Knowledge Management in a Public Sector Project Environment. A Case Study: Roads and Traffic Planning Department, Dublin City Council

By

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Declaration

I declare that this dissertation, in whole or in part, has not been submitted to any University as an exercise for a Masters. I further declare that, except where reference is made in the text, the contents are entirely my own work.

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Abstract

The purpose of this dissertation is to provide a detailed review of knowledge management strategies and practices in public sector project environments, while specifically analysing the knowledge management strategy of Dublin City Council (DCC), namely the Roads and Traffic Department. The range of projects undertaken by DCC provide an ideal opportunity to examine what knowledge transfer (if any) exist and how it benefits the organisation.

The research conducted was in the form of a case study and results were obtained from semi-structured interviews which were carried out with employees within the Roads and Traffic Planning Department of Dublin City Council. It is evident from the findings that although no formal knowledge management strategy is present within the Department, a strong knowledge sharing culture exists among staff. A heavy reliance on a personalisation does have flaws, which the Department will continue to encounter unless changes to the knowledge management practices are made.

Based on a review of current literature and the analysis from the interviewees, it is recommended that Dublin City Council take a two stage approach to improving their knowledge management practices. In the short term, a central repository should be introduced to codify the knowledge and complement the existing practices within the Department. It is then suggested that a long term goal for Dublin City Council would be the initiation and participation in a Community of Practice venture among the various City and County Councils throughout Ireland. This would provide further benefit to the organisation as well as other City and County Councils.

This paper holds significance for DCC as it provides an insight into the barriers which could potentially be experienced should they seek to improve their knowledge management practices. Enablers, which would help overcome these barriers and achieve the two strategies (short-term & long-term) are also outlined in the paper. Finally a set of recommendations are provided in order to help Dublin City Council instil a knowledge management culture within the organisation and implement the two strategies which have been formulated in this paper.

Due to the time constrains of this project the case study was limited to one Department within Dublin City Council. While a more complete study would provide more accurate results, this study provides an insight into the knowledge management practices within a public sector environment, an area which holds significant potential for further research. Based on the results and analysis within, it is hoped that this research project will serve as a basis for further research in the area of knowledge management in a public sector project environment.

Key Words: Knowledge Management, Project Environment, Public Sector, Lessons Learned, Knowledge Transfer.
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EXECUTIVE SUMMARY

The purpose of this paper is to provide a detailed review of knowledge management strategies and practices in public sector project environments, while specifically analysing the knowledge management strategy of Dublin City Council, namely the Roads and Traffic Department. The research conducted was in the form of a case study and results were obtained from semi-structured interviews which were carried out with employees within the Roads and Traffic Planning Department of Dublin City Council. The employees interviewed ranged from program manager to executive engineer etc. to give a well-rounded, balanced view of the Roads and Traffic Department’s approach to knowledge management.

This paper reviews current literature and illustrates the importance of knowledge management in a project environment and more specifically in the public sector. In an organisational setting, benefits of knowledge management can occur at two levels; individual and organisational. At the individual level, knowledge management provides employees opportunities to enhance skills and experience “by working together and sharing other people’s knowledge and learning from each other, thereby improving personal performance and enhancing career development”. At the organisational level, knowledge management provides two major benefits for an organisation; improving the organisation’s performance through increased efficiency, productivity, quality, and innovation and increasing the financial value of the organisation by treating people’s knowledge as an asset similar to traditional assets like inventory and capital facilities.

While the benefits of knowledge management are presented, this paper also outlines the barriers and challenges preventing an organisation from implementing a successful knowledge management strategy. Knowledge, especially tacit knowledge, is complex, making it difficult to communicate with others as it is deeply rooted in an individual’s actions, as well as in the ideals, values or emotions they embrace. These factors are amplified when factors such as time limitations, resource constraints, great complexity, diversity and risk propensity are encountered, as in the case of project environments.

It is evident from the findings that although no formal knowledge management strategy is present within the Department, a strong informal knowledge sharing culture exists among staff. A heavy reliance on a personalisation does have flaws, which the Department will continue to encounter unless changes to the knowledge management practices are made. Based on a review of current literature and the qualitative analysis from the interviewees, it is recommended that Dublin City Council take a two stage approach to improving their knowledge management practices. In the short term, a central repository should be introduced to codify the knowledge and complement the existing practices within the Department. It is then suggested that a long term goal for Dublin City Council would be the initiation and participation in a Community of Practice venture among the various City and County Councils throughout Ireland. This would provide further benefit to the organisation as well as other City and County Councils.

A list of barriers to the recommended strategies are outlined such as lack of time to capture and use learning experiences and difficulty sharing lessons between experienced and inexperienced individuals etc. Enablers which would help DCC overcome these barriers are also identified. These include strategy and leadership, I.T and corporate culture etc.
Based on the literature reviewed in the paper, as well as the analysis and discussion of the results presented, a number of recommendations are compiled to aid DCC in their implementation of the knowledge management strategies. The two strategies which are recommended consist of:

1. **The implementation of a central repository in the short term in order to facilitate internal knowledge capture and transfer**: To combat the heavy reliance on personification it is recommended that some form of codification system be introduced in order to embed the knowledge in the organisation.

2. **The introduction of a Communities of Practice (CoP) initiative to facilitate nationwide knowledge transfer between councils**: While it might not be possible to implement a nationwide central repository to facilitate knowledge transfer between councils, a CoP initiative could prove to be the ideal solution to this challenge.

While Section 5.2 outlines specific barriers and enablers to the implementation of the two strategies, high level recommendations to assistance DCC in achieving their knowledge management targets are also provided. The recommendations for DCC are:

3. **Put in the effort ‘up front’**: A successful knowledge management initiative is one that becomes a part of organisation culture. For this to happen, knowledge management interventions have to reflect and support business needs and the way in which people work. It is important to listen to staff and understand their needs and views on the matter, as a comprehensive knowledge management system will have little benefit to the organisation if it is not being used by the staff.

4. **Senior management support is critical**: Senior management support, and the driving of the initiative by key individuals is vital, both to get the project off the ground, and also to guarantee it becomes embedded in organisation life and part of ‘the way things are done around here’

5. **Change Management**: As with anything worthwhile it will not happen without resources. A knowledge management team should be established to implement the change within the organisation. The team should reflect many areas of the organisation and while not required to be experts in the area, it is important that they are committed to the exercise.

6. **Establish knowledge management milestones and indicators**: It is essential that there is some benchmark of what DCC aspires to accomplish from its knowledge management strategy. Milestones and indicators should be set in regards to specific initiatives.

7. **Show the benefits of knowledge management**: People will very quickly engage with something if they see it as supporting and improving what they do rather than an extra obligation.

8. **Develop incentives and reward mechanisms**: If staff see that knowledge management is given a high priority by senior management they are far more likely to engage with it.
Do not underestimate the cultural/behavioural challenge Knowledge management represents a new approach to doing business and as with any change has a high risk of failure. The literature identifies organisational culture as having a significant influential on the success or failure of a knowledge management initiative.
CHAPTER 1 – INTRODUCTION

1.1 KNOWLEDGE MANAGEMENT

Davenport and Prusak (1998) describe knowledge as a ‘fluid mix of framed experiences, values, contextual information and expert insights’. Its role as a source for economic and social growth is not new and back in the late nineteenth century Marshall stated: ‘Capital consists in a great part of knowledge and organisation... Knowledge is our most powerful engine of production’ (Marshall, 1890). Since then, knowledge has increasingly emerged as a valuable intangible resource (Linder and Wald, 2011; Pinto et al. 2011) and its dynamic management is vital to exploiting and capitalising on an organisation’s knowledge wealth.

Since the conception of Knowledge Management surfaced in the early 1990’s (Nonaka, 1999; Dalkir, 2005), there has been a variety of definitions emerging throughout the literature (Pinho et al. 2011). Fundamentally knowledge management draws from existing resources that an organisation may already have in place i.e. good information systems management, organisational change management, and human resources management practice (Davenport and Prusak, 1998). It covers any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organisations (Swan et al, 1999). The benefits to an organisation implementing a capable knowledge management system are that it can improve organisational agility, operational efficiency, employee growth & learnings and core growth. It can also improve the ways in which firms facing highly-turbulent environments can mobilise their knowledge base in order to ensure continuous innovation (Newell et al, 2009). While it is widely acknowledged that knowledge management is an important area for organisations, often providing a competitive advantage (Drucker 1988; Kogut and Zander, 1992; Prahalad and Hamel, 1990; Starbuck, 1992), many obstacles present themselves hindering an organisation’s ability to fully execute a successful knowledge management strategy.

1.2 DUBLIN CITY COUNCIL

Dublin City Council (DCC) is the democratically elected body that governs Dublin City. It is the largest Local Authority in Ireland and is responsible for housing and community, roads and transportation, urban planning and development, amenity and culture, and environment. As Dublin grows at an unprecedented rate many major projects have been completed or are underway. This includes the port tunnel, tram system (Luas), metro system, new housing and street regeneration. As DCC have undertaken a large number of projects there is huge potential for the organisation to harness the knowledge or ‘lessons learned’ from these projects for the benefit of the organisation.

The Roads and Traffic Planning Department is one department of DCC that has a vast number of completed and undergoing projects. As with any Roads and Traffic Planning Department in any of the Country’s City and County Councils, the department is responsible for developing, maintaining and managing the city’s road network for the benefit of all citizens. Due to the nature of the work being undertaken by the department, similar projects are been undertaken by various Roads and Traffic Planning Departments in most, if not all, of Irelands City and County Councils. This means that not only can the lessons learned from one project also be useful for another project within the department,
but they might also benefit other projects in Road and Traffic Planning Departments in the various other City and County Councils throughout Ireland.

1.3 RESEARCH AIMS

The lessons learned from the various projects undertaken by Dublin City Council provide an invaluable source of knowledge for future projects in this field. The purpose of this research project is to provide an insight into how knowledge, in particular the lessons learned, is managed in a public sector project environment. The range of projects currently undertaken by Dublin City Council, namely the Road and Traffic Planning Department, provide an ideal opportunity to examine what knowledge transfer (if any) exist within the Department and Dublin City Council.

The aim of this research project is therefore to analysis how knowledge is being captured and stored in the Roads and Traffic Department of Dublin City Council, with a particular emphasis on lessons learned, and to explore what the possibilities are for this knowledge to be transferred to current and future projects. The creation of a ‘central repository’ to store these lessons learned may be a suitable solution as it would provide the opportunity for current and future projects to not only access this information, but also add to this ‘body of knowledge’ through their own future experience. Taking this into account the following research questions were formulated:

1) What current literature exists in regards to project knowledge management in the public sector?
2) Is there a ‘Knowledge Management System’ in place in Dublin City Council? In particular, how are the ‘lessons learned’ from Roads and Traffic projects captured and managed?
3) To what extent are the lesson learned from projects shared between projects, departments and Councils? What inhibits this transfer of knowledge?
4) Would the creation of a ‘central repository’ be an appropriate solution to facilitate the sharing and transfer of knowledge between projects? Could this be implemented on a national level between the various City and County Councils?

The following chapter will examine the current knowledge management literature with a particular focus on public sector knowledge management. In chapter three, the research methodology is outlined which clarifies the approach taken on this project to achieve the research objectives. Chapter four will present the findings of the research which will then be analysed and discussed in chapter five. The paper will then conclude with a summary of the main findings along with a set of recommendations and the limitations of this research project.
CHAPTER 2 - LITERATURE REVIEW

2.1 KNOWLEDGE CREATION & TRANSFER

Knowledge management practices have been in existence since time began. For centuries, owners of family businesses have passed on their commercial wisdom to their children, master tradesmen have taught their trade to apprentices and workers have exchanged ideas and knowhow on the job. The quotation in the previous chapter from the economist Alfred Marshall, over 110 years ago, suggests that the importance of knowledge as a source of economic wealth is in no sense a new idea. Before the fundamentals of knowledge acquisition and transfer can be explored it is necessary to define knowledge.

2.1.1 KNOWLEDGE

Knowledge is a multifaceted concept with multi-layered meanings. The history of philosophy since the classical Greek period can be regarded as a never-ending search for the meaning of knowledge (Nonaka, 1994). Because of its intangible and fuzzy nature, defining knowledge precisely is difficult. However, knowledge is commonly distinguished from data and information. Data represent observations or facts out of context, and therefore not directly meaningful. Information results from placing data within some meaningful context, often in the form of a message. Knowledge is that which we come to believe and value based on the meaningfully organised accumulation of information (messages) through experience, communication or inference (Bruner, 1973; Churchman, 1971). To transform information into knowledge, organisations must expend additional resources to discover patterns, rules, and contexts where knowledge works. Knowing how to do things effectively and efficiently in ways others cannot duplicate is prime a source of profit and competitive advantage.

Popular taxonomies distinguish between tacit and explicit knowledge, general and situated context-specific knowledge, and individual and collective knowledge. Polanyi (1966) classified human knowledge into two categories: “Explicit” knowledge refers to knowledge that is transmittable in formal, systematic language. It can be easily codified, documented, transferred or shared. Whereas “tacit” knowledge has a personal quality, which makes it hard to formalise and communicate. It is subconsciously understood and applied, difficult to articulate, developed from direct experience and action, and usually shared through highly interactive conversation, story-telling and shared experience. Zack (1999) distinguishes between general and specific knowledge ‘General knowledge is broad, often publicly available, and independent of particular events. Specific knowledge, in contrast, is context-specific’. While Bhatt (2002) articulates the distinction between individual and
organisational knowledge and concludes that individual or personal knowledge is tacit knowledge or know-how of some sort. It can also be explicit, but it must be individual in nature, e.g. a private notebook. Opposed to this is organisational knowledge which can be defined as all the knowledge resources within an organisation that can be realistically tapped by that organisation. It can therefore reside in individuals and groups, or exist at the organisational level.

2.1.2 KNOWLEDGE CREATION

Knowledge and the capability to create and utilise knowledge are considered to be the most important source of a firm’s sustainable competitive advantage (Nonaka, 1990, 1991, 1994; Nelson, 1991; Leonard-Barton, 1992, 1995; Quinn, 1992; Drucker, 1993; Nonaka & Takeuchi, 1995; Grant, 1996; Sveiby, 1997). Even though it can be said that expertise at the individual level is different from organisational knowledge, organisations cannot ignore the seriousness of harnessing individual knowledge. If individuals do not possess necessary skills and knowledge, their interactions are unlikely to create valuable “organisational knowledge” (Bhatt, 2001). While knowledge is accepted as a vital organisational resource, it must be shared in order for it to ‘grow, flow and create value’ (O’Dell and Hubert, 2011). Davenport and Prusak (1998) that ‘unlike material assets, which decrease as they are used, knowledge assets increase with use: Ideas breed new ideas, and shared knowledge stays with the giver and enriches the receiver’. The opportunity for learning is therefore unlimited. Nonaka and Takeuchi (1995) argued that knowledge is initially created by individuals and that the knowledge created by individuals becomes organisational knowledge. This process is captured and presented in Nonaka and Takeuchi’s (1995) SECI Model – the cornerstone of knowledge creation and transfer theory.

The SECI model for organisational knowledge creation is based upon the interaction between tacit and explicit knowledge. It proposes a process by which organisations spiral their knowledge within and outside their organisations, with the aim of refining and adding value to the stock of knowledge that exists in the organisation (Rice and Rice, 2005). Nonaka and Takeuchi hypothesised four modes of knowledge conversion corresponding to different forms of such interaction. According to their framework, knowledge creation begins with socialisation (S), continues with externalisation (E), combination (C), and internalisation (I), before returning to socialisation, but at a new level, hence the metaphor of a spiral of knowledge creation.
While the model is broadly accepted by scholars and practitioners, it is not without its flaws. Rice and Rice (2005) express their concerns over two main issues:

- The core behavioural assumption in the model is that knowledge creating companies continually encourage the flow of knowledge between individuals and staff groups to improve both tacit and explicit knowledge stocks.
- The critical knowledge management assumption of the SECI process is that knowledge is created and improved as it flows through different levels of the organisation and between individuals and groups. Thus, knowledge value is created through synergies between knowledge holders (both individual and group) within a supportive and developmental organisational context.

This reinforces the complexity of knowledge creation for organisations which will be further discussed in Section 2.3 ‘Challenge of Project Knowledge Management’.

### 2.1.3 KNOWLEDGE TRANSFER

There are two basic mechanisms for sharing existing knowledge in an organisation. A ‘codification’ strategy stresses the importance of the storing of knowledge in the written medium in databases and archives for easy access and reuse, while ‘personalisation’ relies on the personal face-to-face interaction and social processes (Ruoska & Vartiainen, 2005). Whilst many organisations start by emphasising the importance of codification, this strategy is not appropriate for all types of knowledge. Many authors such as Linder & Wald (2011), have discussed the difficulty in converting tacit knowledge into explicit knowledge (externalisation). This is primarily due to the fact that tacit knowledge, by its very nature is ‘unarticulated and rooted in experience and intuition and tied to the sense’ (Linder & Wald, 2011). As some tacit knowledge can be very difficult to codify, it can be easier to pass on through direct contact or observation. Even if knowledge is capable of codification, the benefits may not justify the time and effort involved. If knowledge changes very quickly or if it is required relatively infrequently, it can be more efficient for the person with the knowledge to pass it on directly, as and when it is required.

While a combination of both codification and personalisation has believed to be most appropriate (Kamara et al. 2002; Fisher et al. 1998; Voit and Drury 2006), there has been a scarcity of solutions about how to effectively entwine social processes with technology (Dixon 2004). Chu-Ming et al. (2012) argues that the codification would be ‘suitable for externalisation and combination to acquire explicit knowledge’ while personalisation would be suitable for ‘socialisation and internalisation through which tacit knowledge can be created and transferred’. However, McDermott & O’Dell (2001) vitally contend that the strategy implemented must be aligned with the organisational culture, as attempts to alter the culture to suit the knowledge management strategy has been proven to be ineffective. In an attempt to capitalise on the intellectual capabilities of the organisation, many ignored the advice of McDermott & O’Dell (2001) and instantly opted for a codified approach, investing heavily in technology and developing sophisticated knowledge management systems to ‘facilitate the collection, storage and distribution of knowledge’ (Wang & Noe, 2010). However, the organisation’s inability to identify that knowledge sharing was influenced more by people and their behaviour rather than state of the art technology, cost them severely (Wang & Noe, 2010). This was also a firm belief of O’Dell & Hubert (2011), who described how people, not technology, were the key to successful knowledge sharing.
‘Knowledge management isn’t about technology, it’s about fostering processes that encourage employees to share what they know in a way that increases others’ capabilities’.  

(O’Dell & Hubert, 2011)

People’s attitude and behaviour toward knowledge sharing created a dominant company culture which either facilitated or hampered the sharing and learning process. Omerzel & Gulev (2011) argued that organisations with a positive culture were able to utilise knowledge more efficiently due to their highly effective and focused teamwork. Adenfelt & Lagerstrom (2006) and Daim et al. (2012) also believe that organisational culture was the most important enabler of knowledge sharing which although cumbersome, could be achieved through trust, leadership and encouragement.

2.2 KNOWLEDGE MANAGEMENT IN THE PUBLIC SECTOR

Despite the mystic that surrounds this ‘multi-layered and multifaceted concept’ (Nonaka, 1994), there is nothing new about knowledge management (O’Riordan, 2005; Hansen et al. 1999). As stated in Section 2.1, knowledge management has been in existence in some form or another since time began. People and organisations engaged in these practices in order to make decisions and to produce goods or services (Cong and Pandya, 2003). Like most organisational theories and practices, knowledge management has evolved over a period of time and from a variety of sources. The concept of the ‘knowledge worker’ and the ‘knowledge economy’ was first set out over 40 years ago by the management thinker Peter Drucker. The roots of the core tenet of knowledge management, the difference between tacit and explicit knowledge, can be traced back to the philosopher Michael Polanyi in the 1960’s (Perkmann et al. 2005). With the introduction of Drucker’s ‘knowledge revolution’ came a more deliberate and systematic approach to the knowledge management process (Sarvay, 1999). This approach, according to Hislop (2009), is a set of organisational practices that facilitate and structure knowledge sharing and learning. It involves the creation, capture, storage, and utilisation of the information, knowledge and experience available to an organisation to ensure that organisational activities builds on what is already known and extends it further (Mayo, 1998).

Drucker (1993) emphasised that the most significant source of wealth in contemporary society is knowledge and information. This belief is evident throughout the literature with knowledge being considered a valuable intangible resource, vital for improving organisational efficiency, innovativeness and performance (Chen et al. 2010; Kazemi & Allahyari, 2010; Mills & Smith 2011). Edge (2005) refers to potential benefits in terms of improving organisational quality and efficiency, reducing costs and decreasing interagency fragmentation. Hariharan (2002) considers that the primary objective of any corporate knowledge management program is to support the achievement of strategic business objectives. In an organisational setting, benefits can occur at two levels; individual and organisational (Cong and Pandya, 2003). At the individual level, knowledge management provides employees opportunities to enhance skills and experience “by working together and sharing other people’s knowledge and learning from each other, thereby improving personal performance and enhancing career development”. At the organisational level, knowledge management provides two major benefits for an organisation; improving the organisation’s performance through increased efficiency, productivity, quality, and innovation and increasing the financial value of the organisation by treating people’s knowledge as an asset similar to traditional assets like inventory and capital facilities. Therefore, if the organisation is successful in taking advantage of its knowledge based resources then opportunities present themselves to not only drive organisational growth, but also develop a
sustainable competitive advantage (Davenport & Prusak, 1998). For Grant (1996) and Spender (1996), with their knowledge based view of the firm, knowledge and the ability to incorporate individual knowledge is vital for competitive advantage. Hence, it’s no surprise that leading companies have been developing processes and procedures to ensure effective management of their intellectual assets since the early 1990’s (O’Riordan, 2005; Omersel & Gulev, 2011). High profile cases such as GE, IBM, Xerox, HP and Chevron have been documented throughout the literature (Gao et al. 2009; Grayson & O’Dell, 1998).

However, in spite of its achievement in the private sector, the application of knowledge management is not so apparent in the public sector. Perkmann et al. (2005) note that it is not an uncommon trend for the public sector to fall behind the private sector in the adoption of new management theories and approaches. Cong & Pandya (2003) are of the opinion that most management philosophies, such as knowledge management, are first practiced in large private sector companies and once a strong foothold in the field is achieved, it then transfers into the public sector. Unfortunately, the transition has not progressed as strongly as it had been envisaged, with existing literature suggesting that the public sector is lagging behind in these practices (Cong & Pandya, 2003). The OCED (2003) suggests that this is in part due to a traditional environment whereby competitiveness and ‘the bottom line’ are given less priority than in the private sector. However, it also accepts that governments cannot afford to overlook the potential benefits, given the continuous pressure to improve efficiency and effectiveness combined with ‘a growing awareness of a whole of government perspective on policy making a service delivery’ (O’Riordan, 2005).

Knowledge lies at the core of what governments do, arguably in a way that is centrally more so than many private sector companies. Not only is the relative importance of information and knowledge greater in the public sector the sheer size and complexity of the public sector dwarfs most private sector companies (Perkmann et al., 2005). McAdam and Reid (2001) believe that knowledge management is “especially important in the public sector as staff have long been identified as the key knowledge depository”. As many government agencies are dealing with excessive attrition and retirement, capturing the knowledge of experienced and departing employees is of strategic importance. McAdam and Reid also found that public sector employees expressed a “greater appreciation of knowledge construction, as being both scientific and socially constructed” relative to their private sector counterparts. Furthermore, governments are primarily knowledge centric organisations and although there is no profit to be made, the onus is on delivering the best possible service to citizens in an efficient manner, while at the same time, achieving value for money. This can ultimately be improved through the successful implementation of a knowledge management framework.

While private sector consultants employed by the Government may benefit from knowledge management systems, the OCED (2003) conclude that the time has come for knowledge management to be afforded greater priority in the public sector. It also stated that it is vital that governments draw their own appropriate conclusions,

‘…not by seeking to ‘copy’ the private sector but by endeavouring to innovate in accordance with their own identity and specificity and in accordance with their own way of managing their human resource’

(OCED, 2003)
Perkmann et al. (2005) acknowledge that the later spread of knowledge management does give the public sector organisations an opportunity to learn from the experience of their private sector counterparts. While the private sector has higher levels of project management maturity than the public sector, Perkmann et al. (2005) state that ‘this should not mean simply copying what the private sector does but it should mean avoiding the mistakes which were made in initial applications of knowledge management thinking’. Putting too much emphasis on IT systems was a common error, and this provides an important cautionary lesson for public sector organisations. The belief is reinforced by Cong & Pandya (2003) who oppose calls for public organisations to simply import knowledge management processes from the private sector and by some means replicate their success. They believe that the differences between the public and private sector are in fact so great that a distinctive knowledge management strategy, specifically for the public sector, needs to be developed.

To date, some efforts have been made to implement knowledge management into particular aspects of the public sector. A paper published by the Institute of Public Administration revealed a number of government department initiatives which have been developed in this area. However, there are several challenges surrounding the management of knowledge which must be overcome in order for the apparent benefits to be realised. According to Cong & Pandya (2003), “the benefits to be reaped from knowledge management will not be handed to governments on a plate, nor will the challenges be met without adjustment”. While many of these challenges relate to the fundamental complexities which surround ‘knowledge’ itself, the rise in temporary forms of working constellations requires the public sector to also formulate a strategy for managing knowledge in project environments. Given the nature of this research paper, the focus will be primarily on the challenges of project knowledge management.

2.3 CHALLENGES OF PROJECT KNOWLEDGE MANAGEMENT

‘The fact is that we cannot really ‘manage’ knowledge very well because its very nature is so fluid and slippery that it eludes our grasp’ (Halal, 2005). The problem is ingrained in the simple fact that knowledge, especially tacit knowledge, is complex, ‘making it difficult to communicate with others... (as it is) ... deeply rooted in an individual’s actions and bodily experience, as well as in the ideals, values or emotions they embrace’ (Takeuchi & Nonaka, 2004). These factors are amplified when factors such as ‘time limitations, resource constraints, great complexity, diversity and risk propensity’ (Koster, 2011) are encountered, as in the case of project environments.

Challenges of project knowledge management are caused by the inherent project characteristics (Love et al. 2005; Prencipe & Tell, 2001; Schindler & Eppler, 2003). Projects are unique and temporary undertakings with changing members. This uniqueness and temporariness of projects hinders the emergence and development of organisational routines, organisational memory and therefore impedes organisational learning (Bresnen et al. 2003; Fong, 2005). Furthermore, traditional projects are often short-term oriented and integrating internal and external experts and knowledge. Project participants have to adapt quickly to new conditions and contents of work. Discontinuous working groups and discontinuous team compositions lead to a fragmentation and disintegration of individual and organisational knowledge (Prencipe & Tell, 2001; Kasvi et al. 2003). Due to the mentioned short-term orientation of projects and other forms of temporary organisation, they usually focus on immediate deliverables. In contrast, knowledge management requires a long-term perspective as there is often a time-lag between the initial investment in knowledge management systems and the
return on investment. This conflict of goals may result in an insufficient transfer of knowledge between projects (DeFillippi & Arthur, 1998; Love et al. 2005). Also, in contrast to permanent organisations, projects lack “natural” mechanisms of learning. Therefore, the transfer of knowledge from one project to the other or from one project to the permanent part of the organisation is difficult.

Literature on project knowledge management identified culture to be the most significant enabling factor of knowledge creation and sharing (Szulansky, 1996; Demarest, 1997; Gupta & Govindarajan, 2000). Knowledge culture is related to an open knowledge transfer within and between projects. It depends on the individuals' willingness to share knowledge and on mutual trust. A positive set of values, attitudes, and expectations towards knowledge facilitates the willingness of people to share knowledge and to trust in knowledge from other persons (Lindner & Wald, 2011). Hanisch et al. (2009) concluded that above all, the organisational culture seems to be a critical factor for successful project knowledge management. In their research they specified that several interviewees stated the role model function of the top management and the importance of having individual employees pushing the concept of project knowledge management. They alleged that even the best IT systems and methodologies for supporting the storage and dispersion of knowledge gained in projects are useless if the employees resist using them.

Additionally, there are considerable individual and social barriers that prevent the articulation and documentation of knowledge and experiences (Disterer, 2001, 2002). Specifically, barriers exist with regard to the honest and open analysis of failures and mistakes; the open and productive culture that would facilitate the articulation and analysis of errors is rarely present in most project-based organisations. This is unfortunate because successful projects only reveal that the processes that were used were sufficient for that specific task, whereas failed projects are likely to yield more valuable knowledge (Ajmal & Koskinen, 2008).

From the above text it can be seen that there are a number of issues when dealing with knowledge management i.e. data accuracy, relevance, interpretation etc. Organisational culture and individual and social challenges add to the complexity of project knowledge management. Furthermore it is shown that the temporary nature and uniqueness of projects is a major obstacle for organisational learning. Despite this ‘projects are accepted to be knowledge intensive organisational forms’ (Disterer, 2002). According to Bakker et al. (2011), they present what might be deemed to be somewhat of a ‘learning paradox’. Projects by their nature, are undeniably conductive to knowledge creation (Lampel et al. 2008; Grabher, 2004; Bresner et al. 2003), with ‘obvious opportunities for novel ideas to emerge and for cross-functional learning to occur, thereby enhancing the organisation’s innovation capacity and potential’ (Bresner et al. 2003). However as stated, their finite nature also ‘inhibits the sedimentation of knowledge’ (Bakker et al. 2011), because once a particular project is completed, the working constellation dissolves, people move on, causing the knowledge to become fragmented and dispersed (Linder & Wald, 2011; Cacciatori, 2008; Grabher, 2004; Kasvi et al. 2003). ‘From these conditions, the importance of a process of securing project knowledge from the overall organisation seems obvious’ (Hanisch et al. 2009).
In order to overcome this ‘project learning paradox’ the knowledge acquired during a project venture must be successfully transferred to the permanent or parent organisation in which it is embedded (Bakker et al. 2011). Holzmann (2013) believes that the parent organisation is in the optimal position to act as a ‘knowledge broker’ – an intermediary that aims to develop linkages and networks between various projects and their participants in order to facilitate the transfer of knowledge between individuals of organisational units that possess the knowledge to those who need it’. Meyer (2010) adds to this conception by suggesting that some ‘knowledge brokers’ go beyond mere facilitators of knowledge sharing but also provide additional knowledge itself. The knowledge broker could also facilitate the transfer of lessons learned from previous ventures to current projects.

In a study carried out by Hanisch et al. (2009), the most frequently mentioned instruments of project knowledge management was ‘lessons-learned’. Lessons-learned are defined as:

‘…key project experiences which have certain general, business relevance for future projects. They have been validated by a project team and represent a consensus on a key insight that should be considered in future projects’

(Schindler & Eppler, 2003).

Anbari et al. (2008) believe that ‘the value of post-project reviews is derived from the effective flow of information concerning lessons learned in various projects to enhance the performance of current and future projects, project management and ultimately the whole organisation’. They also state that ‘post-project reviews enable organisations to create a virtuous cycle in which each project implemented adds to the repository of information and the depository of lessons leaned on such projects, their sponsors, customers, project managers and project teams’. Lessons learned can also be captured at various stages in a project which is known as a ‘stage-gate review’. The purpose of the lessons learned approach is to capture experiences, successful or otherwise, allowing an organisation to avoid repeating costly mistakes, eliminate redundant activities and improve future performance (Carrillo 2005; Kartam 1996). Newell et al. (2006) indicates that capturing lessons learned by project teams and storing them on a database for others to access is a widely adopted strategy to transfer knowledge from projects and embed it in the parent organisation. Data gathered from post-project reviews and stage-gate reviews provide a historical database from which future project teams can develop meaningful project plans based on their organisation’s project learning cycle. A database of project reviews and lessons learned can provide project managers with various types of knowledge which can impact on the success of the project:

- Technical knowledge: which relates to techniques, technologies, work processes, costs and other things that are involved in discipline-specific issues of the project;
- Project management knowledge: which relates to methods and procedures required for managing the implementation of projects;
- Project-related knowledge: which refers to knowledge about the customers and other people or entities.

(Conroy and Soltan, 1998)
However, despite the post-project review process being ‘integrated in compulsory project management standards’ by some private organisations, the task was rarely performed due to time pressures and other project priorities (Hanisch et al. 2009). Schindler & Eppler (2003) noted that minimal efforts were then afforded to documenting ‘lessons-learned’ during project close out reports, if it happened at all. The authors consequently stressed the severity of integrating a formulised lessons-learned process into project management practices and project goals to avoid ‘project amnesia’ or as Linder & Wald (2011) suggest ‘the depletion of an organisations knowledge base’. Time, motivation, discipline and skills are the four key factors identified by Schindler & Eppler (2003), which inhibit the elicitation and documentation of lessons learned.

Despite resistance, there is a growing demand to conduct ‘project post-mortems’ and ‘stage-gate reviews’ in an effort to analyse both the positive and negative experiences gained throughout the duration of the project. Some current literature now argue that although explicit documentations of lessons learned is necessary, it is also somewhat limited in terms of its usability (Pemsel & Wiewiora, 2013; Pemsel & Widen, 2011). Pemsel & Muller (2012) claim that these reports and documents containing lessons learned merely serve as a reference point to find the contact details of the author. Individuals ‘expressed a need to get it interpreted and translated by the author, that is, they needed a contextual understanding of it to make use of it’. This, once again reiterates the fundamental complexities which surround knowledge itself and makes its management a ‘fundamental task and one of the challenges of our time’ (Claver-Cortes et al. 2007).

CHAPTER 3 - RESEARCH METHODOLOGY

The first part of this chapter outlines the research philosophy in order to illustrate the assumptions about the way in which the author views the world. These assumptions are critical as they underpin the research strategy and methodology. The discussion which follows summaries the two major ways of thinking about research philosophy: ontology and epistemology. Ontology is concerned with ‘the nature of reality’, while epistemology deals with ‘what constitutes acceptable knowledge in a field of study’ (Saunders et al. 2010). It is important to consider different research paradigms and matters of ontology and epistemology since these parameters describe perceptions, beliefs, assumptions and the nature of reality and truth (knowledge of that reality), they can influence the way in which the research is undertaken. The second part of this chapter focuses on the research methods adopted and the reason for analysing the chosen project as a case study. Finally the limitations of this study are presented.

3.1 RESEARCH PHILOSOPHY

Knowledge management literature often compares and contrasts two perspectives on knowledge, the objectivist and the subjectivist view (Hislop, 2009). This author’s position is that of a subjectivist in that ‘social phenomena are created from the perceptions and consequent actions of those social actors concerned with their existence’ (Saunders et al. 2010). The belief is that tacit knowledge is rooted in practice and thus inextricably linked to people. Therefore, it cannot be seen as an objective or self-contained entity, but rather as emergent in socially constructed practices (Gherardi, 2006; Brown & Duguid, 2001). Knowledge is embedded and thus context dependent (Hislop, 2009). To take the objectivist view would be to overlook the central principle of Polanyi’s tacit knowledge in that it is subconsciously embedded in the mind of the individual and ingrained in experience and intuition making it challenging to articulate. In his words ‘we know more than we can tell’ (Polanyi, 1966). Thompson & Walsham (2004) contend that this practice-based perspective is progressively becoming more and more adopted in the knowledge management field.

In order to study ‘the details of the situation to understand the reality or perhaps the reality working behind them’ (Remenyi et al. 1998), one must adopt an interpretivist philosophy to gain an insight to the subjective meanings motivating the actions of these social actors in order to get an understanding of their actions. The author must take somewhat of an empathetic stance in order to understand the world of social actors from their point of view. Depending on how they view the world, social actors can interpret situations differently for a variety of reasons.

Acknowledging that knowledge and learning are ‘interwoven in an iterative, mutually reinforcing process’ (Vera & Crossan, 2005), it can be said that one subject’s view of what knowledge was gained and its significance may be quite different to that of another subject depending on their interpretation. Jalavic (2011) portrays this in his KM-ES Model (Figure 3.1). He illustrates that the interpretivist view relates with that of an autopoietic, which accepts the individual interpretation of information (Marr et al. 2003; Venzin et al., 1998), and recognises that their knowledge is private and interlinked into the social context (Von Krogh et al. 1994; Bhaskar, 1975; Weber, 1962). However, as the case study is situated in the public sector, where an array of informal networks and clusters operate, there is also an element of connectivism that exists.
Based on this epistemological view, the author will focus on identifying knowledge flows among individuals and organisations, how social relations are fostered and how intellectual capital is strengthened and utilised. Intellectual capital is defined as an organisation’s collective knowledge, expertise, experience, and associated intangible assets (Klein, 1998; Marr et al., 2003; Marr et al., 2002; Pan & Scarbrough, 1999; Teece, 2000).

3.2 RESEARCH METHODOLOGY

In order to gain an insight into how knowledge is managed in the public sector, a case study approach was chosen as it enables an in-depth understanding of the real world context in which this phenomenon exists’ (Eisenhardt & Graebner, 2007). The Roads and Traffic Planning Department of Dublin City Council (DCC) provide an ideal case study in the context of this paper as the Department is extremely project orientated. There are a range of projects being undertaken by the Department, which are at various stages of the project life cycle. Therefore, not only are there projects entering the close out phase, where post project reviews may be carried out, but there are also a number of new projects being initiated, which may benefit from ‘lessons learned’ from previous projects. As the projects are within the Roads and Traffic Planning Department it would suggest that the knowledge, experiences and expert insights gained in each project would be valuable resources which may be beneficial on future projects provided the knowledge management processes are in place to identify, capture, store and transfer the knowledge.

In this study, face to face interviews were carried out with members of staff within the Roads and Traffic Department in DCC. In order to gain a more accurate and realistic insight into the knowledge management practices of the Department, the employees which were interviewed held a range of positions within the Department e.g. Executive Engineer, Senior Project Manager etc. Each of the interviewees was given a copy of the questions which were used to guide the interviews, in order to give them a general understanding of the topics which were under discussion and the purpose of this paper. This afforded the interviewees an opportunity to clarify any issues they had with any of the questions. A copy of the questions can be seen in Appendix A.
A total of 5 interviews were conducted over a period of three months (See Table 1). The interviews were conducted in a setting of the interviewees’ choice. The decision as to where the meetings would take place was left at the discretion of the interviewee in an effort to ensure they were comfortable with their surroundings and thus perhaps more forthcoming and participative. The duration of each interview varied between one and two hours. The interviews were semi-structured and thus followed a guide to ensure coherence between the various interviews. The general areas covered to guide the interview were developed from analysing the literature which involved searching scholarly peer reviewed articles in the major academic and practitioner journals. The questions addressed revolved around four main areas: post project reviews and the lessons learned process, knowledge management in project environments and the public sector, the challenges of knowledge management in DCC and knowledge sharing between various city and county councils. There were no ethical issues raised by the study.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patricia Reidy</td>
<td>Sen. Executive Engineer</td>
<td>PR, 2013</td>
</tr>
<tr>
<td>Mary Hussey</td>
<td>Sen. Executive Engineer</td>
<td>MH, 2013</td>
</tr>
<tr>
<td>Conor O’Leary</td>
<td>Executive Engineer</td>
<td>COL, 2013</td>
</tr>
<tr>
<td>Eoghan Maddan</td>
<td>Program Manager</td>
<td>EM, 2013</td>
</tr>
<tr>
<td>Paul Carroll</td>
<td>Assistant Engineer</td>
<td>PC, 2013</td>
</tr>
</tbody>
</table>

Table 1 – List of Interviews Conducted

Data collection and analysis was conducted throughout the research and consequently the questions which guided the interviews were marginally altered in accordance with the knowledge and understanding gained. A pilot interview was also conducted to ensure that the structure of the questions, the flow of the interview etc. were comprehensive. Again alterations were made upon analysis of the pilot interview. The data from the interviews was examined by qualitative analysis. All interviews were recorded and transcribed. The transcripts were then read several times and the relevant information regarding the three key areas under examination was extracted. Quotations are used in the analysis and discussion of the results to emphasise the importance points and issues raised.
CHAPTER 4 – RESULTS

The following chapter is a presentation of the results from the audit conducted in the Roads and Traffic Planning Department in Dublin City Council (DCC). Kelleher and Levene (2001) describe conducting a knowledge audit as ‘a formal documented assessment of an organisation’s current knowledge base’, which represents a useful starting point for implementing knowledge management. It can help through identifying how employees currently store, access, use and share the knowledge that they need to do their jobs. It can also uncover some of the barriers to knowledge use and transfer that might exist in the organisation and at the same time highlight examples of good practice that could be applied in other areas. The results from the interviews are categorised under the main area of the paper which include: post project reviews and the lessons learned process, DCC’s knowledge management strategy, the challenges of knowledge management in DCC, and finally knowledge sharing between various councils.

4.1 POST PROJECT REVIEWS & THE LESSONS LEARNED APPROACH

The first step was to identify how project knowledge was captured from projects. Section 2.4 identifies the benefits of post project reviews and a lessons learned approach to knowledge acquisition. It was important to determine if this belief was present within the employees of DCC. The views of the interviewees mirrored that of the literature, as they all stated that they perceived post project reviews as a way of adding value to the organisation.

“It would be a great resource to capture the information learned by way of a post project review so that mistakes do not have to be repeated, saving money and time on future projects” (PR, 2013).

“Project Reviews help us focus on the overall outcomes project and of the advantages and disadvantages of methods used throughout the project life cycle” (MH, 2013).

“Should be done on all projects to avoid repeating same mistakes over and over again, especially when you consider there is less funding coming through, so you got to get more bang for your buck, and especially in the public sector it is important to be seen to be getting value for money” (COL, 2013).

“There would be an enormous benefit in capturing lessons learned, both good and bad, for future projects” (PR, 2013).

“No only would we avoid repeating mistakes over and over again but post project reviews would also develop individual staff” (PC, 2013).

Despite the unanimous vote in confidence in post project reviews there was a mixed response when asked if post project reviews were carried out on all projects.

“No, a formal written review would not always be undertaken on all projects. A procedure is now in place to review ‘funded’ projects from the NTA but this procedure has to be fully implemented.” (MH, 2013).
“No, not to my knowledge. As far as I can determine, there are no post project reviews/appraisals carried out. Although the NTA do provide for post project reviews in guidelines but currently Roads & Traffic Planning Department have no formal process for this” (PR, 2013).

“No, not on all projects. I work on a number of NTA funded projects and there would be some form of project review between the NTA and DCC, typically on a monthly basis which I find are beneficial to everyone involved. In regards to PPR, there would be to an extent (re NTA projects). Looking at DCC no formal structured PPR in place with regards what did we do right/wrong/what were the issues/what would we change design wise next time etc.” (COL, 2013).

“Done in relation to NTA projects. We don’t have a dedicated monitoring team for PPR” (EM, 2013).

4.2 KNOWLEDGE MANAGEMENT IN DUBLIN CITY COUNCIL

So while the interviewees identified post project reviews as a means of adding value to the organisation but admitted they were not a regular occurrence upon the completion of a project, it was important to gain an insight into the knowledge management strategy which exists in DCC. Each interviewee stated that no knowledge management system existed within DCC in relation to post project reviews.

“No formal database exists, but experiences are shared informally between employees” (EM, 2013).

Eoghan Madden recalled how this tacit sharing of knowledge ‘worked’ for DCC until February 2012.

“It was fine. It worked until February 2012 when a huge amount of people left. Then a huge bank of knowledge left the department. The knowledge literally just walked out the door” (EM, 2013).

He acknowledged the fault in the heavy reliance on personalisation, recognising that due to a large number of staff taking voluntary redundancies that the ‘same mistakes will be repeated’ (EM, 2013). Though he is of the opinion that the ‘organisational knowledge will be built up again through trial and error, and it will take time’ (EM, 2013).

Mary Hussey (2013) stated that ‘a knowledge management system is on the radar, though it is still very much in its infancy. The NTA seem to be pushing the idea but it is still just an idea with nothing implemented at the moment’.

Patricia Reidy (2013) identified the need for “a simple, easy to use, computer based KMS that could be completed in a very short space of time for each project, max 1/2-1hour”. However she reinforced the notion that “anything onerous or complicated would not be used”.

Paul Carrol (2013) supported this opinion stating that he would like to see “an online (not paper based) system, which is kept up to date and actively monitored”. He stressed the point that “it would have to be reviewed and updated regularly for it to be successful”.
4.3 CHALLENGES OF KNOWLEDGE MANAGEMENT IN DCC

It can be seen from the previous section that DCC has fallen behind in terms of knowledge management. This reinforces Cong & Pandya (2003) belief that public sector organisations often lag behind private sector organisations in terms of adopting new management theories and approaches which was identified in Section 2.2. In order to gain an insight into the challenges which prevent public sector organisations adopting these new approaches it is vital to acknowledge what the employees of DCC perceive as barriers to a knowledge management system being implemented in their organisation. Unsurprisingly organisational culture was the most prominent factor which acted as a barrier knowledge management.

Some of the main points identified by the interviewees with regard to barriers and challenges were:

1. “Too many ongoing projects and not enough staff to carry out existing projects, therefore no time to carry out post project reviews.
2. No culture of post project reviews/lessons learned in DCC
3. Also, many of the projects are unique so there may not be enormous benefit/knowledge to be gained for future projects”.

(PR, 2013)

1. “New systems takes time to develop.
2. Cost of formulating & implementing a new system.
3. Sometimes it is difficult to take a step back in order to take three forward”.

(MH, 2013)

1. “Time. If it’s costing me time from doing my next job and nobody is asking me for it or if I can’t see the benefit from doing it, then I’m not going to do it.
2. Money
3. As soon as one project finishes its straight onto the next one”

(EM, 2013)

1. “Is there an interest in KM? Do people want it? Will they use it?
2. Is it coming down from the top level i.e. the Government? Some people won’t bother with it if they think there’s no benefit in doing it or if it’s not pushed from the top level down
3. Organisational culture
4. Benefits have to be communicated in order for it to work/be implemented”.

(COL, 2013)

1. “Buy in at all levels.
2. Organisational culture”.
3. Cost of educating and training people would be very high, both in terms of the actual cost and the time taken to get used to a new system.

(PC, 2013)
Having already examined how knowledge is captured and shared within the Department and the challenges that entails, it was also important to analyse how knowledge was shared between councils, if it happened at all.

“No formal knowledge sharing between councils. Although it may happen on an ad-hoc or casual basis between acquaintances” (PR, 2013).

“Very little knowledge sharing between councils. No formal but some informal. Consultants or contractors may have worked with other councils and would share their knowledge but very little direct knowledge sharing” (COL, 2013).

It was suggested that this was due to the fact that councils are seen as ‘centres of isolation’ (COL, 2013). Paul Carrol (2013) also emphasised this point as he felt the lack of sharing between councils was due to “the organisational culture of keeping things internal”. While other suggestions as to the lack of sharing of knowledge between councils included “power struggles, politics, ego’s” (PR, 2013).

Although Conor O’Leary identified a workshop type event he attended hosted by Dun Laoghaire – Rathdown County Council. The event was staged early in the project life cycle and it was hoped that ideas generated at the event would save the project sponsor time and money. Dun Laoghaire – Rathdown county council invited a range of experts in the field, both national and international, members of various county and city councils and various interest groups. Conor described the event as “very beneficial”. Although he did admit that events like that “happen but are very rare”.

“Bouncing ideas off each other, certainly more of that would be beneficial” (COL, 2013).

These type of workshops provide an opportunity for employees to build on the successes of each other by knowledge sharing and mutual learning. They can provide creative push from within an organisation as they motivate project teams to embark on similar or adapted ventures. Although the cost of such events might persuade an organisation against hosting such events, the benefits gained cannot be ignored. The challenge is to find a solution which would provide a similar format of knowledge sharing without the high cost.
CHAPTER 5 – ANALYSIS AND DISCUSSION

The research findings from the previous chapter will now be analysed and discussed. Chapter 5 will be arranged in two sections with the first section of this chapter analysing and discussing the findings in reference to the research objective and questions outlined in chapter 1 of this paper. The second section will then outline a proposed solution for Dublin City Council (DCC) in regards to formulating and implementing a knowledge management strategy. The barriers and enablers of this solution will also be examined.

5.1 RESEARCH OBJECTIVES

As stated in Chapter 1, the aim of this research project is to analysis how knowledge is being captured and stored in the Roads and Traffic Department of Dublin City Council, with a particular emphasis on lessons learned, and to explore what the possibilities are for this knowledge to be transferred to current and future projects. From this objective four research questions were derived. The analysis and discussion of the results will be based around the theme of each research question.

5.1.1 WHAT CURRENT LITERATURE EXISTS IN REGARDS TO PROJECT KNOWLEDGE MANAGEMENT IN THE PUBLIC SECTOR?

The current literature regarding project knowledge management in the public sector is discussed extensively in the Literature Review in Chapter 2. As stated, while the history of philosophy since the classical Greek period can be regarded as a never-ending search for the meaning of knowledge, the concept of knowledge management only surfaced in the early 1990’s. The literature on project knowledge management, and in particular project knowledge management in the public sector, is still regarded to be in its infancy (Cong & Pandya, 2003). Despite this, many authors have explored the concept of knowledge management while some claim they are merely scratching on the surface.

In order to fully analyse project knowledge management in the public sector it is necessary to discuss the fundamentals of knowledge management. Chapter 2 outlines how the literature defines knowledge and how this knowledge is created, stored and transferred. The chapter then proceeds to discuss the concept of project knowledge management in the public sector. The literature appears to be unanimous in that management theories in the public sector often lag behind those of the private sector, which seems to be the case for knowledge management. The literature outlines a number of challenges for project knowledge management in the public sector which may be the reason behind the lack of the priority given to project knowledge management in the public sector in comparison to the private sector. The Chapter concludes discussing the role of the lessons learned approach in regards to knowledge management.

Even though it is said that literature of knowledge management in the public sector is in its infancy, it is clear that there is huge interest in this field. This paper provides a concise overview of what literature currently exists, although it is undoubtedly just the tip of the iceberg regarding literature on project knowledge management in the public sector.
5.1.2 IS THERE A ‘KNOWLEDGE MANAGEMENT SYSTEM’ IN PLACE IN DUBLIN CITY COUNCIL? IN PARTICULAR, HOW ARE THE ‘LESSONS LEARNED’ FROM ROADS AND TRAFFIC PROJECTS CAPTURED AND MANAGED?

From the results in Chapter 4 it appears that there is no formal knowledge management system in place in DCC. While most interviewees claim that knowledge management does exist within DCC, it tends to be of a more ‘informal’ and ‘ad-hoc’ nature. Lessons learned incline to be shared between colleagues as they informally share their experiences with each other without a set procedure. In essence, this reflects the literature discussed in Chapter 2. Hansen et al (1999) claim the concept of knowledge management is nothing new, that organisations have always used knowledge management practices, in various disguises to make decisions, and to produce goods and services, though not in a deliberate and systematic manner. While Perkmann et al. (2005) acknowledged that some public sector practitioners believe what is currently called knowledge management is in fact what public servants have always done since time immemorial. While the ‘sharing of experiences’ sufficed for DCC in the past, the fundamental flaw of this heavy reliance on personalisation became apparent in 2005 when ‘a huge bank of knowledge left the department… literally walked out the door’ (EM, 2013). This reinforces the need for some form of codification process in order to embed the knowledge in the organisation.

As can be seen from Section 4.1, even though they are not formally done in DCC, each interviewee outlined how they perceive how project reviews would add value to the organisation. The assertions of the interviewees echo the literature which was discussed in Section 2.4 in regards to the benefits of lessons learned and post-project reviews.

“It would be a great resource to capture the information learned by way of a post-project review so that mistakes would not be repeated, saving money & time on future projects”

(PR, 2013).

Not only was an improvement in technical project knowledge identified by all interviewees as a benefit to the organisation, but the results in Section 4.1 also show that the organisation would benefit from the individual development of staff.

“It not only would we avoid repeating mistakes over and over again but post project reviews would also develop individual staff”

(PC, 2013).

As outlined in Section 2.1.2, organisations cannot ignore the seriousness of harnessing individual knowledge. If individuals do not possess necessary skills and knowledge, their interactions are unlikely to create valuable “organisational knowledge”. Therefore project reviews and lessons learned can be seen as a key component of knowledge management and improving organisational knowledge, which, as stated in Chapter 2, has been identified as a key source of competitive advantage.

Despite there being no central knowledge management system in existence in DCC, the National Transport Authority, the Roads & Traffic Planning Department’s largest client, has recently called for post project reviews to be carried out on all of their projects. However, this is in its infancy with no formal procedure implemented yet. Conor O’Leary, who is currently working on a number of NTA funded projects, gave an insight into how the NTA are trying to implement the lesson learned
approach into their projects through stage-gate reviews, which he feels are ‘beneficial to everyone involved’.

5.1.3 TO WHAT EXTENT ARE THE LESSON LEARNED FROM PROJECTS SHARED BETWEEN PROJECTS, DEPARTMENTS AND COUNCILS? WHAT INHIBITS THIS TRANSFER OF KNOWLEDGE?

From Chapter 4, it is evident that no formal system for the sharing of lessons learned from projects exists within DCC. The findings identify a number of issues which inhibit the implementation of procedures which could enable the transfer of knowledge and improve organisational learning. Yet again the findings of the interviews presented in Section 4.3 echo the challenges of project knowledge management outlined in Section 2.3. While time, motivation, discipline and skills were the four key factors identified by Schindler & Eppler (2003) in Section 2.4, which inhibit the elicitation and documentation of lessons learned, these also mirror the findings in Section 4.3. The cost and time taken to implement a new system and train the staff to use the new system, as well as the time taken to complete the project reviews were identified by the interviewees as obstacles to developing a knowledge management system in DCC. Motivation was another factor identified, as unless the employees recognise a benefit from engaging with the knowledge management system they will not continue to engage with it.

“Is it coming down from the top level i.e. the Government? Some people won’t bother with it if they think there’s no benefit in doing it or if it’s not pushed from the top level down”

(COL, 2013).

According to the literature, organisational culture has been recognised as the most influential factor regarding the success of an organisations knowledge management system. This was also evident in the findings with each interviewee pointing to organisation culture in one form or another. The culture within DCC, at present, seems to prioritise getting projects done as quickly as possible without any wasting of time and resources. In Section 2.3, it was shown that knowledge management requires a long-term perspective as there is often a time-lag between the initial investment in knowledge management systems and the return on investment. However, due to the short-term orientation of projects, they usually focus on immediate deliverables. DCC seems to have the latter view and perceives knowledge management as a short term waste of resources rather than a long term benefit to the organisation. This results in insufficient transfer of knowledge between projects.

“If it’s costing me time from doing my next job and nobody is asking me for it or if I can’t see the benefit from doing it, then I’m not going to do it. As soon as one project finishes its straight onto the next one”

(EM, 2013).

“Too many ongoing projects and not enough staff to carry out existing projects, therefore no time to carry out post project reviews”

(PR, 2013).

In order for a knowledge management system to succeed and benefit DCC a cultural shift will have to occur within the organisation. Top level senior members of the organisation will have to fully buy in and drive the concept of knowledge management. When discussing public sector organisations
adopting knowledge management practices like private sector organisations, Perkmann et al. (2005) stated that public sector bodies should learn from the mistakes that private sector organisations made, most notably the heavy reliance on IT systems. Hanisch et al. (2009) support this claim by alleging that even the best IT systems and methodologies for supporting the storage and dispersion of knowledge gained in projects are useless if the employees resist using them. This reinforces the issue that DCC will have to adopt a culture of knowledge management, rather than a standalone IT initiative, in order to fully reap the benefits of implementing a knowledge management system.

With regard to knowledge transfer between councils, the results show that formal knowledge sharing rarely happens, if at all. Section 4.4 suggests that the lack of sharing of knowledge between councils is due to “power struggles, politics, and egos” (PR, 2013). While again the culture of the organisation is brought into question identifying that there is an “organisational culture of keeping things internal” (PC, 2013). Although Conor O’Leary identified a workshop type event he attended, along with various other councils, in which he was impressed with the amount of knowledge that can be gained through this type of knowledge sharing between councils.

“Bouncing ideas off each other, certainly more of that would be beneficial”

(COL, 2013).

It is clear that a major organisational cultural shift will have to take place in order for DCC to engage in knowledge sharing with external parties such as other councils. Their first priority should be to develop an internal culture of knowledge sharing to facilitate and support knowledge creation and transfer between projects and departments.

5.1.4 WOULD THE CREATION OF A ‘CENTRAL REPOSITORY’ BE AN APPROPRIATE SOLUTION TO FACILITATE THE SHARING AND TRANSFER OF KNOWLEDGE BETWEEN PROJECTS? COULD THIS BE IMPLEMENTED ON A NATIONAL LEVEL BETWEEN THE VARIOUS CITY AND COUNTY COUNCILS?

From the literature it would seem that the creation of a ‘central repository’ would be a suitable solution to facilitate the sharing and transfer of knowledge between projects for DCC. The central repository, essentially a database to store lessons learned, may be a suitable solution as it would provide the opportunity for current and future projects to not only access valuable information, but also add to this ‘body of knowledge’ through their own future experience. In Chapter 2, Newell (2006) discussed how capturing lessons learned by project teams and storing them on a database for others to access is a widely adopted strategy to transfer knowledge from projects and embed it in the parent organisation. This would provide future project teams with various types of knowledge which could potentially impact on the success of their project. As lessons learned from each completed project are added to the database, it would become more and more valuable and would have a greater influence on the success of future projects.

From the findings in Chapter 4, it would seem that a central repository would be welcomed by the employees of DCC. Patricia Reidy (2013) identified the need for “a simple, easy to use, computer based KMS that could be completed in a very short space of time for each project, max 1/2-1hour”. However she reinforced the notion that “anything onerous or complicated would not be used”. While Paul Carrol (2013) supported this opinion stating that he would like to see “an online system which is kept up to date and actively monitored”. He stressed the point that “it would have to be reviewed and updated
regularly for it to be successful”. A central repository would potentially allow the employees of DCC to avoid repeating past mistakes and save time and money on future projects.

If a central repository were to be implemented successfully in DCC it could potentially be introduced on a national level to all city and county councils. This would benefit each organisation from learning lessons from projects not only within their own council but also from projects in other councils. This could lead to significant savings for the Government of Ireland. However, a multi organisation repository would introduce a series of further complexities which, due to time constrains, will not be analysed in this paper. The creation of a national repository between the councils would be an enormous project. It would require significant time and money investment in order to be formulated and implemented. The resistance to change might be too much in rolling out such a system on a national level. It might prove to be a better use of resources if the Government were to push for each council to develop their own knowledge management system first before entertaining the idea of a national repository. Due to the short nature of this paper, the focus will remain on DCC and their quest for a knowledge management system.

For DCC, a central repository would certainly be a step in the right direction. However, implementing a standalone IT based system will be futile without the support of the top level management in the organisation. O’ Riordan (2005) claims that in order for a knowledge management system to succeed it requires considerable effort and cultural change on the part of organisations. In particular, in order to make a difference, there is a need to introduce a comprehensive approach to the management of organisation knowledge rather than discrete, often technology driven, interventions.

Much organisational focus has been put on knowledge management initiatives in recent years, and information and communication technologies (ICTs) have been at the core of many of these initiatives. Despite the effort, organisations have discovered that leveraging knowledge through ICTs is often difficult to accomplish (Walsham, 2001). ICTs appear to provide employees, and the organisations for which they work, much faster, cheaper and broader sources of data and means of communication to enable them to generate and share knowledge. While it is unsurprising that many organisations have devoted significant amounts of time and money in knowledge management initiatives in recent times, McDermott (1999) stated that most organisations quickly learn that leveraging knowledge through the use of ICTs is difficult to accomplish.

The complex nature of knowledge, as discussed in Chapter 2, poses certain issues to be considered before adopting a knowledge management strategy which focuses solely on the use of a central repository. Some current literature argues that although explicit documentations of lessons learned is necessary, it is also somewhat limited in terms of its usability (Pemsel & Wiewiora, 2013; Pemsel & Widen, 2011). The conversion of explicit knowledge to tacit, or vice versa, is an intricate process due to individual nature of how human beings interpret information. The process of externalisation and internalisation, as described in the SECI model, is not always a straightforward process as illustrated by Nonaka. While this presents a flaw in the role of ICTs in knowledge management it is not necessary to abandon ICTs or the idea of a central repository. Rather, the challenge is to design a system and an approach for DCC which incorporates all aspects of knowledge creation and transfer in simple easy-to-use system which will add benefit to the organisation.
5.2 KNOWLEDGE MANAGEMENT STRATEGY - THE SOLUTION

Having analysed and discussed the findings from Chapter 4, a knowledge management strategy has been formulated to ensure DCC maximise its knowledge management potential. Because knowledge management reflects a new approach to working, it has to involve a comprehensive approach. O’ Riordan (2005) claims that while organisations may need to start with one single initiative, it needs to be explained to staff that this represents only one part of a broader agenda. The following section provides details of both a short term and a long term strategy for DCC to adopt. In the short term DCC should introduce a central repository of lessons learned which would feed in to the long term strategy of implementing a communities of practice (CoP) initiative. Both initiatives are explained in the following section along with a list of barriers and enablers which DCC may encounter.

5.2.1 CENTRAL REPOSITORY

In Chapter 2, the two strategies of knowledge transfer were discussed, codification and personalisation. Gammelgaard and Ritter (2005) noted that the two strategies were ‘treated as opposite ends of one scale’. However they put forward an alternative view involving a combination of the two strategies thereby taking into consideration their interdependencies as illustrated in the model below.

![Use of Personalization Strategy](image)

Figure 4: Gammelgaard & Ritter (2005) - Model for Knowledge Retrival

Having analysed the results in Chapter 4, it is apparent that the Roads and Traffic Department of DCC only use two of the mechanisms outlined by Gammelgaard and Ritter. Depending largely on individual memory and social capital, DCC relies heavily on a personalisation strategy, which as previously identified can cause major problems as the knowledge is not embedded in the organisation.

“It was fine. It worked until February 2012 when a huge amount of people left. Then a huge bank of knowledge left the department. The knowledge literally just walked out the door” (EM, 2013).

If DCC were to introduce a database or central repository, it would complement their existing personalisation strategy by providing a more balanced approach to knowledge transfer. This has been identified in the literature, Section 2.1.3, as being the most effective strategy for knowledge
management. By codifying the knowledge, it could prevent some of the problems that DCC has experienced in the past as the knowledge would become embedded in the organisation. A database or central repository of codified knowledge would also reduce the individual effort needed to retrieve information and the effort of individuals who are frequently separated in time and physical proximity (Huber, 1991).

A central repository of lessons learned would provide employees easy access to valuable information and would allow them to find the information themselves without having to contact others to get the information they need. It could facilitate individual and organisational learning and improve efficiency gains due to the reduction of redundant activities and duplications. Once a project is complete the experiences and lessons learned would be captured, synthesised, documented and added to the repository which would increase the organisational knowledge of DCC.

5.2.2 COMMUNITIES OF PRACTICE

The introduction of a central repository would certainly be a step in the right direction DCC. However, as Gammelgaard and Ritter illustrated in their model, Figure 4, the most effective strategy would be to intertwine codification and personalisation strategies through the establishment of virtual communities of practice (CoP). This should be a long term goal for DCC in terms of its knowledge management strategy and would facilitate nationwide transfer of knowledge between councils.

Wenger et al. (2002) defined CoP as ‘groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis’. They have often been evaluated as efficient in transferring tacit and complex knowledge between their participants (Brown and Duguid, 1991; Gertler, 2003). Section 4.4 presented a challenge as it was evident that knowledge sharing between experts can be very beneficial, both on an individual and organisational level, however, the cost of such events ensured that their occurrence “are very rare” (COL, 2013). An online CoP involving the various city and county councils could be an appropriate solution to this problem.

Koh and Kim (2004) speak of a distributed or virtual CoP, and refer ‘to a group of geographically distributed individuals who are informally bound together by shared expertise and shared work interests’. Similar to CoP, they operate with informal goals, a common language, shared understandings and reasonable levels of trust. The advantage of an online virtual CoP is that they provide direct link between those who need help with a specific problem and those who are in a position to provide advice (Perkmann et al. 2005). If DCC were to adopt a knowledge management strategy which included the use of CoP, the organisation could greatly increase its organisational knowledge as experts from the same departments in the various councils throughout Ireland could share their experiences and ideas.

Just like the central repository, where the introduction of a database alone would provide little benefit to the organisation without the appropriate top level management support, setting up a CoP initiative requires a well thought out implementation procedure. Wenger et al. (2002), firmly believes that CoP are ‘organic… [and therefore] designing them is more a matter of shepherding their evolution than creating them from scratch’. According to Nirmala & Vemuri (2009), Wenger’s attitude is much more appropriate as opposed to having a ‘top down drive approach where communities are created and individuals are forced to join them’.
5.2.3 BARRIERS

Before implementing a successful knowledge management strategy, DCC must be aware of the barriers preventing them from doing so. Section 2.3 outlines some of the fundamental challenges of management such as organisational culture, motivation, cost etc. As well as addressing those challenges, DCC must address the challenges specific to the strategy which they intend on implementing, which consists of introducing a central repository and developing communities of practice.

Graham and Thomas (2007) investigated the implementation of lessons learned practices within PJ Hegarty & Sons, a leading Irish construction organisation which recently implemented such practices as part of the Engineers Ireland Continuing Professional Development (CPD) accreditation scheme. In the study they identified barriers which reduced the successfulness of the lessons learned database which was implemented. The barriers identified were:

- Lack of time to capture and use learning experiences
- Usually captured at the end of the project when many people have moved on
- Loss of insight due to time lapse between lesson and recording
- Failure to uniformly document lessons learned in a useful manner
- Lack of proper classification system
- Difficulty integrating with existing operations and procedures
- Difficulty sharing lessons between experienced and inexperienced individuals
- No motivation or perceived benefits for individual employees
- Requires people to internalise lessons learned and apply them at work
- Difficult to measure and communicate benefits

This list is similar to the barriers identified by the interviewees in Section 4.3 while also falling under the general themes of time, motivation, discipline and skills which were the four key factors identified by Schindler & Eppler (2003) in Section 2.4, which inhibit the elicitation and documentation of lessons learned.

While CoPs play a central role in the knowledge management strategies of numerous multinational corporations, including, Caterpillar (Powers, 2004), Chevron, Ford, Xerox, Raytheon, IBM (Ellis, 2001), and Shell (Haimila, 2001), they too are subject to challenges which must be overcome. Ardichvili (2008) investigated the barriers to knowledge sharing and learning in virtual communities of practice. He identified four main types of barriers which must be overcome in order for a community of practice initiative to become successful. The barriers identified were:

- Interpersonal (e.g., fear of criticism; fear of misleading others [Ardichvili et al., 2003])
- Procedural (e.g., lack of clarity on best ways of sharing; lack of clarity on what knowledge cannot be due to security and confidentiality considerations [Ardichvili et al., 2003; Garfield, 2006])
- Technological (lack of technological aptitude or acceptance of technology as means of communication [Ardichvili et al., 2003])
- Cultural (In-group orientation; saving face; modesty; Power Distance [Ardichvili et al., 2006; Bansler & Havn, 2003; Hutchings & Michailova, 2004; Wenger et al., 2002])
In order for DCC to reap the full benefits of knowledge management they must overcome the various barriers identified previously in Section 5.2.3. From the literature, it is evident that certain ‘enablers’ can help to successfully overcome these obstacles. Enablers are ‘the mechanism for the organisation to develop its knowledge and also stimulate the creation of knowledge within the organisation as well as the sharing and protection of it. They are also the necessary building blocks in the improvement of the effectiveness of activities for knowledge management’ (Ichijo et al., 1998; Stonehouse and Pemberton, 1999). In related research, knowledge management enablers include the methods of knowledge management, organisational structure, corporate culture, information technology, people, and strategies, etc. (Bennett and Gabriel, 1999; Earl, 1997; Zack, 1999; Davenport, 1997; Long, 1997; Bose, 2004). Enablers which DCC must consider carefully before implementing their knowledge management strategy include:

**Strategy and Leadership:** Pieris et al. (2003) claim that ‘when one discusses knowledge management we need to have a strategy first and the members within the group need to be willing to plan and contribute to it’. Zack (1999) believes that the most important background factor that guides knowledge management is the business strategy, as he illustrates in Figure 5 the relationship between knowledge strategy and organisation strategy.

After understanding the essential connection between knowledge management and strategy, leadership then presents itself as a key factor. Some scholars ponder the introduction of knowledge management initiative as a type of organisational change; therefore, the level of support by the top management will determine its success or failure (Liebowitz, 1999). Usually the commitment of the top level management will govern the quantity of resources allocated, and the amount of time that is allowed for the members to conduct the creation and sharing of knowledge for the knowledge management program (Von Krogh, 1998). Senior management support is crucial, both to get the project off the ground, and also to ensure it becomes embedded in organisation life and part of ‘the way things are done around here’. This means that in order for DCC to successfully implement a knowledge management program, the support and direction must come from the top down. Unless senior management provide leadership the initiative will not fulfil its potential.

**Corporate Culture:** As can be seen from the literature in Section 2.3 it is widely accepted that corporate culture is the key influence on knowledge management or the effectiveness of knowledge sharing. Corporate culture is the combination of value, core belief, behaviour model, and emblem. It represents the value system of an organisation and will become the employees’ behaviour norm. Every organisation’s culture is an independent entity different than any other organisation. Ruppel
and Harrington (2001) believe knowledge is a process instead of an asset, and hence in order to maximise its value an organisation needs to create an environment that helps the flow of knowledge. For the central repository and the communities of practice initiative to be successful and add value to the organisation, DCC must create and environment which encourages the creation and sharing of knowledge. As stated in Section 2.3, a positive set of values, attitudes, and expectations towards knowledge facilitates the willingness of people to share knowledge and to trust in knowledge from other persons. DCC must strive to create a corporate culture which enables knowledge management rather than inhibit it.

**People:** As stated in Section 2.1.3, people are the core of creating organisation knowledge because it is people who create and share knowledge. ‘Knowledge management isn’t about technology, it’s about fostering processes that encourage employees to share what they know in a way that increases others’ capabilities’ (O’Dell & Hubert, 2011). People are the most important resource an organisation has in regards to knowledge management. DCC must realise this as it is crucial for an employee to be willing and motivated to participate and engage in the obtaining and sharing of knowledge (Szulanski, 1996). Irrespective of what database DCC could potentially introduce, if the employees are not willing to engage with it, the system will fail. The key consideration for DCC is to ensure that the employees are the central component of any knowledge management system.

**Information Technology:** Information technology of knowledge management generally refers to the fundamental building block of information technology that supports and facilitates knowledge management; for example: database, knowledge platform, performance evaluation management system, and integrated performance support system, etc. (Beckman, 1999). Hence, information technology can enable rapid search, access and retrieval of information, and can support collaboration and communication between organisational members (Ichijo et al., 1998). Reviewing the literature discussing applications of IT to organisational knowledge management initiatives reveals three common applications:

- the coding and sharing of best practices,
- the creation of corporate knowledge directories, and
- the creation of knowledge networks.

Information technology has unlocked huge opportunities in respect of knowledge management, while simultaneously adding to the challenge due to the sheer volume of information being generated and passed around i.e. ‘information overload’ (O’Riordan, 2005). DCC must bear in mind that technology is just a crucial enabler. It can help connect people with information, and people with each other, but it is not the solution. As stated, technology can certainly help make the using and sharing of knowledge much easier, but it can also act as a barrier to knowledge management if not implemented properly. Information systems designed to support and augment organisational knowledge management need to complement and enhance the knowledge management activities of individuals and the organisation as a whole. DCC must approach technology with caution when implementing their knowledge management strategy.
CHAPTER 6 – CONCLUSION

The concluding chapter in this paper will be split into three sections. The first section will provide a summary of the research paper. Following that, the two strategies will be stated along with a set of recommendations for DCC in order to improve their knowledge management practices. Finally the limitations of this paper will then be outlined.

6.1 SUMMARY

This research paper set out to examine how knowledge is managed in a public sector project environment with particular focus on how the ‘lessons learned’ on projects are captured and disseminated. As anticipated, the concept of knowledge management has taken its time to devolve from the private sector to the public sector. While there are a number of challenges surrounding knowledge management, such as culture, technology etc. these have been mitigated from the value that knowledge management adds to an organisation, especially for a project orientated organisation. Successful knowledge management facilitates project-oriented organisations and employees with the information required for better decision making. This in turn enables considerable cost saving in time and effort. In many cases successful project completion is based on accumulated knowledge, and individual and collective competence (Kasvi et al., 2003).

Bolger (2009) states that knowledge management in the public sector is ‘an area which cannot afford to be ignored’ any longer. Reflecting the literature, it is clear from the results that DCC have been engaged in a limited form of knowledge management practice for some time, albeit unbeknownst to them. The results show a heavy reliance on a personalisation strategy for knowledge transfer, which can pose certain problems for an organisation, as DCC themselves experienced in 2005. While it is clear from the results that some form of formal knowledge management strategy is on the horizon for DCC, though this is still very much in its infancy.

Both a short term and long term solution was put forward in this paper to enable DCC maximise its knowledge management potential. In the short term DCC should introduce a central repository of lessons learned which would feed in to the long term strategy of implementing a communities of practice (CoP) initiative. If DCC were to introduce a database or central repository, it would complement their existing personalisation strategy by providing a more balanced approach to knowledge transfer. By codifying the knowledge, it could prevent some of the problems that DCC has experienced in the past as the knowledge would become embedded in the organisation. The introduction of a central repository would certainly be a step in the right direction DCC. However, as the literature shows, the most effective strategy would be to intertwine codification and personalisation strategies through the establishment of virtual communities of practice. This should be a long term goal for DCC in terms of its knowledge management strategy and would facilitate nationwide transfer of knowledge between councils.

Before implementing a successful knowledge management strategy, DCC must be aware of the barriers preventing them from doing so. Section 2.3 outlines some of the fundamental challenges of management such as organisational culture, motivation, cost etc. As well as addressing those challenges, DCC must address the challenges specific to the strategy which they intend on implementing. Section 5.2.3 outlines barriers in relation to the introduction of a central repository and
developing communities of practice. In order for DCC to reap the full benefits of knowledge management they must overcome these various barriers. From the literature, it is evident that certain ‘enablers’, such as corporate culture, I.T. etc., can help to successfully overcome these obstacles. The next section of this paper provides a number of recommendations to DCC, in the hope of helping them to ensure the successful implementation of a comprehensive knowledge management strategy.

6.2 RECOMMENDATIONS

Based on the literature reviewed in this paper, as well as the analysis and discussion of the results presented, a number of recommendations were compiled to aid DCC in their implementation of the knowledge management strategies. The two strategies which are recommended consist of:

1. **The implementation of a central repository in the short term in order to facilitate internal knowledge capture and transfer**: To combat the heavy reliance on personification it is recommended that some form of codification system be introduced in order to embed the knowledge in the organisation. A database or central repository of lessons learned from projects would be an ideal tool to capture and share knowledge within the organisation. The lessons learned could be in the form of stage-gate or post-project reviews.

2. **The introduction of a CoP initiative to facilitate nationwide knowledge transfer between councils**: While it might not be possible to implement a nationwide central repository to facilitate knowledge transfer between councils, a CoP initiative could prove to be the ideal solution to this challenge. This would further increase the harnessing power of knowledge in DCC as would allow experts in the same departments of the various councils in Ireland, share ideas, experiences and knowledge about projects. CoP have been identified in the literature as the most effective and efficient method of knowledge transfer and could be utilised by DCC to add value to the organisation.

While Section 5.2 outlines specific barriers and enablers to the implementation of the two strategies, high level recommendations to assistance DCC in achieving their knowledge management targets are provided below. The recommendations for DCC are:

3. **Put in the effort ‘up front’**: A successful knowledge management initiative is one that becomes a part of organisation culture. For this to happen, knowledge management interventions have to reflect and support business needs and the way in which people work. It is important to listen to staff and understand their needs and views on the matter, as a comprehensive knowledge management system will have little benefit to the organisation if it is not being used by the staff. People have been identified as a crucial factor in the success of knowledge management systems. Therefore, time and effort must be spent in formulating the knowledge management system before implementing it to ensure it reflects the needs of the staff. A comprehensive knowledge audit should be carried out across all departments to evaluate how and where knowledge is used in business processes. Through an audit, DCC can identify and evaluate the critical knowledge and information used by staff. It also helps to identify enablers and barriers to knowledge and information sharing.
**4 Senior management support is critical:** Senior management support, and the driving of the initiative by key individuals is vital, both to get the project off the ground, and also to guarantee it becomes embedded in organisation life and part of ‘the way things are done around here’. In practical terms this means that managers have to be seen to use the resources available and participate in initiatives like CoP.

**5 Change Management:** As with anything worthwhile it will not happen without resources. A knowledge management team should be established to implement the change within the organisation. The team should reflect many areas of the organisation and while not required to be experts in the area, it is important that they are committed to the exercise. While knowledge management should never be regarded as an IT project, specialist IT experience is required in order to ensure that technological possibilities are exploited fully.

**6 Establish knowledge management milestones and indicators:** It is essential that there is some benchmark of what DCC aspires to accomplish from its knowledge management strategy. Milestones and indicators should be set in regards to specific initiatives. Examples might include:

- demonstrable time-savings and improvements in the way people fulfil their tasks and responsibilities
- use of knowledge management systems i.e. measuring the amount of times staff access the central repository in relation to other resources
- a shared sense (organisational and stakeholder) that the knowledge management initiative is a success and represents value for money (as measured by surveys of management, staff and key stakeholders).

**7 Show the benefits of knowledge management:** People will very quickly engage with something if they see it as supporting and improving what they do rather than an extra obligation. As identified in the results presented in this paper, staff will want to know ‘what's in it for me’. And as staff are key to the success or failure of knowledge management initiatives it is important to get them on board with the system by showing how it will positively affect their day to day job. It is also important to show the benefits of knowledge management to the overall efficiency of the organisation i.e. is it reducing redundant spending.

**8 Develop incentives and reward mechanisms:** If staff see that knowledge management is given a high priority by senior management they are far more likely to engage with it. As previously noted, managers taking a lead in relation to knowledge management initiatives is one way of emphasising its importance. This can also be complemented by recognising and rewarding staff who support and contribute to knowledge management and sharing initiatives.

**9 Do not underestimate the cultural/behavioural challenge** Knowledge management represents a new approach to doing business and as with any change has a high risk of failure. The literature identifies organisational culture as having a significant influential on the success or failure of a knowledge management initiative. People need to be supported in learning and engaging with new practices. Education and training should be provided to staff across all levels of the organisation to instil knowledge management principles into the organisation.
Knight and Howes (2003) conclude that unless knowledge management interventions are ‘firmly embedded into the culture and processes of organisations, and appropriate reward and motivation systems are in place, they will fail to deliver what the architects promised of them’.

6.3 LIMITATIONS

The limitations of this paper reside in the fact that the study focuses on a small collection of employees within a single department in DCC. It may not be appropriate to take the results of what these employees state and use them as a representation for all the employees within DCC. A more accurate evaluation of DCC would be achieved had a greater number of employees been interviewed across a range of departments. However due to time constraints this was not possible to achieve in this study.

As stated in the previous section, it is recommended that DCC conduct a comprehensive knowledge management audit in the organisation to get a more accurate idea of the current situation within the organisation and the potential for a knowledge management initiative.
Bibliography


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APPENDIX A – INTERVIEW QUESTIONS
Knowledge Management in a Public Sector Environment. A Case Study: Roads & Traffic Planning Dept., Dublin City Council

**Purpose:** The purpose of this research project is to provide an insight how knowledge is managed in a public sector environment, namely the Department of Roads & Traffic Planning in Dublin City Council. This project will focus on the capture and sharing of ‘lessons learned’ from completed projects. By answering a few questions it would greatly increase my knowledge of any existing knowledge management system within the Department and I would be very grateful for any input you may have.

**Anonymity and Confidentiality:** Informants will remain anonymous and that information they provide will remain confidential. I will ensure the questionnaires remain in a secure location for the duration of the research project and are disposed of properly after I have finished with them in line with UL policy guidelines.

Informants have **right to refuse** to participate or **withdraw** at any time.

**Section A**

Q1 Are post project reviews/appraisals carried out on all projects?
- Yes  
- No  

If ‘No’, why not?

Q2 In your opinion, is there a benefit to an organisation of carrying out post project reviews?
- Yes  
- No  

Explain:

Q3 In relation to ‘post project reviews’, is there a knowledge management system (i.e. a system where lessons learned on projects are documented and available to be shared) in place in the Roads & Traffic Planning Dept., of Dublin City Council?
- Yes  (If Yes, avoid Section C)
- No  (If No, avoid Section B)
Section B

Q4  Could you provide a brief description of what this Knowledge Management System consists of.


Q5  How does this benefit the organisation?


Q6  Are there any changes or improvements that you would like to see in regards to the current knowledge management system?


Q7  What are the challenges facing the Roads & Traffic Planning Dept. of Dublin City Council when it comes to improving their knowledge management system?


Q8  In world without time & money restraints, what would your ideal knowledge management system comprise of?


Section C

Q9  What are the barriers/challenges that prevent the Roads & Traffic Planning Dept. of Dublin City Council from implementing a knowledge management system?


Q10  How could these barriers/challenges be overcome?


Q11  In relation to post project reviews, would you like to see a knowledge management system being introduced to the Roads & Traffic Planning Dept. of Dublin City Council, to allow for the capturing and sharing of lessons learned on projects?

Yes  _
No   _
Explain


Q12  In world without time & money restraints, what would your ideal knowledge management system comprise of?


Section D

Q13 To what extent (if any) is knowledge shared between councils?

________________________________________________________________________

________________________________________________________________________

Q14 What prevents the sharing of knowledge between various Councils?

________________________________________________________________________

________________________________________________________________________

Q15 Contact Details:

Name: ______________________________

Position held: ______________________________

E-mail Address: (For clarification purposes only) ______________________________

Thank you for your time, your input is greatly appreciated.