

There's no accounting for knowledge

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Abstract

The paper provides an analysis of a research study into the processes used in organizations for the acquisition, sharing, retention and utilisation of knowledge. Our research questions aimed to identify what knowledge was important, the processes that were used to manage knowledge and the metrics used to measure knowledge. We also sought to identify the management accountant's role in knowledge management.

Set against the accounting literature of intellectual capital, organizational learning and knowledge management, the research used JOURNEY Making, a group knowledge sharing process supported by computer technology to share and record the views of participants from ten different organizations through a series of one-day workshops held for each organization.

Most participants recognised the need for a knowledge strategy and a champion, together with a supportive culture. However, the absence of these in the participating organizations suggests that the importance of knowledge management processes had not been fully recognised. A common theme was that information was acquired and shared but was not effectively retained or utilised. The research identified three different solutions developed by organizations in relation to knowledge management: those based on technology, people and processes.

The research also suggests that the finance and accounting function may be increasingly marginalised as a contender rather than a champion in knowledge management. Most significantly, it appears that the breadth of knowledge required by organizations to succeed is not being effectively managed and the links between knowledge and financial performance do not appear to be understood. In particular, the paper suggests that strategic management accounting could be developed by accountants adopting a role of improving the effective utilization of knowledge already within the organization rather than on acquiring additional competitive information.

Keywords: knowledge management, intellectual capital, organizational learning, knowledge champion, strategic management accounting, JOURNEY Making.

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Introduction

Despite the recent interest of accountants in reporting intellectual capital (Mouritsen (1998); Petty & Guthrie (2000); Rennie (1999); Roslender (2000); Guthrie, Petty, & Johansen (2001)) there has been little interest in an accounting perspective on the management of the knowledge that gives rise to the valuation of intellectual capital.

This paper describes a research study of ten organizations using a methodology based on group knowledge sharing supported by computer technology (known as JOURNEY Making). Our research focus was on the organizational processes of knowledge acquisition, sharing, retention and utilisation. We differentiated knowledge from information by explaining that data is raw fact, information is sorted but static, while knowledge implies usability, gained by drawing inferences, a cognitive process. We defined acquiring knowledge as gaining knowledge that the organization did not previously have. Sharing knowledge was concerned with exchanges of knowledge within the organization. Retaining knowledge was concerned with preventing its loss through attrition or decay. Utilising knowledge assumed that it was somehow connected with organizational performance. We hoped that the results of the study might provide an extra dimension from which management accountants may view organizational knowledge as a business asset, the utilisation of which is a key driver of competitive advantage. We believed that the description of processes and the identification of metrics for knowledge management might assist in this process.

In the first section, we provide a brief theoretical framework of intellectual capital, organizational learning and knowledge management. In the second section we describe the methodology. Third, we provide the research data under the three broad headings of knowledge, processes and metrics. We then discuss the research data and finally draw some conclusions.

Theoretical framework

We begin with a brief description of three theoretical frameworks that have informed this study. The first, intellectual capital, has been a recent concern in the accounting literature. The wider literature of organizational learning is then discussed, together with its more recent representation in the literature of knowledge management.

Intellectual capital

The accounting literature's interest in knowledge management has primarily been a concern with reporting the value of intellectual capital. Intellectual capital theory distinguishes between three dimensions of intellectual capital: human (developing and leveraging individual knowledge and skills), organizational (internal structures, systems and procedures) and customer (loyalty, brand, image, etc.) and is based largely on the work of Edvinsson & Malone (1997); Stewart (1997); and Sveiby (1997)).

Edvinsson & Malone (1997) were concerned with reporting and valuation, to the extent of calculating a financial value for intellectual capital and a coefficient of efficiency in using it. Stewart (1997) left the issue of measurement to an Appendix but was primarily concerned with methods by which intellectual capital could be leveraged. Sveiby (1997) separated management and measurement in his treatment of intellectual capital. The best example of the measurement of intellectual capital is in Skandia's Navigator (see Edvinsson & Malone (1997))

Different measures of intellectual capital, both financial and non-financial, have been discussed by Edvinsson & Malone (1997); Stewart (1997); Sveiby (1997); Mouritsen (1998); Bontis, Dragonetti, Jacobsen, & Roos (1999); Petty & Guthrie (2000); Liebowitz & Suen (2000); and Allee (2000).

There has been criticism of financial statements for not reflecting the needs of knowledge-based organizations as a result of rules concerning the treatment of intangible assets. For example Rennie (1999) argued that the more intangibles a company has invested in, the more incomplete is its Balance Sheet and the more distorted are its reported profits. Bassi & Van Buren (1999) argued that the management of intellectual capital was hampered by the lack of sound methods for measuring 'stocks' of intellectual capital. This concern with stocks rather than flows (see for example Johnson (1999)) leads to the domination of the measurement of some valuation of intellectual capital (for example Bontis & Fitz-enz (2002)) rather than a concern with the processes by which knowledge is managed within organizations.

In their introduction to a special issue of *Accounting, Auditing & Accountability Journal* on intellectual capital, Guthrie, Petty, & Johansen (2001) identified two research 'missions': better systems for creating, capturing and disseminating intellectual capital and new measures and methods to report the value attributable to intellectual capital.

In differentiating intellectual capital as a stock of knowledge with the flow or utilization of that capital, Collier (2001) argued that the accounting concern with the representational value of intellectual capital in accounting reports neglected the instrumental value of that knowledge, which he termed 'intellectual capacity'.

This contrast is particularly apposite given the high profile failures of Enron and WorldCom. Both companies had an apparently large intellectual capital (at least from the perspective of the difference between their market capitalisation and the book value of their assets). ***The write-down of intellectual capital that is implicit in the reduction in market value of these organizations reflects the 'intellectual deficits' incurred by Enron's involvement*** in undisclosed off-Balance Sheet financing and WorldCom's capitalization of operating expenses. These examples highlight the importance of the management, rather than the measurement and reporting of intellectual capital.

Organizational learning

A consideration of management processes rather than valuation leads us to a consideration of the organizational learning literature. Duncan & Weiss (1979: 84)

defined organizational learning as "the process within the organization by which knowledge about action-outcome relationships and the effect of the environment on these relationships is developed".

Definitions of organizational learning have one shared feature. They see the environment as a stimulus for learning and view the role of organizational learning as significantly involved in the organization-environment interface. However, such agreement overshadows disagreement as to whether organizational learning is concerned with processes of cognition, changed behaviour or performance improvement, and whether the outcomes of organizational learning are concerned with adaptation, or with generative learning or transformational change. Huber (1991) denied that learning needs to lead to changes in behaviour or increased effectiveness, taking a behavioural perspective that organizations learn if, through the processing of information, the range of *potential* behaviours is changed.

The organization learning literature derives from multiple perspectives and provides a wealth of typologies, frameworks and dichotomies, perhaps best summed up in the review by Easterby-Smith (1997) who contrasted organizational learning from six different ontological perspectives. Other reviews have been carried out by Huber (1991); Dodgson (1993) and Nicolini & Mezner (1995).

A major concern of the organizational learning literature has been with individual learning within organizations (e.g. Kolb (1984); Garratt (1990); Pedler, Burgoyne, & Boydell (1991); Swieringa & Wierdsma (1992); Garvin (1993); McGill & Slocum (1993) McGill, Slocum, & Lei (1992); Ulrich, Jick, & Von Glinow (1993) and Jones & Hendry (1994). There is also a literature which explicitly takes an information systems perspective and emphasizes organizational memory as a form of systems architecture (Jones (1995); Pentland (1995); Macdonald (1995); and Ouksel, Mihavics, & Chalos (1997)).

A feature of the organization learning literature is how organizational learning processes enhance or impede the acquisition, sharing and utilization of individual knowledge within organizations. This commonality is perhaps best represented in the work of Stata (1989); Senge (1990); Nonaka (1991); and Argyris & Schon (1996). It is perhaps this feature that bears most similarity and overlaps with knowledge management. However, organization learning has not been subsumed within the knowledge management literature, despite their commonality. As Vince, Sutcliffe, & Olivera (2002: S1) commented in their introduction to a special issue of the *British Journal of Management* on organizational learning: "Bringing organizational learning and knowledge management together emphasized the interplay between social aspects of learning and knowledge development and more technological views of knowledge management".

This brings us to the more recent literature of knowledge management.

Knowledge management

One of the earliest papers on the importance of knowledge was Nonaka (1991: 97) who argued that the source of lasting competitive advantage was knowledge, and that creating new knowledge "depends on tapping the tacit and often highly subjective

insights, intuitions and hunches of individual employees and making those insights available for testing and use by the company as a whole". *Interest in knowledge management as a field of study has grown steadily since the term was first coined by Karl Wiig for a 1986 seminar and was developed by Wiig (1993)*. Wiig (1997a: 8) defined knowledge management as the effective management of knowledge processes, the purpose of which is "to maximise the enterprise's knowledge-related effectiveness and returns from its knowledge assets and to renew them constantly". The main themes within the knowledge management literature are different types of knowledge, knowledge management as process, knowledge management in organizations, and the relationship between knowledge management and organizational learning.

Knowledge management has been described as the process of creating, capturing and using knowledge to enhance organizational performance (Davenport & Prusak (1998); Bassi (1998); Parlbay (1997)). There are many published descriptions of the processes and activities of knowledge management, and no one has gained common acceptance, although a detailed summary of the views can be found in Beckman (1999). Nidumolo, Subramani, & Aldrich (2001) describe knowledge in the firm as "emergent, distributed and resident in people, practice, artifacts and symbols".

In most of the knowledge management literature, discussion takes place at the level of the whole organization or corporation. The knowledge management literature distinguishes between formal and informal views of knowledge in the organization, although Fleck (1997) argued that information and knowledge are embedded in the working context, so that separating the formal from the informal is problematic. The theory of business processes distinguishes between core and support processes (Earl (1994)) with core processes being those performed directly for external customers. Edwards & Kidd (2003) made a similar distinction in relation to knowledge management in which improvement to the organization's core knowledge – the knowledge needed to perform the core processes – should produce a corresponding improvement in the organization's overall performance.

Wiig (1997b :1) differentiated his broader focus on knowledge management as "all relevant knowledge-related aspects that affect the enterprise's viability and success" from essentially computer-based technical approaches and the intellectual capital focus. Building on earlier work by Treacy & Wiersema (1993), Wiig (1997b:14) identified the need to actively pursue knowledge management in three "value disciplines – operational excellence, product leadership, and customer intimacy" as a result of economic and market-driven demands.

These three literatures provide the theoretical background that has informed the research questions and the methodology.

Methodology

The methodology adopted for the research was an adapted form of JOURNEY Making - JOint Understanding, Reflection and NEgotiation of strategY. The technique underlying JOURNEY Making, which captures participants' understanding and interpretation of the world in which they live and operate is group mapping (Eden & Ackermann (1998)).

In the current research, a JOURNEY Making workshop involved group members who were able to share their knowledge of a problem over an intensive full day.

Each participant had access to a laptop computer connected to a local area network which was used so that the group members, through the computers, could contribute to a public display of knowledge (which was projected onto a screen). Group decision support software enabled this capturing of knowledge. The advantage of the computer technology is that ideas generated by participants are known only to them. As each participant's ideas are entered, they are only visible to the author until such time as the facilitator reveals all the participants' responses on a public screen. The workshop facilitator captures the data on a master laptop which is linked to a projector screen. Once participants have completed entering their ideas the facilitator leads the process of clustering ideas around common themes. These themes are those that are meaningful to the participants.

The technique used to share knowledge might be thought of as being similar to that of brainstorming, but takes brainstorming to new levels in terms of how group members are assisted in freely thinking about the problem, how the ideas from the brainstorm are managed, how the interaction between group members is facilitated, and the reliance on computer-technology to support the synthesising of knowledge. The complexity which can arise from having a number of people share competing views of a problem is managed through the facilitator helping the group members to navigate their thinking of the problem based on what is displayed on the public screen (Eden & Ackermann (1998)).

Allowing the respondents to synthesise their different views in a workshop helps in building a shared understanding of the issue and develops a more creative environment than participants sitting alone answering questions. Working in groups is more likely to lead to a synthesis, development and expansion of individual views into a group result which is more coherent, more insightful and more rigorous than the aggregation of individual viewpoints. The data captured through this method was expected to comprise feasible solutions to improving knowledge management. As the Finance Director of one participant organization said: "It makes you say things you never would in your office, the sort of things you say when you're in the car with someone."

Most workshops had three researchers, the facilitator and two others (in some workshops there was only one researcher other than the facilitator), ***whose role was to make observations and take notes on matters that were not captured by the software (for example, commentary about the process, contextual issues or the 'asides' of participants). The resulting research data was a combination of the data captured by the technology supplemented by notes produced by the researchers.***

The research questions were:

1. What knowledge informs organizations?
2. What are the processes that are *currently used* in organizations to acquire, share, retain and utilise knowledge?
3. What are the processes that participants believe *should be used* in organizations to acquire, share, retain and utilise knowledge more effectively?

4. What metrics are *currently used* or *should be used* in organizations in relation to the acquisition, sharing, retention and utilisation of knowledge?

The first question was about What? The second and third questions about How? The final question was concerned with Why?

The data from the workshops were captured in the form of 60 ‘maps’. An example of a map is contained in the Appendix to this paper. Although the research data varied considerably between organizations, analysis of the maps was undertaken by identifying common themes and aggregating workshop responses across those themes. In this paper we report both the aggregate findings together with some illustrations from particular organizations derived from those maps and from the ‘asides’ of participants.

Research data

We conducted 10 workshops, one in each of ten different organizations. Two of the organizations agreed to participate as a result of direct contact made by the researchers. Eight organizations agreed to participate following a direct mailing to MBA alumni of the university. Often, these contacts became the sponsors of the research and arranged for participants from their organizations. The organizations were thus self-selecting, having an explicit interest in knowledge management, but not necessarily a competence in it.

Between 6 and 10 participants – all from the same organization – attended each workshop. In total there were 75 participants who came from a variety of functional areas. Each workshop included an accountant, a requirement of the funding body. With that exception the participants in each workshop were those selected by each organization. The criteria suggested by the researchers was that participants should include a sufficient spread of people with awareness of, and responsibility for, knowledge management and at least one person responsible for securing the commitment of resources towards achieving whatever outcomes and actions were decided upon. In all but one of the workshops, one or more participants were at director-level¹. Seven of the workshops were held at the researchers’ university and three at organizational premises. This was the choice of the participating organizations.

Of the 10 organizations, 6 were for-profit, three were not-for-profit or non-profit-distributing and one was public sector. One of the not-for-profit organizations also received significant government funding. Of the 6 for-profit organizations, three were listed PLCs, two of which were divisions of FTSE 100 companies. Two organizations were privately owned and one was a subsidiary of an overseas PLC.

¹ The term ‘director’ was used in a variety of ways by participating organizations. With the exception of one organization where the Managing Director and Finance Director participated as two of the three owners, it was difficult to identify the decision-making ability or influence of the director-participants as many identified during the workshops the need to seek higher approval. In any event, we were told that the participation in the workshop had been sanctioned by higher level management. Consequently, we have inferred that top management had a view that improving knowledge management was worthwhile as the workshops involved a substantial opportunity cost each organization through the time invested by participants

In terms of ‘business’, one was in retailing, two in manufacture, one in design/distribution, three in services, one in consumer protection, one in social housing and the public sector organization was a police force.

Each organization has been identified by a phrase in order to preserve the anonymity of the organization, while providing a meaningful description of its principal activity, as Table 1 shows.

Table 1: Participating organizations

<i>Organization</i>	<i>Brief description of organization</i>
Restaurants	Retail/Service business with about 12 major brand names, division of FTSE100 PLC
Police	Public sector/Police force with 3,700 staff and £140M budget
HighTechManuf	Manufacturing high technology, £100M turnover and 800 employees, privately owned
Consult	International technical/engineering consultancy, division of FTSE100 PLC
DesignInst	Design/installation of high technology equipment, subsidiary of overseas listed company
ManufIndProd	Manufacturing industrial products, privately owned
ConsumProt	Not-for-profit membership owned non-statutory consumer protection body
B2BService	Business-to-business services, 12,000 employees, Turnover £200M, listed PLC
R&D	Nonprofit distributing membership-owned research and development, 550 employees
Housing	Non-profit registered social landlord, 500 employees managing 5,500 homes

The research findings are grouped under three headings, in accordance with the research questions: what knowledge is important; how knowledge is managed (processes); and why knowledge is managed (metrics).

Knowledge

The first research question for each workshop was “What knowledge informs your business?” The following comments by workshop participants addressed their reasons for attending the workshops and the problematic nature of knowledge management in organizations:

- *“we have lots of information but not much knowledge” (Restaurants)*
- *“all we’ve got is knowledge but we’re hopeless at managing it” (Police)*
- *“some is factual, some is financial, some is rumour, some is gossip, some is intuition, some is guesswork, some is accidental discovery” (Consult)*
- *“information flows vertically, not horizontally ... we need to make sense of the information we have” (DesignInst)*
- *“we have a multi-site business doing the same thing up and down the country but we do it in different ways, continually reinventing solutions to the same problems ... the answer is in the business but we don’t have ways of finding it” (B2BService)*

- “our place is crawling with information and knowledge, if we were able to assemble it better and make sense of it better and draw conclusions from it more smoothly, we would be more successful” (R&D)
- “we have lots of information but we don’t share it, we reinvent the wheel about four times” (Housing).

It was quite common in the workshops to have identified around 90 different ‘items’ of knowledge (range 59-117), although in fact some of these were information and others were merely mechanisms, such as ‘databases’ (content unspecified). These were grouped into ‘clusters’ by the participants.

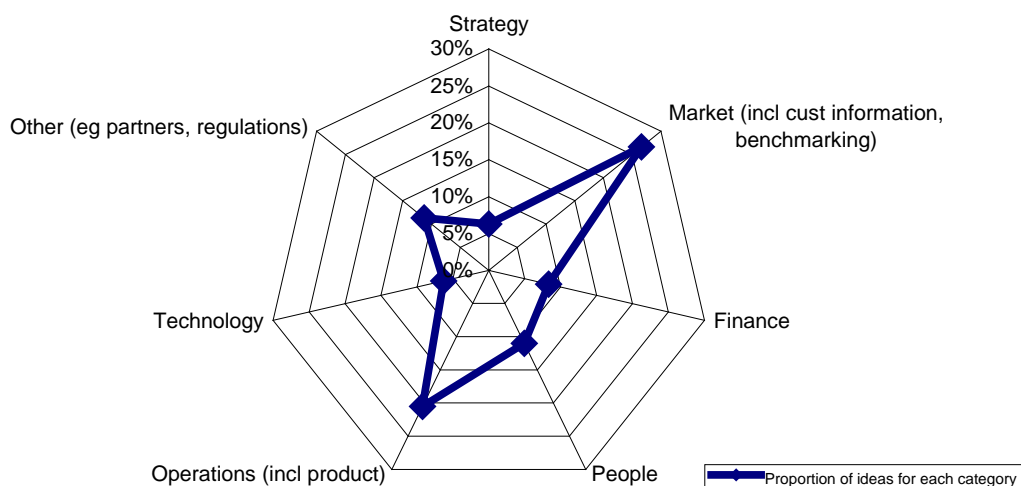
As might be expected, some clusters were very specific to one organization, such as Police’s largest cluster, which was around front-line policing, and Housing’s cluster around partnerships and networking. Others were more generally applicable, such as those relating to market knowledge or market intelligence (which appeared in some form in eight of the organizational maps), and financial control and performance (which appeared explicitly in six of the maps). The clusters for the ten workshops are shown in Table 2.

Table 2: What knowledge informs your business?
Knowledge of :

	<i>Percentage of total items allocated to each cluster</i>
Market (including customer information, benchmarking)	27%
Operations (including product)	20%
People	11%
Finance	8%
Strategy	6%
Technology	6%
Other (e.g. partners, regulations)	11%
People (knowledge in, rather than about)	4%
Technology	2%
Systems	2%
Documents	3%

Figure 1 shows the same distribution of the ideas in “radar chart” format. The domination of market and operations knowledge reflected the general view of participants that finance, people, technology and strategy were enablers of the core business. However, there was considerable variation between the different organizations. For example, R&D placed a very strong emphasis on market knowledge, whereas Consult offered most ideas under partnership and regulatory knowledge, and Police (perhaps not surprisingly) under operations knowledge.

Figure 1 What knowledge informs your business? Radar chart



Processes

The second and third research questions for each workshop were “What processes *are currently used* to acquire, share, retain and utilise knowledge?” and “What processes *should be used* to acquire, share, retain and utilise knowledge?”

On average, the maps contained 68 current knowledge management processes (range 47-100) and 54 ‘should be’ processes (range 19-96). Table 3 compares the processes currently used with those that workshop participants believed should be used.

Table 3: Comparison of processes currently used with processes that should be used to acquire, share, retain and utilise knowledge

<i>Nature of the process</i>	<i>Examples</i>	<i>Percentage of total processes – currently used</i>	<i>Percentage of total processes – should be used</i>
Written, formal	From legislation, manuals, quality records and drawings, archives, books and publications, to financial reports	49%	36%
Verbal ² , formal	Mainly meetings	18%	15%
Electronic, formal	Largely databases, and a single point of access to information	10%	25%
Verbal, informal	Coffee machine discussions, telephone calls, relying on memory, gossip and rumour and	10%	4%

² The term ‘oral’ is more appropriate given the examples provided, however we retain the term used by the workshop participants.

Electronic, informal	eavesdropping Random email and bulletin boards	3%	0%
Experiential	Job shadowing and apprenticeship	3%	1%
Written, informal	'Post-it' notes	1%	0%
Other	Consultants, exit interviews, and succession planning	6%	18%

When participants identified the processes that *should be used* to acquire, share, retain and utilise knowledge, these were usually different to the processes currently used. It is significant that there was a great desire to move away from written formal documents to an electronic format, as shown by the comparison in Figure 2. There was also a reduction in preference for 'verbal' (i.e. oral) processes, and for informal processes generally. The increase in 'other' processes incorporated examples such as remote working, alliances with other companies, knowledge champions, physical re-organization, etc.

Metrics

The fourth research question was "What measures are currently used, or should be used, in relation to the acquisition, sharing, retention and utilisation of knowledge?" Table 4 shows the nature of the measures for knowledge management identified by the workshops.

Table 4: Measures for Knowledge Management

<i>Nature of the measure</i>	<i>Examples</i>	<i>Percentage of total measures</i>
Internal management	The ability to react to challenges, identification of the location of relevant knowledge, the number of analytical tools in use, and the number of best practice ideas adopted.	24%
Workforce	Training, morale, recruitment and retention, succession planning, proactive employees, empowerment, reductions in temporary staff, reduced sickness, qualifications achieved, number of internal promotions.	20%
Financial	The number of credit notes raised, better returns on sales visits, market share, reduction in cost base compared with output, turnover and profits.	14%
Quality	Customer satisfaction, reduction of in-warranty returns, fewer complaints, repeat work.	13%
Key Performance Indicators (KPIs)	Internal audits and benchmarking, Investors in People assessments, ratio of quotes to wins.	12%
Esteem	'Pedigree' or industry standing, awareness of brand, being an adviser on legislation, attracting high calibre graduate trainees.	9%
Time	Time-saving through knowledge management processes, whether accessing databases, producing reports more quickly, reducing time spent on procedures, speedier response to queries and bids.	5%
Productivity	Productivity measures included scrap reduction, improved sampling pass rates, machine utilisation, and reductions in tooling changes and facility downtime.	2%

In all the workshops, participants found it difficult to identify measures of knowledge. In some workshops we asked participants to identify the benefits of knowledge management that would be used in a business case to support investment in improved knowledge management processes. In all workshops it was either explicit or implicit that the results of improved knowledge management would be reflected in measurable business performance.

In B2BService, there was more discussion of financial measures than in other workshops and, with Restaurants, the only two workshops in which shareholder value was mentioned. Housing was explicit that financial reporting and planning was central. In the Police workshop, financial information, along with strategy, training and partnerships with other agencies were identified as “organizational enablers”. In an aside, one participant in the Restaurants workshop commented that while there was an under-emphasis on finance in the knowledge clusters, there was a realisation that the knowledge that had been identified linked to finance.

Discussion

There were a number of common themes that emerged from the ten workshops. These common issues crossed the research questions of what knowledge is important; how knowledge is managed; and the metrics for knowledge management.

Each workshop agreed that they had lots of knowledge but didn't handle it particularly well. Most organizations agreed that they had a volume of information rather than any focus to that information – an important distinction between information and knowledge. Most organizations reflected that there was lots of (for example, market) data but that the data was only analysed when there was a specific need. This was exemplified in most workshops through examples of email and meetings. The general view was that emails were sent indiscriminately and that meetings were unfocused.

There was some discussion of the need for a knowledge management strategy and a supportive culture. The recurring theme here was in relation to senior management commitment to, and ownership of knowledge management. This was exemplified in the almost unanimous call for a ‘knowledge champion’.

Restaurants identified the need for “buy in from the top down” and the need for a “knowledge champion” to facilitate the process of communicating knowledge. Similarly, HighTechManuf identified the need to appoint a “champion”. Although Police made no mention of a champion, the workshop sponsor had recently been appointed to develop a communications strategy and could be considered to be Police's champion. DesignInst identified the need for a “champion of MIS” as the absence of this co-ordination function led to a lack of focus. B2BService identified the need for a “knowledge broker”. B2BService was already undergoing an internal continual improvement programme which had a “champion”. Three different participants in the B2BService workshop identified the need for a formal knowledge management framework and strategy. To Housing, this was a “change champion”. *In ManufIndProd, the knowledge champion was the Managing Director (and one of the owners) who had been a participant in the workshop.*

As with most (if not all) other change initiatives, our workshops revealed that knowledge management will not succeed in an organization unless it is backed by people with enough power and access to sufficient resources to make it work. The need for knowledge management to have these knowledge champions, and the qualities that they should have, are discussed at some length in Skyrme & Amidon (1997) and Davenport & Prusak (1998).

Technology, people, processes

One of the principal patterns that emerged from the workshops related to the major clusters of “should be” processes for knowledge management identified in the previous section. These clusters revealed three broad emphases in the “solutions” proposed by participants:

- Technological solutions dominated Restaurants (PLC, retail/service), Police (Police force) and DesignInst (Overseas-owned, hi-tech design and installation).
- People solutions dominated Consult (PLC, international consultancy), B2BService (PLC, services), HighTechManuf (privately-owned, manufacturing), R&D (membership-owned, non-profit distributing R&D) and Housing (Non-profit registered social landlord).
- Process solutions dominated ManufIndProd (Privately-owned, manufacturing industrial products) and ConsumProt (membership-owned, not-for-profit regulatory body with short life expectancy).

The technological solutions were concerned largely with making better use of databases and Intranet access. At the extreme, Restaurants’ solution entailed standardising technology over hundreds of sites leading to a single source of knowledge. DesignInst argued for the need to reduce duplication by eliminating “satellite” IT systems. Police went further, and identified “privately owned” personal organizers and laptops as a barrier to sharing information and knowledge.

However, technology solutions such as database systems and data warehouses may have led to a lack of focus in knowledge management as most systems don’t distinguish raw information from useable/relevant knowledge. Most workshops remarked that their intranets were not used effectively to share information.

People solutions were concerned with staff retention and motivation, training and networking. HighTechManuf identified the need to rely less on “training through osmosis”. Consult emphasised activities such as partnerships, training, networking, debriefing and team working. R&D thought the processes should involve removing their existing “culture of confidentiality”.

People were a key element of knowledge management, with an explicit recognition that knowledge was routinely lost by staff leaving the organization and the inadequacy of training to ensure that existing knowledge was shared among newer members. Those organizations using consultants were concerned about how to capture the knowledge gained by consultants rather than losing what the organization had paid for.

Process solutions were concerned partly with paper-based specifications and process instructions but also with the mix between formal and informal methods of sharing knowledge. ManufIndProd were very concerned about passing on skills. ConsumProt wanted a substantial change of direction; reduced effort on compliance and more emphasis on educating the organizations it regulated. There was also an emphasis on “working smarter”; achieving process efficiency in order to cope as a result of people who it was expected would leave over the next two years.

The lack of consideration given at a senior management level to the processes necessary for knowledge management was marked in all organizations, particularly as all organizations were significantly knowledge-dependent for their success. The absence of formal and coherent knowledge management processes in any of the workshop organizations placed greater reliance on individuals, leading to a dependence on informal systems.

In each organization, the contrast between formal knowledge and informal knowledge was also prevalent. All recognised the importance of informal processes, but also held a desire to move to more formal, reliable and consistent ones. Participants recognised the difficulty of retaining the richness of the informal systems while adding the robustness and “shareability” of more formal ones. However, in those organizations in which technology and formal methods dominated, there was a call for more informal ones, suggesting the need for balance between formal and informal methods.

In particular, there was a need identified by each organization to capture tacit knowledge, especially relating to operational processes, and to more effectively share knowledge gained from outside the organization. Four organizations explicitly used the term “intelligence” instead of knowledge in their clusters, while other groups mentioned it but did not formally adopt the term.

~~Most evident was the different emphasis on external (environmental) and internal sources of knowledge, although each organization faced pressures from both. For external information, there was a particular need for summarising, abstracting and disseminating knowledge—an essentially people-based process. Internal knowledge was either technology-based, using databases and intranets more effectively, or process-based, involving better manual documentation of procedures, or finding the right balance between formal and informal internal communications.~~

Related research

There has been little research into knowledge management – beyond the reporting of intellectual capital - as it relates to accounting. However, Morris & Empson (1998) studied professional service firms and argued that knowledge management linked the market for professional services with the factor market for professional staff: how knowledge is created, deployed and updated had implications for product definition and delivery as well as for recruitment and training. Morris & Empson (1998:613) questioned the assumption that knowledge was concentrated at the centre of the firm and was transferred outwards, arguing that in practice “the nature and flows of knowledge are much more complex than these assumptions allow”. In considering codification, Morris & Empson (1998:616) recognised that “some forms of knowledge may not be susceptible to transfer or storage without deterioration”.

Based on two case studies, Morris & Empson identified four propositions: that a variety of knowledge management strategies co-exist in the professional services sector; that the nature of the knowledge base will influence the organizational structure of the firm; that knowledge and its codification are not predetermined by size, but that variations occur because of the way in which knowledge is defined by senior staff, and the firm's positioning relative to competitors; and that impediments to knowledge transfer exist but can be overcome by incentives and co-operative forms of behaviour enshrined in the firm's culture.

The present study (three of the firms - R&D, ConsumProt and Consult – can loosely be classified as professional service firms) provides a marked contrast to the observations of Morris & Empson. First, in none of the ten organizations was there any evidence of a coherent and explicit knowledge management strategy which was aligned with business objectives, despite each organization valuing knowledge and believing that such a strategy would be valuable. An important observation from the research was that, despite the number of performance measures identified by participants, there was no explicit linkage made at Board level or by accountants between knowledge management and performance, whether financial or non-financial. ***However, such linkage was implicitly accepted by the workshop participants through their acknowledgement that the metrics they identified as benefits of improved knowledge management would lead to improved financial performance.***

The second and third propositions made by Morris & Empson are connected. There did not appear to be any relationship in our study between the nature of the knowledge base and organizational size or structure. We were also unable to support whether variations in knowledge and its codification occur because of the way in which knowledge is defined by senior staff, and the firm's positioning relative to competitors. Contingency theory does not provide an explanation for these differences as the relationship between the type of organization and its preferred knowledge-based solution seems to be more a consequence of the unique history and circumstances of each organization. ~~However, the different processes used for managing knowledge generated from external and internal environments suggest that the relative dependence on each environment may be a more important causal factor for the nature of the knowledge base.~~

We are able to provide some support for the fourth proposition, that impediments to knowledge transfer exist but can be overcome by incentives and co-operative forms of behaviour enshrined in the organizational culture. ***Knowledge management was clearly important to every organization although there was little evidence, with the exception of ManufIndProd's Managing Director and Finance Director (referred to earlier) of any main-Board understanding of, involvement in or commitment to knowledge management and the lack of anyone at senior management level taking ownership of knowledge management.*** Although our research found no evidence of overcoming obstacles through incentives, it did identify the need for knowledge champions in developing a supportive culture for knowledge management.

The role of accounting and accountants

While accounting was an element of the knowledge identified in each workshop, it was not usually a central feature. However, most workshops included finance either as a separate cluster of knowledge, or as part of a corporate knowledge cluster, most commonly linked with corporate strategy.

It did not seem from the workshops that accountants or finance directors saw knowledge management as particularly important and did not see their role as broader than financial, generally failing to appreciate or at least demonstrate the links between knowledge management and non-financial performance or financial results. Interestingly, the Finance Director of ManufIndProd seemed to be participating in the workshop more in his role of co-owner of the firm than from a financial perspective.

Significantly, the majority of metrics suggested were measures of organizational performance as a whole, either financial or non-financial. They were thus indirect measures of the effectiveness of knowledge management processes. Many of these could be classified as measures of intellectual capital as suggested by models such as the Skandia Navigator (Edvinsson & Malone (1997)). Accounting was integrated with strategy in most organizations, either as a resource constraint or an enabler, or in terms of financial performance targets, supported by non-financial performance measures. However any connection between financial or non-financial performance measures and knowledge was implicit rather than explicit for accountants.

Functional managers are “champions” of their areas e.g. sales or production, but cross-functional processes frequently do not have champions, hence the work doesn’t get done (although there were exceptions such as the continuous improvement champion in B2BService). The finance director is the financial knowledge champion. The absence of a non-financial knowledge champion may give undue power to the finance director as financial knowledge is the most visible organizational knowledge, being reported routinely. The finance director is the champion of the processes of acquiring, sharing, retaining and utilising financial knowledge. By contrast, Human Resource directors manage policies and procedures but not the people themselves or the knowledge in their heads or how it is used. IT directors manage the system and the data, but not the knowledge contained within the system, or how that knowledge is used.

Reporting intellectual capital has been the main focus of accounting’s recent interest in organizational learning and knowledge management. An exception has been the interest of management accountants in strategic management accounting. The term strategic management accounting was coined by Simmonds (1981), who argued that accounting should be more outward looking. Strategic management accounting analyses financial and non-financial information on product markets, competitors’ price and cost structures, volume and market share over a number of periods, aiming to exploit cost reduction opportunities and match accounting with strategy (Bromwich (1990); Wilson (1995); Tomkins & Carr (1996); Lord (1996)).

However, Lord (1996) argued that firms successfully collect and use competitor information without any input from the management accountant. This is consistent with the findings of our research. Dixon (1998) argued that the costs of capturing and

analysing strategic management accounting information could out-weigh the benefits. Our research found that all the organizations we studied already had a large quantity of market and competitor information, from which the accountant had been excluded, but that this information had not, to any significant extent, been analysed into usable knowledge.

Intellectual capital and strategic management accounting have been linked in service industry research by Tayles, Bramley, Adshead, & Farr (2002: 254), who argued that when intellectual capital forms the main elements of a company's competitive advantage, strategic management accounting "provides a vital fulcrum in the leverage of those assets". They recognised that there is a need for internal management information to make visible and manageable the intellectual capital in employees and infrastructure. Tayles et al. suggested a business-specific composite of both valuation and the financial quantification of performance measures. This information could be used they argued, not only to augment shareholder value reporting but also to enable alternative investments to be compared whether those investments were based on tangible or intangible assets.

Knowledge management has implications for the development of strategic management accounting but we believe that the collection and analysis of new data about suppliers, customers and competitors is less important than the management of knowledge already held by the organization. Accountants have a role to play in a reformulated strategic management accounting, one in which the focus is not outward-looking at obtaining and analysing information from suppliers and competitors but inward-looking, making better use of the knowledge that is already held by the organization.

Conclusions

By knowledge management, we mean the processes for the acquisition, sharing, retention and utilisation of knowledge. It appears that most organizations are particularly effective in acquiring information, but because that information is in a raw, unprocessed state it is not effectively shared, easily lost and therefore not effectively utilised.

Participants in the workshops largely saw information as a commodity but knowledge as an important driver of organizational performance, with technology, people and process based solutions being available. ~~In particular, we found that technological (e.g. database and Intranet) solutions or process (e.g. documentation and the mix of formal and informal methods of transmission) ones were preferred by organizations which were more dependent on internal sources of knowledge, as there was a need for sharing and retaining that knowledge. In contrast, people based solutions were preferred by organizations dependent on external sources of knowledge as they needed to summarise, abstract and disseminate large volumes of information into usable knowledge.~~

The organizations in our study have tended to be dominated in the past and present by technological solutions which have had the effect of emphasising the quantity of information rather than any focus. People recruitment, training and retention have been criticised by all the organizations in our study, leading to a loss of knowledge or

poor sharing of knowledge with new employees. An absence of procedures for knowledge management and an over-emphasis on formal or informal methods (at the expense of the other) has also impacted on effective sharing, retention and utilisation of knowledge.

The accountant has become increasingly marginalised in the knowledge economy. The accountant may be a contender in the knowledge stakes but *there is no evidence from the workshops that accountants want to become their organization's knowledge champion. The focus of the accounting literature on intellectual capital as the valuation of organizational knowledge in the Balance Sheet, rather than the management of that knowledge is perhaps a reflection of that marginalisation.* Most significantly, the breadth of knowledge required by organizations to succeed does not appear to be effectively managed and the links between knowledge and financial performance do not appear to be understood. Accounting attempts to retain its importance in organizations by focusing on reporting the stock of intellectual capital rather than focusing on the flow of knowledge and how knowledge management can improve organizational performance. In particular, the research identified the potential for management accountants to contract (rather than expand) their view of strategic management accounting from gaining information about competitor, customers and suppliers to managing the knowledge resource that is already held within organizations, but which is inadequately shared, frequently lost and not effectively utilised.

In what is increasingly referred to as a knowledge-based economy, it is evident from our research study that insufficient management attention is given to this valuable corporate asset, and that organizational performance might be improved by more effectively sharing, retaining and utilising the knowledge already held by organizations.

In our study, participants recognised the need for a knowledge strategy, knowledge champion and a supporting culture. The absence of these in the participating organizations suggests that the importance of knowledge management had not been adequately recognised. A future research possibility is to revisit each organization to identify any progress made with knowledge management following the workshops.

The most obvious limitations of this work are that only ten organizations have been involved so far, and that only organizations (and generally people) with some interest in knowledge management took part. Concerns over how representative the participants were of their organizations, or of organizations in different sectors generally suggests that care needs to be exercised in interpreting the results. However, we propose that accounting research has a role to play beyond reporting the value of intellectual capital. Researchers need to move from the intuitive acceptance of knowledge as a driver of organizational performance to providing empirical evidence.

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APPENDIX: EXAMPLE MAP

