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**A Tenth Anniversary Assessment of  
Davenport and Prusak (1998/2000)  
“Working Knowledge”:  
Practitioner Approaches to Knowledge in  
Organisations**

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## Abstract

Davenport and Prusak's "*Working Knowledge*" is aimed at practitioners. The tenth anniversary of the paperback edition of Davenport and Prusak's "*Working Knowledge*" (first published in 1998 and then issued in paperback with a new preface in 2000) is evaluated using two approaches. First, a practitioner view of knowledge management is examined from two lenses, the authors' definition of knowledge and their view of knowledge processes in establishing preferences for knowledge sharing or hoarding. The second approach is to consider Davenport and Prusak's advice on how to manage knowledge and ensure it is neither mismanaged nor unmanaged in organisations (p. xxi). Their advice is drawn from the 31 businesses in which they conducted research, as well as some other companies, which are used for illustration. These are listed in a table that identifies the knowledge management lessons that Davenport and Prusak suggest should influence other organisations seeking to improve their use of knowledge (presumably the readers of "*Working Knowledge*").

Davenport and Prusak's advice takes three forms. First, they provide a rationale for knowledge sharing based around its value when lost. Second, they provide advice on the kinds of processes that facilitate knowledge sharing. Third, they suggest the continuing importance of organisational values. Davenport and Prusak advocate that knowledge in organisations must move away from basic transactions that capture data and the information that is used in routine reporting. In suggesting that there has been an over-emphasis on information Davenport and Prusak partly account for the diminished status of knowledge management in organisations.

At a time when the cost pressures facing contemporary businesses reduce funds available for technological codification of knowledge and knowledge supporting activities "*Working Knowledge*" reminds us that knowledge involves individuals making judgements and providing insights. However, the continuing lack of a clear definition of knowledge makes for difficulties in gaining acceptance for knowledge management and knowledge practices.

### Key words

Davenport and Prusak; Knowing; Knowledge; Knowledge hoarding; Knowledge management; Knowledge sharing; Practitioner; Working knowledge.

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### 1. Introduction to “Working Knowledge”

It has been 10 years since the release of the paperback edition of Davenport and Prusak’s “*Working Knowledge*”. It set out the place of knowledge in relation to both the increasing numbers of employees and managers with responsibilities that depend upon using knowledge and the increasing role of technology in business. The popularity of the first edition (1998) resulted in a paperback (2000) with a new preface reflecting on its status and the challenges facing businesses that had committed to Knowledge Management (KM); (references in this paper are to the paperback edition). Since its publication “*Working Knowledge*” has been translated into 12 languages and has sold over 150,000 copies.

Working Knowledge (hereafter WK) is notable for its double-immediacy view of KM. Double-immediacy refers to the expectation that practitioners have for knowledge that will produce quick results and their attention to their local environment to gain the knowledge that they seek. Hitherto, proximity and convenience had been overlooked as profound influences on knowledge sharing. Prior to Davenport and Prusak’s book (published by the prestigious trade publisher Harvard Business Press), KM had four influences. The precursors were Machlup (1962), identifying the knowledge economy and sociologies of the future (particularly Bell, 1967, 1973), who predicted an information-led and service-oriented economy. Academics proposed theories of knowledge transmission (e.g., Boisot, 1995, 2000) and knowledge conversion (e.g., Nonaka and Takeuchi, 1995). KM also drew upon views of innovation and business cycles (e.g., Schumpeter, 1975; Allen 1977). While some writers on general management had been early advocates of knowledge (e.g., Drucker, 1993), recognising the productivity of knowledge workers, knowledge received scant attention as it competed with quality management and business reengineering, as evidenced by Drucker’s need to reiterate his views in many of his later publications. A parallel view of knowledge as strategy developed by Grant (1996), who placed KM in the fields of management and leadership, contributed to knowledge gaining attention in business. A preliminary mapping of knowledge-related publications by Easterby-Smith and Lyles (2003: 8, 11, 5) identified connections with ‘organisation knowing’ (e.g., Blackler, 1995; Cook and Brown, 1999), confirmed the prevalence of specialist areas and newness of the field<sup>1</sup>. Since then knowledge in organisations has been absorbed into

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<sup>1</sup> Easterby-Smith and Lyles (2003) main focus is organisational learning and knowledge management is a secondary consideration.

existing functional responsibilities (including human resources and intellectual capital accounting) so there is potentially a new audience for *WK*.

## 2. Method

In this 10 year evaluation of *WK* two approaches are followed. First, the account given by Davenport and Prusak (hereafter *D&P*) is assessed in terms of its value to practitioners. This assessment is based on what *D&P* regard as the central issues of KM as evidenced by the structure and content of *WK*. Second, the account of knowledge sharing and hoarding proposed in *WK* is subject to a critical evaluation.

*WK* used a sample of companies drawn from the 31 businesses in which *D&P* conducted research as well as some other companies used for illustration. Table 1 lists all the companies<sup>2</sup> discussed by *D&P* and identifies the key knowledge example or insight that they suggest should influence other companies (and presumably the readers of *WK*). The key example or insight is selected on the basis of its discussion in *WK*.

**Table 1:** Knowledge example or insight provided in “*Working Knowledge*” (1998/2000)

Company discussed in “ <i>Working Knowledge</i> ” (Note 1)		Current status of company (Note 2)	Key knowledge example or insight from “ <i>Working Knowledge</i> ” (Note 3)
1	American Express	Operating	Example of a stable expert system
2	*Andersen Consulting	Evolved into Accenture	Establish competency groups
3	Apple	Operating	Put knowledge gained into products
4	AT&T	Operating	Knowledge transfer inhibited by a conqueror culture
5	*Boeing	Operating	Manage configuration knowledge
6	Booz Allen Hamilton	Operating as two companies	Knowledge transfer through mentoring
7	*British Petroleum	Operating	Make knowledge accessible; Create a sense of crisis
8	*Buckman Laboratories	Operating	Position of Director of Knowledge Transfer
9	*Chaparral Steel	Acquired by Gerdau Ameristeel	Flat organisation structure; Learning culture
10	*Chemical bank	Evolved into J P Morgan Chase	Phone directory on what employees did
11	Chevron	Operating	Knowledge management best practice
12	*Chrysler	Operating	Codify process knowledge
13	Citicorp	Operating	Knowledge management best practice
14	*Coca-Cola	Operating	Trade secret of the formula
15	Coopers & Lybrand	Merged with Price Waterhouse	Vice President role for learning

<sup>2</sup> Some companies wished to remain anonymous and, from the discussion, it appears that all the organisations had a significant budget for knowledge management initiatives.

Company discussed in “Working Knowledge” (Note 1)		Current status of company (Note 2)	Key knowledge example or insight from “Working Knowledge” (Note 3)
16	*CSIRO	Operating	Knowledge/research relationship with industry
17	*Dai-Ichi Pharmaceuticals	Merged with Sankyo	Discussion opportunities
18	Digital Equipment	Acquired by Compaq and then HP	CEO narrow vision of the business and strategy
19	*Dow Chemical	Operating	Chief Knowledge Officer of intellectual capital management
20	EDS	Acquired by Hewlett-Packard	Chief Knowledge Officer role
21	EL Products	Acquired by Grimes	Takeover does not necessarily transfer knowledge
22	*Ernst & Young	Operating	Establish competency groups
23	*Ford	Operating	Bringing external knowledge into the organisation
24	General Electric	Operating	Learning centre established for knowledge
25	*General Motors	Operating after chapter 11 bankruptcy	Linking knowledge and decisions
26	*Hewlett-Packard (HP)	Operating	Use of electronic communication
27	*Hoechst-Celanese	Evolved into Celanese listed in Germany	Informal discussion leads to formal projects; create a sense of crisis
28	*Hoffman-LaRoche	Operating	Consolidate and make knowledge accessible (relevance is more important than completeness); Knowledge/research relationship with industry; Ego inhibits knowledge sharing
29	*Hughes Space and Communications	Acquired by Boeing	Consolidate and make knowledge accessible
30	*IBM	Operating	Use of technology for knowledge growth; Establish competency groups; Knowledge transfer inhibited by a conqueror culture
31	*IDEO	Operating	Culture of questioning what is not known
32	International Harvester	Acquired by J I Case	Had ‘forgotten’ how to build a truck factory completed 20 years earlier
33	Javelin Development Corp	Acquired by Oracle	Knowledge market inefficiencies
34	Matsushita	Operating	Understand what has to be done well
35	McDonalds Universities	Operating	Establish competency groups

Company discussed in “ <i>Working Knowledge</i> ” (Note 1)	Current status of company (Note 2)	Key knowledge example or insight from “ <i>Working Knowledge</i> ” (Note 3)	
36	*McDonnell Douglas Corp.	Merged with Boeing	Difficulty of change when successful; create an artificial sense of crisis
37	*McKinsey & Company	Operating	Make knowledge accessible
38	Merck	Operating	Dedicate distinct resources to generate knowledge
39	*Microsoft	Operating	Use of technology for knowledge growth
40	*Mobil Oil	Operating	Expertise under politics influence codification and coordination
41	*Monsanto	Operating	Common definitions for codification and consolidation
42	*National Semiconductor	Operating	Knowledge sharing with one and many software tools
43	NationsBank	Evolved into Bank America	Project to consolidate knowledge
44	NEC	Operating	Faster model changes; Mobilising knowledge produces better results than robots
45	Nissan	Operating	Combining different ideas, skills and values creates innovation
46	*NYNEX	Evolved into Verizon	Knowledge brokering
47	*Owens-Corning	Operating	Librarians create navigation tools
48	Polaroid	Ceased	Founder dominates the firm’s knowledge market
49	Raychem	Operating	Database of employees willing to share information
50	*Sandia National Laboratories	Evolved into Martin Marietta now Lockheed Martin	Knowledge conservation programme
51	Sears	Operating	Ignore Wal-Mart retailing changes until forced by declining sales
52	*Sematech	Operating as an association of member companies	Structures to support knowledge transfer
53	*Senco Products	Operating	Understand failures of knowledge in decisions
54	*Sequent Computer	Acquired by IBM	CKO role in capturing and leveraging knowledge
55	Sharp	Operating	Research knowledge routinely transferred to business units
56	Silicon Graphics	Operating	Created internal knowledge repository
57	*Skandia	Operating	Measure the economic value of knowledge
58	Standard Life	Operating	Uses sources of competitor knowledge
59	Sun Microsystems	Acquired by Oracle	Created internal knowledge repository
60	*Teltech	Operating	External expert systems

Company discussed in “ <i>Working Knowledge</i> ” (Note 1)		Current status of company (Note 2)	Key knowledge example or insight from “ <i>Working Knowledge</i> ” (Note 3)
61	*Texas Instruments	Operating	Re-use of knowledge
62	*3M	Operating	Encouraged private research
63	*Time Life	Evolved into Time-Warner	Quality and depth of information
64	*US Army	Operating	After action reviews
65	Verifone	Acquired by Hewlett-Packard	Circulate stories of excellence in action
66	Wal-Mart	Operating	Orchestrating core competencies
67	Wang Laboratories	Acquired by Getronics of The Netherlands after bankruptcy	Failed to adapt
68	World Bank	Operating	Dispense knowledge as well as money to improve developing countries
69	Xerox PARC	Operating	Failure to capitalise on innovative use of knowledge; Establish competency groups
70	*Young & Rubicam	Operating	Managing knowledge is the responsibility of all knowledge workers
71	Zildjian Cymbal Company	Operating	Trade secret formula for metal composition
<p>Explanatory Notes to Table 1</p> <p>1. An * indicates the company is one of the 31 companies identified by <i>D&amp;P</i> in their acknowledgements (p. xxiv). However, the original research program comprised “about 25 client companies” (p. xx).</p> <p>2. Status is categorised as one of operating, ceased, evolved, acquired or merged.</p> <p>3. Specific examples or insights are found in more than one company.</p>			

In total, the same 71 companies feature in both the 1998 and 2000 editions of *WK*. Since the reissue of *WK* retained the same text as the original it will be argued that *D&P* saw no need to amend or expand their views and thus their views can be taken as fair account of their (then) current position and direction. Indeed the preface claims knowledge management has “widespread legitimacy” (p. vii) and that management needs to “change the core of the business” (p. ix) using the guidelines already provided in *WK*. For the purposes of this evaluation, the contemporary practitioner literature will be referenced since *WK* was entirely aimed at practitioners. In the main, the practitioner literature describes how organisations discover and manage what the employees know (e.g., Dixon, 2000; Leonard-Barton, 1995), although there were some early attempts to value knowledge<sup>3</sup> (e.g., Edvinsson and Malone, 1997).

Table 1 contains two striking features. It shows that the companies vary widely in the definition of knowledge, from trade secrets (e.g., Zildjian

<sup>3</sup> *D&P* are little concerned with an intellectual capital view of knowledge as it is concerned with the valuation of a potential use or return rather than actual usage.

Cymbal), to expertise (e.g., American Express), in varying forms, such as stories (e.g., Verifone). It also shows a range of processes and commitment. These ranged from a project basis (e.g., Hoechst-Celanese) to broad operational application (e.g., Sharp) with some harnessing of technology (e.g., Raychem). Table 1 also shows the fate of the companies mentioned with one ceasing business, 11 acquired, three mergers, six evolving into new organisations, and 49 continuing to operate. While no conclusion can be drawn from these numbers, there appears to be no exception from the business cycle even for knowledge-aware companies<sup>4</sup>.

### **3. Assessment of the value of “Working Knowledge” to practitioners**

*WK* provided practitioners (defined as both managers and knowledge workers) with a handbook delineating a range of actions that establish the value of knowledge to organisations in three ways. First, they suggested that knowledge is different to information and data. Knowledge is seen as a distinct property of individuals ('knowing'). Second, they identified three activities associated with the process of using knowledge. Those activities are the generic processes of knowledge generation, capture and codification. Third, they suggest nine knowledge heuristics to guide KM endeavours. Each is used to assess the claims made in *WK*.

#### **Description of knowledge**

*D&P* define knowledge using three descriptions. First, they claim that knowledge is a refinement of data and information and possessing an experiential factor (p. 7). Data is regarded as the elements of a transaction that can be captured and extracted (p. 2). Information is the use of data for a purpose that allows meaning to be understood (p. 3). This implies that who determines meaning is always the recipient not the provider. Accordingly, the methods suggested by *D&P* (facilitating contacts and allowing individuals opportunities to communicate) overlook the meat of the problem, namely whether sharing or hoarding of knowledge will actually take place. It also fails to make clear how activities labelled as KM go beyond exchanging data or information.

The second aspect of knowledge is that it can be difficult to isolate. In adopting this view *D&P* support the argument proposed by Polanyi (1966/1983) that individuals possess knowledge that is not entirely apprehended by them because explicit knowledge and tacit knowledge is intermingled. This presents a problem which *D&P* do not entirely satisfactorily resolve although they consistently distinguish between them. Supporting Polanyi's view requires them to locate knowledge in the individual as part of cognition. *D&P* use the conversion model provided by Nonaka and Takeuchi (1995) to give certainty that the tacit knowledge can be made explicit. *D&P*

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<sup>4</sup> This view avoids the embarrassment that results from either picking winners which later include catastrophic failures (as found in Peters and Waterman's "*In search of excellence*") or from using a single lens to explain success (as found in many descriptions of companies who adopted fads in management such as using six sigma quality management).

cite the example from Nonaka and Takeuchi (1995) of the bread-making machine at Panasonic that required the combination of expert knowledge (computer control, induction heating, and rotating motors) from three different business units (pp. 60-61). In also following Nonaka and Takeuchi (1995) *D&P*, depart from Polanyi (1966/1983) who claims that tacit knowledge is only made explicit both infrequently and in small part<sup>5</sup>. *D&P* often alternate between the explicit form of knowledge meaning it has been shared so it can be used and the potential value of unshared knowledge which remains tacit.

The third criterion is its active use outside the individual to the benefit of the organisation in terms of the judgement, expertise, innovation or creativity (p. xix) that occurs within and between individuals (p. 6). *D&P* recognise that the receiver may understand a completely different message to that which was intended by the sender (p. 3) but suggest that the adoption of suitable methods will overcome this problem. The methods they instance are essentially putting searchers for knowledge in touch with people who have made claims to possess the category or class of knowledge sought and leave them to communicate. This is a practical approach and is far superior to the wholesale codification of knowledge approach that prevailed at the time *WK* was written. It continues to be policy in some knowledge-intensive companies, but is carried out haphazardly by employees (for example, customer service staff who make a summary record favourable to themselves since the note is not shared with the customer). In essence, to overcome miscommunication *D&P* rely on the solution proposed by Shannon<sup>6</sup> (1948), that of redundancy. *D&P* replace Shannon's focus on content with the "impact on judgement and behaviour of the recipient" (p. 3).

The difficulty with using manifold criteria for knowledge is the problem that arises when only one or two are present. Separating tacit from explicit knowledge is not as simple as Nonaka and Takeuchi (1995) depict and this is conceded by proposing that knowledge is in some way refined data or information. This utility view encounters difficulties in determining what individual knowledge contributes to favourable business outcomes. The *D&P* answer that it should be evaluated in terms of the decisions or actions associated with it (p. 6) is not entirely satisfactory for two reasons<sup>7</sup>. The first is that the providers of knowledge may curb their tendency when they are not

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<sup>5</sup> Both the first and second criterion resemble the knowledge as resource conception proposed by Grant (1996) and Choo (1998) which thereby entails making it available, encouraging the use of technology, which may then reduce it to data.

<sup>6</sup> Shannon (1948) was interested in communication in the technical sense of 'was the message received the same as that sent?' He also asked 'was the message understood?' and 'was the received message acted upon as intended by the sender?' For *D&P* the question is what motivation and attitudes and cultural considerations determine how the knowledge is used.

<sup>7</sup> However, at least *D&P* avoid a wholly performance-based evaluation which is due to their observation that there is too much short-term concern for profit. This viewpoint echoes similar ideas from Drucker who placed great emphasis on managers having an understanding of their objectives, markets, and channels, and, profit as an unreliable measure of success (partly because it could be easily manipulated and partly because other factors determined the continuity of the organisation). For an introduction see Drucker (1967). There is an extended discussion in Drucker (1973/1993). Like "*Working Knowledge*", Drucker's books are wholly aimed at practitioners.

recognised. It overlooks the fact that some employees are adept at manufacturing opportunities to strategically release their knowledge or passing-off knowledge provided to them by other employees. Second, a just-in-time view of knowledge is implied in which knowledge does not require a gestation period in which to develop nor awaiting circumstances in which it can be uniquely applied. In the meantime organisational resources may seem to be consumed unproductively (for example, designing and fitting the quadruple flying systems that gave the Boeing 747 its envied safety record<sup>8</sup>). *D&P* acknowledge that many managers do not make any distinction between knowledge and information (p. 6) and instead suggest the focus should be on its components, that is, “experience, truth, judgement, and rules of thumb” (p. 7).

### Processes for knowledge use

If knowledge itself is difficult to pinpoint then processes associated with it are also imperfect. *WK* discusses three processes for knowledge use drawing on the conversion processes initially proposed by Nonaka and Takeuchi (1995)<sup>9</sup>. One conversion process (where tacit knowledge is shared remaining as tacit knowledge) is socialisation. The other conversion process (from tacit to explicit) is externalisation. Subsequently Nonaka and Konno (1998) suggested that once explicit knowledge becomes internalised (internalisation) it continues at a new level. This spiral flow known as ‘*Ba*’ assumes that repeating or refining knowledge transfer improves transmission<sup>10</sup>. Refinement is not explored directly by *D&P*. Instead conversion is considered as a problem of codification and coordination of knowledge, which is partitioned into two functions. The process of discovering who knows what (being a precursor to a knowledge directory) is seen as a legitimate form of codification. The so called ‘yellow pages’ directory describing employee functions and expertise is seen as a knowledge tool, while the organisation chart of telephone directory is seen as data. When *D&P* differentiate between expert knowledge, which is contextual, and expert knowledge, which changes very little, they are really taking the point of view of the provider and undermine their own claim to the importance of using it. According to *D&P*, actual knowledge (whether tacit or expert) is capable of removal from the individual without much loss and thus whether it is actually knowledge, according to their own definition, must be called into question. However, the value of *WK* is that, in their examples from businesses and individuals responsible for the knowledge function, *D&P* often provide alternatives to their own argument in their examples. In one comment *D&P* suggest that the

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<sup>8</sup> See the account by the designer of the 747, Joe Sutter (2006) for details. This memoir deserves a wider readership that flying enthusiasts for its insight into the uses of knowledge, commencing with the acknowledgements, in building a plane that when finished did not have engines available that were capable of lifting it off the ground.

<sup>9</sup> For a critical review of the SECI method from an empirical standpoint see Goulay (2003). In addition to the arguments advanced concerning how the processes make use of tacit knowledge from different experts and whether the knowledge is actually tacit, Goulay (2003: 379) also draws attention to the possibility that it is “doubtful whether processes as complex as knowledge conversion can be identified through self-completion questionnaires” the method that Nonaka used to gather the evidence he used.

<sup>10</sup> Although it is not clear who makes the greater effort, the sender or the recipient.

importance of knowledge is the criteria used for acting on it, while the type of knowledge governs what should be done with it (pp. 36, 70). Another is from Hoffman-LaRoche who found that “relevance is far more important than completeness” (p. 69). For much of *WK*, it is the characteristics of knowledge that dominate the discussion rather than what is known by specific individuals (“knowers”). Consequently their advice to managers takes the form of lessons to be learnt.

## Heuristics for knowledge

*WK* sought mainly to provide heuristics from anecdotal evidence for successful KM from apparently successful approaches adopted by leading companies in KM. In all *D&P* offer nine heuristics, which roughly correspond to the chapter structure in *WK*. Table 2 below summarises each heuristic by chapter and the key elements offered by *D&P* to support their heuristic.

**Table 2:** Summary of the heuristics by chapter with the key elements of each heuristic

Chapter		Heuristic	Key elements supporting the heuristic
#	Title		
1	What do we talk about when we talk about knowledge?	Make clear where knowledge not data or information utilised	<ul style="list-style-type: none"> <li>• Knowledge as insights, judgements, and understanding.</li> <li>• Knowledge as refinement of data and information possessing an experiential factor.</li> </ul>
2	The promise and challenge of knowledge markets	Recognise where knowledge markets exist in the organisation	<ul style="list-style-type: none"> <li>• Roles include ‘seeker’, ‘buyer’ and ‘broker’.</li> <li>• Marketplaces include face-to-face and technology mediated.</li> <li>• Signals include position title, status, reputation, informal networks and communities of practice.</li> <li>• Value is determined by both buyer and seller using repute, reciprocity, altruism, trust (based on social exchange theory).</li> <li>• Pathologies include monopolies, artificial scarcity, and trade barriers.</li> </ul>
3	Knowledge generation	Foster knowledge generation	<ul style="list-style-type: none"> <li>• Acquisition, rental and dedicated resources, and networks are avenues.</li> <li>• Copying, fusion, and adaptation are methods.</li> </ul>
4	Knowledge codification and coordination	Selectively codify the bounded, unambiguous and rule-based knowledge and coordinate unstructured knowledge	<ul style="list-style-type: none"> <li>• Types of knowledge (articulatable, teachable, observable, documentable, rich, complex).</li> <li>• Mapping and modelling knowledge.</li> <li>• Capturing tacit knowledge.</li> <li>• Embedding knowledge in systems.</li> </ul>

Chapter		Heuristic	Key elements supporting the heuristic
#	Title		
5	Knowledge transfer	Enable knowledge transfer, resulting in absorption and use so it thrives beyond where it was developed	<ul style="list-style-type: none"> <li>• Knowledge transfer is accomplished through a variety of strategies including: Formal strategies include partnership, mentoring, apprenticeship. Informal strategies include gossip. Random strategies include e.g., water cooler meetings. Structured activities include e.g., knowledge fairs, open forums, technology infrastructure.</li> </ul>
6	Knowledge roles and skills	Identify knowledge roles and skills	<ul style="list-style-type: none"> <li>• Knowledge specialists.</li> <li>• Workers with knowledge.</li> <li>• Managers of knowledge projects.</li> <li>• Chief Knowledge Officers and equivalents.</li> </ul>
7	Technologies for knowledge management	Carefully utilise technology	<ul style="list-style-type: none"> <li>• Expert systems and artificial intelligence.</li> <li>• Case-based reasoning.</li> <li>• Broad knowledge repositories using a thesaurus to index and search</li> <li>• Knowledge domains and communities.</li> <li>• Real-time (short and long-term) knowledge systems.</li> </ul>
8	Knowledge management projects in practice	Better manage knowledge projects	<ul style="list-style-type: none"> <li>• Use many types of repositories (external knowledge, structured knowledge and informal knowledge).</li> <li>• Undertake many types of projects (expert, internal records, new knowledge, lessons learnt, high level processes, evaluation, and compensation systems to change behaviour).</li> <li>• Attempt projects with multiple characteristics of types listed above.</li> <li>• Measure success in several dimensions (e.g., resources, knowledge value, spread beyond participants, comfort using knowledge, financial return).</li> <li>• Senior management support with clarity of vision.</li> <li>• Knowledge oriented culture.</li> <li>• Infrastructure with multiple channels.</li> </ul>
9	The pragmatics of knowledge management	Leverage existing approaches and avoiding common pitfalls	<ul style="list-style-type: none"> <li>• Start with high value knowledge on multiple fronts leveraging existing approaches which involve decision-making.</li> <li>• Avoid leading with technology, quality, best practices, or organisational learning.</li> <li>• Get help when encountering difficulties.</li> </ul>

It is clear from Table 2 that *WK* offers a corporate view of KM. The most notable characteristic of the examples used are the attempt to provide insights. *D&P* explain these are “best practices, new ideas, creative synergies, and breakthrough processes that information cannot supply, regardless of how well it is managed” (p. *xxi*) and will come from knowledge that already exists within the organisation but “was not accessible or available when required” (p. *xxi*). The heuristics use the goal of utility to the organisation to guide successful knowledge transfer and are essentially advice to secure knowledge from individuals. Having in their preface pointed out the challenge of KM lies beyond “awareness” and “broad acceptance” (p. *vii*), *D&P* portray KM as a chess game where the company is pursuing strategies to get employees to unburden their knowledge and the employees are coming to the realisation that the less personal knowledge they possess the less reason the company has to retain them<sup>11</sup>. Many of the heuristics are therefore directed to employees as individuals. This is appropriate where a single employee possesses all the up-to-date knowledge but is atypical in organisations where knowledge is possessed by more than one employee (e.g., through having formerly performed those duties) or where the knowledge is made available to employees (in the manner of F. W. Taylor job design specification). It may also be the case that the career trajectory of a single employee allows them to integrate knowledge in a way unique to them. Nevertheless, there is often a fundamental divide between individual needs and group needs and their uses of knowledge. It is not simply a matter of extending the heuristics to a work group employing tactics such as creating communities of practice. A catalyst triggers sharing of knowledge and this occurs in a social situation in which trust is only one factor. Readers of *WK* may want to consider what heuristics would need to change to consider the place of individual knowledge in a downsized workforce and what additional heuristics would be appropriate to recognise the social context of knowledge and whether this would affect their advice to managers.

#### 4. Advice to practitioner managers

The anecdotes in *D&P* of companies that have retrenched employees for short-term gain and then incur additional costs to re-obtain knowledge are a powerful reminder that there are direct costs<sup>12</sup> to losing knowledge. Despite seeing knowledge hoarding as reasonable *D&P* come out on the side of the company advocating processes for eliminating hoarding, such as trust-building and a leadership culture from the top that demonstrates these knowledge sharing values so *D&P* provide three sets of advice to managers. First, they provide advice to help practitioners understand the rationale for sharing knowledge. Second, they offer advice concerning the business processes to facilitate knowledge sharing. Third, they highlight the influence of

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<sup>11</sup> To a certain extent, this quandary is not resolved in the discussion in “*Working Knowledge*” presumably owing to its corporate focus. Some concessions are made to employee vulnerability on one hand and on the other hand the tendency to try and vacuum all knowledge from employees by creating knowledge repositories.

<sup>12</sup> Here ‘direct costs’ is used in its managerial accounting sense of those labour and other costs which can be precisely known.

organisation values (equated to culture and politics) although the influence of status and reputation is only briefly acknowledged (pp. 100-101).

### **Advice to help practitioners understand the rationale for sharing knowledge**

*WK* opens by suggesting that when organisations downsized they found that some of the retrenched managers performed coordination functions of knowledge synthesis (p. *xix*), which were not part of their official job descriptions. In other words, KM improves performance, productivity and innovation by adding value to information in ways which organisations find difficult to understand. *D&P* explain this with the respected theory of social exchange (p. 26). It accounts for employees focusing on immediate consequences, including loss of power and the prospect of satisfying future needs. However, *D&P* overlook a number of promising alternatives expounded around the same time, which may resolve some of the difficulties knowledge initiatives may face. The most notable is the information space (Boisot, 1995). It is a three dimensional dynamic view of knowledge to represent its flows<sup>13</sup> described by Boisot as a diffusion curve. Somewhat disappointingly, later, Boisot (2000) follows an accounting precedent considering knowledge<sup>14</sup> as an asset. *D&P* suggest that knowledge sharing ultimately benefits employees through the continuity of the organisation and this may be more effective than conformance to corporate values or policies for sharing knowledge.

According to *D&P*, organisations identify the knowledge they need (p. *xxi*). Effective use of knowledge requires understanding of the mechanisms of exchange and there is real value in the concept of the knowledge market suggested by *D&P*. Not only does it consider buyers, sellers and brokers but it makes clear that knowledge has a present or future value and that it takes the form of “insights, judgements and understanding” (p. 28). This eliminates the tendency to characterise particular employees and managers as either knowledge sharers or knowledge hoarders. Practitioners should therefore expect an employee or manager to act in a self-interested way whenever faced with an opportunity to share or withhold knowledge. Trust generated through interaction may establish relationships with potential for the future but does not guarantee knowledge sharing. *D&P* could use the organisation’s market for knowledge to account for breakdowns and failures to suggest whether an instance should be treated as an outright exception or an outcome that was delicately balanced. Any particular action is therefore not necessarily consistent with an earlier instance of knowledge sharing or hoarding. Consistent with Nonaka and Takeuchi (1995), *D&P* appear to see codification

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<sup>13</sup> The three information space dimensions are the abstraction of information (abstract-concrete), the extent to which it is codified (codified-uncodified), and its diffusion (undiffused-diffused). When the flow of a particular instance of information is considered it can be plotted in against all three dimensions (Boisot, 1995).

<sup>14</sup> Boisot (2000: 13,) explicitly uses Shannon’s (1948) work on entropy and conceptualizes data as a property of things, information as relationship between things and agents and knowledge as a property of agents which orients actions through creating expectations. So for Boisot, an agent is a source of knowledge. A knowledge asset is a disposition that is useful over time minimizing entropy that is, disorder (Boisot, 2000: 11, 13, 20).

as essential to making knowledge available. The inclusion of codification in the process is a weakness of the guidance provided to practitioners. *D&P* do not realise that their adoption of an economic view – utility – with payment in terms of reciprocity, repute or altruism (p. 31) provides brokers, buyers and sellers with reasons for both sharing and hoarding knowledge and thus each occasion will be separately evaluated. There is no easy solution that ensures knowledge sharing and overcomes the tendency to hoard knowledge. *WK* fails to make this clear, partly through its detailed attention to the processes of knowledge sharing (which comprise Chapters 3, 4 and 5).

### **Advice concerning the business processes that facilitate the sharing of knowledge**

While the processes for using knowledge are often clear, the processes for sharing knowledge are opaque. Grounding policies in a programme or a benchmark for a specific industry does not release knowledge<sup>15</sup>. Many of the barriers are organisationally specific. One problem *D&P* identified was knowledge silos where knowledge was held in one part of the organisation primarily as a result of that business function being its collection point. Investigation of the root causes for this was not provided. One reason apparent from anecdotal evidence is that the knowledge was never shared because there was no time allowed for sharing processes. Technology vendors have used analytics software to make this available with limited success since, as *D&P* show, when knowledge is power there is a shift in what is valued (reports can be regarded as data). Until knowledge is part of the everyday language of the business it will continue to be down played. This approach is supported by three kinds of examples or insights. First, there are examples that relate to the successful adoption of a KM programme and these tend to be tips or traps that can apply to an industry. For example, knowledge intensive industries, such as consulting, use mentoring (e.g., Booz-Allen). Second, there are the examples that apply to retaining knowledge about processes or operations that may potentially be re-used in the future. For example International Harvester had forgotten how it built one of its popular trucks. Third, non-formal knowledge markets can play a dominant role.

In many ways this is the most interesting part of *WK* because *D&P* suggest that the first task of the knowledge-aware organisation is to become aware of its knowledge markets and how they operate. Since these are not necessarily apparent to management in terms of organisational functions or channels of communication, *WK* provides little specific advice for senior managers over and above the examples, apart from the need to change “many core aspects of the business”. However, they warn that “KM projects ... are by definition peripheral to the rest of the business” (p. ix) and there will be numerous challenges to “integrate it with familiar aspects of the business: strategy, process, culture, behaviour” (p. ix). It is a moot question whether such

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<sup>15</sup> Depending upon the self-interest of the manager, some measures will always be found and reported that support or deny the existence of knowledge sharing. *D&P* anticipate this by suggesting that the organization always consider how well equipped it was to recognize and make the decision and how appropriate was the decision that was made.

integration will displace the knowledge focus and result in cost reduction dominating as was apparent with BP after the Gulf of Mexico oil disaster.

### **Advice concerning the influence of organisation values (equated to culture and politics)**

Organisational values are seen by *D&P* as affecting the feasibility and failure of knowledge transfer and hoarding. They show three aspects of them. Some organisation values are directly associated with the leader. For example, Au Wang CEO of Wang Computers (p. 50), Edwin Land at Polaroid (p. 50) and Ken Olsen CEO of Digital Equipment (p. 50) all mis-guided strategy through tight control over knowledge about future direction of their companies. These leadership defects are seen as permeating down through the business and creating a culture where knowledge is neither mobilised nor generated by the individuals whether at operational levels or with research responsibilities. This may result in individuals secretly pursuing innovation that is later embraced either by senior management when they recognise the value of an idea they had dismissed (e.g., Abrahamson, 1991), or by management at the organisation that subsequently hires the employee.

Some organisation values ignore extant knowledge by failing to recognise innovation for what it is<sup>16</sup>. For example, the value of the graphical interface developed by Xerox PARC was recognised by Steve Jobs from Apple, who then used it in his next generation of Apple devices. *D&P* overlook that knowledge was openly shared by Xerox PARC (p. 59) and commercial success is not assured by merely having a technically superior product. They also overlook the use of patents and litigation between competitors. The recent history in pharmaceuticals, optometry and software show knowledge being mobilised as a competitive weapon, as evidenced by these industries' use of litigation against competitors, adopting an intellectual capital view (i.e., valuing intangible knowledge along the lines suggested by Edvinsson and Malone, (1997).

While an organisation may be culturally receptive to purchasing new knowledge, making use of it can be problematic. *D&P* cite the example of the IBM purchase of Lotus Development Corp for its Lotus Notes knowledge sharing product (p. 81), which was followed by the destruction of value by IBM when it did not improve its market position. Similarly, Grimes acquisition of EL Products (p. 55) was intended to acquire knowledge of processes but the post-acquisition functions did not accrue the knowledge. The cultural approach proposed by *D&P* is somewhat mechanistic. The organisation, often in the shape of the Chief Knowledge Officer (CKO), is seen as unfettering knowledge to the benefit of the business. The subsequent demise of CKOs suggests that they were unable to penetrate organisational silos and overcome the rational hoarding by individuals. The popularity of outsourcing partly accounts for this. *D&P* do not discuss outsourcing to reduce costs where employees can be replaced by members of an existing organisation contracted to provide services or where a subset of the existing employees

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<sup>16</sup> Here *D&P* missed an opportunity to discuss employee suggestion schemes as a way of making employee innovation formally visible to the organisation.

are offered a position with the organisation taking over providing the services. However, *D&P* acknowledge the politics of knowledge transfer as they confirm that knowledge matters but can be distorted by power and influence (pp. 73, 79-80), later recognised by Cross and Prusak (2003) in terms of social relationships.

*WK* shows the positive side of organisation values and identify leadership and the prevailing behaviours in encouraging knowledge sharing. Nevertheless, the connection between culture and knowledge may not necessarily lead to changes in behaviour. A 'wait and see' attitude by employees is pragmatic, particularly if knowledge sharing is an element of a KM programme which they know is subject to funding review.

## 5. Discussion

*WK* takes a practical view of knowledge, providing heuristics for the market for knowledge in organisations, but these depend upon what constitutes knowledge. *WK* opens by differentiating between data, information and knowledge but treating them as a continuum (p. 7). This suggests an oscillation between absolute and relative definitions. The absolute view relies on separate categories for each of data (discrete facts and opinions), information (data endowed with relevance and purpose) and knowledge (experience, values, contextual information, and expert insight). The relative view depends upon the value of the message to the recipient (p. 3). This dual approach has two major difficulties. The first is the many knowledge dichotomies that exist. They include the distinction between tacit and explicit knowledge (Polanyi, 1966/1983), the difference between know-how, often called procedural knowledge, and know-what, often called descriptive knowledge (Ryle, 1949), the difference between codified knowledge available to the organisation and the knowing possessed by individuals (Hansen *et al.*, 1999), and a priori knowledge, obtained without needing to observe the world, and a posteriori knowledge empirically obtained (Kant, 1996). These are simple dichotomies and although they suggest difficulties with characterising knowledge they are unsophisticated compared to the conceptions of knowledge available from classical Greece. The second difficulty is the intrusion of the recipient of the message in applying the definition: so for some people a specific message would be data, for others it would be information and for yet others it would be knowledge. Thus the same message can be regarded in any of three ways, depending upon the recipient. An alternative is to concede that knowledge is multi-faceted.

If knowledge is considered as an omnibus term that is, providing many things at once, it becomes possible to accept competing views of knowledge. Two views of knowledge support this approach. Aristotle in book 6 of *Nicomachean Ethics* (2011: 115-134) enumerates five types of *hexis* (or durable dispositions), which a person possesses to disclose truth: (1) *Episteme*, concerned codified rules with universal validity<sup>17</sup>; (2) *Techne*, or any capability

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<sup>17</sup> In a footnote comment Bartlett and Collins (2011: 129, footnote 50) recognize that for Aristotle, "to learn" could mean to obtain knowledge and to comprehend how to use such knowledge.

which can be explained; (3) *Phronesis*, or making social judgements against a criteria; (4) *Metis* is savvy understanding; and (5) *Nous* or the capacity developed with experience to evaluate sources of knowledge and assumptions. These five aspects of knowledge suggest that there are several forms of knowledge and that it is pointless to use a single definition for knowledge. The Grecian view also works against a relative view of knowledge as it implies that *phronesis* may be information. The Popperian view of knowledge considers that theories compete as knowledge and that knowledge about knowledge is the growth of knowledge (Popper, 1979). The advantage of regarding knowledge as an omnibus term is that it buffers attempts to reduce it to a knowing individual (e.g., Blackler, 1995) while allowing to be mediated and contested.

A second advantage from retaining the term knowledge is a broader acceptance of sources of knowledge. It permits interpretations of information, beliefs about cause-effect relationships, and know-how that is held outside individuals, that is at the level of the organisation. This organisational knowledge may be part of sense-making (Weick, 1995; Dervin, 1998) or the product of the experience of many people. Knowledge is a hybrid in that it can refer to an object (for example, particular expertise) or to a mental capability (for example, a capacity for judgement) or an outcome (for example, better decisions). Doing this would make clear that knowledge is valued (p. 10) for many different reasons by both provider and recipient. It would have the by-product advantage of making the acquisition of knowledge by the organisation realistically problematic. For example, the knowledge market proposed by *D&P* becomes a source of both helpful and unhelpful knowledge in focusing on both routine and novel problems. Practitioners are influenced by many factors, some personal to them, in their decision to share or hoard knowledge. So flows of knowledge from individuals depend upon three broad factors: individual preferences; the social situation, and organisational factors. *WK* does not suggest how these are understood by the organisation or even how the organisation can diagnose which factor is playing a dominant role. By concentrating on making knowledge productive *D&P* give organisations targets for increasing the value of the knowledge available to them without necessarily having any idea on the quantum of potential knowledge available. However, they make clear from their studies that there is considerable potential for improved use of available knowledge.

*WK* recognises the organisational problem of immediate versus deferred use of knowledge. Its answer is to move people responsible for knowledge generation and acquisition to distinct departments (p. 58) to make the achievement of new knowledge more visible and allocate responsibility for its distribution to departments and people who can best put it to use. *D&P* accept that the short-term need for revenue/profitability can deplete knowledge-generating resources and inhibit thinking about how to do things. In this respect *WK* was correct to suggest that attention to intellectual capital such as patents (p. 85) overlooks the potential improvements in internal processes. Again, an omnibus view of knowledge at the organisational level will suggest that traditional communication vehicles (with or without technology), such as meetings and forums lack involvement with the processes to which the

knowledge can be readily applied. *WK* offers two solutions: re-creation of historical situations through stories<sup>18</sup>; and problem solving activities. While these can be expected to have immediate outcomes they overlook the painstaking ways in which individuals have built their knowledge and the tacit nature of any judgements that they pass on the problem. An omnibus view of knowledge would help organisations refocus their expenditure on the codified information that matters and make time for employees to spend more time communicating. *D&P* only provided one solution to the deferred value of knowledge, that of codification (pp. 68-87), which retains a dependence on knowledge brokers (pp. 30-31) and marketplaces (pp. 46-47). In concluding their chapter on codification *D&P* acknowledge that codified knowledge becomes standardised and inflexible. Although they suggest unstructured repositories they also recognise this does not make for usable and useful knowledge. This appears to leave them with strategies of mentoring and apprenticeship for spreading knowledge (p. 81). Here *D&P* do not seem to realise they have resolved the deferred knowledge problem through addressing tacit knowledge.

Despite moving from knowledge held by the individual to knowledge in the organisation *D&P* often return to it<sup>19</sup>. The discussion of culture and the power of the leader as CEO in setting organisational values or the Chief Knowledge Officer in setting knowledge sharing values therefore reduce knowledge sharing to its formal processes. Other parts of *WK* emphasise the informal and unfettered aspects of knowledge sharing that can occur irrespective of the politics of the organisation. At the level of the organisation it is possible to escape the minutiae of what and whether individuals have learnt and are concerned with broadly what knowledge is of value to the organisation (p. 174) in terms of its improving processes, satisfying customers and understanding competitor activity. The advice from *D&P* is that knowledge requires multifaceted programs which take longer and have less obvious results than a single focus initiative (p. 165) but result in changes to valuing knowledge sharing and behaviour. These changes would involve overcoming the friction or supplying a motivating force (p. 97). This is not necessarily a matter of considering what they may gain or lose by doing so (p. 26). *D&P* should have given more attention to Polanyi's (1966/1983) recognition that some knowledge is shared almost inadvertently when a topic triggers recall of tacit knowledge. This would have lead them to consider the advantage of reviewing systems and procedures rather than attempting specification and codification. While *D&P* equate knowledge to a valuable possession, they often describe it solely as an individual return rather than as activities and initiatives that increase knowledge.

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<sup>18</sup> The literature on making use of the story telling that occurs in organisations is vast. It falls into two ends of a continuum. At one end is the use of selected stories which reinforce values believed to be central to the organisation. At the other end is the collection of stories to uncover the underlying ethos of the organisation. "*Working Knowledge*" is not clear where it sees the value in stories.

<sup>19</sup> This raises the question as to whether knowledge is uniquely and exclusively held by individuals or is available more widely (e.g., to small groups). If knowledge is held uniquely and exclusively by individuals, then individual incentives make sense; if knowledge is shared and available within groups then it raises a new question on what kind of incentives ought to be offered to groups.

## 6. Conclusion

Despite this critique, *WK* remains relevant ten years after publication in terms of its recognition of the double immediacy of knowledge, its sound theoretical rationale for knowledge sharing and its description of knowledge. *WK* retains its place in serious management literature. It is superior to the popularisers (e.g., Brown and Duguid, 2000; Dixon, 2000; Edvinsson and Malone, 1997, Leonard-Barton, 1995), who failed to provide managers with clear conceptual tools and a clear social theory underpinning their examples. In recent years knowledge has been sidelined by the cost pressures on organisations at a time when the limits to further cost reduction are being encountered. Knowledge losses from outsourcing are still not apparent partly because value chain analyses overlook the knowledge component of activities. The message from *WK* that knowledge is the one thing that organisations under-utilise and contributes to competitive advantage remains relevant after ten years.

*WK* remains unique for emphasising the local nature of knowledge at a time when the effects of the internet were becoming apparent. Its attention to local culture and context as the places for discovering and developing knowledge in individuals reminds practitioners that for much of the time the operation of knowledge markets is local. While *D&P* endorse initially offering rewards for sharing knowledge they predict that they are not viable in the long term. This suggests that creating communication events or forums is likely to have limited success since they can be insufficient to build trust despite face-to-face interaction. For practitioners seeking clear-cut knowledge support activities to undertake, *D&P* show that knowledge is only shared when the parties themselves have what they consider to be an appropriate price but also an appropriate context. With the benefit of a ten year perspective it is clear that *WK* does not deal with the increasing workload pressures on employees, the use of job performance indicators and reduced free time, all of which limit the freedom of employees and managers to be selective with their knowledge.

*WK* provides practitioners with a proven social theory, that of social exchange, to understand knowledge sharing. Although they consider trust it is only one of four influences. Although *WK* only touches on organisation-level knowledge sharing it does offer clear warnings about the dangers of over-reliance on technology (pp. 123, 128, 142, 201) and that knowledge is not a thing (p. 53). For organisations seeking to understand their informal lines of reporting and communication, *WK* will be of considerable assistance by reminding managers and employees that knowledge sharing markets may also have a group as well as an individual dimension. *WK* ought to have gone further by clarifying within the organisation what role is played by formally established committees or communities and informal coalitions. Their observation that interaction (or face-time) is essential for people to know what kinds of use can be made of the knowledge that they possess is somewhat muted by not extending their discussion of politics (later addressed by Cross and Prusak, 2003) and considering the strategic use of knowledge by individuals at times when it brings them the best advantage. Ten years on it is clear there is a much greater need to understand the politics of knowledge and decision-making.

One disappointment is that *WK* reinforces the priority that practitioners mostly have an expectation for immediate results with knowledge. While this is understandable as a justification for the use of scarce organisational resources it overlooks the evolving nature of knowledge. *D&P* appear to see this issue as one of either research for patents or the use of groups and communities to incubate knowledge until it is wanted. Organisations tend to fund projects for defined outcomes rather than groups overlooking that every local environment in the organisation contains people with unique knowledge capable of improving its performance at different times depending upon circumstances. The hijacking of KM by software vendors and professionals offering consulting products has erroneously suggested that knowledge is a commodity. This has left practitioners with an unresolved difficulty in distinguishing between data, information and knowledge. The disbanding of KM functions and its allocation to support functions opens up a new audience for *WK*. If *D&P* had rejected the hierarchy view of data-information-knowledge (Ackoff, 1989; Cleveland, 1982) and elaborated their view that knowledge is insights, judgements, and understanding (p. 28) practitioners would have a simple yardstick to reduce confusion and be more likely to accept a more fluid view of knowledge.

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## **About D O K T O R**

D O K T O R is the abbreviation for the Development of Knowledge and Technics in Organisational Resources Group. It is an interdisciplinary research group delivering high quality research based in The University of Sydney Business School.

## **Aims of D O K T O R**

D O K T O R aims to provide insights in the development of knowledge, technics and resources in a four point programme:

- To assist organisations and organisational subgroups recognise and develop their of tangible and intangible resources and strategies;
- To assist industry recognise, develop, leverage, make available and deploy resources and capabilities;
- To inform the policy agenda and policy evaluation in industry and government;
- To improve the quality of teaching and learning in courses relating to knowledge, technology, resources and strategy.

## **Context of D O K T O R research**

Development of resources and their application to create new economic and community value is integral to economic and social well-being and an operational, strategic and policy focus on organisations, education, government and community life.

Many views of resources overlook their technics — that is their social aspects and the embodied (tacit) or embedded knowledge (or knowing) associated with their use.

Failure to consider knowledge and its relationship to organisational resources can lead to a reduction in relative productivity, a decline in competitiveness and diminished social outcomes.

## **Membership and research opportunities**

Some D O K T O R research answers a specific question for a particular organisation. Some questions are complex and require participation from multiple organisations. Some organisations want a forum to reflect on their practices. D O K T O R arranges discussions of research topics and co-ordinates the research itself. Research by D O K T O R members is reported with recommendations or directly implemented.

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