

2007

# Implementing Knowledge Management Systems in Public Sector Organisations: A Case Study of Critical Success Factors

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## Recommended Citation

Butler, Tom and Murphy, Ciaran, "Implementing Knowledge Management Systems in Public Sector Organisations: A Case Study of Critical Success Factors" (2007). *ECIS 2007 Proceedings*. 112.

<http://aisel.aisnet.org/ecis2007/112>

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# IMPLEMENTING KNOWLEDGE MANAGEMENT SYSTEMS IN PUBLIC SECTOR ORGANISATIONS: A CASE STUDY OF CRITICAL SUCCESS FACTORS

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## Abstract

*In 2006, the Government Department participating in this study deployed its Knowledge Management System (KMS): this case study describes the lessons learned by this public sector organisation in its journey towards becoming a knowledge organisation. Extant research on the implementation of KMS in organisations operating in the private sector posits a range of factors that are correlated with successful KMS implementation. This paper first outlines these factors and then employs them as an integrative analytic framework to evaluate the critical success factors (CSFs) for KMS implementation in this government organisation. The study supports the empirical fidelity of the factors presented in the framework. Yet despite the successful attainment of departmental specific CSFs, regulative influences from the institutional environment, which lay outside the locus of control of the department, led to sub-optimal outcomes in the use of the KMS in the short-term. Hence, government organisations need to understand and take into account such influences if they are to successfully implement KMS.*

*Keywords: Knowledge Management, Knowledge Management Systems, Government Organisations, Public Sector, Institutional Theory.*

## 1 INTRODUCTION

The European Institute of Public Administration (EIPC, 2003, p. 22) recognises explicitly that “public administrations are knowledge intensive organisations...whose officials are “knowledge workers par excellence”...Therefore, the prospects for knowledge management in eGovernment are remarkable”. The EPIC report stresses (ibid. p. 23) that the use of knowledge portals and IT-supported networks are required to ensure that “Knowledge derived from previous action or gained through policy evaluation will be fed back into policy making in an effort to improve and better target policies...[as] human knowledge and action...remains at the heart of good governance.” In a broader international context, the United Nations’ Department of Economic and Social Affairs (2003) Ad Hoc Expert Group Meeting on Knowledge Systems for Development placed special emphasis on the need for knowledge management (KM) in government and non-government organisations. Indeed, knowledge sharing strategies were already in place in several UN organisations. More importantly, the OECD (2003) Knowledge Management Survey of 20 countries and 132 departments/ministries/agencies is revealing in terms of international practice on KM in public sector organisations. The report indicates that with few exceptions public sector organisations lag far behind their private sector counterparts in implementing KM. The government department described in the present study is unique in many respects. At a time when the OECD ranked its country’s public sector organisations in the bottom quartile of the 20 countries studied in terms of the efforts made at improving KM, and in the perception and quality of KM practices and organisational and cultural change, it instigated an informed strategy for the implementation of its KMS. The lessons learned by this government organisation will, it is hoped, inform both research and practice in the area. The objective of the present study is, therefore, to build on extant research to present a comprehensive set of critical success factors (CSFs) for the implementation of KMS in public sector organisations.

The remainder of this paper is structured as follows: the following section presents a CSFs framework for KMS based on extant literature—however, in recognition of the institutional influences on government organisations, it also draws on institutional theory to indicate important factors from this dimension. The third section presents this study’s research method, while the fourth presents the findings of the case study using the CSFs framework to structure the case report. The final section then offers several conclusions.

## 2 CRITICAL SUCCESS FACTORS FOR KMS IMPLEMENTATION

Following John Rockart (1979, p. 217) the critical success factors (CSFs) for the implementation of a KMS may be defined as: “*The limited number of areas in which results, if they are satisfactory, will ensure [its] successful [implementation]*”. There exist a limited number of studies on the success factors for knowledge management (KM): Skyrme and Amidon (1997), for example indicate such factors include (1) the need to have a strategic link between KM and business objectives; (2) developing a compelling vision for KM; (3) the existence of KM leadership; (4) possessing a knowledge creating and sharing culture; (5) having a well-developed technology infrastructure; and (6) putting systematic organisational knowledge processes in place. Other factors reported in the literature include (7) the need for measurement of KM activities and outcomes; (8) adequate control and coordination of KM activities; (9) provision of enabling resources and training; (10) possessing a KM ontology and repository; (11) introducing new structures, roles and responsibilities; and (11) providing motivational incentives (Davenport et al. 1998, Holsapple and Joshi 2000, Hasanali 2002). These studies constitute a small, but important, proportion of published work on KM; accordingly, this study interprets and integrates the findings of additional research in the management and IS fields, (many of which are not CSFs studies per se), to generate a set of generic CSFs for KMS implementation grouped around high-level constructs of strategy, organisational, and institutional dimensions—Table 1 presents these CSFs.

| KMS Factor Groupings                                                                                                                                                                                                                                                  | KMS Critical Success Factor                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Strategy-based CSFs<br>(Skyrme & Amidon 1997, Zack, 1999, Damodaran & Olphert 2000, Hackett 2000, McDermott & O'Dell 2001, Holsapple and Joshi 2000, Gold & Malhotra & Segars, 2001, Bhatt 2001, Hasanali 2002, Chua 2004, Chua and Lam 2005, Jennex and Olfman 2006) | Align KM Strategy with Corporate Strategy                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                       | Possess a comprehensive definition of and communicating KM Objectives                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                       | Ensure Top Management Commitment                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                       | Develop New Roles and Responsibilities around KM                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                       | Design the KMS so that (a) it is easy to use; (b) it is based on Web Technologies (c) it presents accurate and appropriate results; and (d) security concerns are balanced with the need for openness                                                                                                                                            |
|                                                                                                                                                                                                                                                                       | Ensure the planning and implementation addresses the following issues: (a) Ensure a cross-functional approach with IS Function Participation; (b) implement a prototyping approach to development; (c) adopt a pilot strategy for KMS implementation; and (d) possess a high degree of user participation and involvement throughout the project |
| Organisational CSFs<br>(Gold et. al. 2001, Bhatt 2001, Hackett 2000, Sambamurthy & Subramani 2005, McDermott & O' Dell 2001, Chua 2004, Chua and Lam 2005, Jennex and Olfman 2006)                                                                                    | Focus on People Factors                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                       | Develop a team-oriented culture                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                       | Engender trust among knowledge workers                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                       | Ensure comprehensive user training                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                                                       | Introduce monetary and/or non-monetary incentives and rewards                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                       | Change organisational structures and processes                                                                                                                                                                                                                                                                                                   |
| Institutional CSFs<br>(Robertson & Scarbrough & Swan 2003)                                                                                                                                                                                                            | Address the regulatory, cognitive and mimetic influences from the wider institutional environment                                                                                                                                                                                                                                                |

Table 1 Critical Success Factors Framework for KM in Public Sector Organisations

## 2.1 Strategy-based CSFs for KM

While knowledge is recognized as a critical resource for sustained competitive advantage, successful knowledge management remains a key challenge to organisations as it requires the application of significant organisational resources, techniques and tools, which requires solid planning from the beginning (Davenport & Prusak 1998, Hackett 2000). KM strategy addresses areas such as project estimation, planning, co-ordination, control, individuals required to participate in the project, scope of KM project, and the identification of new structures, roles, and responsibilities (Davenport & Prusak 1998, Hackett 2000, Hasanali 2002). It advocates the establishment of senior management support and commitment (McDermott & O'Dell 2001, Hasanali 2002). Zack (1999) states that KM strategy must be closely aligned to business strategy. Research also indicates that the implementation of KMS is not a technical process (Hackett 2000, McDermott & O'Dell 2001); Sambamurthy and Subramanil, (2005) point out that technical and social processes interact in to influence the success of knowledge management initiatives.

Information Technology (IT) is a key enabler of KMS; hence, an organisation's IS function plays a key supporting role in KMS design, development and implementation (Davenport and Prusak 1998, Gold & Malhotra & Segars 2001). While IT facilitates rapid collection, storage, and exchange of knowledge on a scale not possible in the past, the technologies used must be part of a secure, well-developed, integrated IT infrastructure (Gold et al. 2001, Chua 2004, Jennex and Olfman 2006). The development of a KMS should be business-oriented, user-driven, and be based on the business

objectives of an organisation (Damodaran & Olphert 2000, Bhatt 2001, Chua 2004) The design of the KMS is also important, as its interface has to be easy to use and navigate, with web interfaces being the optimal user interface, and it must present accurate and appropriate results (McDermott & O'Dell 2001, Bhatt 2001, Chua and Lam 2005). Prototyping the design and development of a KMS, with a high degree of user participation, is argued to reduce implementation costs, identify potential barriers, reduce maintenance, and redefine user requirements (Storey & Barnett 2000, Bhatt 2001). In addition, research indicates that a KMS must attract and maintain a user's attention, while system speed and response times are crucial to KMS success (Damodaran & Olphert 2000, Hasanali 2002, Chua 2004, Chua and Lam 2005). Finally, a KMS must be integrated into the daily routines of knowledge workers, as if it is difficult to use and it diverts users away from performing their day-to-day duties, the advantages of using the KMS will not be appreciated (Damodaran & Olphert 2000).

## 2.2 Organisational CSFs

Bhatt (2001) argues that changing people's behaviour is one of the most critical factors in KMS implementation. Hence, addressing people factors and cultural issues are argued to be key in promoting knowledge sharing (Hackett 2000). Motivating employees to share their knowledge is regarded as critical for successful KM (Davenport & Prusak 1998, McDermott & O' Dell 200, Jennex & Olfman 2006). It is clear that knowledge workers' motivation and commitment often determine the success or failure of KMS, as employees play a critical role in knowledge sharing. Hence, organisations employ a range of tangible incentives to increase employee commitment to knowledge sharing, these may range from non-monetary incentives to monetary rewards—the effect of either approach, whether alone or in tandem, on knowledge sharing is, however, uncertain (Hackett 2000, Sambamurthy & Subramani 2005). Nevertheless, no matter how strong the commitment of knowledge workers, research also indicates that KMS implementations fail if no training is provided for users (Damodaran & Olphert 2000, Storey & Barnett 2000, Jennex & Olfman 2006). Even if KMS training is provided, Hasanali (2002) suggests that organisations should spend additional effort and resources after the KMS has been fully implemented in teaching, guiding, and coaching users on how to use it.

Although organisational structures help make organisations more efficient, they have also have the unintended consequence of inhibiting knowledge sharing across intra-organisational boundaries (O'Dell & Grayson 1998). For example, rigid structures are argued to encourage behaviours in which organisational units are rewarded for hoarding information (McDermott & O' Dell 2001): this brings into focus the issues of trust and reciprocity (Sambamurthy & Subramani 2005). Gold et al. (2001) therefore argue that a team-based, non-hierarchical, self-organizing organisational structure is the most effective for knowledge sharing. Finally, several studies have highlighted the need to establish new roles and responsibilities to manage knowledge sharing (Hackett 2000).

## 2.3 Institutional CSFs for KMS

The institutional environment consists of organisations that exert social, regulative and legislative influences: institutional entities include government departments, agencies, the judiciary, as well as related organisations, such as suppliers, consulting organizations, distributors, and competitors (DiMaggio & Powell 1991). The most obvious exogenous influence that the institutional environment brings to bear are those exerted by legislative or regulatory agencies that shape the structure, process, and products or services of an organisation (Scott 1995). Organisations also mimic other organisations in bringing change to their structures, processes, and products/services. However, change from the institutional environment also occurs through the interactions of organisational members—managers, professionals, occupational groupings, and so on—who share a 'community of practice' (DiMaggio & Powell 1991, Robertson & Scarbrough & Swan 2003). Research by Damsgaard and Scheepers (1999) employed institutional theory to help examine regulative and social influences that shape Intranet implementation. Thus, it is reasonable to assume in the case of government organisations operating in

the public sector, that factors from the legislature, the judiciary, and wider institutional influences from the European Union, and so on, will have a direct or moderating influence on the implementation of KMS: there is, however, a dearth of research on institutional CSFs for the implementation of KMS.

### **3 RESEARCH METHOD**

In action research projects, researchers collaborate with practitioners to solve practical problems while expanding scientific knowledge (Baskerville & Myers 2004). In 2004, the authors began their two and one half year collaboration with the government department to design and help implement a KMS. The KMS was developed from the ground up using web technologies. A working prototype of the KMS was successfully deployed in the pilot site in July 2004 and a full-featured version was released in September 2004. The integration of this system into departmental enterprise systems continued until May 2005, while the KMS underwent further refinement to November 2005, when its pilot implementation in 4 divisions commenced, this continued until June 2006, when the KMS was fully deployed: however, divisional uptake was planned around the related training schedule. The participants in the action research R&D project included 6 academic researchers, 5 research assistants from the University, and 3 experienced software developers (contracted in by the lead researcher to code the system). A team of 5 knowledge workers from the Government Department formed the initial pilot project team, with others participating in later implementations. Also participating were 12 business and IT managers from the department's HQ, and a third-party business consultant from Cap Gemini. Thus the researchers were able to investigate the phenomenon of interest in considerable depth over a long time horizon. Extensive field notes were taken and a sizable database of project-related documents was amassed. Once implemented, the authors conducted a post-implementation study of 18 participants that included formal post-implementation interviews. The framework presented in Table 1 acted as an interpretive lens in the data gathering (particularly the final round of interviews) and analysis phases; it also provides structure to the following case report.

### **4 KM IN DCMNR: A CASE STUDY AND LESSONS LEARNED**

In its Annual Report of 2004, The Department stated that it had “embarked on transforming itself into a knowledge organisation.” This move was seen as being central to its strategic change and modernisation programme, which positioned it as a leader in the application of knowledge management in the public sector. This journey to being a knowledge organisation was not without challenges, as there were over 700 staff employed in the department: these were located primarily in its HQ, but also in several regional centres. The process of the decentralisation of government departments and agencies to the provinces, which commenced in 2004, will see the department effectively split over three administrative centres by 2007.

#### **4.1 Institutional Influences of KMS Implementation in the Public Sector**

In 2003, the government department participating in this study were far behind their opposite numbers in Sweden, Finland, Canada, France and Iceland in terms of KM—this also applies to all the country's other government departments and agencies. It is significant that KM was not even on the government's radar in 2003. It is therefore to the credit of the administrative leadership of this department that in 2004 it instituted a KM strategy as part of its Change and Modernisation Programme. Of particular influence in policy formation were the normative and mimetic institutional influences on the department from (a) its collaborations with Cap Gemini, (b) IBM's experiences with KM, (c) the experience of the United Nations KM initiatives, and (d) its collaboration with the researchers in building a KM technology for use in public sector organisations.

A government report published in 2003 mentioned that individuals working within departments and agencies should become empowered “knowledge workers”; however, little consideration was given to

what this meant. The government's poor understanding of the importance and role of "knowledge workers" in building corporate memory in order to transform its departments and agencies into knowledge organisations is reflected in its stated intention to decentralise its constituent organisations to the provinces (a regulative institutional factor or influence). The following sections bear witness to the impact of this ill-advised strategy, which ignored the need to first require government departments to build 'corporate memories'. As indicated, the government department described herein was the first to address comprehensively the need to map and improve its business processes in the context of transforming the department to a knowledge organisation. The implementation of the decentralisation policy, however, had a "tsunami-like effect" on its KM strategy in that key knowledge workers were effectively swept out of the department, resulting in a loss of subject matter experts at a time when it was endeavouring to construct a corporate memory. The negative effect that decentralisation had on the department's human knowledge assets was, however, anticipated, as in mid-2004, its KM mobilisation schedule was accelerated. Another negative impact from the wider institutional environment was the redeployment of one of the department's divisions to another department: significantly, this also saw, in addition to the transfer of divisional staff, the redeployment of over 30 support staff from the already stretched Corporate Divisions. These then were the major influences from the department's institutional context on KM strategy formation and implementation.

## 4.2 KM Strategic Factors

The following sections elaborate and critically analyse the formulation and execution of the department's KM strategy.

### 4.2.1 *Alignment of KM Strategy with Corporate Strategy*

High-level reporting and planning documents are indicative of a good fit and alignment between the Department's organisational strategy and its KMS implementation strategy: high level documents such as the department's Statement of Strategy and Annual Report outline the goals and objectives of the various Sectoral Goals and Policies, with KM being presented as the Corporate Sector's first strategic objective. It is significant, however, that knowledge management/sharing is not listed among the strategic objectives or actions for non-corporate sectors/divisions. This is unfortunate, as it ran the risk of poor levels of buy-in and support among senior managers, which was the case initially. This was a period of drift in the implementation of the department's KM strategy, the origins of which can be associated with the effects wrought by the government's decentralisation policy on staff turnover and the resultant effect the numbers of staff in key areas: thus one senior manager stated that his colleagues "voiced reservations as to whether it [the KM project] was practical given the ongoing restructuring and decentralisation." Thus, despite the comprehensive mobilisation of divisions, there was a general perception among certain departmental staff that KM was not an important departmental strategy: furthermore, at the time staff felt that the KMS implementation strategy was not considered to be adequately supported by management of change initiatives.

### 4.2.2 *Definition and Communication of KM Objectives*

While a clear and unambiguous definition of knowledge was provided to the 700 staff in all 32 divisions, and they generally understood what 'knowledge' is and how it could be shared, it is obvious from comments to the researchers that the department's knowledge sharing objectives were not clearly understood by all members of staff. Nevertheless, frontline staff spoke enthusiastically about KM and knowledge sharing. However, this has to be balanced with the fact that staff were fearful that the KM initiative was a tool with which to drive decentralisation. Take for example, this comment from a KM Project Team member: "Without question, decentralisation was the most negative influence on the Mobilisation Phase. When some people heard that we are trying to make information more readily available so that if someone new would be able to take over their job, they would have something to

work with, some individuals immediately said to us that the department is undertaking this project to replace people who refuse to move under decentralisation. No matter what you say to some people, you can't change their mind." The staff mobilisation process (from mid-2004 to mid-2005) was the primary means by which divisions were introduced to knowledge sharing: however, staff reported that the long delay between the initial mobilisation and the subsequent implementation of the KMS (November 2005-June 2006) had a slight negative effect on user uptake and use of the system.

#### *4.2.3 Top Management Commitment*

There was a high degree of top management commitment from the department's General Secretary and from the Deputy and Assistant Secretaries on the Management Committee. Take, for example, this comment by a KM Project Team member: "The project was championed by the Secretary General...[also t]he support from management within the Strategic Change and Modernisation Division (SCMD) was very good. The first Assistant Secretary that we had was committed to the project. In 2006 we got a new Assistant Secretary who...told us that he was committed to the project and keen to drive it forward in the Department." It was clear, however, that the senior management team were unhappy with the increasingly negative effect that decentralisation was having, as the mobilisation and deployment phases progressed. Such matters, it must be noted, were beyond their control, as they emanated from the wider institutional context of the implementation of government policy. One senior manager was of the opinion that all the Secretaries General needed to buy into KM and have the government do likewise: "The Knowledge Society stuff is meaningless...what you have is stuttering strategic management...what is required is a sustained collegiate approach." It was evident that not all members of the department's management team did not offer unequivocal support to KM as these comments from two members of the mobilisation team illustrate: "...any enthusiasm at ground level has been generated by the KM team during the mobilisation phase or by certain Division heads who have seen the benefit of KM and have pushed it hard in their Divisions." The reasons for the absence of support in some quarters lay in a certain disillusionment with the thinning of staff resources caused by decentralisation and the concomitant effect on the time available for staff to participate in the KM initiative while also meeting day-to-day obligations and objectives.

#### *4.2.4 Planned Development of New Roles and Responsibilities*

Apart from the KM Project Team, no permanent KM-specific roles and responsibilities were created at any level within the organisation. The experience in other organisations is that this is usually interpreted by organisational members as business as usual and that knowledge management and knowledge sharing is not being taken seriously. With the current levels of flux within and across divisions, coupled with a change of government in 2007, and the ongoing march of decentralisation, it is unlikely that knowledge officers will be appointed to help embed knowledge sharing within the business. There is, however, a commitment to have knowledge management and sharing written into role profiles of all departmental staff and incorporated into the strategic objectives of divisions and sectors. This will require the contributions of individual staff to be monitored and receive tangible recognition.

#### *4.2.5 KMS Design*

The KMS design was underpinned by an innate knowledge taxonomy based on Knowledge Assets/Topics/Q&A dialogues and Rich Knowledge Link concepts that was targeted on the department's key business processes. Using this conceptual schema, the KMS was designed to be a highly accessible and well-integrated web-based Intranet technology that would facilitate knowledge sharing on tasks/processes and/or generic/infrastructures among general and/or specific communities of practice (cf. Jennex and Olfman, 2006). These considerations rendered the application easy to use, as was reported by the KM Project team, and unanimously indicated by the staff interviewed.



One of the core elements of the department's KM strategy is that subject matter experts are allocated responsibility for building organisational knowledge assets; in addition, the KMS has a built-in work flow that does not permit the publication of assets until they have been either peer reviewed or vetted—hence, the KMS presents accurate results. The department's divisions undoubtedly deal with matters of great sensitivity; hence, there is a need for security on many issues. Senior management consider complete openness, in terms of the availability of knowledge to all staff, to be highly desirable; however, as the pilot implementations highlighted, the security vs. openness circle has to be squared on a contingency basis. As the KMS has been designed to be both secure and open, depending on the needs of divisions, the department's management are adopting a trial and error approach to achieve the proper balance between both criteria, as was the experience of its Finance Division.

#### *4.2.6 KMS Planning and Implementation*

While not exactly a textbook implementation, the department's overall approach is quite similar to those reported in the literature: for example, overall responsibility for KM rested with the Secretary General and a Deputy Secretary General, and initial responsibility for the initiative was given to the Human Resource Division, which established Change Management and Modernisation Unit. As the scope of the project expanded in 2004, the Change Management and Modernisation Unit became the Strategic Change and Modernisation Division: accordingly, its Head of Function (HOF) was charged with setting up a KM Unit and with the execution of strategy. Because of the need to enable and support the initiative through the application and use of information technologies, the HOF of the Information Systems Division participated in strategy execution in several key areas. The introduction of KM was to take place within the context of wider organisational change and was to be congruent with it. By early 2006, however, the negative effects of decentralisation on staff turnover, advances made in the mobilisation and deployment of the KMS, coupled with changes in senior management, saw the Strategic Change and Modernisation Division dissolved, the KM Unit reduced in number, and its redeployment within the IS Division.

At project level, the approach adopted by the department had a potential weakness in that KM Project Team consisted of two civil servants from the business side and five non-organisational business analysts, one of whom was a consultant. Certainly, the management committee and the KM Project Steering Group were cross functional in their constitution; however, in an ideal scenario those at the coal face, that is project team members, should have been drawn exclusively from participating business divisions. More than one of the departmental staff interviewed commented on the lack of credibility that KM Project Team had as a result of its structure; also noted was the less than positive attitude towards the IS Division's role in the implementation phase. It must be noted, however, that the mobilisation workshops provided a forum for divisional staff to become involved in the project.

The implementation approach adopted by the department was well planned and executed in three overlapping phases: the mobilisation, technology development and implementation phases. However, early in 2004, the intended schedule had to be changed and its progress accelerated due to effect of the government's decentralisation policy. Organisations that successfully introduce KM adopt a pilot strategy: the department implemented two pilot projects. Both pilots had their respective merits and similarities; for example, both focused on key business processes, albeit from different perspectives. Significantly, the first pilot surfaced many of the general issues that could inhibit, or provide obstacles to, knowledge sharing: one senior manager, for example, commented, that "the mobilisation process threw up unexpected complications in that the state of record keeping across divisions was extremely ad-ho and highly fragmented." The pilot at the Engineering Division also surfaced issues that would plague the deployment of the application in other divisions, namely the absence of sufficient slack resources and time to build knowledge assets. Such was the task in 'mobilising' the divisions for KM and in finalising the construction application for deployment, that it was not until November 2005 that the KMS received its pilot deployment in 2 divisions. By June 2006, the KMS was implemented in a further two divisions and was deployed across the remaining divisions, subject to training.

### 4.3 Organisational Factors

This section focuses on organisational factors that contributed to project outcomes and problems experienced with the management of change around the KMS. It is clear, however, that the immediate organisational environment was influenced heavily by the wider institutional environment or context.

#### 4.3.1 *People Factors*

Management of change is widely regarded as the key influence on peoples' attitudes and behaviours in IT-based projects. Despite staff fears about the use of the KM initiative to drive decentralisation, staff attitudes in regard to the KM mobilisation and pilot implementations were, on balance, positive as KM Project Team members opined viz. "Staff in the various divisions are generally receptive to the management of change strategy surrounding the implementation of the KMS" and "User resistance to change is not high." These observations are indicative only, time will tell if the all users will adopt and use the KMS to achieve the organisational objective of knowledge sharing. Indeed, one senior manager stated that other government departments should "not underestimate the challenges in changing peoples' behaviour." These challenges would seem to be top down in origin as another senior manager stated: "...there was general agreement that it [KM] was worthwhile and necessary: however, there were some sceptics who felt that the current culture and pressure to do day-to-day tasks meant that it wasn't going to be a reality...They didn't want to get involved with digging the garden, they wanted things to happen automatically."

Reports from the KM Project Team indicated that staff on the ground generally displayed quite positive attitudes to the whole concept: indeed, initial resistance to its use tended to be overcome through exposure to the practical benefits of using the system: for example, echoing a comment made earlier, another member of the KM Project Team commented that it was clear "if people had been exposed to the mobilisation process in a previous division [and were subsequently transferred], then those people were champions for the process in their new division." It is evident from the cross-section of civil servants interviewed in this study, and who are using the KMS application, that personal attitudes and behaviours are extremely positive towards both it and its underlying concept and rationale.

The KM Project Team were concerned that staff in certain areas did not have appropriate levels of business and IT competencies to use the KMS for knowledge sharing. Another troubling observation is that due to the high levels of staff turnover between divisions and functional areas, subject matter experts in key areas are thin on the ground in certain divisions. This could contribute to the perception of low-levels of business competencies, despite what could be highly motivated, otherwise competent civil servants. More than one civil servant interviewed voiced a concern that the day-to-day routines of government workers and the business processes they participate in have, over time, become quite complex. They agreed that the government practice of rotating workers across and between departments, in order to have civil servants multi-skilled, can lead to sub-optimal performance, not only at the level of the individual and should be called into question. Highly committed staff in the department are currently struggling with to meet the high standards demanded of good government because of such issues. In one division studied, staff had completed a knowledge asset on of several key processes shortly before the subject matter expert was transferred: two months later, the only other person with a working knowledge of key processes was due to transfer out of the division, leaving newly transferred staff with a steep learning curve to negotiate.

#### 4.3.2 *Team Orientation*

Business processes and organisational routines are usually administered by more than one individual; hence, the department needed to acknowledge, and give institutional recognition to, and incorporate knowledge sharing roles for, formal and informal team working around the use of the KMS. It is

therefore positive that knowledge workers in the mobilised divisions were clearly team players and that knowledge sharing behaviours were evident among KMS users. It is significant, however, that knowledge sharing was not already occurring in divisions on an informal basis. The reasons for this are complex and indicates that the implementation of the KMS required the levels of management of change applied to highlight the importance of knowledge sharing, as KM Project Team Members agreed that when properly promoted, users enthusiastically collaborated in sharing knowledge using the KMS.

#### 4.3.3 *Trust*

Senior management and line staff in the department in one way or another underlined trust as being pivotal to knowledge sharing; however, it is clear that within the present institutional context, significant obstacles exist in engendering trust among participating knowledge workers, no matter how sophisticated the KMS implementation strategy is. It is not unusual for users to accept an information system in terms of its usability and functional utility, but reject it because wider fears/issues surrounding its operation and use have not being resolved—in many cases this boils to the basic issue of trust. It was recognised that this was a difficult circle to square with the ongoing decentralisation process. Nevertheless, trust was not an issue with the sample of users participating in this case study: they were of the opinion that such a system would be of significant direct benefit to both them and their colleagues.

#### 4.3.4 *User Training*

The department allocated significant resources to user training and the users interviewed were satisfied with the level of support provided by the KM Project Team. Evidence of this is to be found in several small wins recorded in both the mobilisation and implementation phases as: “Staff fully understand the knowledge sharing concept underpinning the KMS” (KM Project Team member). It was recognised there is one issue that all the training in the world will not address: drafting a knowledge asset is not merely a technical activity, it is also a highly personal and creative process—this came across clearly from the interviewees. Indeed, the KM Project Team’s internal report makes mention of the difficulties, otherwise enthusiastic and committed users had viz. “Participants found it difficult to conceptualise their knowledge into a knowledge asset ...They mentioned that immediately after training they thought they knew how to create an asset (conceptually) but when they actually went about it they found it difficult”. These difficulties are compounded by the time factor: that is, staff spend all their time on important, yet routine, day-to-day activities that they must complete to meet the department’s public service obligations. Whether it was a shortage of staff in particular areas or whether staff had just been transferred in and were attempting to negotiate a steep learning curve, there was a real dearth of slack resources, of time, to build knowledge assets. This comment by one staff member is revealing: “I tried a number of approaches...starting early in the morning, when things tend to be quieter, none of them worked...there were just too many interruptions.” Staff who are currently using the KMS for knowledge sharing suggested a range of approaches: from allocating a number of days for individual staff to concentrate exclusively on building knowledge assets, to “working with other people in a focus group”, to, as one frustrated user commented, “take the work home and do it there.”

#### 4.3.5 *Incentives and Rewards*

As with many organisations that have implemented KMS, feedback from the mobilisation exercise indicates that a combination of performance-based monetary incentives and non-monetary incentives and rewards may be required to have all users sign up to knowledge sharing using the KMS. There appear to be two schools of thought in the department concerning the need to provide incentives and rewards. The first takes the position that knowledge sharing should be part of an individual’s day-to-

day activities and should be incorporated in their role profiles. The senior manager with responsibility for the KM initiative advocated the second position, which involved the use of monetary incentives to encourage staff to build knowledge assets as “leaving it to people themselves to participate and to create assets wasn’t working.”

#### 4.3.6 *Changes to Organisational Structure and Processes*

Contrary to popular perceptions, civil servants are no strangers to change: indeed, agreements made at national level in the government’s Sustaining Progress Programme, are based on the premise that change and modernisation in the public sector is vital for the efficient and effective delivery of public services. However, the type of change that takes place in this and other government departments is not what would be considered good business practice in the private sector. First, the high levels of internal employee churn, both within and between departments, is not conducive to the incremental development of explicit or tacit knowledge and related competencies in delivering specific business processes. Structural change to divisions, sectors, and departments is ongoing and due to accelerate in 2007, with the formation of a new government and the continued rollout of decentralisation. It is clear that these influences from the external institutional environment have made KM-specific change to internal organisational structures and processes not only difficult, but have, in this department, resulted in the disappearance of the very business function whose purpose it was to manage such change—the Strategic Change and Modernisation Division.

## 5 CONCLUSIONS

Previous sections presented a framework of success factors and applied them to evaluate a Government Department’s KM strategy and the development and implementation of its KMS. These factors are grouped above under the headings of Institutional Factors, KM Strategic Factors, and Organisational Factors. It is clear that the department acquitted itself well in terms of the successful achievement of those factors that it had under its direct influence and control. Major problems arose, however, as the attainment of success in the KMS implementation was moderated negatively by influences from the wider institutional environment. The most influential and visible of these issues was the government’s policy on decentralisation, which had a major negative influence on several key factors or key areas of activity where the department had to achieve optimal performance in order to achieve the successful implementation of its KMS. Thus, one set of factors dominated, in terms of their influence on the success of KMS implementation, in this particular organisation, at this particular time. Further research is required on KMS deployments in other public service organisations to validate the factors identified and to investigate the relationships between them. Action research would be a useful vehicle to conduct such research, as it balances the dual requirements of rigor and relevance. Indeed, the present study illustrated to the participants, academic and public servants, the valuable contribution that action research can make in solving real-world problems.

In conclusion, the Government Department’s general approach to the introduction of its KMS is a model for others to follow, despite negative influences from the external institutional environment. It is difficult to ascertain, however, whether the KM project in this government department will be a success in the short term because of such factors. In the medium term, knowledge sharing should take hold if senior management and staff persist in their endeavours to bring the department into the 21st century by transforming it into a true knowledge organisation.

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