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Key Organizational Elements for Effective Information and Knowledge Management

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Abstract

Effective information and knowledge management (IKM) is critical to corporate success; yet, its actual establishment and management is not yet fully understood. We identify ten organizational elements that need to be addressed to ensure the effective implementation and maintenance of information and knowledge management within organizations. We define these elements and provide key characterizations. We then discuss a case study that describes the implementation of an information system (designed to support IKM) in a medical supplies organization. We apply the framework of organizational elements in our analysis to uncover the enablers and barriers in this systems implementation project. Our analysis suggests that taking the ten organizational elements into consideration when implementing information systems will assist practitioners in managing information and knowledge processes more effectively and efficiently. We discuss implications for future research.

Keywords

Information and Knowledge Management, Information Systems, Case Study, Organizational Performance

INTRODUCTION

There is widespread acceptance that both information and knowledge are vital to corporate success (Sambamurthy, Bharadwaj & Grover 2003). It is also acknowledged that these resources must be managed not just so that organizational goals are achieved and growth occurs, but because enterprise survival depends on their judicious management (Wiig 1997).

However, despite the status attributed to information and knowledge as enablers of organizational success (Holsapple & Joshi 2002), the nature of their complementary and co-dependent relationship; the considerable academic and business attention given to them (Schultze and Leidner 2002), and many suggestions about how they should be managed (Hendriks & Vriens 1999; Bieber et al. 2002); a thorough analysis of all the factors that may either facilitate or impede information and knowledge management initiative success is still outstanding. However, such an understanding would assist practitioners in managing organizational environments in a more flexible and effective way. This is because a deeper understanding of IKM success factors may enable greater use to be made of organizational information and knowledge (IK). This situation, in turn, may ultimately facilitate the successful implementation of information systems in general.

Our research supports the notion that successful information systems management, and ultimately organizational performance, depends on "good" information and knowledge management (IKM). This dependency, specifically, allows some predictions to be made about which *organizational elements* are of relevance to the effective management of information and knowledge. A number of such conjectures have been articulated previously. For instance, prior studies have shown the link between information activities and business performance (Marchand, Kettinger, & Rollins, 2001); the relevance of collaboration between business strategy and activities (to generate information and knowledge needs, e.g., Bieber et al. 2002), the acquisition, storage and access processes (to enable information and knowledge to be used, e.g., Ron Chi-Wai, Jian & Vogel 2002), and the role of enabling information systems (to support knowledge-intensive processes, e.g., Massey, Montoya-Weiss & O'Driscoll 2002). Furthermore, it was shown that the cultural and political environment in which these activities, processes and technologies exist must be supportive of the approach selected for managing information and knowledge (Currie & Kerrin 2004). We continue along the research presented by our colleagues, and seek to consolidate and integrate these conjectures in the following core research problem that we address in this paper:

> **What organizational elements need to be addressed to ensure the effective implementation and maintenance of IKM within an organizational context?**

To address this research question, we firstly identify key organizational elements required for effective implementation and maintenance of IKM within organizations. Next, we present a case study in which we apply

these elements to analyse the introduction of a research and development (R&D) information system in a medical supplies organization. We discuss the findings from this case using the key organizational elements relevant to IKM, and conclude this paper with a number of speculations about the implications of our research.

DEVELOPMENT OF THE ORGANIZATIONAL ELEMENTS

An a priori action research study in a financial services organization preceded the case study reported in this paper. The action research approach was based on the cycle of activities originally described by Susman and Evered (1978), and advocated by Baskerville and Wood-Harper (1996). We drew on the exemplar provided by Olesen and Myers (1999) and the methodological advice provided by Baskerville (2001) in conducting the study. The action research was informed by a simultaneous in-depth literature analysis of knowledge management in IS, to distil ten key organizational elements that need to be addressed or managed to ensure the effective implementation and maintenance of IKM within organizational contexts (Nelson, 2004). Our case study, based on Yin's (2003) methods, used a case protocol and collected qualitative data through a series of guided interviews and examination of organisational documents. The unit of analysis was the IKM project under consideration. Interviews were transcribed and the contents verified with participants. The resulting textual data was considered as proxy-for-experience (Ryan & Bernard, 2000, pp.769-771) and was analysed in keeping with the sociological tradition using classic content analysis. Paper length constraints preclude a full discussion of each element, and their specific derivation from action-research and literature review. Instead, Table 1 contains a summary of the organizational elements and the referent literature from which they were derived. Table 1 also provides a presentation of the key characteristics of each element.

Table 1. Organizational Elements with Referent Literature (continued over pages)

Organizational Elements and Referent Literature	Key Characteristics	Working Description
Information Architecture (IA) Bidgood & Jelly, (1991); McGee & Prusak, (1993); Orna, (1999); Davenport, (1997); Skyrme & Amidon, (1997); Skyrme, (1999); Dillon, (2002); Albert et al., 2004)	Describe the IK needs of the organization in term of key IK types, processes and flows. Provide a framework for IKM decision-making and for integrating IK strategy into organizational strategy. Align what is being done with information and what should be done in order to meet business objectives. Identify strategies for effective IK acquisition, management and (re)use. Define the boundaries of the organization's IK space (what is internal and what is external). Eliminate redundant or unnecessary information. Establish desired information behaviours and make undesired behaviours difficult. Present a common language for communicating about IK.	Elements that define what information the organization has and where it is located, what it needs to achieve its goals, and what should be done with information or knowledge. (Tools include information maps, directories, yellow pages)
Information Behaviour (IB) Davenport, (1997); Bonner et al, (1998); Orna, (1999).	IB considers what people need to do or achieve with information as well as how they act towards information. Information behaviours are a function of the value the organization places on information. The element of trust underpins desirable information behaviours. Organizational processes should encourage appropriate information behaviours through training programs, mentoring and demonstrating appropriate behavioural models. There needs to be links between the reward and recognition or compensation and performance systems and appropriate behaviours. Individual and organizational IB influence organizational culture.	How individuals behave and are encouraged to behave with respect to information or knowledge, for example how information sharing, exchange, use and communication occurs between individuals.

Organizational Elements and Referent Literature	Key Characteristics	Working Description
Organizational Culture (OC) Brooking, (1999); Bertels & Savage, (1998); Davenport, (1997); Ichijo, von Krogh & Nonaka, (1998); Orna, (1999); Standards Australia, (2001); Norton, (1994); Ivari & Huisman (2007).	IKM activities and projects are aligned with the existing organizational culture Ideal cultures for IKM may not be present or achievable in all organizations. Attributes include: openness, trust, collaboration, sharing, non-blaming and time (organizational slackness). Learning is seen as a desirable feature as are reflection, innovation and challenging the status quo. There is a good match between the espoused and experienced culture.	The degree of influence and the predominant "way things are done" has on effective information and knowledge activities.
IT Practices (ITP) Marchand, Kettinger & Rollins (2000); Brooking (1999); Orna, (1999); Standards Australia, (2001); Tillquist et al (2002).	ITP provides supporting technology for IKM Different types of technologies manage tangible information than those collaborative technologies required to support knowledge. ITP needs to support organizational operations, decision making and planning as well as cross-functional business processes, organizational performance and knowledge creation.	Management of IT to support information and knowledge activities.
IM Processes (IMP) Orna 1999; Marchand, Kettinger & Rollins 2000; Davenport 1997; Standards Australia 2001; Chiasson & Davidson (2005).	Information management processes include the operational (technical), analytical and strategic activities that support organisational operations, planning and decision-making. IMP focus on explicated and codified data and information.	Formal processes designed to ensure quality information is available to support core business processes.
KM Processes (KMP) Marchand, Kettinger & Rollins, (2000); Standards Australia, (2001); Ichijo, von Krogh & Nonaka, (1998); Merali (2000).	KMP focus on the creation of human centred environments to enhance knowledge activities. These environments facilitate different ways of creating and transferring knowledge. KMP include the creation of communities of practice, developing trust structures, raising internal awareness of knowledge stocks, capturing and applying learning from experiences.	Activities focussed on creating organizational environments or forums where knowledge can be acquired, generated and shared.
People Management (PM) Broadbent, (1997); Brooking, (1999); Ichijo, von Krogh & Nonaka, (1998); Standards Australia, (2001).	PM includes activities such as recruiting people where knowledge is required. Encouraging learning and providing appropriate training and development programs for new and existing personnel. Creating appropriate incentives for knowledge activities, particularly knowledge sharing. (Linking PM initiatives to appropriate information behaviours.) Linking performance appraisal processes into the organization's strategic approach to knowledge.	Conscious efforts enhance personal skills so that people are enabled and encouraged people to create, share and use information or knowledge, for example dynamic teams, role rotation, reward and recognition programs, training and education.
Information Policy and Strategy (IP&S) Strassman, (1995); Davenport, (1997);	Information policy is a formalized means of communicating the value the organization places on key information (and knowledge). Information policy states the organization's	High-level formal statements that explicitly assert the organization's intent for information or

Organizational Elements and Referent Literature	Key Characteristics	Working Description
Orna, (1999); Standards Australia, (2001); Brown & Ross (2003).	imperative for information (and knowledge) use. Information policy links business planning with information and knowledge planning. Information strategy states how the organization will implement information policy through practical means or initiatives. Information strategy focuses on business areas (functional area, process, key information type) that require enhanced information or knowledge processes.	knowledge and provide guidance about the overall approach to information or knowledge.
Information Politics (IP) Marchand, Kettinger & Rollins, (2000); Strassman, (1995); Davenport, Eccles & Prusak, (1992); Davenport, (1994), 1997.	Information politics is a natural occurring part of organizational IKM One or more of five "political states" are possible within any organization. Information politics requires acknowledgement and management in an open manner to reduce the risk of IKM project failure. Undesirable information behaviours contribute to less effective political states.	Organizational activities and behaviours specifically related to the power information instils and how these are managed to ensure effective information and knowledge use.
Organizational Structures (OS) Bertels & Savage, (1998); Blacker, Crump & McDonald, (1998); Ichijo, von Krogh & Nonaka, (1998); Davenport, (1997); Orna, (1999).	Existing control structures and hierarchical organizational forms may not be effective for IKM. New structures for organizations based on teams or communities of common knowledge may need to emerge. The organizational structure needs to be aligned with the organization's knowledge imperative and strategies. While IKM activities are widely distributed within business areas, overall responsibility for information and knowledge needs to be assigned to a senior executive. Informal as well as formal roles exist and should be monitored.	Roles, responsibilities, authority and hierarchy for information and knowledge management.

To illustrate the analytical capabilities of using this framework of ten organizational elements, we apply it in a case study that describes the implementation of an information system in a medical supplies organisation.

THE CASE OF THE WEB-BASED RESEARCH AND DEVELOPMENT DATABASE

Case Setting and Context

The case described in this paper was one of two case studies performed within a medical supplies organization. The italicised sections of text that appear below are quotes from the case study interviews.

The case organization was committed to, and involved in, research activities and had been using a strategic process and plan to improve its research and development (R&D) outputs, which it referred to as innovation capital. The unit of analysis in this case was an IKM project that aimed at developing and implementing a Web-based database on their intranet that would store details about the organization's innovation capital and information about R&D projects and publications specifically. The project, while it could be "*broadly described as an information management project, [was] in fact very much part of [the organization's] intellectual capital effort which [had] been running for five years*".

The organization routinely collected details of its research activities on a state-by-state basis. Some of this information was also required to construct reports on research activities for the Annual Report. These two

activities, however, were managed as independent processes. The research information, once submitted, was stored in local Microsoft Access databases and shared nationally by burning local data to CDs. The researchers (information owners), therefore, did not have access to the data for updating nor could it be used for cross-fertilisation of ideas.

In light of this situation, the primary motivation for this project was the need to create a single repository of research activities that could assist with the incorporation of the R&D data into information products, notably the Annual Report. Publication of this data was seen as necessary for marketing the organization and particularly beneficial when attracting sponsors for research activities. The second motivating factor was recognition that the organization's intellectual capital effort was not particularly successful in terms of promoting cross-organizational collaboration and breaking down geographical barriers or functional silos. A Web-based database of R&D activities was seen to be an appropriate means for increasing awareness of current and past R&D activities, which might in turn enable generation of new or innovative knowledge. It was also believed that a shared repository would be a means to "*get more of the researchers involved in entering their data*". This factor was also described as "*find[ing] out who was doing what and getting them to talk to each other*" and "*if you get people collaborating, then you get a critical mass … more mind power*", which reflected some concerns that there may have been duplicated or competing research efforts between state locations. The third motivator for this project was that it would require the organization to create its first intranet site to share information nationally, and this use of technology was seen as the first move towards establishing a national information and systems architecture.

The Development Project

Essentially, the project was planned to "*dovetail into the annual reporting cycle and have the intranet R&D database up and running*". The instigator of the project prompted by the stimuli described in the section above "*had an idea that the old database format was fairly basic and wanted to … use technology better*." Initial discussions were held with the IT area and the state managers responsible for intellectual capital about how the existing innovation databases could be converted to a Web-based information system. Considerable negotiation and lobbying for support from the organization's executive managers and buy-in from the IT area was necessary and the project's instigator "*went through all these chicanes to get to the right person who would give me the go-ahead and the information and knowledge that I needed to build the site and get it up*." Considerable resistance from the IT group had to be overcome in order to have the system developed. The project's initiator reported that during meetings with the person responsible for IT, an executive supportive of the project would say:

> *This [project] has to happen, what's your problem and he [the IT manager] would dodge and weave and come up with the excuse [stating] "it's not a priority; therefore I cannot direct any resources to assist you".*

Faced with this situation, the project's driver used her knowledge of the organization and organizational politics to overcome these barriers, commenting:

> *I know who the early adopters are, I know who my allies are, I know the people that can be persuaded and I have used those people. I have sought to engage them as allies and I have used the strategy of approaching [the problems] at different levels.*

Nonetheless, system development and testing eventually occurred and progressed well, followed rapidly by implementation and rollout to all states. The national manager who had been responsible for driving the project declared it a success for instance "*anyone can log on and see the sophistication of this product" and "we've been live for a month now and we've got over three hundred entries on there [the Web database] now from people [staff] all over Australia*".

The types of information captured and stored on the database includes: current research projects, presentations made about research, research papers that have been accepted for publication in journals or books, details of research grants, external appointments and details of student projects which with the organization is involved.

Several measures of project success were identified. One of these measures was the Board's assessment of the quality of the information contained in the Annual Report. This measure was verbally expressed as:

> *our Board, are the absolute arbiters of our performance, so they will comment ultimately on the quality of the annual report published and … none of them will look at the database, that's a tool, they will either be happy or not …if we can win a silver medal or a gold medal [merit awards for scientific research] and that will [be a measure of] the quality going in and the quality coming out, because I can only write a good report based on what goes in and then I rely solely on this material [in the database].*

The improvement of the overall R&D effort as an indicator of the project's success was expressed as *"if we get critical internal mass then our research, our project quality has to be better, our research outputs and outcomes have to be better [resulting in] more publications, presentations and so on."* Other measures of achievement were identified as: an improvement in the rate of spontaneous contribution to the database, researchers getting their work recognised in the Annual Report, use of or searching the database to identify key activities and people, and identifying ideas or opportunities for collaboration.

In conclusion, the project was ultimately regarded as successful. However, in the transition from project initiation to close – and success, a number of project issues were encountered. We use the ten key organizational elements defined in Table 1 above to analyse the issues encountered, and the organizational enabling countermeasures taken. The analysis reported below thereby allows us to assess the role of the ten organizational elements to IKM initiative success.

Project Issues

Information behaviour was the first issue identified as a barrier during the project's conduct, resulting in an initial low rate of compliance. No specific reasons were offered as to why researchers were tardy in submitting information; however, there was speculation that without continuous pestering, the number of contributions to the database would have been far less. For instance, the project's initiator reported;

> *I have been hard on people which doesn't make me popular but then in the end when results come they say; 'oh yeah – she was tough but that's OK because we're got something good' … if you're a shrinking violet you don't achieve anything in this organization, you are just squished.*

There was recognition that incentives or punitive measures may need to be introduced, in addition to personal networks, to encourage contributions into the database. One method suggested was the inclusion or exclusion of project details in the Annual Report; however, this course was only seen as a viable option for high profile projects.

As well as the political obstacles that needed to be overcome to get the project going, **information politics** was apparent during the development and implementation phases and was believed to have influenced information behaviour. To illustrate, one case in point was put candidly as:

> *I think sharing information and conflict between business units has impacted [on the project] some managers helped and others hindered, they have their own agendas and that worked against us, some wouldn't encourage people to enter their material, they wouldn't say "here's a great thing" they were silent on it, they don't want to let the plebs access this repository of knowledge.*

Conversely, other data implied that overt political pressure on researchers to submit details for the Annual Report process actually caused resistance among the researchers in terms of contributing. For instance,

> *There was this pressure and this has been the same in previous years with the Annual Report, there's this pressure to get your local stuff in … so that it's recognised in that way and there's a time pressure with that.*

These thoughts also indicate that there was competition between the states to obtain recognition for research efforts.

The problems experienced getting researchers to actually enter details into the database were compounded by communication issues with some of the state managers responsible for intellectual capital activities and "*ambiguity about the different roles and responsibilities*" for **information management processes**. It was estimated that only about one quarter of a particular state's information was actually entered by the researchers with the balance being entered by the local intellectual capital manager. This lack of direct contribution from the information producers may indicate a lack of engagement, or the existence of considerable confusion regarding responsibilities for information management activities. Concerns were expressed that this lack of role definition may result in duplicated effort and redundant information and reduce the quality of the resource.

The organization's **information policy and strategy** infrastructure had many different and possibly confusing guises. For instance "*we have an IP [intellectual property] policy that rewards inventors if we commercialise*" and,

> *We think that a policy is almost counter to [the] knowledge management concept, so rather we are building a knowledge management strategy or framework … we actually have a three page document which is our knowledge management framework [while] our information strategy is to have a national computer system and the intranet is supposed to support that … nothing else is sanctioned.*

This confusion indicates a lack of integration in the IKM policy and strategy context, and, in effect, may have contributed to the effort required to obtain approval and support for the project. These divergent strategic notions may also have contributed to difficulties in obtaining human, time and financial resource support for the project.

> *[It's a problem] to try and deliver knowledge management in a resource poor environment, in the private sector if you can throw money at it, its relatively easy, but in the public sector [which is resource poor] if you want people to do knowledge management versus their daily job, boy, that's really hard, you have to know how to push and when to stop pushing and that's a hard call.*

Maintaining momentum to create an appropriate **organizational culture** required to sustain this type of IKM initiative was also seen as problematic.

> *Some people sustain [IKM] by hardwiring it into a structure or culture ideally, but we're not there yet, so while you are trying to hardwire it into the culture and cause cultural change, which takes years, you've got to have a champion and sustainability's got to be the key message.*

The approaches used in this organization to embed IKM in the culture were to use a number of strong projects to *"drill some bore holes into the organization and then show how wonderful they [the project outcomes] are, or we try to do it on a broad front like most organizations do, but the reality is we're drilling holes".*

The move towards a enterprise wide **information architecture**, however, appeared to create some barriers. For instance, the IT department was reluctant to support this small but seemingly useful system. This situation may be attributed to the IT area apparently viewing this push as a top down enterprise wide strategy, while those responsible for intellectual property activities appeared more inclined towards adopting an incremental approach involving small projects. Indications were that the IT group perhaps had a broader agenda, and accordingly were not particularly engaged with this project specifically, to the extent that the IT manager was reported as having a "*different imperative to deliver this national computer system as a priority – no holds barred*". Not surprisingly a situation had developed where the IT people were not engaged or contributing, there was potentially a lack of buy-in from the researchers. Also, the project owner, despite her enthusiasm for the project, did not have the skills or the resources to move the project forward. The organization's "*rigid*" **information technology practices (ITP)** were seen to have contributed to these implementation problems. For instance, "*the information technology practices they were rigid, they're not talking our [the intellectual capital people's] language*". This rigidity was also seen as a cultural clash between IT and the rest of the organization. Other cultural issues included a perception of the IT group being "*mainframe people… [who] have never recognised and still refuse to recognise the work that personal computers do to deliver our mission*". This focus on centralised systems was further emphasised by the estimation that only 50% of the organization's data was located on mainframes, with the remainder being on a distributed PC network. Additional barriers created by ITP may have related to a lack of awareness about the distribution of technology and IT skills within the organization. For example, there was also an assumption that all researchers "*had access to the Internet and I don't know if that's necessarily true for all of our local researchers*".

One of the objectives of the national intellectual capital group was to break down the business unit barriers, which was indicated by a belief that "*OK we're a national organization and we best utilise our resources by having collaboration between business units, and between ourselves and other organizations*". In support of this objective, the project initiator reported toiling painstakingly to build personal trust networks as an attempt to encourage researchers to contribute their knowledge. These efforts however appeared thwarted "*but the reality is that breaking those barriers down has been pretty hard*" by the absence of formalised **knowledge management practices**. An "*unofficial think-tank*" existed outside the formal executive group, which was used by some senior individuals in the organization to share ideas. It was seen as "*very innovative*" but had to keep changing its name every meeting because "*it's not allowed to exist*". These types of initiatives were seen to suffer from "*the conflict of trying to build a knowledge management culture in conflict with a manufacturing service culture*". The **organization's structure** indicated that some efforts to move towards this desired cultural state had been successful. For instance, there were one and a half full time positions at a national level dedicated to intellectual capital management (Director and Assistant Director) and there were local managers of intellectual capital (IC) in each of the state organizations. However some conflict was observed between the national and local levels responsible for intellectual capital resource management. For instance at a local level it was believed that;

> *National people are pushing projects and we [the state IC managers] are trying to get buy-in from the local level … so there's naturally some conflict between national and the local [goals] … there was lots of ambiguity about different roles and responsibilities {and} I didn't see that there was much consultation with the state-based IC people.*

In contrast, from a national perspective it was believed that the:

> *Knowledge management culture is working a little bit against us [because] we have built a bureaucracy around knowledge management. We've appointed state managers who are supposed to oversee KM initiatives in each state as well as encourage R&D.*

The way **people management** occurred was also seen to impact on how well the objectives of this knowledge capture project might have been accomplished. One report was that:

> *In some ways [the conduct of the project] almost ignored the human element. I thought it was a technology-driven project and people were sent emails and asked to put stuff in, but that dynamic between people like myself [state IC managers] and researchers in the different business units seemed to me to be ignored really.*

Assumptions made about the researchers having appropriate skills to use the resulting database was also seen as flaw in people management as was poor understanding of the priority researchers assigned to making contributions to, let alone using the resource. However, from another perspective, the project initiator saw that people management was her responsibility and used considerable energy and different communication methods including email, telephone calls, face to face and the database itself for "*reaching out to people to get them to use it*". She saw that it was "*up to me to educate the recalcitrants to try and romance them*" in a genuine belief that the database would make their jobs easier. The organization's performance management processes included recognition of "*adding value through people*" this criterion was not "*embedded across the organization*" or integrated into formalized in knowledge management activities. It was understood that knowledge sharing would require sustained relationships that rewarded the individuals and would require inclusion in the existing performance planning framework and that "*tokenism approaches*" such as reward ceremonies or innovation drives had already been used unsuccessfully to facilitate creation and use of the resource. However, ultimately, because of a general belief that "*in knowledge management you've got to reward sharing knowledge*", the organization awarded prizes for the best summaries entered into the database.

CONCLUSIONS

This paper presented a framework of organizational elements that need to be addressed to ensure the effective implementation and maintenance of IKM within organizational contexts. We applied these organisational elements in the analysis of a case study in a medical supplies firm. The case study aimed to enhance the medical services organisation's IKM capacity by introducing an information system (R&D database) where knowledge producers would share information.

Our study shows that the information systems implementation project considered was attributed by a number of interesting characteristics. For instance, rather than establishing processes or addressing human issues early on, this case project appeared to be most interested in a technological solution. The project was also quite pragmatic, being focused on the creation of a repository with that would allow organizational information re-use for various purposes such as the constructing the Annual Report. While the system implementation itself was a success; the case revealed that each of our identified organisational elements had an influence on the project's conduct or on its progress. Thus, the set of elements may provide a useful framework to assist practitioners embarking on IKM projects manage aspects of their organizations environment.

Seeking conclusions about the key organizational elements relevant to IKM initiative success, our analysis reveals that in the R&D database implementation project studied, information technology and information architecture were substantial barriers. Organizational culture and sub-culture also emerged as significant issues. Geographical barriers did cause some concern and the structure of the organization did appear to be an important issue in this R&D database project. The project also suffered from information politics and individual information behaviours, which appeared to be reflections of the organization's culture. While the organization had a formalised infrastructure for the management of four forms of intellectual capital (human, innovation, relationship and structural capital), it appeared that this formalisation had not yet been translated into specific strategies for the management of IKM or their supporting information systems. Given this existing infrastructure it is reasonable to speculate that implementation of appropriate IKM policies and strategies might improve allocation of resources, increase the profile of IKM, lead better integration between the IC, IT, business units and researchers, and finally result in reduction of the IKM barriers faced in this and other projects.

As with any research, ours has limitations. Most notably, we identify the selection of a single case site as a threat to external validity of our results (Yin 2003). Yet, the identification of the ten organizational elements occurred within the background of an extensive literature search and an a priori action-research study, thereby alleviating some of the problems stemming from single-case bias. Also, we acknowledge the absence of a discussion on the grounded-theory led derivation of the ten organizational elements themselves. Our reporting of these elements is hampered by the space constraints of this paper, which is why we included only a brief description of the

elements as well as the most relevant pointers to literature. More information about literature search strategy, derivation method and element descriptions are available from the authors upon request.

We believe our research informs two central contributions. Most notably, our framework of organizational elements relevant to IKM initiative success makes a contribution to the information and knowledge management body of knowledge. We show that our ten elements are relevant to the study of IKM practices and the to formation of appropriate mid-range theories. Second, our study also informs the information systems community. We identify factors critical when implementing systems intended to support knowledge and information processes. Our research shows how the development and implementation of information and knowledge management systems can have multiple effects on organizational performance, both in an enabling and obstructing manner. Last but not least, we believe that our research is of avail to drawing more attention to key organizational and contextual factors in the study of information and knowledge management. This may assist in extending the strong current techno-centric view on IKM in the IS discipline.

Future research may build upon the work presented in this paper, and consider each of the ten organizational elements in more detail. Other planned activities include an analysis of IS projects designed to improve information and knowledge supply for key business processes using the ten elements as an analytical framework.

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