An Exploratory Study of Risks and Issues in Knowledge Management

Rodger Jamieson - Director[1]
David Loeng - Researcher

SEAR: Security, E-Business, Assurance Research Group
School of Information Systems Technology and Management
University of New South Wales
Sydney, Australia
e-mail: r.jamieson@unsw.edu.au

Abstract

When introducing Knowledge Management (KM) systems into organisations, management should carefully assess the risks and threats to these systems to ensure that they are controlled, well-secured and do not leave the organisation exposed to unwanted damages and losses. This paper addresses this concern by raising risks and issues and suggesting practices that improve the effectiveness of KM in organisations. The paper will address this research objective by conducting interviews with KM experts from organisations ranging from consulting firms to KM technology providers.

Keywords

Knowledge Management, risks, security and controls, issues

INTRODUCTION

The Australian Knowledge Management Standard AS5037 2003 defines knowledge management as "a multi-disciplined approach to achieving organisational objectives by making best use of knowledge" (AS5037 2003 pg. 7). In other words KM (knowledge management) aims to increase the capture and use of knowledge within an organisation by using a combination of disciplines that focus upon changing the way people perform work so that they share and contribute more knowledge and are assisted in doing so by technology.

Both academics and business practitioners alike believe that it is critical to leverage knowledge in order to remain competitive in the long term (Bhatt 2001). To gauge the level of importance of KM on the world stage at the moment, it is believed that 80% of the world's largest companies already have KM efforts underway (Barth 2000). As businesses realised the importance of KM it became very popular and boomed in the 90s. However according to the KM Hype Curve (Verteramo et. al. 2002) the boom was short lived as expectations were betrayed, causing KM to enter a trough of disillusionment around 2000. The main reason for this phenomenon, according to Verteramo et. al. 2002 is the underestimation of the complexity of KM and the use of confused methodological approaches. One example is the disproportionate amount of resources poured into software packages, tools and technology such as data warehouses and databases, and a misconception that technology alone will solve problems. Essentially, KM quite clearly failed to realise expectations as a result of a number of problems and unmanaged risks linked to immaturity in KM practices (Fehér 2002).

Even amongst organisations that acknowledge that culture is an integral part of KM, Standards Australia has stated that "there are few, if any ... that would claim to have a mature knowledge management culture" (HB165-2002 pg. 4). The conclusion is that there is still much needed room for improvement in current practice. For advancement to take place, we must first identify where the problem areas are.

Research is required to determine and understand the types of issues and risks that confront KM implementations in order compile together what Barth 2000 calls a collection of worst practices. Although solutions or suggestions for improvements are not guaranteed for each issue, what can be guaranteed is the benefit to businesses of awareness of such problems to assist them to at least plan more effectively and avoid making the costly mistakes themselves.

The aim of this research is to explore both current perceptions of KM as well as obtain an understanding of the types of risks and issues that are currently impeding KM implementations. These will be represented in an issues relationship model that will be initially derived from the literature and then refined by the research findings. This

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model will provide an overview of risks and issues and how they interact. Moreover, the study aims to find out what methodologies and practices organisations are currently using to deal with these problems which will encompass security, monitoring, and risk management. Any challenges in addressing risks and issues can form the basis for future research.

KM RISKS AND MITIGATION MECHANISMS

KM Risks

A review of the literature revealed a number of risks associated with KM systems and environments, which include:

Knowledge Stealing - The risk of valuable intellectual property walking out of a firm and into the hands of competitors has always been a risk. Employees may engage in unethical use of corporate knowledge bases for personal gain or purposes unrelated to the organisation (Fehér 2002).

Poorly structured knowledge repositories - For a knowledge repository to be useful to an organisation, it must not only be able to store large volumes of information but also allow that information to be accessed and accurately retrieved on demand. A poorly designed knowledge repository can run the risk of employees losing trust in the knowledge base as a useful resource and may result in a boycott of the system, which translates into a KM failure (Fehér 2002). Poor structure of the knowledge base usually results from careless categorisation of documents or poor choice of keywords attached to each document to assist its location.

Risks of poor quality knowledge - Some organisations have documents stored on their knowledge repositories that do not display an owner and this can be problematic. Knowledge shared in public repositories fails to capture the wealth of experience of the knowledge contributor and hence the context or tacit knowledge surrounding the knowledge item. Depersonalised documents deny users this critical tacit part, rendering the knowledge item in most cases to be useless or invoke a very high risk if used. The use of knowledge items with unknown origin is a risk. When presented with such a risk the user may choose to apply risk analysis and weigh up the potential damage that may result from using the knowledge and the costs to further investigate and verify the knowledge document against any potential benefits that may result (Fehér 2002). Knowledge items that do not have a source are not credible and only act to decrease general trust in the usefulness of the knowledge repository. If trust does not exist, use and further contribution of knowledge to the repository may cease causing it to fail and collapse in what is known as the death spiral (Manago and Auriol, 1996).

Lack of end-user buy-in or usage - A KM system that is not accompanied by some kind of scheme that motivates employees to want to use and contribute to the system is bound to fail. This buy-in is essential as there is a natural resistance to withhold knowledge (McKinlay 2002). Most organisations introduce incentive schemes that reward employees with bonuses for contributing to the knowledge base as a way of dealing with this risk.

Lack of proper maintenance of knowledge base - Maintenance is a critical activity in KM that serves to maintain the usefulness and quality of the knowledge base and avoid the risk of a knowledge base death spiral. In the operation of a knowledge repository, both useful and poor knowledge may be contributed. Large amounts of poor knowledge in the knowledge base can severely slow down searches and make it difficult for users to locate the knowledge they are after. This is where maintenance comes in to remove poor knowledge out of the system (Fehér 2002). However, maintenance is a difficult task because "*often what one person thinks useful, others find flaky, idiosyncratic, incoherent, redundant, or just plain stupid*" (Brown and Duguid 2000 pg. 6)

Risk of declining organisational creativity and innovation - One of the key benefits of a knowledge repository which accurately stores lessons learnt and past experiences is that it enables high re-use of knowledge and helps the organisation to avoid re-inventing the wheel when confronted with problems that are similar to those in the past. However, the ease of applying past knowledge makes the more difficult task of creating new solutions unattractive, essentially stifling innovation. Furthermore, the re-use of the strengths of past solutions without an attempt at also improving on past weaknesses will ultimately result in the past mistakes being repeated (Fehér 2002).

Poor management of user perception of the usefulness of KM - Management must not underestimate the importance of dealing carefully with the fragile confidence of sceptical employees in the organisation towards the KM concept. It is a significant risk in particular to go ahead with an initial large scale system and have this system fail publicly – essentially resulting in a loss of confidence in the KM concept. To avoid this, a series of small KM pilot initiatives and experiments should be rolled out. These are likely to fail quickly, but gracefully out of sight of the entire organisation, providing, in a sense, damage control. Hence, by avoiding large

investments and perhaps large failures, management can protect the KM concept from a loss of credibility (McKinlay 2002).

Organisational change and power shift - With advances in networking technology and the internet, virtual global communities have been formed. These communities of practice aim to maximise individual and collective learning as well as collaboration by providing access to experts, knowledge and other work colleagues globally. Within these communities, status is derived from an individual's level of expertise and depth of participation and not according to hierarchal rank. The benefits from utilising the efficiency and innovative ideas from this global network and an apparent convergence to project teams that span the globe is placing tremendous pressure on the traditional organisational structure and hierarchy. Budgets have traditionally been done per department and then pulled across into projects, and resource for project teams are allocated by functions. This arrangement has provided organisational stability for a long time and businesses risk chaos without having a new vision and organisational design to handle a break down in this structure (McKinlay 2002).

Cultural hindrances to knowledge transfer - KM in an organisation may be reduced merely to just management of information if there is no knowledge sharing or transfer. Therefore cultural issues represent significant risks to the success or failure of a KM system. According to Davenport and Prusak (1998), the following are some examples of cultural hurdles: lack of trust; different cultures, vocabularies and frames of reference; lack of time and meeting places: narrow idea of productive work; status and rewards go to knowledge owners; lack of absorptive capacity in recipients; belief that knowledge is a prerogative of particular groups, not-invented-here syndrome; and intolerance for mistakes and need for help.

Having examined some KM risks the following subsection identified some risk mitigation strategies.

Risks mitigation mechanisms to KM issues

Neef (1997) identified several strategies to ensure greater success of KM systems. These strategies provide a background to the investigation of how the risks are currently being treated and help inform the research questions addressed by this study.

Knowledge based strategy - Organisations need to direct resources towards researching and capturing opportunities that are emerging in the marketplace. That is, they need a strategy that focuses on creating knowledge products that complement the emerging needs of the market; a strategy that is forward looking and prepares the organisation to compete in the new economy of knowledge-based business.

Knowledge-based process planning - Organisations should remap key processes in the organisation with a focus on what information is required at each main step. This type of planning will improve the awareness of what information is required and may increase the use of existing corporate knowledge.

Knowledge sharing culture - Knowledge sharing is a critical to the success of knowledge management and is also very difficult to establish. An organisation may approach this by establishing a community of practice that enables employees to share productivity-enhancing practices, new techniques and lessons learnt.

Technical support infrastructure - Information technology can assist in the creation, storage, organisation and transfer of knowledge. Although the technology in itself is not KM, this is a necessary investment as it is a key enabler.

Knowledge stewardship - The task of organising the company's knowledge and working out means of distributing it electronically are mission critical to KM. In other words, it is critical to properly developing knowledge taxonomies and knowledge delivery systems.

These issues derived from the literature review were structured into a preliminary issues relationship model, which was then updated by the results from the interviews into an initial risks and issues relationships model which is presented towards the end of the paper in Figure 1.

RESEARCH METHODOLOGY

Research Strategy

The research strategy adopted by this research is a modified inductive approach (Blaikie 2000). The key objective of this research is to draw out the risks and issues in a knowledge management system. It assumes that theory produced by these objectives can be generalised and are applicable to all industries and organisations implementing KM. This is well supported by the positivistic ontological assumption underlying the inductive approach which believes that risks and issues surrounding KM are orderly and can be generalised upon. The

research will be based on observations made by experienced KM practitioners and knowledge officers. The inductive strategy primarily produces patterns that may form the basis of pattern explanation. These patterns or trends can also be leveraged in more exploratory or descriptive research.

The inductive strategy is also ideal for answering "what" questions, and is therefore most effective for this study, whose exploratory and descriptive objectives have produced questions of this type. However, as it is known that the pure inductive approach is not possible due the impossibility of presupposition-less data collection, this research uses a modified version of the inductive strategy which permits preconceptions on what will be observed.

Acknowledging that relevant observations cannot be made without some ideas to guide them and that observing "everything" is not practical or efficient, this study has extracted form the literature two frameworks: namely HB-275 (2001) and Jamieson and Handzic's (2003) risk and control matrixes, in which to help guide the exploration of KM risks. This is therefore a modified, more realistic, version of the pure inductive approach. Currently no theory or hypothesis has been provided to be proven or disproved. As a result, the output of this study aims to describe the current perception of the risks and issues summarised in an issues relationship model.

Plans and Methods

This research will use an exploratory approach. An unstructured interview will be the key instrument used to collect qualitative data. Interviews are ideal for this research since the aim is to explore concepts as opposed to asking participants to make a choice from existing ones. The flexibility offered by interviews is a significant advantage, both from the standpoint of the interviewer and interviewee. From the perspective of the interviewee, he/she is not bound to answer questions in any particular order. Additionally, the interviewer has the option to either clarify the meaning of a question if it is unclear and seek further explanations or elaboration on an unclear or irrelevant response from the participant (Burns 1997).

Interviews recorded, transcribed and reviewed by participants, then the transcripts were analysed and codified using NVivo to assist in qualitative analysis of the interview transcripts.

Participants

The study used purposive sampling to ensure that the major players in KM development were represented in the interview sample, which included the following participants set out in Table 1:

Class	Participant Number	Title
High Level	P1	Chief Knowledge Officer (CKO)
Consultants	P2	Knowledge Consultant
Technology	P3	Sales Manager Portal Software
High Level	P4	Senior Knowledge Strategist
Consultants	P5	Former Management Consultant
Technology	P6	Sales Manager Collaboration Tool

Table 1: Research Participants

Acronyms will be used to represent the participants in this study. Their class as well as title are detailed in the table below.

Research Question

While a number of research questions were asked in the study, this paper seeks the address the following research questions:

What are the risks and issues in KM? What factors contribute to these and how might some of these be addressed?

RESULTS AND DISCUSSION

This section considers the results from the questions - What are the risks and issues in KM? What factors contribute to these and how might some of these be addressed?

A successful KM initiative will inevitably change the way the organisation works and as such there is a great deal of change management involved. This usually involves not only training business users to understand and be proficient at the tools but it necessarily requires them to believe that the tool will significantly help them and

the organisation and therefore they will want to use it. Failure to address culture as a priority is a significant cultural risk.

 "The risk is really getting the people involved, understanding how the product works, because it really is quite a cultural change … You need to get them to change. You need to train them. They need to understand what we're trying to achieve as an organisation in terms of moving forward." (P6)

The problem lies with people failing to "... conceptualise this leap in technology". If users do not understand the concept and how it will be useful to them, it will not be used. To tackle this problem, a sensitive implementation approach is needed that provides the right amount of training and hand holding:

KM can leverage the internet to enable knowledge sharing and collaboration, creating truly global virtual teams and communities. External knowledge sharing can also occur where knowledge is shared with partners or clients. One participant provided the example of a global best practice and benchmarking database that allows access by client organisations to compare their processes with two hundred or so other companies. However, by doing so, an organisation exposes the business to potential attacks and risks on the internet. Another participant acknowledged this risk but believed that there is enough security software and hardware to protect systems from attack and that most organisations, regardless of industry, will need to collaborate with business partners, suppliers and customers in order to remain competitive. In other words opportunities for going online are greater than the potential losses if online risks did actualise.

Project risks

Risk is again perceived as an adverse outcome and the priority, according to one participant when it comes to dealing with KM risks, is to look at "… the project in terms of success factors". KM projects bear the burden of the additional risk of curtailment in tough economic conditions due to consumption of resources that are hard to justify due to difficult to quantify returns on investment. The only possible measure to reduce this risk is successful stakeholder management including senior board members, so that the importance and purpose of KM is understood.

Lack of alignment of KM with business

 "… it might sound easy to have to align things to the business. One thing is that you have to get management buy-in for any KM initiative but you have to be there every fortnight knocking at the door to ensure that your KM program is running in the right direction." (P2)

For KM success, it must not be considered a separate entity that delivers on business objectives. It needs to be thoroughly entwined and integrated into traditional processes and this may well require some of them to have to change. Knowledge activities need to be integrated so that KM becomes part of the way the company does business, not a separate tacked on entity that is largely optional. It is "… a big risk where you go ahead with your KM initiative and forget about the business." Alignment of KM to the business is not easy and requires senior management support and routine consultation with them to keep the initiative relevant.

Knowledge Theft

The risk that intellectual property such as proprietary methodologies are stolen is not new and occurred with printed material being taken outside the organisation. Currently, the only thing that has changed is the medium where compact discs can be taken home and passed to a competitor. Knowledge theft also happens all the time with consultants taking away with them the knowledge they gain about a company in their tenure with them and then using the knowledge in another company. This risk is difficult to control and organisations sometimes ignore it depending on the cost benefit of taking extra steps to protect their intellectual property. The stance of one organisation in this research on knowledge stealing is as follows:

"Can you stop things walking out the door? I don't believe so. Can you try and discourage it? Yes you can. Can you make it obvious so that when people transgress that they can't get away with it and make it known? I think that's a very good thing to do." (P1)

Barriers to Sharing

When decision about the tools to share and store knowledge are left to each of the business units in an organisation, what can potentially happen is that these units will choose "… different tools that don't easily integrate and that way you create the silos without a desire to create those silos." According to one participant, there is a desire to share "but having so many different platforms to do that, that becomes a bit of a barrier." (P2)

Another key barrier to knowledge sharing is a fear of job loss or insecurity from exposing experience and knowledge that make a person an expert on an area. A strong sentiment is: "... if I share the knowledge that I have, then I'm not special anymore". This is one of the reasons why cultural change is difficult. In order to achieve the critical change in behaviour to share more of their knowledge, belief systems that are instinctive to people need to be delicately managed, preferably through senior management setting the precedent by changing their behaviour and setting the stage for the organisation to follow suit. This is another reason why senior management support is so critical for the success of KM.

"… leadership is mitigating the risks of low usage, failure to use and no desire to use." (P5)

Challenge of Gauging Information Worth

One of the key challenges in maintenance of a knowledge base is knowing what is useful. This is actually a very difficult decision because what is useless to one person may be very helpful to another or as one participant put it "... you might argue that any discussion has some relevancy". The worth of information is relative and this is the key reason why it is so difficult to attempt to find an objective value for it.

Integration Issues

Portal software used in KM integrates a variety of applications including "... email, ERP, e-business intelligence, workflow, e-learning". One of the reasons behind why systems are integrated is to enable end users to have the value add of a one-point report that combines together information from a variety of sources without the traditional overhead of visiting and logging onto each one of these systems individually. According to another participant, integration can also enable products to become more specialised and rely on other specialist software to make up for its deficiencies. For example, one of the collaboration tools mentioned provides a specialised sharing interface which integrates with a popular document management system and leverages its document storage and security layer features.

Excessive Tools Focus

Based on participant responses most KM comes out of the business, however, its management is usually then taken over by the IS department. The business case for KM in one organisation mentioned was when a costly report created by a consultant that had already left went missing, forcing the company to have to rehire another to redo the report. KM, however, was left to the IS department and that was a mistake "… because it tends to be very tools orientated rather than very business orientated … it can quickly become an IS issue if you're not really focused on meeting business requirements." According to one participant, many organisations that have approached his firm have had the problem of having a toolset or technology place with no plan or strategy to support the business. One method to handle this risk is to use effective project planning whereby the project managers should regular verify that the implementation is meeting the expected requirements set out in the business or strategic plan.

Poor Knowledge Quality

The quality of knowledge stored in a KM system is related to quantity, completeness, usefulness, relevance and timeliness.

The quality of knowledge may be improved by effective maintenance and archiving of outdated and non-used material. However, routine maintenance must coincide with quality contributions, otherwise there would be no knowledge base left to maintain. To encourage good contributions, employees need to be assessed on their intellectual input to the system as "... knowledge is improved by having good measurement systems" (P5) in place.

Poor knowledge quality is a significant factor that increases the risk of the organisation suffering severe damages from basing a business decision on erroneous information out of the knowledge base.

Redundancy is also a problem because it can contribute to unnecessary clutter in the system that can affect the relevancy of search results.

Missing information in a knowledge base impacts the perception of quality as users will eventually a develop a view that the system is not comprehensive enough to respond to their information requests.

The concept of ownership discussed earlier in risk management can also apply to knowledge as well. By having knowledge ownership and assigning responsibility for the maintenance of those sources, the quality of knowledge is bolstered, and this mitigates the risk of poor and out of date knowledge.

"When somebody is responsible for something they will look after it ... without ownership you get low quality content and low quantity, redundant content" (P5).

Putting the IT department responsible for maintaining the knowledge base is not adequate ownership and is definitely not the type of ownership referred to here. For proper maintenance of content, ownership should be passed to those who are authorities on the content areas in question.

"And the responsibilities are generally nothing to do with IT, they're in the business and are to do with areas of knowledge ... its people who know about the content" (P5).

Lack of Trust

In order to improve and maintain healthy trust from the organisation in a knowledge base, it is important that knowledge served is of a reasonable quality, relevant and up to date. This can only be achieved if resources are put into getting regular feedback from users as to their opinion of these facets of the knowledge base. According to one participant, one of the least leveraged features of modern KM is the statistical analysis of the usage data in the form of clicks and page visits that can be collected in KM because its web or intranet based.

"I often ask "do you have statistics on how often your web sites or a specific piece of information is accessed?" and they go "Yeah we can get that but we don't actually do it on a regular basis"." (P3)

By making proper use of usage statistics combined with regular customer surveys of user satisfaction over the quality and information and how its delivered, the organisation can better tune their systems to bolster trust. The same participant also complained that too often companies forget the 80-20 Pareto principle when it comes to knowledge stored on their systems, leaving up to 80% of unused and outdated information lying dormant in the knowledge base to demolish trust.

Another participant concurred with this point of view, supporting the observation with this quote:

"A number of people felt that there was too many things that were of a low quality. What that meant was that people often wouldn't even go to the system. If there's a perception that the stuff in it is poor and people don't go, then that's a risk. So the solution to that is that you have to have good processes in place to maintain quality." (P5)

An example of another process that can be used to maintain quality is "... some kind of a check when you are putting things into the system" otherwise known as expert reviews of information assets. Another participant recalls using such a mechanism but believes it is doomed to fail due to poor scalability.

"… the problem with that is that it doesn't scale volume-wise. The small number of experts is not going spend everyday of their life reviewing assets, so that alone isn't good enough." (P1)

Alternatively an employee's trust towards an information asset can be dependent upon the credibility of the author. However, for this to occur, small and tight knit communities are required, as only these permit close relationships to forge between the active members of the group. When thousands of users all around the globe are in one community, names no longer hold much significance. On the other hand, having small distributed communities can constitute a nightmare for users trying to search the system. As one participant reported:

"We had four different types of communities. Just imagine you were interested in project management and you needed to go to four different types of communities to find out what's going on … its just unmanageable. This was too complicated for the users and did not work." (P2)

This is where a flat structure that integrates all communities and knowledge bases into one finds its justification. However, with this centralised model you lose the traditional implementation of relational trust.

Fortunately, one participant raised an alternative way to represent credibility in large communities. Instead of merely monitoring the number of hits to a knowledge source, a knowledge base should also keep track of the number of documents that any particular user has contributed to the system and reflect this on the profile of the authors. Taking this approach a step further can involve measuring not just the contribution of any documents but the number of quality documents that have been contributed. Particularly the ones that have been voted by surveys, as one of the more useful articles.

Poor Knowledge Taxonomy and Classification

A knowledge taxonomy is critical to allow information to be located accurately through search engines. If knowledge can not be tracked effectively, there would be no point in storing knowledge.

"KM is unstructured data in an organisation, and without proper classification and indexing schemes, you're going to have information out there that you can't find … these taxonomies help people find what they want. Because if you leave information unstructured, out there in your KM system, hoping they are going to find it, I think that is a risk" (P5)

A taxonomy needs to set out categories of information that would assist users to narrow down the section of the knowledge base to search. Additionally there needs to be a thesaurus containing synonyms of search teams in order to allow information to be retrieved using words similar to the key words associated with the document targeted.

According to one participant, lack of well considered and designed classification schemes in organisations is a huge issue. Undeveloped taxonomies, thesauruses, and meta-information will make information classification later on to be difficult and inaccurate. Trying to rectify the issue by fixing the taxonomy at a later date incurs a large overhead of reclassification, and is undesirable.

"Taxonomies, aren't developed in the first place, its really hard to retrofit. Once you roll out the implementation, to go back and reclassify is a real problem." (P4)

Poor Search Results

Poor search results is an issue because it affects user credibility in KM. Poor search results is a responsibility of the both the practitioners configuring the systems and the users who perform the searches. To improve search relevancy, systems may be tuned to provide the top three or five best searches from selected repositories in the organisation.

UPDATED RISK AND ISSUES RELATIONSHIP MODEL

Figure 3 depicts the updated issues relationship model that incorporates the findings from this research concerning risk and issues in KM. This model is significant for KM practice as it will increase the awareness of practitioners of not only what type of issues exist but how they interrelate. This will then allow them to be properly addressed. To assist in understanding the model, discussion will follow the flow of the diagram and move amongst the connected issues, avoiding leaps to different sections of the diagram where possible. Issues on the diagram will be enclosed in quotes when they are included in the discussion. To preserve fluency, the names of the issues as they appear on the diagram may be changed slightly.

Figure 3: Updated Relationship Model incorporating research findings

First of all, the issue 'poor knowledge quality' has been renamed to poor content as 'content' was identified in the findings as a key component or area of responsibility for successful KM. The findings revealed a new issue that influenced knowledge content and that was the 'absence of tuning'. To elaborate, this refers to customisation of content and tools to better suit the unique requirements and needs of the users. The lack of tuning arises when there is failure to collect feedback or listen to the complaints or requests from users. Organisations with portal software who do not leverage usage statistics for feedback purposes have failed in the feedback process.

The 'absence of tuning' also encapsulates the failure of organisations to customise their implementation of KM to be sensitive to the learning difficulties of the organisation. When implementations occur without this due consideration, users can be expected to be 'overwhelmed' by too much new technology to learn, resulting in them failing to cope and being left behind. This type of ignorance is serious because it fails to address the inherent and default issue in end users of a 'failure to conceptualise the benefits' of new technology remote to their experience. Left unaddressed, 'scepticism' becomes widespread and that impacts the users 'confidence and usage of the system'.

Failing to be sensitive to the learning needs of the organisation can also be considered an instance of 'poor change management' which lies above the 'users overwhelmed' issue. However, additional to this it also covers the failure of IS to communicate the benefits of the tools beyond their obvious novelty. It is critical that the KM initiative is sold with a clarification of the benefits of the new way of doing work with the tools, rather than the tools themselves. The tools should only be a means, not the end itself. Not doing so will lead to a 'failure of users to understand the real benefits of KM'.

The findings have identified that it is dangerous to leave 'IS with the complete management of KM', as KM is more than just a technology rollout. Indeed, it's the 'biased perception' that often leads to this type of delegation. Naturally, doing so will cause the implementation to be 'tools focused' in line with the core competencies of the IS department.

Having a one sided 'tools orientated approach' combined with a failure to 'consult the business on a regular basis' will lead to the risk of 'lack of business alignment'. KM has no meaning if it does not meet business requirements. An excessive 'tools focus' implies a complete ignorance of the need to address culture and create one that is conducive to the two critical knowledge processes of 'sharing and contribution'.

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In addition to the 'lack of incentives' factor derived from the literature, the findings uncovered that the 'lack of leadership' to champion a revolutionary change to traditional work practices and people's attitude towards sharing their knowledge, means that effective Km acceptance and usage will not happen. The failure of the organisation to understand the importance of these two drivers, that of leadership and incentives schemes, derive from a 'lack of methodology' that would otherwise have alerted them of this.

Findings have also uncovered that the 'lack of common toolsets' in the different departments can create knowledge silos that don't communicate or share because they are incompatible. This will therefore impede 'organisational wide sharing'. As most work conducted in organisations are project centred, is not known whether the existence of KM collaboration tools that allow the creation of closed communities can create an epidemic of this type of community in the organisation, creating segmented silos that do not communicate as sharing is only done on a need to know basis. This is not exactly, 'organisational sharing' in practice. Closed communities therefore a potentially a threat to sharing but this area needs further investigation.

Finally, the failure of the organisation to 'measure knowledge activities' and make them an assessable and integral component of work will reduce sharing as users would question the point of wasting time on work that is not evaluated.

'Monitoring knowledge activities' has been identified to potentially discourage 'user buy-in' due to users experiencing a fear of big brother monitoring the things they are accessing and viewing.

The issue of 'IP loss' can be compounded by weak security which may be intentionally brought about by a desperate attempt by the business to 'remove barriers and promote sharing'. Additionally, the lack of keeping 'audit trails' or records of access and edits will leave no deterrent to discourage sabotage and theft.

Pilots are very useful because they help identify potential issues in implementation and particularly integration prior to the official rollout. Failure to do so would obviously lead to costly and problematic 'integration issues'. 'Poor scoping' has a similar effect because dealing with integration issues require knowing in advance what disparate systems need to communicate and proper preparation put into programming efficient and responsive interfaces for real time report generation.

A 'poorly designed taxonomy' will make informational retrieval and search difficult and when 'user cannot find what they need', trust in the system would automatically decline. User frustration towards the system is not uncommon when they try to perform a search for an item they know exists but the search yields no results.

'Mass of poor information' has three factors. 'Poor maintenance' manifesting in a failure to 'archive out historical or out of date information' adds unnecessary clutter. Research findings also point to a common problem of 'information redundancy' when the knowledge base is not properly maintained. Finally, a contributing factor to 'authorless items' lies with a 'flawed perception of knowledge' and failure to acknowledge the critical tacit portion that cannot be captured and resides with the author only.

CONCLUSION

The development of the revised taxonomy of KM issues contributes to both theory development and practice. It proposes a model showing the interactions amongst the issues for KM development, implementation and use. This research also has implications for practice as it has presented the risks and issues that organisations face when using KM and thus will aid the organisational planning when introducing and managing KM.

Although this research has limitations such as small sample size, the research results and taxonomy relationship model should help guide future researchers to elaborate on each of these identified issues and seek to extend and validate this model. This research should pave the way for greater KM success in the future.

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