implementations of ISO19115, see the Metadata Entry and Search Tool (MEST) developed for the Integrated Marine Observing System (IMOS) project at imosmest.aodn.org.au/geonetwork/srv/en/main.home and the ANZLIC Metadata Project at www.anzlic.org.au/metadata/.
- 24 ISO 19128 (Geographic information – web map server interface).
- 25 Treasury Board of Canada Secretariat, *Standard on Geospatial Data for the Government of Canada*, 3 July 2009, at www.geoconnexions.org/en/newsmedia/whatsnew/getDoc=872. For comment, see the EPSI Platform at www.epsiplus.net/news/canada_adopts_geospatial_standard.
- 26 See www.qgcio.qld.gov.au/QGCIO/ARCHITECTUREANDSTANDARDS/INFORMATIONSTANDARDS/Pages/index.aspx as at 24 July 2009.
- 27 For access to all Queensland Government Information Standards, see Queensland Government, Department of Public Works, Chief Information Office at www.qgcio.qld.gov.au/qgcio/architectureandstandards/informationstandards/Pages/index.aspx.
- 28 The *Queensland Government Enterprise Architecture Framework 2.0* (QGEA Framework 2.0), Queensland Department of Public Works, April 2009, is the collection of ICT policies and associated documents (including Information Standards) that guides government agency ICT initiatives and investment to improve the compatibility and cost-effectiveness of ICT across the government. See www.qgcio.qld.gov.au/QGCIO/ARCHITECTUREANDSTANDARDS/GEA/Pages/index.aspx.
- 29 The practice of taking a standard that has been developed by an SSO and adapting

7. Adoption of external Standards

A principle underpinning the development of the [Government Enterprise Architecture] GEA is one of not ‘reinventing the wheel’. International, national or local Standards will be adapted to the maximum extent feasible unless there are good reasons to the contrary. All external Standards must be interpreted within the environment of the Queensland Government and will need to conform to the format and development process of Information Standards.

It is not expected or recommended that an external Standard would simply be reproduced in full and used as a Government Information Standard. Rather, it would be normal practice to re-cast the external Standard, with permission, using the Queensland Government Information Standard format.³⁰

To illustrate, Queensland’s Information Standard 34 (metadata) requires Queensland government agencies to facilitate seamless access to and interoperability of government information assets (including datasets, records and web-based information and web services), through the implementation of metadata schemes that are interoperable with Australian Standard 5044 (the Australian Government Locator Service (AGLS) Metadata Element Set, version 1.3).³¹ Information Standard 18 (information security) refers agencies to ISO/IEC 17799 (2005)³² while

it for internal or specific use (called ‘profiling’) without prior permission from the SSO may give rise to copyright issues.

- 30 See www.qgcio.qld.gov.au/qgcio/architectureandstandards/informationstandards/Pages/Development%20and%20management%20of%20standards.aspx as at 24 July 2009.
- 31 Information Standard 34, Metadata, version 2.01, last revised March 2008, Principle 1 – Metadata implementation, available at www.qgcio.qld.gov.au/qgcio/architectureandstandards/informationstandards/current/Pages/Metadata.aspx as at 24 July 2009. ‘AGLS Metadata Element Set’, Australian Standard 5044, based on the Dublin Core metadata element set, is designed to promote visibility and accessibility of information, consisting of 19 descriptive elements which government agencies can use to improve the visibility and accessibility of their services and information over the internet. See www.naa.gov.au/records-management/publications/aglselement.aspx The AGLS Metadata Element Set is the standard set of metadata elements for describing Australian government resources and has also been mandated for use by Australian Government agencies, as detailed in *Better Services, Better Government: The Federal Government’s e-Government Strategy*, 2002, AGIMO, available at www.agimo.gov.au/publications/2002/11/bsbg/.
- 32 Information Standard 18, Information Security, version 3.0, last revised March

IS16 (internet) requires websites to be designed for maximum accessibility and usability for all groups in the community, including persons with physical or visual disabilities, in compliance with the W3C Web Content Accessibility Guidelines (v1.0).³³

The *Australian Government Technical Interoperability Framework* contains an extensive catalogue of standards applicable to data management and exchange in use or being considered for use by Australian Government agencies.³⁴ Geoscience Australia has run an eXploration and Mining Markup Language (XMML) project which involves interoperability at the technical and information levels, using geochemistry databases from Geoscience Australia and the West Australian and South Australia Geological Surveys.³⁵ The technical implementation uses the Geographic Information System Web Map Service (GIS-WMS), a standard developed by the Open Geospatial Consortium (OGC) for serving geo-referenced map images over the internet.³⁶ In 2009 the European Space Agency (ESA) an-

2008, Principle 1 – Agency security policy and planning, available at www.qgcio.qld.gov.au/qgcio/architectureandstandards/informationstandards/current/Pages/Information%20Security.aspx.

- 33 Information Standard 26, Internet, version 5.01, last revised April 2007, Principle 3 – Website accessibility, available at www.qgcio.qld.gov.au/qgcio/architectureandstandards/informationstandards/current/Pages/Internet.aspx The W3C Web Content Accessibility Guidelines (v1.) are available at www.w3.org/WAI/Resources/. Note that a new version of the W3C Web Content Accessibility Guidelines (version 2) (WCAG 2.0) was published in December 2008; see www.w3.org/TR/WCAG20/.
- 34 See *Australian Government Technical Interoperability Framework*, 2005 at pp 3e to 3o, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/docs/AGTIF_V2_-_FINAL.pdf.
- 35 AGIMO, *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, p.26, available at www.finance.gov.au/publications/australian-government-information-interoperability-framework/docs/Information_Interoperability_Framework.pdf.
- 36 For more information on the GIS-WMS standard, see en.wikipedia.org/wiki/Web_Map_Service. The main OGC standards used for web services are Web Map Service (WMS), Web Feature Service (WFS), Web Coverage Service (WCS) and Web Integrator Service (WIS). See the OGC website at www.opengeospatial.org For an explanation of the use of OGC standards for geographic information see F Welle Donker, *Public Sector Geo Web Services: Which Business Model Will Pay for a Free Lunch?* in B. van Loenen, J.W.J. Besemer, J.A. Zevenbergen (eds), *SDI Convergence. Research, Emerging Trends, and Critical Assessment*, Delft, The Netherlands, June 2009, at p36, available at www.gsdi.org/gsd11/papers/pdf/143.pdf. For Geoscience Australia's use of the standard, see www.ga.gov.au/map/broker/ at 27 July 2009.

nounced that it would use the OGC's geospatial standards in its interoperability framework for coordinated data discovery and access, to ensure interoperability between 40 different Earth Observation satellite missions.³⁷ Metadata registry aspects of METeOR, an online system developed by the Australian Institute of Health and Welfare, are based on the international standard for metadata registries (ISO/IEC 11179 (2003)).³⁸

INTELLECTUAL PROPERTY RIGHTS AND STANDARDS

There is a complex relationship between standards and intellectual property rights – particularly copyright and patents – which must be understood and managed by those involved in the development or implementation of standards, whether in the public or private sector. Standards (and directions as to how they should be implemented) are described in specification documents which will usually be protected by copyright, while the technologies embodied in a technical standard may be subject to patent rights. There is an inherent potential for conflict as implementation of the standard necessarily requires the exercise of intellectual property rights in the form of the copyright specifications and patented technologies embodied in the standard.

COPYRIGHT

Copyright has assumed importance in relation to standards because, as Professor Pam Samuelson observes, Standard Setting Organisations (SSOs) 'increasingly claim copyright in standards and charge substantial fees for access to and rights to use standards such as International Organisation for Standardisation (ISO) country, currency and language codes'.³⁹

37 European Space Agency Implements OGC Standards in Major Program (23-07-2009) www.opengeospatial.org/pressroom/pressreleases at 27 July 2009.

38 'Information Technology – Metadata Registries', ISO/IEC Standard 11179, specifies the kind and quality of metadata necessary to describe data and the management of that metadata in a metadata registry (MDR). METeOR is a repository for national data standards for the health, community services and housing assistance sectors. As these national data standards are a form of metadata, METeOR operates as a metadata registry, which stores, manages and disseminates metadata. See www.iso.org.

39 Pamela Samuelson, 'Questioning Copyright in Standards', *Law and Technology Scholarship* (Selected by the Berkley Center for Law & Technology) University

When a standard is developed through an open and collaborative process, participants may contribute their time and materials - often in the form of textual or diagrammatic materials – to the process. Many SSOs require participants to assign to the SSO their copyright in materials contributed to the standard, while the SSO asserts ownership of copyright in the resulting standard specification documents. As owner of copyright in the documented standard, the SSO can exercise the full extent of the exclusive rights enjoyed by copyright owners, including the right to reproduce, adapt, publish and digitally communicate the document. Many SSOs charge fees to users for the right to use the specification documents. There are practical reasons for dealing with copyright in standards this way. It ensures that copyright ownership is vested in just one party, rather than being split among the multiple parties who have contributed to the development of the standard, enabling the SSO to control the licensing of the standard to the broader community.

A particular concern for governments participating in the development of standards by non-government bodies is that government-owned materials contributed to a standard may inadvertently be ‘locked up’ as a result of the standards body’s copyright policy and business model. SSOs’ copyright policies often seek to affect a full transfer of copyright in the contributed materials to the standards body, to remove any ambiguities about the SSO’s rights in the finalised standard. Further, SSOs may charge substantial fees for use of the standard documents. Users may be required to pay to access a standard specification, if only to read it and ascertain whether it is in fact appropriate for use in a particular situation. If the standard is not relevant, then the specification may never be used by that person again. A user may have to pay multiple times to access several different specifications before they find the one that suits their needs.

Concerns arise about the treatment of publicly-funded materials contributed to standards, which both the government and the general public could legitimately expect to be able to access and use without paying any fee. Objections may be raised to having to pay licence fees to access and use material for which the public has already paid through their taxes. Similar considerations arise as those that have been extensively discussed in the context of facilitating open access to publicly funded research outputs, whether in the form of academic publications or data.⁴⁰ Where SSOs charge licensing fees for the right to reproduce or

of California, Berkeley, Paper 22, 2006, p. 1, repositories.cdlib.org/bclt/lts/22 at 9 March 2009. Professor Samuelson questions (at p 19) whether standards such as ISO country, currency and language codes and medical and dental procedure codes promulgated by the American Medical Association and the American Dental Association should be eligible for copyright protection at all, particularly where their use is mandated by government rules. She observes that public policy concerns are raised by private ownership of standards, particularly where the use of those standards is mandated by law.

communicate the standard specification, the exercise of copyright interests may conflict with the fundamental objective of ensuring that standards are readily adopted and implemented by the wider community, particularly where the standard is one adopted or mandated by government to promote interoperability.

PATENTS⁴¹

Patented technologies may be incorporated into a standard as it is being developed, whether inadvertently (that is, without knowledge that technologies included in the standard are subject to patents) or intentionally (where the owners of patented technologies knowingly participate in the development process). The owners of patented technologies embodied in standards may exercise their exclusive right to exploit the patent by charging licence fees (or royalties) to those who implement the standard. However, since a refusal to license the technology, unduly high licensing fees or the need to negotiate licence fees with numerous patent owners would act as a barrier to the adoption of standards, many SSOs have patent policies which require the owners of patents in the standard to license their patents on a royalty-free basis or ‘reasonable and non-discriminatory’ (RAND) terms. Where several patents owned by different parties are relevant to a standard, a patent pool may be set up so that pooled patents can be used by participating patent owners and licensed to other parties under a standard licence.

For governments adopting or mandating the implementation of standards that include patented technologies, a clear understanding of the basis on which the patents will be licensed is essential. Where a standard is governed by the terms of a standards body’s intellectual property policy, the provisions of the policy relating to the exercise of patent rights need to be closely examined to ensure that they are appropriate for use of the standard in this context. Any requirement to pay a licensing fee – even on RAND terms – is likely to serve as a disincentive to the adoption of a standard and may directly counteract efforts to promote interoperability.⁴²

40 See work done by the Open Access to Knowledge (OAK) Law Project, including *OAK Law Project Report No. 1: Creating a legal framework for copyright management of open access within the Australian research and academic sectors* (2006) and *Building the Infrastructure for Data Access and Reuse in Collaborative Research: An Analysis of the Legal Context* (2007). These and other publications are available at www.oaklaw.qut.edu.au/reports.

41 SEE GENERALLY, B FITZGERALD AND A FITZGERALD, *INTERNET AND E-COMMERCE LAW: TECHNOLOGY, LAW AND POLICY*, CHAPTER 5, *PATENTS*, AT PP 374–376, THOMSON, SYDNEY, 2007.

42 See, for example, Kahin, B (2007) *Common and Uncommon Knowledge: Reducing*

INTEROPERABILITY

Interoperability refers to the ability of diverse systems and organizations to work together efficiently towards mutually beneficial common goals.⁴³ It assumes a heightened significance in democratic societies because of its role in facilitating communication.⁴⁴ The *Australian Government Interoperability Framework* defines ‘interoperability’ as:

[t]he ability to work together to deliver services in a seamless, uniform and efficient manner across multiple organisations and information technology systems.⁴⁵

The 2008 revision of the European Commission’s *European Interoperability Framework for Pan-European eGovernment Services* defines ‘interoperability’ as:

[t]he ability of disparate and diverse organisations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations via the business processes they support, by means of the exchange of data between their respective information and communication technology systems.⁴⁶

Conflict Between Standards and Patents, Computer and Communications Industry Association, www.ccianet.org/docs/papers/Kahin%20on%20Standards&Patents.pdf; and Samuelson, P (2009) ‘Are Patents on Interfaces Impeding Interoperability?’ *Minnesota Law Review*, forthcoming, ssrn.com/abstract=1323838.

43 en.wikipedia.org/wiki/Interoperability.

44 Perens, B (2007) *The Confusion of Tongues: EIF 2.0, Standards and Interoperability*, September 2007, www.perens.com/works/articles/EIF2/.

45 www.finance.gov.au/e-government/service-improvement-and-delivery/interoperability-frameworks.html at 13 July 2009.

46 European Commission, IDABC Program, *European Interoperability Framework for Pan-European eGovernment Services – draft document as basis for version 2.0*, 2008, at p 5. The definition of ‘interoperability’ in version 1.0 of the EIF in 2004 focused more strongly on the ability of ICT systems to exchange data, defining it as ‘[t]he ability of information and communication technology (ICT) systems and of the business processes they support to exchange of data and to enable the sharing of information and knowledge’: European Commission, IDABC Program, *European Interoperability Framework for Pan-European eGovernment Services*, version 1.0, p5, 2004, available at ec.europa.eu/idabc/en/document/7728.

Many governments have developed interoperability frameworks, consisting of standards and guidelines that describe the way in which government agencies will interact with each other, business and citizens. These frameworks evolve as technologies, standards and administrative requirements change.⁴⁷ One of the earliest interoperability frameworks was the European Commission's *European Interoperability Framework for Pan-European eGovernment Services* (EIF), the first version of which was published in 2004.⁴⁸ The EIF addresses organisational, semantic and technical aspects of interoperability.⁴⁹ Many European Union member states have developed their own national interoperability frameworks to address interoperability issues arising within their own country, across internal borders between national agencies, departments and government bodies.⁵⁰ New Zealand has adopted an interoperability framework based on the United Kingdom's eGIF.⁵¹

The component documents of the *Australian Government Interoperability Framework* make it clear that interoperability is more than merely a technical matter of connecting computer networks, but also involves the sharing of information between networks and the re-design of business processes to deliver improved outcomes and support seamless service delivery.⁵² It recognises that interoperability involves the flow of information between agencies, the connection of information technology systems and the development of arrangements that manage business processes across organisational boundaries.⁵³ The three components of the AGIF support each other to facilitate delivery of government

47 European Commission, IDABC Program, *European Interoperability Framework for Pan-European eGovernment Services*, version 1.0, 2004, available at europa.eu.int/idabc. A draft EIF version 2.0 was circulated for comment in 2008; see European Commission, IDABC website at ec.europa.eu/idabc/en/document/7728.

48 European Commission, IDABC Program, *European Interoperability Framework for Pan-European eGovernment Services*, version 1.0, 2004, available at europa.eu.int/idabc.

49 *ibid.*, p. 16.

50 A list of European Union countries with national interoperability frameworks can be found on the IDABC website at ec.europa.eu/idabc/en/document/6227.

51 See www.e.govt.nz/standards/e-gif.

52 Australian Government, Department of Finance and Administration, AGIMO, *The Australian Government Business Process Interoperability Framework*, July 2007, p7, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf.

53 Australian Government, Department of Finance and Administration, AGIMO, *The Australian Government Business Process Interoperability Framework*, July 2007, at p2, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf.

objectives, addressing the technical, information and business process aspects of interoperability. The *Australian Government Technical Interoperability Framework* sets out a common language, conceptual model and technical standards to be used by Australian government agencies in interoperating to deliver the government's policies and programs.⁵⁴ The *Australian Government Business Process Interoperability Framework* provides guidance to agencies on common methods, processes and shared services.⁵⁵ The *Australian Government Information Interoperability Framework* sets out information management standards and information lifecycle management protocols, to facilitate the sharing of information across government agencies, enabling the reuse of information, sharing of infrastructure and integration of service delivery.⁵⁶

The benefits of interoperability in the context of information and communications technology (ICT) were considered in a 2007 study by Urs Gasser and John Palfrey of Harvard University's Berkman Center for Internet and Society. Their report, *Breaking Down Digital Barriers: When and How ICT Interoperability Drives Innovation* ('the Berkman Study')⁵⁷, concluded that increased levels of ICT interoperability generally enhance innovation and result in other socially desirable outcomes such as providing consumers with greater choice and ease of use, and spurring competition in the field.⁵⁸

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- 54 Australian Government, Department of Finance and Administration, AGIMO, *Australian Government Technical Interoperability Framework*, 2005, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html and Australian Government, Department of Finance and Administration, AGIMO, *The Australian Government Business Process Interoperability Framework*, July 2007, at p8, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf.
- 55 Australian Government, Department of Finance and Administration, AGIMO, *The Australian Government Business Process Interoperability Framework*, July 2007, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf.
- 56 Australian Government, Department of Finance and Administration, AGIMO, *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, April 2006, available at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html
- 57 Urs Gasser and John Palfrey, *Breaking Down Digital Barriers: When and How ICT Interoperability Drives Innovation*, October 2007, Berkman Research Center Publication 2007-8, Berkman Center for Internet and Society at Harvard University, available at cyber.law.harvard.edu/publications/2007/Breaking_Down_Digital_Barriers as at 4 September 2009.
- 58 *ibid.*, p. 12.

THE ROLE OF STANDARDS IN INTEROPERABILITY

Standardisation is essential for interoperability. One of the best examples of standards-based interoperability is the internet - described as 'the ultimate interoperable design'⁵⁹ - which is underpinned by open, royalty-free standards developed by the World Wide Web consortium (W3C). The role of standards in achieving interoperability is increasingly recognised by governments and international organisations. A 2005 report by Booz Allen Hamilton for NASA's Geospatial Interoperability Office explained the relationship between standards and interoperability in the context of geospatial information:

Geospatial Interoperability is the ability for two different software systems to interact with geospatial information. Interoperability between heterogeneous computer systems is essential to providing geospatial data, maps, cartographic and decision support services, and analytical functions. Geospatial interoperability is dependent on voluntary, consensus-based standards, as set forth in OMB Circular A-119.⁶⁰ These *geospatial standards* are essential to advancing data access and collaborations in e-Government, natural hazards, weather and climate, exploration, and global earth observation.⁶¹

The recently established Global Earth Observation System of Systems (GEOSS)⁶² is an international scientific collaboration which aims to build upon and add value to Earth observation systems by connecting them to each other is founded on a set of interoperability arrangements to enable the data and

59 *ibid.*

Standards underpin the use of a common language, a common methodology and a common approach to improving business process management, all of which are critical to improving the ability of agencies to collaborate, develop and sustain interoperable processes and services. Standards also facilitate communication between agencies, and between agencies and users. An essential early step in implementing business process interoperability in association with other agencies is to agree standards and identify relevant better practice guidelines.⁶⁷

67 *ibid.*, p. 22.

61 Booz Allen Hamilton, *Geospatial Interoperability Return on Investment Study*, Report for the National Aeronautics and Space Administration Geospatial Interoperability Office, April 2005, p.iii, www.egy.org/files/ROI_Study.pdf as at 8 May 2009.

62 See generally www.earthobservations.org/.

information produced by the disparate systems to be pooled and combined.⁶³ Interoperability of the systems and components is to be achieved by adopting appropriate standards for the interfaces through which the various GEOSS components exchange data and information.⁶⁴ The GEOSS system is to be based on non-proprietary standards and, where possible, formal international standards.

The interrelatedness of standards and interoperability is a recurring theme throughout the components of the *Australian Government Interoperability Framework*. The *Australian Government Business Process Interoperability Framework* (AGBPIF) is explicitly standards-based, with commitment to a standardised approach to the documentation of business processes as one of the nine foundation principles guiding collaboration on business processes across structural and agency boundaries.⁶⁵ Standards are expressly acknowledged as critical to interoperability at all levels, information, technical and business process modelling.⁶⁶ The AGBPIF explains that business process interoperability depends on a commitment to agreed standards:

Standards underpin the use of a common language, a common methodology and a common approach to improving business process management, all of which are critical to improving the ability of agencies to collaborate, develop and sustain interoperable processes and services. Standards also facilitate communication between agencies, and between agencies and users. An essential early step in implementing business process interoperability in association with other agencies is to agree standards and identify relevant better practice guidelines.⁶⁷

The *Australian Government Technical Interoperability Framework* acknowledges that ‘government interoperability draws on established standards’⁶⁸ The

63 The GEOSS interoperability arrangements, which will focus on interfaces, defining how system components interface with each other, including technical specifications for collecting, processing, storing and disseminating shared data, metadata and products. See the GEOSS website at wiki.ieee-earth.org/Societal_Benefit_Areas.

64 See GEOSS Standards and Interoperability Registry at www.earthobservations.org/gci_sr.shtml.

65 Australian Government, Department of Finance and Administration, AGIMO, *The Australian Government Business Process Interoperability Framework*, July 2007, at p20, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf.

66 *ibid.*, pp. 36, 37.

67 *ibid.*, p. 22.

68 Australian Government, Department of Finance and Administration, AGIMO, *Aus-*

Australian Government Information Interoperability Framework (AGIIF) states that to achieve information interoperability across government, agencies need to adopt relevant standards and protocols for managing and sharing information.⁶⁹ Standardisation of information management practices across government is seen as an essential foundation for information interoperability and fostering a culture of reuse of information within government.⁷⁰ The adoption of ‘a common business language and standards’ and ‘understanding the policy and legal framework governing the exchange of information’ are among the six critical enablers identified in the AGIIF as underpinning the successful achievement of information interoperability.⁷¹

INFORMATION INTEROPERABILITY

‘Information interoperability’ is defined in the *Australian Government Information Interoperability Framework*, a highly developed framework for semantic interoperability, as ‘the ability to transfer and use information in a uniform and efficient manner across multiple organisations and information technology systems’.⁷² In the government context, information interoperability involves greater

tralian Government Technical Interoperability Framework, 2005, p2a, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html.

69 Australian Government, Department of Finance and Administration, AGIMO, *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, April 2006, pp. 10 and 34, available at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html.

70 *ibid.*, p. 17.

71 *ibid.*, p. 25. The other critical enablers for information interoperability are: forming partnerships that work in a spirit of collaboration; using a ‘create once, use many’ approach, with authoritative sources of information; establishing appropriate governance arrangements; and developing and using tools that facilitate the transfer of reliable information across agency boundaries.

72 Australian Government Department of Finance and Administration, AGIMO, *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, April 2006, pp. 1 and 5 available at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html. Note that the *Australian Government Technical Interoperability Framework* also defines ‘interoperability’ in the same terms: ‘[Interoperability is] the ability to transfer and use information in a uniform and efficient manner across multiple organisations and information technology systems’: Australian Government, Department of Finance and Administration, AG-

sharing and reuse of information between and within agencies to achieve whole-of-government or inter-agency business objectives.⁷³ Enabling government agencies to confidently manage, transfer and exchange information is seen as essential for a ‘connected’ government, in which agencies are able to reach across traditional portfolio boundaries to develop collaborative, networked approaches to delivering information and services.⁷⁴ The Australian Government Information Management Office (AGIMO)⁷⁵ has developed various strategies and frameworks for the collection, storage and exchange of information across government agencies and between jurisdictions.⁷⁶ Guidance on the technical and business requirements of information interoperability is contained in several documents, including the components of the *Australian Government Interoperability Framework*⁷⁷, the *National Standards Governance Framework*⁷⁸, the *National Collaboration Framework*⁷⁹ and the *Australian Government Architecture*.⁸⁰ In 2009,

IMO, *Australian Government Technical Interoperability Framework*, 2005, p1a, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html.

73 *ibid.*, p. 18.

74 See Australian Government, Management Advisory Committee, *Connecting government: whole of government responses to Australia’s priority challenges*, Fourth Management Advisory Committee Report (MAC4), 2004, available at www.apsc.gov.au/mac/connectinggovernment.htm.

75 See Australian Government, Department of Finance and Deregulation, Australian Government Information Management Office at www.finance.gov.au/agimo/index.html.

76 For a summary of these AGIMO documents, see I Reinecke, *Information Policy and E-governance in the Australian Government: A report for the Department of the Prime Minister and Cabinet*, July 2009, p. 14, available at www.dpmc.gov.au/publications/information_policy/docs/information_policy_e-governance.pdf.

77 See in particular *The Australian Government Business Process Interoperability Framework*, July 2007, available at www.finance.gov.au/publications/agimo/docs/Business_Process_Interoperability_Framework.pdf, and the *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, April 2006, available at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html.

78 The *National Standards Governance Framework* is directed at developing standards that enable agencies to collaborate by exchanging information across portfolios and jurisdictions.

79 The *National Collaboration Framework* seeks to develop greater standardisation of processes and promote higher levels of interoperability within and across jurisdictions. See AGIMO’s website at www.finance.gov.au/e-government/service-

AGIMO published the *National Government Information Sharing Strategy* (NGISS)⁸¹ which was commissioned by the Online and Communications Council (OCC) of the Council of Australian Governments (COAG) in 2007. The NGISS sets out a principles-based standardised approach to information sharing, to be used by ‘all portfolio areas at all levels of government’.⁸²

The *Australian Government Information Interoperability Framework* strongly endorses information interoperability and identifies its benefits as including:

- reduced costs of information collection and management through streamlined collection, processing and storage;
- improved decision making for policy and business processes, resulting in more integrated planning and enhanced government service delivery;
- improved timeliness, consistency and quality of government responses—information will be easily accessible, relevant, accurate, and complete;
- improved accountability and transparency for citizens;
- reduced costs and added value for government through reusing existing information, sharing infrastructure and designing integrated, collaborative methods of delivering services;
- improved national competitiveness; and
- improved national security.⁸³

The potential impact of developing truly national arrangements for information sharing among Australian governments is now being recognised, with the NGISS observing that:

improvement-and-delivery/national-collaboration-framework/index.html.

80 The *Australian Government Architecture* (AGA) is a repository of standards, principles and templates for use in the design and delivery of ICT capability by government agencies. See AGIMO’s website at www.finance.gov.au/e-government/strategy-and-governance/australian-government-architecture.html.

81 Australian Government Information Management Office (AGIMO), *National Government Information Sharing Strategy: Unlocking Government information assets to benefit the broader community*, (NGISS) August 2009, available at www.finance.gov.au/publications/national-government-information-sharing-strategy/index.html. NGISS was developed by the Cross Jurisdictional Chief Information Office Committee (CJCIOC) through AGIMO.

82 *ibid.*, pp. 5 and 14.

83 Australian Government Information Management Office (AGIMO), *Australian Government Information Interoperability Framework: Sharing Information Across Boundaries*, April 2006, p. 9, available at www.finance.gov.au/e-government/service-improvement-and-delivery/australian-government-information-interoperability-framework.html at 13 July 2009.

[t]imely, reliable and appropriate information sharing is the foundation for good government and has the capacity to deliver a better way of life for all Australians.⁸⁴

The benefits of improved accessibility to and sharing of government data and information have also been a focus of attention in the Public Sphere consultations led by Senator Kate Lundy on government 2.0 policy and practice in Australia. The *Public Sphere 2: Government 2.0 Briefing Paper*, setting out the findings and recommendations of the Public Sphere consultations, highlights the important service and productivity benefits that may result from data sharing among government agencies and across jurisdictions.⁸⁵ Acknowledged benefits include providing a greatly enhanced evidence base to inform decision-making and policy development and evaluation, and improving delivery of government services. However, it was also recognised that sharing of government data requires standards and standards-based frameworks ‘to ensure that we are linking ‘apples with apples’’ and that data is adequately described to enable it to be correctly used.⁸⁶ The *Public Sphere 2: Government 2.0 Briefing Paper* recommended that government agencies should adopt standards for informing and engaging with the community in an integrated and consistent manner.⁸⁷

The adoption of relevant standards in the creation, storage and maintenance of information is seen as essential if information is to be shared efficiently and cost effectively.⁸⁸ The NGISS includes the use of standards-based information among its key information sharing principles, explaining:

The consistent application of relevant standards gives assur-

84 Australian Government Information Management Office (AGIMO), *National Government Information Sharing Strategy: Unlocking Government information assets to benefit the broader community*, (NGISS) August 2009, p.5, available at www.finance.gov.au/publications/national-government-information-sharing-strategy/index.html.

85 Senator Kate Lundy, *Public Sphere 2: Government 2.0 Briefing Paper*, 28 July 2009, www.katelundy.com.au/2009/07/29/briefing-paper-and-recommendation-endorsements-from-public-sphere-2-government-2-0/.

86 *ibid.*, p. 20.

87 *ibid.*, recommendation 3(e), p. 30.

88 Australian Government, Department of Finance and Deregulation, Australian Government Information Management Office (AGIMO), *National Government Information Sharing Strategy: Unlocking Government information assets to benefit the broader community*, (NGISS) August 2009, at p21, available at www.finance.gov.au/publications/national-government-information-sharing-strategy/index.html.

ance to users and providers that the information is ‘fit for purpose’ and implies a certain level of quality. The application of standards fosters an environment of trust and dependability across government, providing a reduction in duplication of effort and re-work.⁸⁹

In any information sharing initiatives, the relevant standards should be investigated during the planning stages of the project and applied throughout the information lifecycle.⁹⁰ There are many different kinds of interoperability standards, with the consequence that different standards will be relevant to achieving information interoperability in particular areas of government activity, eg education or health.⁹¹

An area in which the role of standards for effective information sharing is increasingly appreciated e-health.⁹² Standards, rules and protocols for information exchange and protection form part of the ‘basic infrastructural building blocks’ required to develop an effective system for delivering e-health services, along with the implementation of the underlying physical computing and networking infrastructure. The centrality of standards to data and information interoperability were considered in *The National E-Health Strategy*, prepared by Deloitte for the Australian government in 2008.⁹³ The report observed that the future health system will be ‘powered by the smart use of data and enabled by the electronic flow of essential information between individuals and health professionals’ and that central to this will be ‘a structured, robust communication matrix that connects all participants with relevant, accurate and secure information, in real time’.⁹⁴ To

Appropriate E-Health foundations, in the form of computing infrastructure and consistent information standards, rules and protocols, are crucial to effectively sharing information across geographic and health sector boundaries. In this regard E-Health foundations can be viewed as analogous to an ‘information highway’ – unless the system is connected up in some uniform and rules based way, then information cannot move across the network.⁹⁶

96 Deloitte, National E-Health Strategy Summary, 2008, p9, available at www.ahmac.gov.au/cms_documents/National%20E-Health%20Strategy.pdf.

90 *ibid.*

91 *ibid.*, p. 22.

92 Deloitte, National E-Health Strategy Summary, 2008, p10, available at www.ahmac.gov.au/cms_documents/National%20E-Health%20Strategy.pdf.

93 See www.health.gov.au/internet/main/publishing.nsf/Content/National+Ehealth+Strategy at 3 August 2009.

94 The National E-Health Strategy, prepared by Deloitte in 2008 for the Australian Government was adopted at the Australian Health Ministers at the Council of Australian Governments (COAG) meeting in December 2008 but has not yet been

develop such a communication matrix, national consistency of standards is required, to ensure that information can be effectively shared electronically across Australia.⁹⁵ The report stated:

Appropriate E-Health foundations, in the form of computing infrastructure and consistent information standards, rules and protocols, are crucial to effectively sharing information across geographic and health sector boundaries. In this regard E-Health foundations can be viewed as analogous to an ‘information highway’ – unless the system is connected up in some uniform and rules based way, then information cannot move across the network.⁹⁶

The lack of interoperability standards was identified as presenting a risk to the seamless and secure exchange of health information which needs to be addressed as a matter of urgency.⁹⁷ The development of e-health information standards, by a proposed new national E-Health Entity, was seen as one of five key areas in which focused activity is required to establish the national foundations for e-health.⁹⁸ It emphasised the importance of developing an integrated but evolving national health system by ensuring that ‘the national policy framework incorporates open technical standards which provide for interoperability, compliance, confidentiality and security ... developed with the participation and commitment

released, although a summary is available at www.ahmac.gov.au/cms_documents/National%20E-Health%20Strategy.pdf. Key findings in the National E-Health Strategy were accepted by the National Health and Hospitals Reform Commission in its final report, *A Healthier Future for All Australians – Final Report*, June 2009, available at www.nhhrc.org.au/internet/nhhrc/publishing.nsf/Content/nhhrc-report.

- 95 Deloitte, National E-Health Strategy Summary, 2008, p10, available at www.ahmac.gov.au/cms_documents/National%20E-Health%20Strategy.pdf.
- 96 Deloitte, National E-Health Strategy Summary, 2008, p9, available at www.ahmac.gov.au/cms_documents/National%20E-Health%20Strategy.pdf.
- 97 National Health and Hospitals Reform Commission, *A Healthier Future for All Australians – Final Report*, June 2009, Chapter 5, ‘Creating an Agile and Self-Improving Health System’, at p129, available at [www.nhhrc.org.au/internet/nhhrc/publishing.nsf/Content/1AFDEAF1FB76A1D8CA25760000B5BE2/\\$File/CHAPTER%205.pdf](http://www.nhhrc.org.au/internet/nhhrc/publishing.nsf/Content/1AFDEAF1FB76A1D8CA25760000B5BE2/$File/CHAPTER%205.pdf).
- 98 Deloitte, National E-Health Strategy Summary, 2008, pp10 and 20, available at www.ahmac.gov.au/cms_documents/National%20E-Health%20Strategy.pdf. The *National E-Health Strategy* recommended that the E-Health Entity should be responsible for ‘the definition, maintenance and enhancement of national E-Health standards and the implementation of a consistent process for undertaking this work’.

of state governments, the ICT vendor industry, health professionals and consumers.’⁹⁹

While many governments have developed interoperability frameworks, it is important to understand that the adoption of interoperability standards is not, in itself, any guarantee that the information and materials held in systems based on those standards will in fact be available for sharing and reuse. This observation is borne out by Australian experience. Notwithstanding the considerable attention given by governments to the implementation of interoperability frameworks (particularly the technical aspects), significant impediments to the flow of information continue to exist.¹⁰⁰ If information interoperability frameworks are to be effective in facilitating information access and reuse, it is also necessary to formulate an information policy and to develop practices to implement the policy. Lack of an appropriate information policy and failure to implement good information management practices – including management of the legal interests in information, notably privacy and copyright – will act as barriers to the flow of government information that would otherwise be possible.¹⁰¹ The importance

99 National Health and Hospitals Reform Commission, *A Healthier Future for All Australians – Final Report*, June 2009, Chapter 5, ‘Creating an Agile and Self-Improving Health System’, p. 131, available at [www.nhhrc.org.au/internet/nhhrc/publishing.nsf/Content/1AFDEAF1FB76A1D8CA25760000B5BE2/\\$File/CHAPTER%205.pdf](http://www.nhhrc.org.au/internet/nhhrc/publishing.nsf/Content/1AFDEAF1FB76A1D8CA25760000B5BE2/$File/CHAPTER%205.pdf).

100 See Reinecke, *Information Policy and E-governance in the Australian Government: a report for the Department of the Prime Minister and Cabinet*, July 2009, p. 13, at www.dpmc.gov.au/publications/information_policy/docs/information_policy_e-governance.pdf; Queensland Government, Queensland Spatial Information Council, *Government Information and Open Content Licensing: An access and use strategy (Government Information Licensing Framework Project Stage 2 Report)* (October 2006), at www.qsic.qld.gov.au/qsic/QSIC.nsf/CPByUNID/BFDC06236FADB6814A25727B0013C7EE; Cutler & Company, *Venturous Australia - Building Strength in Innovation*, report on the Review of the National Innovation System, for the Australian Government Department of Innovation, Industry, Science and Research, 29 August 2008, at www.innovation.gov.au/innovationreview/Pages/home.aspx; Victorian Parliament, Economic Development and Infrastructure Committee, *Inquiry into Improving Access to Victorian Public Sector Information and Data*, 27 June 2009, at www.parliament.vic.gov.au/edic/inquiries/access_to_PSI/final_report.html. See also volume 2 of this book.

101 On the importance of information management, see Australian Government, Department of Finance and Deregulation, Australian Government Information Management Office (AGIMO), *National Government Information Sharing Strategy: Unlocking Government information assets to benefit the broader community*, (NGISS)

of an appropriate governance framework for information sharing which clearly addresses ‘policy parameters’ as well as the basis on which information can be accessed and reused was highlighted by NGISS:

Appropriate governance arrangements for information sharing must be clearly defined and applied consistently across government. Users of data require appropriate authority and formal agreements to clarify the conditions of use covering access to information....Governance documentation should include, but not be limited to, accountabilities, responsibilities and processes associated with:

...

- policy parameters;

....

- Instructions regarding information conditions of use e.g. copyright, licensing etc;¹⁰²

The W3C’s eGovernment Interest Group’s draft guide, *Publishing Open Government Data* (September 2009) emphasises the importance of clearly documenting any legal or regulatory restrictions imposed by government on the use of the data, using available standards to insert copyright or licensing information into the data itself.¹⁰³

OPEN STANDARDS

As governments implement strategies to enable their data and information to be more readily available for access and reuse, they have increasingly favoured the use of open standards. A report prepared by Booz Allen Hamilton for the United States National Aeronautics and Space Administration (NASA) Geospatial Interoperability Office in 2005 found that governments can achieve significant cost savings by using open standards for geospatial applications and recommended

August 2009, pp. 7, 10 and 11, available at www.finance.gov.au/publications/national-government-information-sharing-strategy/index.html. NGISS p. 11 identifies various information management practices, including: the use of standards, discoverability, an understanding of intellectual property issues, and how licensing can help with the management and maintenance of valuable information assets.

102 *ibid.*, p. 19. See also pp. 24 and 25.

103 W3C eGovernment Interest Group, *Publishing Open Government Data: W3C Working Draft 8 September 2009*, available at www.w3.org/TR/2009/WD-gov-data-20090908/#rights.

that government should adopt only open, collaboratively developed standards, and participate in and contribute to open standards development processes.¹⁰⁴ The European Union's *European Interoperability Framework for pan-European eGovernment Services* (EIF)¹⁰⁵ states that one of the guiding principles for the introduction of eGovernment services on a Europe-wide basis is that open standards should be adopted to attain interoperability.¹⁰⁶ In 2007 the European Commission stated that it will promote the use of products that support open, well-documented standards in all future information technology developments, acknowledging interoperability is a critical issue for government.¹⁰⁷ The 2008 revision of the EIF advocates 'a systematic migration towards the use of open standards ... in order to guarantee interoperability, to facilitate future reuse and long-term sustainability while minimising constraints'.¹⁰⁸ The United Kingdom Cabinet Office announced in 2009 that the UK government will use open standards in its procurement specifications and support the development of open standards and specifications.¹⁰⁹

In Australia, the *Australian Government Technical Interoperability Framework* requires all standards and guidelines developed or adopted under it to conform to open standards principles.¹¹⁰ Both open and proprietary standards are

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- 104 Booz Allen Hamilton, *Geospatial Interoperability Return on Investment Study*, Report for the National Aeronautics and Space Administration Geospatial Interoperability Office, April 2005, pp. 29–30 and 43, www.egy.org/files/ROI_Study.pdf as at 8 May 2009.
- 105 European Union, Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens Division (IDABC), *European Interoperability Framework for pan-European Government Services*, version 1.0, 2004, available at ec.europa.eu/idabc/en/document/3761.
- 106 *ibid.*, p. 9.
- 107 Neelie Kroes, European Commissioner for Competition Policy, *Being Open About Standards*, speech presented to OpenForum Europe, Brussels, 10 June 2008, Reference no: SPEECH/08/317, Date: 10/06/2008, available at europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/08/317&format=HTML&aged=0&language=EN&guiLanguage=en.
- 108 European Union, Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens Division (IDABC), *European Interoperability Framework for pan-European Government Services*, draft version 2.0, 2008, p. 5.
- 109 United Kingdom Cabinet Office, *Open Source, Open Standards and Re-Use: Government Action Plan*, www.cabinetoffice.gov.uk/government_it/open_source/policy.aspx.
- 110 Australian Government, *Australian Government Technical Interoperability Framework*, 2005, p. 2a, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html.

included in the catalogue appended to the AGTIF, although the AGTIF makes it clear that, where feasible, preference is to be given to the deployment of open standards.¹¹¹ The Australian Government Information Management Office (AG-IMO) encourages agencies to use W3C open web standards¹¹² The *Public Sphere 2: Government 2.0 Briefing Paper* noted concerns about use by government of lock-in technologies and closed standards, and recommended the use of open standards¹¹³, open Application Programming Interfaces (APIs) and standardised cross-platform software (such as Firefox 3.5), to ensure that government web applications are accessible across government agencies and by their clients.¹¹⁴

If government policies to provide better access to information and data are to be implemented in such a way as to maximise the potential for reuse, it will be necessary to use document formats that enable information to be linked, analysed and queried.¹¹⁵ To ensure that government information can be analysed and reused, it should be published in appropriate formats that enable the information to be machine-processed, are not unduly subject to obsolescence and do not impose usage or licensing restrictions on users.¹¹⁶ The *Public Sphere 2: Government 2.0 Briefing Paper* recommended that ‘all government data needs to be available in free and openly documented standards such that anyone is able to use the data, and use the data in a variety of software products’.¹¹⁷ The ubiq-

111 *ibid.*, p. 3c.

112 I Reinecke, *Information Policy and E-governance in the Australian Government: a report for the Department of the Prime Minister and Cabinet*, July 2009, at p. 15, available at www.dPMC.gov.au/publications/information_policy/docs/information_policy_e-governance.pdf. See the ongoing work of the W3C’s eGovernment Interest Group, *Improving Access to Government through Better Use of the Web: W3C Interest Group Note 12 May 2009*, available at www.w3.org/TR/egov-improving/.

113 Including W3C web standards.

114 Senator Kate Lundy, *Public Sphere 2: Government 2.0 Briefing Paper*, 28 July 2009, recommendations 3(c) and 4(c) and pp. 22, 23, 30 and 32, available at www.katelundy.com.au/2009/07/29/briefing-paper-and-recommendation-endorsements-from-public-sphere-2-government-2-0/.

115 Cory Casanave, *Publish all government information using Open Linked Data standards*, comment posted to the Open Government Dialogue, June 2009, available at opengov.ideascale.com/akira/dtd/5489-4049. See also Sir Tim Berners Lee, *Putting Government Data Online*, June 2009 at www.w3.org/DesignIssues/GovData.

116 For a useful explanation of the importance of using appropriate formats, see Joshua Tauberer, *Open Data is Civic Capital: Best Practices for ‘Open Government Data’*, version 1.1, 20 July 2009, available at razor.occams.info/pubdocs/opendatacivic-capital.html.

117 Senator Kate Lundy, *Public Sphere 2: Government 2.0 Briefing Paper*, 28 July 2009, recommendation 4(d), p32, available at www.katelundy.com.au/2009/07/29/

uitous Microsoft word .doc and Adobe's PDF formats are proprietary, although their specifications are now openly available. Many governments have adopted the Open Document Format (ODF), an XML-based¹¹⁸ file format for representing electronic documents.¹¹⁹ The ODF specifications were originally developed by Sun Microsystems, while the standard was developed by the Organization for the Advancement of Structured Information Standards (OASIS) consortium and has been adopted as an international standard by ISO/IEC.¹²⁰ In March 2006, the National Archives of Australia announced that it had settled on ODF as its cross-platform/application document format.¹²¹ The South African government has adopted ODF as its preferred standard for software interoperability,¹²² and since April 2008 the use of ODF has been mandatory in the public sector in Malaysia.¹²³ The State of Massachusetts in the United States formally endorsed ODF for its public records in 2005, but in 2007 amended its approved technical standards lists to include Microsoft's Office Open XML.¹²⁴ Since early 2009,

briefing-paper-and-recommendation-endorsements-from-public-sphere-2-government-2-0/.

- 118 XML is an open standard for creating custom markup languages, see en.wikipedia.org/wiki/XML at 27 July 2009. The World Wide Web Consortium (W3C) encourages the use by governments of formats such as XML, RDF and CSV: W3C eGovernment Interest Group, *Publishing Open Government Data: W3C Working Draft 8 September 2009*, available at www.w3.org/TR/2009/WD-gov-data-20090908/#rights and *Improving Access to Government through Better Use of the Web: W3C Interest Group Note 12 May 2009*, available at www.w3.org/TR/egov-improving/.
- 119 For the European Commission's deliberations on the use of Open Document Format, see European Commission, IDABC Program, *Documentation on the Promotion of Open Document Exchange Format*, at ec.europa.eu/idabc/en/document/3439. Another open document standard is Portable Document Format (PDF). PDF has been released as an open standard by Adobe, although the Adobe Acrobat reader application is proprietary software.
- 120 ISO/IEC 26300:2006, Open Document Format for Office Applications (OpenDocument), v1.0.
- 121 See en.wikipedia.org/wiki/OpenDocument_adoption at 27 July 2009.
- 122 Tom Espiner, 'South African government adopts ODF', *ZDNet Australia* (30 October 2007) www.zdnet.com.au/news/software/soa/South-African-government-adopts-ODF/0,130061733,339283332,00.htm at 24 July 2009.
- 123 In 2008, Office Open XML (OOXML) was adopted as an ISO standard, notwithstanding widely voiced concerns that OOXML would overwhelm ODF. See en.wikipedia.org/wiki/OpenDocument_adoption at 27 July 2009. See also 'MAMPU migrates to OpenOffice.org and ODF to increase freedom of choice and interoperability' (19 March 2008) Open Malaysia, www.openmalaysiablog.com/2008/03/mampumigrates.html at 27 July 2009.

ODF has been the standard for reading, publishing and the exchange of information in all government organisations in the Netherlands.¹²⁵

However, while governments express support for the use of open standards, the picture is not quite so clear cut because different stakeholders interpret the openness requirement differently.¹²⁶ To some, the quality of openness resides in the processes are followed in developing the standard and the basis of eligibility to participate in that process. According to the American National Standards Institute (ANSI) an open standard is one that has been developed through an open, consensual process, in which stakeholders can review and comment on drafts, approved changes are incorporated into the draft standard and due process is ensured by means of a ballot and the availability of an appeals process.¹²⁷ ANSI also requires parties holding intellectual property rights to identify themselves and their proprietary interests during the process of standards development.¹²⁸

124 See en.wikipedia.org/wiki/OpenDocument_adoption at 27 July 2009. See also dan-bricklin.com/log/2005_09_07.htm#meetingphotos; 'Open Format Meeting September 2005', www.softwaregarden.com/cgi-bin/oss-sig/wiki.pl?OpenFormatMeetingSept2005; 'Your Mail: Open Debate about Open Document' (12 October 2005) *Fox News*, www.foxnews.com/story/0,2933,172063,00.html at 27 July 2009.

125 See en.wikipedia.org/wiki/OpenDocument_adoption at 27 July 2009. See also 'Netherlands picks ODF' at gotze.eu/2007/09/netherlands-picks-odf.html at 27 July 2009.

126 Perens, B (undated) *Open Standards: Principle and Practice*, perens.com/OpenStandards/Definition.html; Wheeler, D (2006) *Is an Open Document an Open Standard? Yes!*, Groklaw, www.groklaw.net/article.php?story=20060209093903413 and www.dwheeler.com/essays/opendocument-open.html; and Krechmer, K (2006) 'Open Standards Requirements' *The International Journal of IT Standards and Standardization Research*, Vol 4, No. 1, January-June 2006, www.csrstds.com/openstds.pdf and www.csrstds.com/openstds.html.

127 American National Standards Institute (ANSI), *Critical Issues Paper on Open Standards*, May 2005, publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/Critical%20Issues%20Papers/Open-Stds.pdf as reproduced in ANSI's comments to the European Commission's one-day workshop on intellectual property rights and ICT standards on 19 November 2008 in Brussels, ec.europa.eu/enterprise/ict/policy/standards/ws08ipr/contributions/20081106ANSI_en.pdf.

128 See also Ken Krechmer, *Open Standards Requirements*, *The International Journal of IT Standards and Standardization Research*, Vol. 4 No. 1, January - June 2006, p 9 and pp14-28, available at www.csrstds.com/openstds.pdf. For example, Krechmer sets ten features that must be present in open standards: (1) Open Meeting - all may participate in the standards development process; (2) Consensus - all interests are discussed and agreement found, no domination; (3) Due Process - balloting and an appeals process may be used to find resolution; (4) Open Intellectual

For others, the focus on the standards development process to the exclusion of consideration as to how the standard can be implemented by users is considered as too narrow a basis on which to categorise a standard as open. Taking a more expansive view of the requirements for open standards, Lawrence Rosen comments that ‘while process is obviously important ... process alone does not necessarily an open standard make.’¹²⁹ According to Rosen, semi-public processes alone do not guarantee that users can implement standards without having to pay onerous patent royalties or experience undue burdens.¹³⁰ In this sense, an ‘open standard’ is one which is open at both the development stage and the implementation and use stage: not only has it been developed through an open process but it provides users with access to the specification documents and any technologies embodied in the standard.¹³¹ From this perspective, the question of whether or not a standard is open centres on the basis on which patented technologies in standards and the standard documentation are available for use by those who implement the standard in their own products.

A question arises as to whether standards that incorporate patented technologies that are licensed on RAND terms requiring the payment of licence fees to the patent owners are, in fact, open standards given that they cannot be implemented without charge. The strongest definitions of open standard require the standard to be made available for use freely and unconditionally. According to the criteria for open standards listed by Perens,¹³² open standards must be ‘free for all to implement, with no royalty or fee.’¹³³ In practice, this means that patents embod-

Property Rights (IPR) - how holders of IPR related to the standard make available their IPR; (5) One World - same standard for the same capability, world-wide; (6) Open Change - all changes are presented and agreed in a forum supporting the five requirements above; (7) Open Documents - committee drafts and completed standards documents are easily available for implementation and use; (8) Open Interface - supports proprietary advantage (implementation); each interface is not hidden or controlled (implementation); each interface of the implementation supports migration (use); (9) Open Access - objective conformance mechanisms for implementation testing and user evaluation; (10) On-going Support - standards are supported until user interest ceases rather than when implementer interest declines.

129 Larry Rosen, *Defining Open Standards*, 2005 at p. 2, www.rosenlaw.com/DefiningOpenStandards.pdf.

130 *ibid.*

131 See *Executive Interviews: Bruce Sewell on the Role of Intellectual Property in Standards*, Intel (undated), available at www.intel.com/standards/execqa/qa0405.htm.

132 Bruce Perens identifies six principles which form the basis of open standards: Perens, B, *The Open Source Definition*, in C. DiBona, S. Ockman, & M. Stone (eds.), ‘Open Source voices from the Open Source revolution’ (1999), Sebastopol, O’Reilly & Associates, pp. 171–189; and Perens, B, *Open Standards Principles and Practice*, undated, at perens.com/OpenStandards/Definition.html.

ied in the standard must be licensed royalty-free and on non-discriminatory terms and that the standard documentation can be copied, modified and distributed by users.¹³⁴ The view that an open standard must be able to be implemented without payment of royalties has now been accepted by many standards organisations.

The requirement that intellectual property included in the standard be made available on a royalty-free basis is included in the definition proposed by the Digital Standards Organisation (Digistan.org) which defines an open standard as ‘a published specification that is immune to vendor capture at all stages in its life-cycle’, which means that it is possible to improve upon, trust and extend the standard over time. The Digistan definition is largely a re-statement, with some clarification, of the minimal characteristics of open standards identified in the European Union’s EIF which states that an open standard is one whose intellectual property is ‘irrevocably available on a royalty-free basis’, with ‘no constraints on the re-use of the standard’.¹³⁵ Digistan lists the following criteria for an open standard:

- Digistan.org[It] is immune to vendor capture at all stages in its life-cycle [which makes it] possible to freely use, improve upon, trust and extend a standard over time.
- The standard is adopted and will be maintained by a not-for-profit organisation, and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties.
- The standard has been published and the standard specification document is available freely. It must be permissible to copy, distribute and use it freely.
- The patents possibly present on (parts of) the standard are made irrevocably available on a royalty-free basis.
- There are no constraints on the re-use of the standard.¹³⁶

133 Perens, B, *The Open Source Definition*, in C. DiBona, S. Ockman, & M. Stone (eds.), ‘Open Source voices from the Open Source revolution’ (1999), Sebastopol, O’Reilly & Associate, pp. 171–189; Perens, B, *Open Standards Principles and Practice*, undated, at perens.com/OpenStandards/Definition.html.

134 Bruce Perens describes a closed standard as one that is ‘encumbered by one or more form of restriction: trade secret, a patent royalty, overly restrictive or discriminatory licensing, a non-disclosure agreement, closed membership on the standards definition committee’. See Perens, B (2007) *The Confusion of Tongues: EIF 2.0, Standards and Interoperability*, September 2007, perens.com/works/articles/EIF2/.

135 European Union, Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens Division (IDABC), *European Interoperability Framework for pan-European Government Services*, version 1.0, 2004, p. 9, available at ec.europa.eu/idabc/en/document/3761.

In order to promote the widest adoption of Web standards, W3C seeks to issue Recommendations that can be implemented on a Royalty-Free (RF) basis. Subject to the

Another example is the Open Geospatial Consortium, Inc. (OGC), a non-profit, international, voluntary consensus standards organization that has played a leading role in developing standards for geospatial and location based services.¹³⁷ The Open Geospatial Consortium (OGC) uses open in a similar sense, meaning that an open standard is one that:

- (1) Is created in an open, international, participatory industry process. The standard is thus non-proprietary, that is, owned in common. It will continue to be revised in that open process, in which any company, agency or organization can participate.
- (2) Has free rights of distribution: An 'open' license shall not restrict any party from selling or giving away the specification as part of a software distribution. The 'open' license shall not require a royalty or other fee.
- (3) Has open specification access: An 'open' environment must include free, public, and open access to all interface specifications. Developers are allowed to distribute the specifications.
- (4) Does not discriminate against persons or groups: 'Open' specification licenses must not discriminate against any person or group of persons.
- (5) Ensures that the specification and the license must be technology neutral: No provision of the license may be predicated on any individual technology or style of interface.¹³⁸

The same approach is strongly supported by the World Wide Web Consortium (W3C), which has developed a comprehensive patent policy with a view to ensuring that all W3C standards (called W3C Recommendations) can be implemented on a royalty-free basis.¹³⁹ W3C explains its licensing policy as follows:

In order to promote the widest adoption of Web standards, W3C seeks to issue Recommendations that can be implemented on a Royalty-Free (RF) basis. Subject to the conditions of this policy, W3C will not approve a Recommendation if it is aware that Essential Claims exist which are not available on Royalty-Free terms.¹⁴⁰

conditions of this policy, W3C will not approve a Recommendation if it is aware that Essential Claims exist which are not available on Royalty-Free terms.¹⁴⁰

140 *ibid.*, clause 2.

137 www.opengeospatial.org/ at 6 July 2009.

138 See Open Geospatial Consortium, *FAQs – OGC and Openness*, at www.opengeospatial.org/ogc/faq/openness/.

139 W3C Patent Policy, 5 February 2004, available at www.w3.org/Consortium/Patent-Policy-20040205/ as at 30 April 2009.

Although there is currently no universally accepted definition or criteria for what constitutes an open standard, it is apparent that when governments talk about open standards they use the term to refer not only to openness in process and participation but also to mean that intellectual property in standards (whether patented technologies or copyright in the specification documents) should be made available on a royalty-free basis. This meaning is given to ‘open standards’ in the European Union’s EIF (see above) and is also adopted in the *Australian Government Technical Interoperability Framework*, which explains that open standards require ‘no royalty payment, do not discriminate on the basis of implementation, allow extension, promote reusability, and reduce the risk of technical lock-in and high switching costs’.¹⁴¹ Similarly, the NZ Ministry of Justice’s *Open Source Adoption Paper* defines open standards as ‘technical standards that are publicly visible and implementable by anyone with the requisite skills and resources’.¹⁴²

MANAGING INTELLECTUAL PROPERTY RIGHTS FOR INTEROPERABILITY

Governments increasingly support and seek to adopt open standards to achieve interoperability. However, even standards that are ‘open’ in the broad sense – in that they can be implemented by users without payment of a royalty or licence fee – involve intellectual property rights which must be understood and managed if interoperability is to be attained. Consequently, government agencies participating in the development of an external standard or adopting an existing standard must strategically manage their legal interests, in a manner consistent with the objective of promoting openness and interoperability. They should ensure they understand their legal position when participating in the development of standards and their rights in relation to the resulting standard and specification documents.

Governments need to carefully consider the standards body’s intellectual property policy to ensure that the standards body’s understanding of what is meant by an ‘open’ standard accords with their own and is not confined to the processes followed to develop the standard. Where patent rights are at issue, governments should make clear to SSOs that they favour approaches where patent

140 *ibid.*, clause 2.

141 Australian Government, *Australian Government Technical Interoperability Framework*, 2005, p3c, available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/docs/AGTIF_V2_-_FINAL.pdf

142 New Zealand, Ministry of Justice, *Open Source Adoption Paper*, version 1.3 (final), 28 February 2008.

owners are required or strongly encouraged to license their patented technologies on a royalty-free basis. If patent rights are not licensed for free but on RAND terms, a common understanding should be reached on what is meant by 'reasonable' licensing terms.

Government agencies participating in the development of external standards need to ensure that ownership of copyright in contributed materials is not transferred to the standards body, with the result that it can then only be used by government upon payment of a royalty. Where possible, public sector entities should seek to retain rights to use copyright materials contributed by them to a standard or, if a transfer of copyright is required, ensure that they are able to use the finished standard without restrictions. The use of open content licences such as Creative Commons licences on any contributions made by the organisation to the standard could be a potential solution to the problems associated with keeping standards 'open'. For example, imposing a 'share alike' condition through a Creative Commons licence would have the practical affect that the material covered by the licence must be used and shared on the same terms as set out in the original licence. The advantages of open content licences are that they allow broad reuse rights for users while still enabling the copyright owner to retain control over their material, and that they are clear and easy to understand and use. Creative Commons licences have already been successfully applied to standard specifications in practice. For example, the IEEE licensed its XSD Schema under a Creative Commons Attribution – Share Alike licence.¹⁴³ Microsoft has also released some of its standard specifications under Creative Commons licences. Notably, in June 2005, it released its RSS 'Longhorn' Simple List Extensions under a Creative Commons Attribution – Share Alike Licence.¹⁴⁴

Additionally, agreement should be reached about the extent to which final standard specifications can be adapted for use in government. While a SSO may seek to exercise its copyright in a manner that ensures its standards do not become fragmented, the conditions imposed upon use of the standard should not be overly restrictive. Where it is necessary for the purposes and proper functioning of government to modify a standard slightly for internal uses, this should be permitted provided that the overall integrity of the standard is not lost.

143 See standards.ieee.org/reading/ieee/downloads/LOM/lomv1.0/ at 2 April 2009.

144 Microsoft to Deliver RSS Support to End Users and Developers in Windows 'Longhorn', 24 June 2005, www.microsoft.com/presspass/press/2005/jun05/06-24RSSIntegrationPR.msp at 2 April 2009.

CONCLUSION

In establishing connected and seamless systems and services, governments are concerned with the interoperability of technical, business (or enterprise) and information systems based on standards. Governments may develop their own internal standards or, if there is an existing external standard developed by a standards body, simply adopt the established standard. If a relevant external standard has been developed by a recognised standards organisation through an open, consensus-driven process, governments will usually adopt that existing standard, incorporating it by reference in the governmental standard¹⁴⁵, rather than developing its own specific standard. To foster interoperability between government and the private sector (whether the general community, business, or academia), governments may play an active role in the development of consensus-based standards, often contributing knowledge and materials generated in the development of internal, government-specific standards and systems. By contributing internally developed technology or knowledge to the development of a new de jure standard by a standards body, governments can promote interoperability by fostering the widespread adoption of a standard originally developed by the government for its internal purposes.

There are strong economic and democratic reasons why governments should, and do, adopt open standards and governments worldwide are increasingly committing to the use of open standards. However, there is no single accepted definition of what is meant by ‘open’ in this context. As governments move towards greater use of open standards, they will need to ensure that the standards they help to develop, or adopt, are open not only in the development process but are subject to no or minimal restrictions in implementation, if the objective of interoperability is to be achieved. Whether contributing to the development of an external standard or adopting an established standard, governments need to understand and manage the intellectual property rights involved to ensure that the standard is effective in promoting interoperability. This means that, in developing and adopting standards for interoperability, governments should, where possible, support those that permit the specification documents to be freely copied and distributed, license patented technologies in the standard on a royalty-free basis and do not impose constraints on reuse of the standard.

To achieve information interoperability, implementation of open standards-

145 Australian Government, Department of Finance and Administration, AGIMO, *Australian Government Technical Interoperability Framework*, 2005, p2a, para 2.1 states that ‘government interoperability draws on established standards’ and ‘existing Australian and international standards will be adopted wherever available and appropriate’; available at www.finance.gov.au/publications/australian-government-technical-interoperability-framework/index.html.

based interoperability frameworks will not, in itself, ensure that information is in fact shared among government agencies and between government and the private sector. Information interoperability demands not only frameworks that address interoperability at the technical, enterprise and semantic levels dealt with in the *Australian Government Interoperability Framework* but also requires the development and implementation of information policies and practices that support information access and reuse.

CHAPTER SEVENTEEN

ECONOMIC ISSUES IN FUNDING AND SUPPLYING PUBLIC SECTOR INFORMATION

John S. Cook
INTRODUCTION

In May 2005, a research team began to investigate whether designing and implementing a whole-of-government information licensing framework was possible. This framework was needed to administer copyright in relation to information produced by the government and to deal properly with privately-owned copyright on which government works often rely. The outcome so far is the design of the Government Information Licensing Framework (GILF) and its gradual uptake within a number of Commonwealth and State government agencies.¹ However, licensing is part of a larger issue in managing public sector information (PSI); and it has important parallels with the management of libraries and public archives. Among other things, managing the retention and supply of PSI requires an ability to search and locate information, ability to give public access to the information legally, and an ability to administer charges for supplying information wherever it is required by law. The aim here is to provide a summary overview of pricing principles as they relate to the supply of PSI.

OVERVIEW OF MAJOR INFLUENCES ON INFORMATION POLICY

In the 1990s, three particular historical developments of considerable socio-economic significance converged to create a need to rethink many issues related to PSI. The first was that the World Wide Web was made freely available as open source software on 30 April 1993. It was a catalyst for substantial investment in web technology and a number of ideas emerged about e-government, e-democracy, e-commerce, information superhighways, information infrastruc-

1 The GILF website is accessible online at www.gilf.gov.au and contains information and documents pertaining to the history of the project.

ture and the like. The second was a new wave of thinking about microeconomic reform that prefaced the start of the World Trade Organization (WTO) on 1 January 1995. The WTO aimed to deal more effectively with unfair international trading practices, especially where prices of goods and services were distorted by the operation of tariffs and subsidies. The WTO agreements also re-emphasised international obligations regarding intellectual property.² The third development was the acceptance of ideas out of the 1992 United Nations Conference on the Environment and Development (UNCED). This was an advance on earlier global understandings on environmental issues. Among other things, the Rio Declaration and Agenda 21 re-emphasised ideas about a human right to a decent environment in which to live and work, and a right to know about the state of the environment.

Since the 1992 UNCED Conference, progress in implementing Agenda 21 as an action plan was reviewed after five years in 1997. The United Nations saw the occasion of the new millennia as an opportune time to reaffirm its principles and goals in relation to human rights and development in its Millennium Declaration.³ In 2002, marking ten years after international commitment to Agenda 21, a further World Summit on Sustainable Development produced the Johannesburg Declaration of Plan of Implementation.⁴ Building on this Declaration and Chapter 36 of Agenda 21 as adopted in 1992, the United Nations General Assembly adopted Resolution 57/254. This new Resolution designated the decade 2005–14 as the ‘United Nations Decade of Education for Sustainable Development’ (UN-DESD); and UNESCO as the lead agency to promote the education program.⁵ In 2005, UNESCO issued its Plan for implementing an education program to fulfil the goals of the Decade of Education for Sustainable Development (DESD). The

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- 2 Documentation related to WTO membership is extensive. An Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is set out in Annex 1C to the Marrakesh Agreement. Under TRIPS, members of the WTO are required to adopt particular minimum standards regarding intellectual property.
 - 3 United Nations, *Millennium Declaration*, adopted by General Assembly Resolution 55/2 of 8 September 2000, accessed at www.un.org/millennium/summit.htm on 17 August 2008. Further discussion on this issue appears in Section 3.2.1.7
 - 4 UN Department of Economic and Social Affairs, Division for Sustainable Development, Johannesburg Plan of Implementation, proceedings of World Summit on Sustainable Development (WSSD) held at Johannesburg, South Africa from 26 August to 4 September 2002, accessed 11 April 2009 at www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm.
 - 5 United Nations, General Assembly Resolution 57/254 of 20 December 2002, *United Nations Decade of Education for Sustainable Development*, accessed online at www.un-documents.net/a57r254.htm

Plan proclaimed a vision of a world where everyone had an opportunity to learn about the values, behaviour and lifestyles required to transform societies and establish a sustainable future.

Australian governments responded to the growing need for national, regional and local responses to global issues by forming the Council of Australian Governments (COAG). COAG met for the first time in 1992. One of its early commitments was an agreement to support an enquiry, and later to implement its main findings in the form of a National Competition Policy. This involved a series of agreements and mutually supportive legislative changes.⁶ The policy envisaged the participation of government at all levels in ensuring that publicly owned income-producing assets achieved their highest and best use by introducing competition wherever it was thought to be desirable. The policy affected a variety of infrastructure – in energy, transport, telecommunications and sanitation, for example. The concept of ‘competitive neutrality’ and the adoption of ‘accrual accounting’ methods into government financial records also opened opportunities for competition by private firms. However, it also posed philosophical issues about what should be regarded as public or private enterprise. The spectacle of competition between government agencies and private firms also posed issues of why a government enterprise needed to compete with private enterprise; and how could a government enterprise remain accountable if information was withheld under a ‘commercial in confidence’ label.

Assets affected by competition policy included land held by government; and opened the possibilities that it might find better use if leased or sold to private interests under competitive tendering arrangements. Similar ideas were thought to be applicable to managing PSI as a resource; yet the worth of PSI as a resource depends on how many people can use it to advantage; and people can only guess at what it might be worth to them. The conceptual and measurement problems associated with trying to value information are extensive and are not considered here. Government as a living system maintains its coordination through internal communications between its sub-systems or departments; and external communications with its operating environment. Generally, individuals – acting alone or as part of an organisation – may receive information as:

- *Additions to prior knowledge* – providing new ideas and new perceptions about what are opportunities and threats. Confidence in new information may vary considerably and its perceived value may be highly dependent on the reputation of its author – that is, on whether the source is seen as ‘authoritative’.
- *Corroboration of existing knowledge* – in reinforcing levels of confidence in

6 These agreements are reproduced by the National Competition Council as Part 1 in *Compendium of National Competition Policy Agreements*, 2nd edn., accessed at www.ncc.gov.au/pdf/PIAg-001.pdf.

existing knowledge through additional corroborative information or evidence. At some stage, increasing redundancy in information may do little to increase levels of confidence and cost more than it is worth. This exemplifies declining marginal productivity in particular information gathering processes.

- *Conflict with prior knowledge* – where redundancy leads to contradictions with existing knowledge and decreased level of confidence in what is known. Stocks of existing knowledge may be subject to revaluation and devaluation as a consequence.

Experience suggests that learning processes do not necessarily provide discrete incremental additions to human knowledge. In a 2007 research report concerned with the public funding of science, Australia's Productivity Commission referred to the changing nature of science where advice was subject to significant shifts of position. Therapeutics provides an example. On its discovery, thalidomide was seen as a successful treatment for morning sickness in pregnant women. Later it was understood to cause infant abnormalities. It is currently a frontline treatment for leprosy. It is thought to have considerable potential in treating HIV and cancer.⁷ On this basis, the Commission argued:

The implication is that any valuation of knowledge should be seen as highly uncertain. While the apparent benefits of wide-spread policy adoption of research findings may be high, it raises the potential costs if the research results are actually wrong (for example, an educational policy implemented across all schools that results in poorer literacy outcomes for hundreds of thousands of children) ... One of the major benefits of sophisticated research capabilities and rich feedback mechanisms between policy makers and researchers is that these uncertainties can be reduced more quickly, lowering the potential costs of mistakes – this capability has a high option value.⁸

Unsurprisingly, agencies that are required to provide information according to a negotiated contract with a user rather than as a predetermined service authorised by a statute, are likely to display anticompetitive and antisocial behaviours. In this way, public servants are led to deliver a public disservice. Differential pricing may be appropriate in private enterprise where professional services may be priced according to a practitioner's assessment of a client's ability to pay. However, the application of differential pricing in a government enterprise that

7 Productivity Commission, *Public support for science and innovation*, Research Report, Canberra ACT: Australian Government, 9 March 2007, p. 171.

8 *ibid.*

supplies PSI is open to several objections:

- Differential pricing can only be sustained if applicants do not know what others are paying – otherwise clients can ask questions about why they are being treated differently.
- Negotiations to sustain differential pricing can only be carried out in secret at the expense of openness and accountability. The process is eminently corruptible from a public finance point of view.
- Where trading occurs at a loss, the process can be construed as channelling public resources to benefit a private entity; apart from ‘crowding-out’ competition from private firms and stifling opportunities for developing innovative services through value-adding.
- Where trading occurs at more than the marginal cost, the profits might be construed as ‘taxation’ where proper authorisation is required.

Re-use of publicly-funded information from various departments of government, and from academic and other research areas has a potential for a wide variety of combinations. The underlying rationale for this is not so much in its predictability as its unpredictability – essentially accepting the risk that new knowledge may turn out to be more beneficial than harmful. Searches for ‘missing link’ information depend on what people have learned to see and are willing to see. ‘In the fields of observation chance favours only the prepared mind’.⁹ In a similar vein, Drucker argued that ‘Opportunity is where you find it, not where it finds you. The potential of a business is always greater than what is actualised’.¹⁰

Enlarging the chances of systematically inviting serendipity can sensibly become an aim of government information policy. Strategy for being accident prone in a positive sense is possible; and is inherent in ideas about ‘connectionism’ that underpin the advanced use of information and communications technology in the progress of science.¹¹ The ideas of connectionism are manifest in the systems architecture of neural networks and parallel distributed processing; and in decision support and expert systems as aspects of ‘artificial intelligence’.

On 16 August 2000, the Assistant Treasurer of the Australian Government asked the Productivity Commission to review cost recovery arrangements of Australian Government regulatory, administrative and information agencies – including fees charged under the *Trade Practices Act 1974* (TPA).¹² The Com-

9 The original expression, attributed to Louis Pasteur, is *Dans les champs de l’observation le hasard ne favorise que les esprits préparés*. The above translation is one of a few commonly cited translations.

10 Peter F Drucker, *Managing for results*, London UK: Pan, 1964.

11 ‘Connectionism’, *Stanford Encyclopedia of Philosophy*, first published 18 May 1997, substantially revised 8 March 2007, accessed online at URL www.science.uva.nl/~seop/entries/connectionism/ on 10 March 2008.

mission produced two documents dated 16 August 2001- the final report;¹³ and proposed information agency guidelines.¹⁴ In a joint media statement of 14 March 2002, the Treasurer and the Minister for Finance and Administration announced the release of the Commission's final report together with the government's interim response to the report's recommendations.¹⁵

Among other things, the Productivity Commission found:

- Many cost recovery arrangements lacked transparency and accountability.
- Accounting data often failed to separate cost recovery receipts from other revenues.
- The objectives and rationale for many arrangements were difficult to establish.
- Regulation Impact Statements usually assessed regulatory proposals without dealing directly with cost recovery issues.¹⁶

The Commission's recommendations numbered 3.1 and 3.2 are especially relevant in discussions on charges for PSI:

Recommendation 3.1

All cost recovery arrangements should have clear legal authority. Agencies should identify the most appropriate authority for their charges and ensure that fees-for-service are not vulnerable to challenge as amounting to taxation.

Recommendation 3.2

Revenue from the Commonwealth's cost recovery arrange-

12 Rod Kemp, Assistant Treasurer, Terms of Reference, 16 August 2000, reproduced in Productivity Commission, *Cost recovery by Government agencies*, Report No.15, Australian Government: Canberra ACT, 16 August 2001, pp. iv-v accessed at URL www.pc.gov.au/__data/assets/pdf_file/0004/36877/costrecovery1.pdf.

13 *ibid.*, in main report.

14 Productivity Commission, *Cost recovery by government agencies*, Part 2 – Proposed information agency guidelines, Report No.15, Australian Government: Canberra ACT, 16 August 2001, accessed at URL www.pc.gov.au/__data/assets/pdf_file/0009/36882/costrecovery2.pdf.

15 Senator Nick Minchin (Minister for Finance and Administration); and Peter Costello (Treasurer), Release of the Productivity Commission Report on Cost Recovery by Government Agencies and the Government's interim response to the report, Media release 11/02, 14 March 2002, www.financeminister.gov.au/media/2002/mr_1102_joint.html.

16 *ibid.*

ments should be identified separately in budget documentation and in the Consolidated Financial Statements. It should also be identified separately in each agency's Annual Report and in Portfolio Budget Statements.

The Commission's report drew particular attention to the need for formal authority if an agency is to charge for PSI. Constitutionally, the levying of compulsory taxes and charges is a sole prerogative and a duty of a legislature that represents the people who are called on to pay. Authorisation is needed to produce PSI legally since it involves an appropriation of public funds that may occur on a continuing basis. Authorisation is also needed to supply PSI legally – partly to clarify what may be disclosed legally, and especially so if the charge for supplying information exceeds its marginal cost and profits accumulate as consolidated revenue. Such a consolidation might be construed as a form of taxation by the executive arm of government without consent of the legislative arm of government and contrary to the government's constitution.

A further issue arising from the Productivity Commission's report is the regulatory impact of charging and whether it is properly integrated with all of the things that governments try to do. In this regard, conventional benefit-cost analysis seems to be inadequate and an approach oriented towards operational research seems to be more promising. This approach would need to have a proper regard for the technical, cognitive and behavioural aspects of producing and supplying information. It also needs to consider the reasons for producing the information in the first place; whether there are clusters of activities where the information might be useful; and whether there is potential for synergy. Perhaps this can be a direction for future research to provide a rationale for funding the production of information and the standards to be adopted in its production.

PROBLEMS WITH SEEMINGLY SIMPLE IDEAS

Some ideas are easy to adopt as political slogans because they sound simple. However, under Socratic-style enquiry they often pose more questions than they answer in trying to work out what they actually mean and whether they have any practical application. In relation to PSI and the role of government, the following ideas seem to have particular relevance.

- 'No taxation without representation' – a political slogan of considerable significance historically, which opens a series of questions:

– Who actually pays taxation when it is possible that some or all of the cost may be passed on in value-adding processes of intermediate product leading to final consumer goods and services?¹⁷

– Who can be said to own cultural heritage and the benefits that flow from it, having regard to parts of this heritage that may be global, regional or local in its significance?

– Are things such as changes in property rights regimes,¹⁸ conscription for military service;¹⁹ and the so-called ‘red-tape burden’ properly compensated or can they be construed as forms of taxation where people deserve to be properly represented individually and collectively?

– What does it mean to be represented? This has been resolved historically for the most part in favour of adult suffrage in elections for representative legislatures that have an important constitutional responsibility to decide how government revenue is raised and how it is appropriated.

• The ‘user pays’ principle – which opens a series of question regarding:

– Who can be identified as a user?

– If users can be identified how much should they should pay?

– Who should be paid within the framework of copyright law? The issue is often complicated by remnants of copyright that may subsist within PSI. It is difficult in practice to organise ‘equitable remuneration’ under copyright law. Part of the problem is in knowing when remuneration is due, given the uncertain boundaries of what is information *per se* and not subject to copyright, and what is not subject to remuneration under the ‘fair use’ provisions of copyright law.

– If payment is in fact due, how can a particular remuneration be properly called ‘equitable’?

– How can payments be effected and how much does it cost to effect these payment transactions?

• The proposition that information is an investment that should provide a return on capital opens a series of questions.

– What is the value of information – bearing in mind that things are not necessarily worth what they cost?

– What is the quality of information that might help to determine whether it is useful to anyone? In asking about the quality of information it is also possible to ask about the qualifications of the assessors and who assesses the assessors.

17 Economists usually refer to this as ‘the incidence of taxation’.

18 In particular, changes regarding permitted uses and obligations regarding natural and cultural heritage that impact adversely on property values.

19 The movement towards adult suffrage accelerated in the aftermath of the Napoleonic conflict and the first and Second World Wars.

– How can a stock of information be valued, how can it be decided what information is worth as flows of current revenues and costs, and what can be said meaningfully about return on investment?

– If ‘maximising’ the use of PSI is an aim of public policy, how can it be decided that use is ‘maximised’?

In considering the multifaceted nature of these questions, leaving some of them unanswered might appear to be convenient. However, ignoring them will almost certainly pave the way for valid objections to a partial analysis. Alternatively, a single author who tries to address all of these questions will certainly extend beyond a personal level of expertise and leave room for valid objection by those who do have more expertise. In failing to view the issues holistically, opportunities to veto proposals arise in many places with a consequence that institutional innovation is especially difficult to achieve when it relates to how people are governed.

STRUCTURING OF RESEARCH QUESTIONS

In July 2007, research began into circumstances where charging for PSI is or may be appropriate. These questions are easy to ask and the answers can often be given simply. However, providing reasons for the decisions can be more difficult. The ability and willingness to provide reasons is important in matters of administrative justice and is the essence of what it means to be reasonable. Being recognised as reasonable underpins the legitimacy of a government in that it helps to develop an informed consent of the governed in supposedly democratic societies.

A further fundamental issue is where does formal authority originate that can describe any activity as ‘legal’ or ‘illegal’ and ‘legally enforceable’, and what are the learning processes that allow people to work and live in conformity with the laws. The following issues were deemed important in trying to review holistically the information-intensive activities of government:

- fundamental purposes of government and why a government needs information;
- how a government gives purpose and authority to its production of information;
- what conditions should apply to the supply of information between government agencies, other governments and private persons; and
- the development of a rational basis for deciding how much should be paid, who should pay, and how payments can be collected.

SUMMARY OF PRICING PRINCIPLES

The pricing principles that emerge from the research are summarised in Box 1. They depend on the nature of the transactions involved that may be summarised as:

No charging – Non-contractual supply of public sector information to anyone.

Charging – the circumstances can be considered as:

- Supply of information by command of a statute to anyone who is entitled to receive it.
- Inter-agency transfers and exchanges within a government as a single legal entity.
- Transfers from and exchanges between a government as one legal entity in dealing with other governments or statutory authorities as separate legal entities.
- Supply of information under terms of a contract with a private person.

Box 1 – Summary of pricing principles

No charging

- No charge should be made for government information where the government has objectives of informing the public; obtaining information from the public; or securing public cooperation and community engagement.
- No charge should be made in circumstances where people are able to re-use existing government information for lawful purposes at a negligible cost to the government.
- Costs to the government should be regarded as negligible where information is supplied online in a digital format; no representation is made that the information is suitable for any non-government purpose; and access is not restricted by any requirements for privacy or confidentiality.

Charging in some situations for services that provide information

- A charge should be made to conform to a prescribed fee for service as set out in an Act or associated regulation when information is supplied to meet statutory duties and standards of service.
- Important issues of public policy arise in going beyond prescribed statutory duties and using public resources to service the particular needs of a private person, firm or organisation for information or advice. Conse-

quently, decisions about charging need to be well informed in relation to the political and economic risks involved. Without attempting to be exhaustive, things that need to be considered include:

- A liability regime that compares to private professional practice.
 - A need for openness and accountability in pricing.
 - A potential for profit-making to be construed as a form of taxation that should have parliamentary approval.
- A potential for non profit-making to be construed as failing to comply with competitive neutrality provisions and a crowding-out of private sector initiatives.
- A charge may be negotiated for work needed to achieve interoperability and cooperation between the government's own agencies to meet its own purposes. Generally, details of the proposed work and inter-agency transfers of money and information should be recorded in a memorandum of understanding.

A charge may be negotiated for work needed to achieve interoperability and cooperation between governments. The arrangements should be properly set out in an inter-governmental agreement.

Information produced expressly by command of the parliament often provides information or evidence to satisfy needs of individuals and corporations. The enabling statutes may specify standards of service; rules about the government's liability, rules regarding access, details of the licence pertaining to use of information, and the basis for charging for the service. Supply of information by command of the parliament cannot be construed sensibly as market place transactions.²⁰

The arguments related to charging for public sector information are generally based on grounds of efficiency and fairness perceived broadly as follows:

- *Efficiency* – that may include issues such as effectiveness and synergy in achieving the purposes of government, administrative simplification, and the proportion of transaction costs associated with collecting revenue compared to the amount of revenue raised and the net revenue after collection.
- *Fairness* – that may include issues such as redistributive justice, administrative simplification and transparency, and the giving of reasons consistent with

20 The supply of information by land registration authorities is archetypical of these kinds of transactions.

requirements for social cohesion.

EFFICIENCY CONSIDERATIONS

Generally, highly aggregated macroeconomic efficiency indicators do not identify information-intensive activities in ways that can inform information policies at an operational level.²¹ The microeconomic concepts that are usually associated with a package of microeconomic reform in market oriented activity provide a useful starting point. These concepts can be summarised as follows:

- *Technical or x-efficiency* – where efficiency improves if the same input can achieve greater output. Improving technical efficiency depends significantly on operational analysis. Some economists and textbooks do not acknowledge ‘x-efficiency’ as a concept, but others relate it to motivational factors and work output of human beings.²² Government responses are generally specific to industries and sectors and related to production methods and standards.
- *Pareto or allocative efficiency* – where efficiency improves when people can trade to mutual advantage without harming anyone else. This idea underpins much of the theory about the efficacy of markets; but the idealised circumstances are seldom approximated as a matter of practice. Equally simplistic is the idea that governments can readily intervene to correct perceived market imperfections.
- *Dynamic or adaptive efficiency* – where efficiency improves when resources are readily adaptable to new tasks.

In adapting market-oriented microeconomic efficiency concepts to the command type activities of public and private bureaucracies, some relabelling occurs to identify ideas about ‘efficiency’ and ‘effectiveness’. While there is no formal acceptance of the meaning of some of these terms, a useful translation is as follows:

- *Efficiency* – doing things the right way – which aligns more or less with the microeconomic concept of technical efficiency.
- *Effectiveness* – doing the right things – where market-oriented processes of allocation are replaced by the collective decision making and appropriations

21 This apart from the considerable conceptual and measurement problems associated with accounting for information-intensive activity.

22 An early article is due to Harvey Leibenstein, ‘Allocative efficiency vs. ‘x-efficiency’,’ *American Economic Review*, 56: 3, June 1966, pp. 392–415. Some economists apply the notion of technical efficiency mainly to machines and work methods. Others relate the notion of x-efficiency to human factors such as motivation, incentives and disincentives.

made by a representative legislature.

According to a Pareto Criterion, overall economic welfare increases if one person can be made better off without making someone else worse off. Conceptually, a Pareto optimum can be reached when no further transactions meeting the Criterion can be negotiated. At this stage, commodities reach their highest and best use as indicated by market prices. This basic argument is tautological: a logical construct that says that things get better if nothing gets worse. Nonetheless, it underpins policies that favour free trade; and its practical importance lies in whatever influence it can give in trying to create social and economic conditions where there are winners and no losers.

The Pareto Criterion is subject to several qualifications. It assumes that a person is the best judge of his or her own welfare; and that parties are free from coercion in arriving at their decisions. An individual might not be the best judge of his or her own welfare if he or she is:

- intellectually immature or mentally handicapped;
- displaying obsessive or addictive behaviours – as in alcohol or drug dependence and gambling;
- seeking technical or professional advice either as a discrete service such as a medical consultation or as part of a larger overall objective such as financial advice on investment opportunity; or
- making purchase decisions under various degrees of uncertainty and involving elements of risk – a condition that applies to most long term commitments.

People need to understand how they might be satisfied in their transactions with other people; but just as important is how dissatisfaction can be managed if things do not turn out as expected. Accordingly, the need for learning underpins all efficiency considerations in a path to improved standards of living; regardless of whether decisions are made as individuals or collectively. Where knowledge is deemed to be a driver of technological progress, more attention ought to be directed to encouraging ‘knowledge production’ as a process where an individual learns something of value that he or she did not know previously.²³ The application of knowledge to tasks, especially those that are non-routine and do not lend themselves readily to automation, requires a special kind of productivity in knowledge workers. In commenting on this issue, Drucker wrote:

The productivity of knowledge and knowledge workers will not be the only competitive factor in the world economy. It is,

23 Fritz Machlup, *Knowledge: its creation, distribution and economic significance*, Vol.1 ‘Knowledge and knowledge production’, Princeton NJ: Princeton University Press, 1980, p. 7

however, likely to become the decisive factor, at least for most industries in the developed countries.²⁴

In 1986, the UN adopted a Declaration on the Right to Development that referred to the idea of ‘sustainable human development’.²⁵ In 1996, Stiglitz referred to the World Bank’s change of focus in financing economic development.

We now see economic development as less like the construction business and more like education in the broad and comprehensive sense that covers knowledge, institutions, and culture.²⁶

Some commentators consider knowledge as a distinctly human attribute linked to the notion of ‘human capital’. In practice, a great deal of learning occurs in non-market conditions as indicated by the large volumes of information sharing that occur in practice.²⁷ It is perhaps more precise to speak in terms of one-way communications as ‘transfers’ and two-way sharing of information as ‘exchanges’. Some learning may be pre-contractual insofar as people need to gain sufficient mutual understanding to form the basis of political or market-oriented agreements and contracts.

24 Peter F Drucker, ‘The future that has already happened’, *Harvard Business Review*, September-October 1997, p. 21, cited in Thomas H Davenport, *Thinking for a living: how to get better results from knowledge workers*, Boston MA: Harvard Business School Press, 2005, p. 8. Further commentary on this theme appears in Peter F Drucker, ‘Knowledge-worker productivity: the biggest challenge’, *California Management Review*, 41: 2, 1999, pp. 79–94.

25 Declaration on the Right to Development, adopted by General Assembly Resolution 41/128 of 4 December 1986, at Article 2(1) – ‘The human person is the central subject of development and should be the active participant and beneficiary of the right to development’ - accessed at URL www.unhcr.ch/html/menu3/b/74.htm.

26 Joseph E Stiglitz, Senior Vice President and Chief Economist of the World Bank, ‘Public policy for a knowledge economy’, Keynote address in *The knowledge driven economy: analytical and policy implications*, held by Department for Trade and Industry and Centre for Economic Policy Research Conference in London, UK on 27 January 1999, p. 3, accessed at www.worldbank.org/html/extdr/extme/knowledge-economy.pdf

27 Accordingly, a great deal of ‘knowledge production’ occurs outside traditional financial accounting procedures and is not measured and actually defies measurement.

DEVELOPING EFFICIENCY IN LEARNING PROCESSES

Democracy depends on continually learning how to develop understandings and agreements that can sustain voting majorities on which democratic law making and collective action depends. The objective expressed in constitutional terms is to deliver ‘peace, order and good government’. The requirement to meet this objective is a collective intellectual authority that can understand what is possible; and a collective moral authority to understand what ought to happen in practice.

Facts of life determine that a society needs to retain its collective competence despite a continual turnover of its membership as people die but life goes on. Retaining this ‘collective competence’ in matters of self-government depends on each new generation:

- acquiring a collective knowledge of how to produce goods and services needed to sustain a society and its capacity for self-government;
- learning how to defend society diplomatically and militarily in relation to external forces to prevent overthrow of its self-governing capacity; and
- learning how to defend society against divisive internal forces to preserve the authority of representative legislatures, allow peaceful dispute resolution and maintain social cohesion.

Societal continuity depends on institutional arrangements that allow cultural, genetic and material inheritances to pass from one generation to the next. Table 1 contains a brief description of these inheritances:

TABLE 1: KEY INHERITANCES FOR SOCIETAL CONTINUITY		
Cultural	Genetic	Material
Inherited in learning how to organise productive activities, distribute goods and services equitably, live peacefully, and find satisfaction and purpose in life. Benefiting from this cultural heritage depends on acquiring relevant language skills.	Inherited through birth. Genetic adaptation to changes in environmental conditions occurs slowly. In comparison, cultural adaptations happen more rapidly and provide capacity for both survival and for self-destruction	Inherited in natural and man-made resources, including the physical inheritance of meaningful symbols, objects and places. (Knowing how to recognise and use material things as resources is part of the cultural heritage).

Although all societies aim to ensure their survival through continuity with the past, some societies also learn to expect future improvements in their standards of living. A society merely maintains its standard of living by knowing how to

produce the same goods and services with less labour. Living standards do not improve until societies learn how to:

- redeploy human and other resources displaced by increased productivity in one area into new areas of production;
- overcome problems associated with disinvestment – especially in facilitating education and training of workers for new jobs; and, wherever necessary, in facilitating their movement to new places so they can live in reasonable proximity to their new jobs;
- relieve social tensions arising from unequal distribution of the benefits, costs, opportunities and risks associated with new technology, so far as this is practicable;
- acquire the language, understandings and agreements related to property, contract, liability, warranty and other institutional arrangements that allow proper use of new technology; and
- acquire the ability to regulate and mitigate the adverse consequences arising from abuse of new technology.

Viewed holistically, society relies on organisations in government, commerce and civil society sectors to produce most of its goods and services. In retrospect, these sectors have existed in some form since medieval times, and perhaps longer. Each is distinguished by how it accesses resources when engaging in processes of routine production and innovation. Each is also affected differently when innovations in information and communications technology remove constraints on its organising capabilities. Table 2 contains a brief description of these sectors:

TABLE 2: PRODUCTIVE ORIENTATION IN MAJOR SECTORS OF SOCIETY		
Government	Commerce	Civil Society
Activities whose authorisation and funding through compulsory taxes, levies and charges depends on decisions by a representative legislature.	Activities where survival of firms depends on capital raisings, profits and loans obtained from people with some degree of choice about whether or not they deal with the firm.	Activities of not-for-profit organisations that depend on subscriptions, fees for service, gifts, grants and in-kind contributions to retain financial solvency.

Information asymmetry is inescapable in an information society based on task specialisation. Conceivably, a supplier of goods or services may have a purchaser's interests in mind, and continuing business may find its basis in reputation for fair dealing. In these circumstances, 'fair dealing' contributes to economic efficiency. Thus, fair dealing can occur despite practical difficulties

and any shortcomings there may be in arriving at ‘informed consent’. However, dealings that are perceived as unfair lead to less efficient outcomes: in things such as reduced satisfaction from transactions, loss of trust and reputation in suppliers, increased costs in surveillance and recourse to civil or criminal legal actions. Ethical dealing needs to underpin human interaction quite generally and avoid undue exploitation of people who are in weak bargaining positions. Williamson refers to ‘opportunism’ as ‘self-interest seeking with guile’; where transactions occur with some element of deceptive behaviour though non-disclosure of important information and with ‘lying, stealing and cheating’ as its more blatant forms. However, more subtle forms are recognisable as adverse selection and moral hazard that he relabelled respectively as *ex ante* and *ex post* opportunism.²⁸

The increasing need imposed by laws of negligence and a duty of care to obtain ‘voluntary informed consent’ places particular obligations on the parties to maintain some in commercial transactions and where the government seeks to engage the community in debate on policy proposals. Improvement depends on:

- Encouraging experts to do whatever they can to make their work more understandable to other people through activities such as:
 - Facilitating multidisciplinary teamwork based on clear objectives where experts can learn to work together.
 - Facilitating access to information generally – and public sector information in particular, insofar as it relates to the authority, planning and monitoring regimes associated with the functioning of government.
 - Producing summaries and versions of research findings that are more particularly directed towards the eventual need for voluntary informed consent where matters of public policy are concerned.
 - Promoting non-aggressive interviewing technique in forums and discussion through the mass media that allow experts to demonstrate positive aspects of scientific curiosity and questioning rather than blind acceptance of particular points of view.
- Encouraging people to do whatever they can to increase their knowledge generally; and their capacities in particular for:
 - continuity in employment;
 - community engagement in programs such as those that maintain health, public safety and the human habitat; and
 - contributing meaningfully to policy developments and debates in a

28 Oliver E Williamson, *The economic institutions of capitalism*, Free Press - Macmillan: New York NY, 1985, p. 47.

participative democracy.

In the 1990s, attention turned towards lifelong learning as a feature of a 'learning society' and a 'knowledge economy' with increasing concerns about potential for underemployment and limits to remuneration despite educational attainments.²⁹ In encompassing all these themes, UNESCO's Fifth International Conference on Adult Education, held in Hamburg in 1997, produced two documents:

- 'The Hamburg Declaration on Adult Learning' as a statement of principle
- 'An Agenda for the Future' as a statement of intended actions.³⁰

Aging populations introduce a new dimension in coping with complexity. Older people are able to participate in things that affect them; and their worldly experience can influence the development of an informed and tolerant citizenry. This is at least useful and may be a necessary condition for humanity's survival. Long-term strategies for retirement incomes also pose significant social problems in knowing how to provide future incomes in the face of increasing vulnerability in socio-economic and ecological systems. The problem is not merely to provide incomes into the future but also to maintain their purchasing power and the solvency and survival of financial institutions that actually manage retirement savings.

The OECD has also expressed interest in the kinds of policies that can promote adult learning as older workers may need to work beyond what has been accepted as a retirement age. This tends to emphasise the needs for low-skilled workers to engage in continuing education to retain their opportunities for employment and their inclusion in the affairs of society. The relationship of education to employment has been followed for the most part in Australia in terms of where the payoffs are expected to be.³¹

In summary, governments have not always seen PSI as learning material; yet many worthy publications are publicly funded. Accordingly, public policy is inconsistent, incoherent, inefficient and ineffective when:

- governments promote activities associated with education, training, research,

29 D W Livingstone, 'The limits of human capital theory: expanding knowledge, informal learning and underemployment', *Policy Options*, July-August 1997, pp. 9–13, accessed online at URL www.irpp.org/po/archive/jul97/livingst.pdf.

30 UNESCO, 'The Hamburg Declaration on Adult Education' and 'An Agenda for the Future', Conference documents, CONFINTEA held at Hamburg from 14 - 18 July 1997 accessed at URL www.unesco.org/education/uie/confintea/pdf/con5eng.pdf.

31 Tom Karmel and Davinia Woods, *Lifelong learning and older workers*, National Centre for Vocational Education Research, Adelaide SA, NCVET, 2004, accessed online at URL www.ncver.edu.au/research/core/cp0303_2.pdf.

public libraries and archives at considerable cost in the hope that individuals will be able to use the information for personal and social advantage; and

- governments fail to promote opportunities associated with re-use of public sector information on an as-is basis when it can be achieved at minimal cost to government.³²

EQUITY ISSUES

In a broad sense, allocation processes are corrupted when someone obtains benefits or incurs costs or penalties that they do not deserve. The benefits and costs may be political – as in gains in political power or losses of personal freedoms; or economic – comprising gains or losses that are usually reckoned in money terms. These misallocations usually occur through dishonesty in the information processes associated with deciding how rewards and penalties are to be applied.

The term ‘official corruption’ usually applies in the regulatory processes of government. However, it is a special case of a more general problem of governance where information asymmetry provides a potential for adverse selection and moral hazard – in relationships of employees vis-à-vis employers; company executive officers vis-à-vis shareholders; agents vis-à-vis principals, for example.

The ideal of mutual advantage in undertakings according to the Pareto Principle is not always available in practice. In many cases, there are winners and losers; and losers go uncompensated due to the practical difficulties and transaction costs associated with trying to compensate them. However, where there are sufficient opportunities for people to have gains and losses at various times, the notion of compromise and ‘give and take’ becomes a part of everyday life. The problems arise if there are systematic attempts to allow the rich to get richer at the expense of poorer people. In this regard, the problems for a highly organised society is not only to distribute benefits of successful enterprise but also how to distribute the risks that things may turn out badly and the actual costs if insolvency actually occurs.

Limited liability became more widely available in the UK after 1855 through an amendment to the Joint-Stock Companies Act of 1844. The amendment followed a Royal Commission that canvassed strongly divergent attitudes towards limited liability and its implications for commerce and manufacturing. Historians tend to see the 1855 amendment as a sharp break with the past and that subsequent changes have been more gradual. However, few seemed to agree on why the change occurred. Bryer cites earlier work by Jefferys with approval in arguing that:

32 The diagram in Attachment 1 is an attempt to provide a graphic overview of learning processes that are important to government and a learning society.

the success of the industrial and commercial revolutions had resulted in London and other commercial centres in the growth of a body of capitalists not directly engaged in trade, who were now seeking an outlet, with profit, for their accumulations. The National Debt, savings banks, the practice of joint stock banks in allowing interest on deposits, the canal and railway investments, had increased their numbers and had whetted their appetite for investment at a profit ... This class were the chief instigators of the limited liability legislation.³³

Nowadays, commercial interests often emphasise the role of markets and private enterprise in undertaking ventures involving risk. However, they fail to mention laws that act in their favour since most firms are corporate entities whose shareholders benefit from limited liability. Similarly, laws regarding personal insolvency have evolved:

- initially out of situations where creditors took matters into their own hands;
- then to imposition of severe penalties and confinement in debtors' prisons – usually at the behest of creditors; and
- then to situations where governments have tried to organise the best arrangement that circumstances allow; usually involving
 - some forgiveness of the debt;
 - attempts at rehabilitating the debtor; and
 - trying to effect the best settlement that can be obtained for creditors.³⁴

Limited liability as an institutional arrangement is an intangible investment in collective learning about how to manage business risks. Production in the latter part of the 1800s and into the 1900s entered a new phase as research into manufacturing processes began to yield significant productivity improvement. Tools were used to make other tools and machines could make parts for other machines. Since economies of scale depended on scale, mass production was unsustainable without mass consumption. That depended in turn on increases in actual purchas-

33 J B Jefferys, 'Trends in business organization in Great Britain since 1856, with special reference to the financial structure of companies, the mechanism of investment and the relations between shareholder and company', unpublished PhD thesis, University of London, 1938, pp. 9–10, cited in R A Bryer, 'The Mercantile Laws Commission of 1854 and the political economy of limited liability', *Economic History Review*, New Series, 50: 1, February 1997, pp. 37–56, p. 37.

34 Methods of dealing with debt and personal insolvency date from ancient times. The history is difficult to trace as attitudes have waxed and waned over centuries in the harshness of their treatment of debtors.

ing power through wages and tax redistribution to working people, or through personal savings, or through access to consumer credit that could create an illusion of purchasing power. Mass consumerism also depended on a mass media that was highly dependent in turn on advertising revenue, and increasing consumer literacy and learning.

Arguably, the organisations of government, commerce and civil society share the same tendencies to bureaucratisation. Ownership and control are separated; and executive decisions replace market-style negotiations in the internal allocation of resources. The market power of large producers; their employment of human resources; and their reliance on public infrastructure means that company spokespersons acquire significant bargaining power in their threats to withdraw production from particular geographic locations and to reduce local employment. The abuse of this power is often a corrupting influence in the decisions affecting allocation of resources.

Equity issues become intimately bound up with a potential to manipulate information. Posing alternative views becomes a countervailing force to chicanery as complexity grows and things become more difficult to understand. It may be sufficient here to say that charging for PSI is an unnecessary barrier to self-motivated learning in all its forms; and an unnecessary complication in public administration where better use can be made of the resources tied up in this activity.

CONCLUSION

The role of government has become increasingly complex and efforts are needed to simplify its organisation without being unduly simplistic. Einstein adopted an adage – ‘Things should be as simple as possible but no simpler’. Communities need to place increasing attention on how they can cope with the complexity of their own self-government if they are to open opportunities for the benefits of technology to emerge while also coping with the potential for harm caused by abuse of technology. Experts ought to feel some obligation to explain the implications of what they know if there is to be informed consent in personal services and collective decision making. The people affected by these decisions ought to feel some obligation to understand how they are governed and satisfy themselves in relation to information that is readily available. These are essential processes in ‘learning societies’ and ‘knowledge economies’. Stable democracies depend on being able to sustain workable majorities in relation to important public policy initiatives to gain genuine community support for collective actions.

The supply of PSI at no charge is generally justifiable on grounds of economic efficiency where there are no clear obligations and risks related to nondisclosure. The arguments related to equity and ‘user pays’ are usually poorly

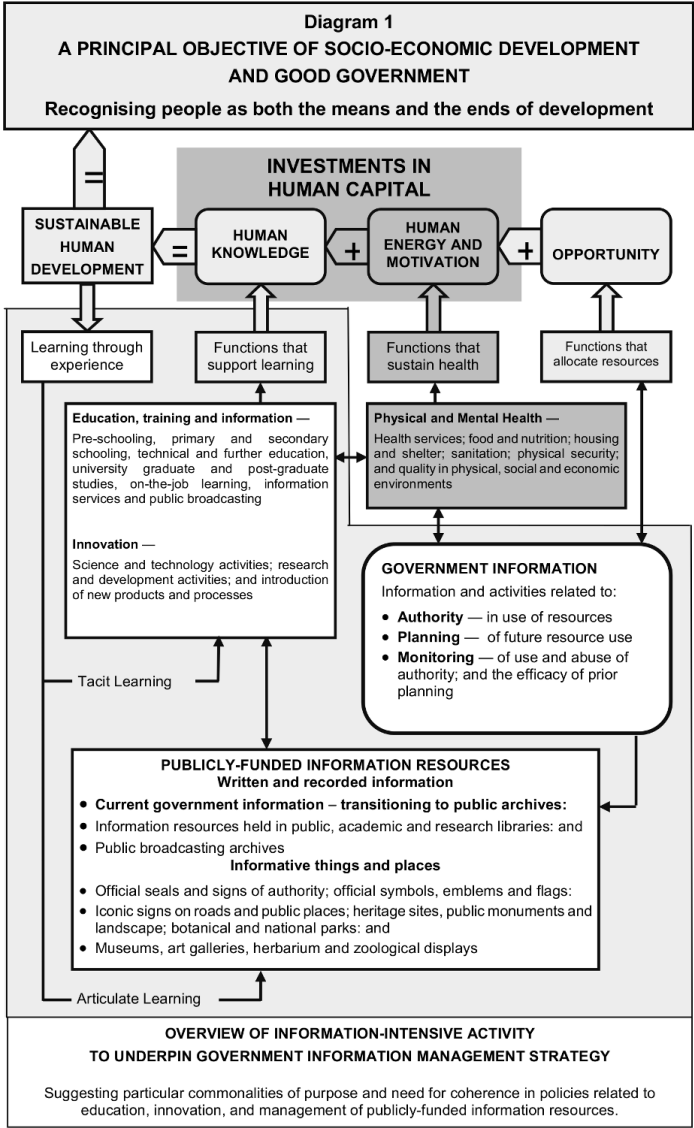
conceived in the context of the public funding and the strenuous efforts devoted to the promotion of lifelong learning. Moreover, the contribution of resources to learning occurs in all sectors – government, commerce and civil society – and much of the contribution is voluntary.

The equity arguments are also poorly conceived in relation to the massive redistributions that occur through limiting liability in dealing with personal and company insolvency. The debts can be distributed locally and globally to impose on people who can ill-afford the losses. The need for redistribution of income and wealth is important to social stability and is achieved for the most part through differential taxation, transfer payments for social welfare purposes and through the not-for-profit organisations of civil society. Where the government has multiple sources of charges, the chances are that the government will be seen as giving with one hand and taking away with the other.

Where there are few certainties about what the future will bring, two things provide a sense of intellectual and moral solidarity. The first is that people can expect to be treated fairly and reasonably under the institutional framework that supports society. The second is that people will avail themselves of opportunities for self improvement in matters of health and education to maintain their physical and mental capacities and enjoy various pleasures of life that money cannot buy; and also feel some obligation to assist other people who may need help.

ATTACHMENT 1: SUMMARY OVERVIEW OF GOVERNMENT ACTIVITIES

Arguably, the complexity of government needs to be simplified for the purpose of giving an overview of the whole of government for management purposes. Diagram 1 is designed to highlight the learning processes involved in developing human capital.



ATTACHMENT 2: STRUCTURING OF INFORMATION TO ACHIEVE GOVERNANCE

In establishing governance arrangements, most government and non-government enterprise depends on three information-intensive activity regimes:

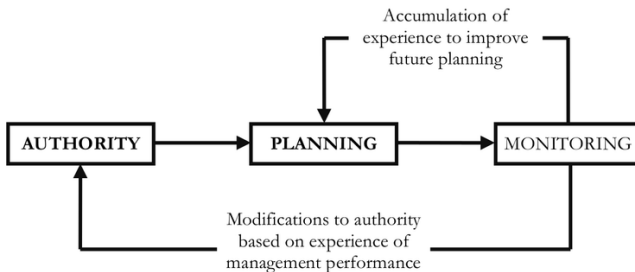
- *an authority regime* – involving the creation of a legal framework of legally enforceable rights and obligations pertaining to ownership, transfer, exchange and use of resources;
- *a planning regime* – to establish the foresight on which to base future actions that involve use of resources; and
- *a monitoring regime* – to accumulate experience or hindsight on which planning depends, and to monitor performance on which continuing authority may be justified.

Diagram 2 shows the information bundling associated with resource management and the nature of the feedback processes known variously by terms such as ‘learning through experience’, ‘learning by doing’, and ‘evidence-based decision making’. Arguably, this provides a basis for ‘information infrastructure’ insofar as it relates to information as content.

Much depends on the availability, quality and readability of this information by all who are affected by what governments do. Opening this information to research and critique by anyone who has the motivation to use it increases the potential for improving human capital and the quality of encoded information held as records by government departments.

Diagram 2

INFORMATION REGIMES NEEDED IN MANAGING USE OF RESOURCES



ATTACHMENT 3: EDUCATION OBJECTIVES

Education objectives were affirmed as a global issue in the aftermath of two World Wars interspersed by a fragile peace. Delegates to a conference held in London on 16 November 1945 agreed to constitute the United Nations Educational, Scientific and Cultural Organisation (UNESCO) as a specialised agency of the UN as permitted by the UN Charter.³⁵ Australia accepted the Constitution on 11 June 1946. The Australian Parliament approved this acceptance formally

in passing the United Nations Educational, Scientific and Cultural Organization Act 1947.³⁶ The UNESCO Constitution captured the prevailing ethos of leading nations in declaring with power and eloquence:

- that since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed;
- that ignorance of each other's ways and lives has been a common cause, throughout the history of mankind, of that suspicion and mistrust between the peoples of the world through which their differences have all too often broken into war;
- that the great and terrible war which has now ended was a war made possible by the denial of the democratic principles of the dignity, equality and mutual respect of men, and by the propagation, in their place, through ignorance and prejudice, of the doctrine of the inequality of men and races;
- that the wide diffusion of culture, and the education of humanity for justice and liberty and peace are indispensable to the dignity of man and constitute a sacred duty which all the nations must fulfil in a spirit of mutual assistance and concern;
- that a peace based exclusively upon the political and economic arrangements of governments would not be a peace which could secure the unanimous, lasting and sincere support of the peoples of the world, and that the peace must therefore be founded, if it is not to fail, upon the intellectual and moral solidarity of mankind.³⁷

The preamble to the UNESCO Constitution expresses a belief in 'full and equal opportunities for education for all'; 'the unrestricted pursuit of objective truth', and 'the free exchange of ideas and knowledge'. UNESCO's purpose was centred on improving communications between people to develop deeper mutual understandings that could promote international peace and the common welfare of mankind consistent with the UN Charter.

The General Assembly adopted and proclaimed the Universal Declaration of Human Rights (UDHR) on 10 December 1948. Member States pledged themselves to cooperate with the United Nations in promoting universal respect for fundamental human rights and freedoms. These rights included a right to an adequate standard of living and social security in Articles 22 and 25; a right to education in Article 26; a right to work and to equal pay for equal work in Article 23; and a right of minorities to enjoy their own culture, religion and language.

The notion of a right to share in the benefits of science appeared at Article

35 Referred to in Article 57 of the Charter.

36 United Nations Educational, Scientific and Cultural Organization Act 1947, (Act No.24 of 1947), s.2 and Schedule.

37 *ibid.*

27 of the UDHR.³⁸

Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.³⁹

The Declaration also envisaged progressive national and international measures to improve the quality of life for all people in the world. The 1976 International Covenant on Economic, Social and Cultural Rights reasserted provisions of the 1948 Declaration by calling on parties to the Covenant to recognise the right of everyone to take part in cultural life, enjoy the benefits of scientific progress and its applications, and benefit from ‘the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author’.⁴⁰

Everyone has a right to an education; with free and compulsory education at elementary and fundamental stages; and accessibility to higher education ‘equally available to all on the basis of merit’.⁴¹ The UNESCO Constitution affirmed a basic tenet of humanistic philosophy in suggesting that:

Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.⁴²

38 Universal Declaration of Human Rights, adopted and proclaimed by the UN General Assembly on 10 December 1948, Article 27 www.un.org/Overview/rights.html.

39 *ibid.*, Article 27(1)

40 United Nations International Covenant on Economic, Social and Cultural Rights, Adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of 16 December 1966; entry into force 3 January 1976, Article 15(1) www.unhchr.ch/html/menu3/b/a_ceschr.htm.

41 Universal Declaration of Human Rights, Article 26(1). *International Covenant on Economic, Social and Cultural Rights (ICESCR)*, Australian Treaty Series 1976 No.5, Entry into force generally on 3 January 1976, Entry into force for Australia on 10 March 1976. Article 13 expands on aspects of education –at URL www.austlii.edu.au/cgi-bin/sinodisp/au/other/dfat/treaties/1976/5.html (accessed 16 April 2008).

42 *ibid.*, Article 26(2).

BIOGRAPHIES

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