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Investigating the viability of virtual communities of practice in the public sector

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Investigating the Viability of Virtual Communities of Practice in the Public Sector

Sue Bolger

A dissertation submitted in partial fulfilment of the requirements of Dublin Institute of Technology for the degree of M.Sc. in Computing (Knowledge Management)

July 2009
I certify that this dissertation which I now submit for examination for the award of MSc in Computing (Knowledge Management), is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

This dissertation was prepared according to the regulations for postgraduate study of the Dublin Institute of Technology and has not been submitted in whole or part for an award in any other Institute or University.

The work reported on in this dissertation conforms to the principles and requirements of the Institute’s guidelines for ethics in research.

Signed: _________________________________

Sue Bolger

Date: 29 July 2009
ABSTRACT

Communication and collaboration are very important topics in the domain of Knowledge Management. Knowledge, which exists within the employees of an organisation, can be extracted and harnessed effectively to become an extremely valuable asset to the ongoing business goals and objectives of the organisation. This embedded knowledge must be released in an appropriate manner in order for it to be usable and, it has been shown that dialogue and discussion through the use of an online tool, enables this release and re-use of vital concepts and knowledge.

This research investigates the area of communication and knowledge sharing amongst disparate Irish Civil Service groups. Government organisations are primarily knowledge-driven bodies and the loss of both tacit and procedural knowledge can prove highly detrimental. By participating in collaborative practices such as Communities of Practice and by using extended online communicative tools such as threaded forums and wikis, it is hoped that knowledge will be formally retained within the organisation, and that employees can develop, learn and become more valuable to an organisation.

Investigating the barriers and motivations for such participation exposes areas for senior management in an organisation to focus their strategic goals in the area of real-life Knowledge Management; utilise existing technologies to better manage the knowledge that exists and circulates through their organisation; and thereby encourage a more participative and skilled Knowledge workforce and move in the direction of becoming a Learning Organisation.

For this experiment, extended moderation of a collaborative workspace was monitored in the hope of encouraging broader understanding and use of this workspace and a realisation of the value of the input of others in progressing real-life working habits.

Key words: Knowledge Management, Collaboration, Communities of Practice, Online Knowledge Sharing Tools, Government Organisation, Learning Organisation
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1. INTRODUCTION

1.1 Background

The Irish Public Sector is primarily a knowledge-based entity, not concerned with the generation of profit but rather focused on providing services to citizens of the Republic of Ireland and designing policy which ensures such services are provided at the best level possible while maintaining value for money for taxpayers. A vast amount of policy and procedural knowledge exists within every Government department, knowledge, which must be appropriately harnessed to maintain standards of best practice and efficient working practices, as well as ensuring that a broad and full understanding of the business is extended to the complete staff cohort.

As per Nonaka (1995), tacit knowledge that is exposed to larger groups and combined with the tacit knowledge of others and with explicit organisational knowledge becomes more and more useful to an organisation as it is adopted into the working minds of those who come into contact with it. Within this spiral, new knowledge emerges as people become more comfortable with sharing and adopting new concepts and more confident in the effect of their contributions. Although Knowledge Management and Knowledge Sharing must be formally introduced to an organisation through its strategic initiatives and viewpoints, groups of people who communicate over similar interests will almost always already be in existence in any large organisation. For a community to exist, these groups must either formally or informally discuss relevant issues for which a shared understanding and interest already exists (Wenger, 2006). Departments in the Irish Civil Service share a number of common areas with most working as separate entities in the fields of, for example, Human Resources, IT and policy implementation (i.e.: although policy is uniform across the Civil Service, it’s implementation is administered by individual Departments).

Departments vary in size and in the level of expertise of their staff. Natural wastage through resignation and retirement, staff moves through location transfer and promotion, and an inflow of new staff to the Civil Service all mean staff are not always
as well-informed as they would like to be while many areas are populated with experts in their field.

Such a gap in field-knowledge was exposed when representatives from HR units in 39 Government Departments attended the implementation of a new piece of software to produce statements of pension-specific details for employees. It became clear that skill levels varied greatly with some representatives being experts in their field and some possessing little or no pension-specific knowledge or knowledge of the Human Resource Management System. Throughout the implementation course, participants could verbally and demonstrably communicate with one another and thus improve their knowledge of how both systems worked and how the data that was input to one system (HRMS) affected that data which was produced by the Pension System.

A number of topic specific networks exist in the Civil Service (a Pension Network included) and the meeting of these network groups is facilitated by the Department of Finance. An executive committee of members arrives upon content for discussion at these quarterly meetings. An attempt to introduce some form of knowledge sharing and communication, through an online resource, amongst these groups has been put in place but, while there is some activity amongst a small number of network members, activity is not strong enough to prove the real benefits of communication or whether participants are, in fact, learning and putting new concepts into practice by their use of the tool. Gilly Salmon (2000) advocates the necessity for heavy moderation – at least at the early stages of collaboration – in striving towards a more creative, social and supportive working environment (which should be seen as a learning environment where members are being pushed and encouraged all the time to be the best they can be at the tasks they are performing).

1.2 Research problem

The primary problem, which was addressed by this dissertation, was the development of a framework/methodology for the implementation of collaborative practices (specifically through the use of online collaborative tools) within Civil Service network groups in order to ensure uniform, best practices are adhered to across the organisation as a whole. A strong element of moderation included in this framework is
essential as well as support of participants of the tool and buy-in from a number of areas of the organisation, not least senior management in their ongoing support of the practice and its inclusion in the development of strategic initiatives. It is perceived that extended use of these collaborative practices will initially lead to a more confident workforce, which is not afraid to share their knowledge and opinions. The ongoing anticipation is that participation will grow and the benefits and value of communication will be visible to participants themselves as well as to management in a stronger and better-working staff.

1.3 Intellectual challenge

There has been some work done on collaboration in the Public Sector up to this point such as O’Brien’s (2000) case study on the inclusion of non-senior staff members’ input in a new area of a HR project and O’Riordan’s (2005) analysis: *A Review of Knowledge Management in the Irish Civil Service*, but this research focuses specifically on utilising existing frameworks which exist for the support of Knowledge Management, Knowledge Sharing and Organisational Learning in an attempt to break down barriers which exist for collaboration (specifically amongst Government workers, these barriers can include a lack of visible reward for knowledge sharing combined with a fear that of making oneself dispensable if knowledge is exposed, a lack of confidence in ones own knowledge and therefore a lack of desire to expose oneself, and a fear of the political correctness of sharing opinions and experiences).

A climate of change is necessary for the desired effects of collaboration to take hold along with a number of existing concepts from moderation to instilling staff with a sense of how powerful their experiences truly are. This research hopes to show how these concepts should best be employed within Civil Service groups.

1.4 Research objectives

The following objectives have been achieved throughout the dissertation and contributed to the overall outcome:

1. Establish the work done to date on Knowledge Management in Public Sector bodies and current practices in the Irish Civil Service in general.
2. Establish barriers and motivations that exist when it comes to Knowledge Sharing.

3. Investigate the relationship between the introduction of Knowledge Management and strategic frameworks within organisations.

4. Analyse best practice (and determine relevant tools for Knowledge Sharing) to the most appropriate models to guide the introduction of knowledge collaboration in the Irish Civil Service.

5. Using identified models evaluate the effectiveness of the strategy used for the introduction of a knowledge collaboration framework into the Irish Civil Service.

6. Clearly identify key challenges and enablers which guide the creation of a strategy to introduce knowledge collaboration into the Irish Civil Service.

7. Demonstrate, through experiment, the necessity of moderation and encouragement to the success of a knowledge sharing space in a public sector organisation.

8. Reflect on the process, identify future work and conclusions

1.5 Research methodology

For the purposes of this research, a number of methodologies were implemented. Various sources were accessed to: realise a broad view of current Knowledge Management theories and practices; identify existing KM initiatives in the Irish Civil Service and discover barriers and motivations to contribution; and discover models which assist an organisation reach the full potential of its knowledge. Sources including:

- Journals
- White Papers
- Organisational and Government websites
- Books

Further and more focused research was performed in the form of survey and questionnaires to determine attitudes to collaboration in general, perceived benefits of knowledge sharing within a specific arena, and finally oversee attitudes on collaborating and communicating online with peers and the likely uptake of a piece of software which would support and enable collaboration within the Civil Service.
A number of semi-structured interviews were carried out to determine current attitudes amongst specific Civil Service employees:

- Currently within Department of Finance, there is a small team focussed on communication technologies (Government VPN/video conferencing), members of this team were engaged to assess technological implications of Web 2.0 in public sector.
- Other senior Civil Servants were interviewed to assess likely uptake of collaborative software in Government departments.
- An expert in a current KM initiative (run by the Office of the Revenue Commissioners) was interviewed to determine how that project has been implemented and whether it is successful in supporting the transmission of knowledge throughout the organisation.
- A number of staff currently facilitating Civil Service networks were interviewed to understand current initiatives and moderation of collaboration, barriers which have arisen – both organisational and human-based – and opinion on how suggested frameworks could be appropriately integrated into current processes.

1.6 Resources

- This research began with informal discussion amongst users regarding the implementation of the new pension system, which unearthed strong and positive desires to be able to communicate on a more regular basis with staff involved in a similar working situation.
- From a technical point of view, the e-learning and communication tool MOODLE [1] had recently been implemented prior to this body of research. In order to fully understand how collaborative tools were implemented (installing software, back end database, web-server, front end customisation and access of the tool), and how usage could be encouraged from the outset, the Wiki product MediaWiki was installed and tested for functionality locally by the researcher and an intimate pilot group.
- Google Scholar was relied heavily upon for discovering the most up-to-date literature (including books, journal papers etc.) available and the DIT Library online resource was very useful for accessing these.
Access to the WWW was invaluable to maintain a current viewpoint on knowledge sharing tools and technologies including the regular newsletter from David Gurteen [2].

Contact with other Civil Servants and especially members of the Civil Service Training and Development Centre was invaluable to gauge opinions on KM and collaboration in the Civil Service as well as the progression and evaluation of the online resource tool and the moderating concepts implemented.

Regular contact with the project supervisor ensured scope of the project was maintained and new ideas could be discussed for their viability within this dissertation. Contact was maintained through e-mail and a number of face-to-face meetings.

1.7 Scope and limitations

This dissertation focuses primarily on the Public Sector with little comparison between Private and Public sector implementations of Knowledge Management innovations & systems, although many barriers and motivations to participation are common across both types of organisation. As such, the capabilities of Public Sector organisations for new initiatives are investigated with specific regard to organisational influences (change management and organisational culture issues) that may affect adoption. Quantitative research such as questionnaires & interviews are limited to within Public Sector organisations, though not limited to a single department but moreover extended to groups communicating across multiple departments.

1.8 Organisation of the Dissertation

This dissertation is organised as follows:

- Chapter 2:
  Concepts such as Knowledge, Knowledge Management and Knowledge Management Systems are introduced in this chapter. The importance of the Spiral of Knowledge is discussed alongside user’s roles within the Knowledge Management process.
• Chapter 3:
The importance of communication and collaboration are introduced in this chapter, with specific value placed on Communities of Practice. The involvement of people in the KM process is highlighted along with a discussion on barriers and motivation to participation. Online collaboration is discussed as a primary tool for facilitating Communities of Practice.

• Chapter 4:
An overview of the Public Sector and the Irish Civil Service occurs in chapter 4. The need for an underlying change management initiative and some strategic impetus is vital to the success of a Public Sector KM initiative.

• Chapter 5:
The strategic drive of Knowledge Management is assessed in this chapter and there is a formal discussion on the delivery of a Statement of Strategy for Government departments.

• Chapter 6:
This chapter begins with a discussion regarding measuring a KMS to maintain interest. Challenges to a change in culture begins a discussion regarding cultural factors from a Public Sector point of view.

• Chapter 7:
The benefits of fostering a Learning Organisation are evaluated in this chapter from a high-level, followed by an assessment of a project which was implemented using learning disciplines.

• Chapter 8:
The Knowledge Management initiative to create an online resource is introduced in this chapter.

• Chapter 9:
The results of an attempt to follow a model for online moderation and encouragement are analysed in this chapter.

• Chapter 10:
The project is drawn to a conclusion with an evaluation of the online resource against models for collaboration and learning disciplines.
2 KNOWLEDGE MANAGEMENT

2.1 Introduction

In order to maintain competitiveness within a tough and ever-growing economy (increasingly organisations must compete within a global as well as a domestic market, Davenport (2000, p. 13)), the onus rests with organisations and, more broadly, business organisations to attempt to expose, maintain and focus, to a productive level what knowledge is available to them through their collective employees. Aside from business organisations, non-business and Government organisations perform a supporting role to economies in that, while no profit is generated and therefore pumped into an economy, they perform an essential policy role wherein they identify, formulate, develop and implement policy and programs for the promotion of economic and social change. In his discussion of the 12 Principles of Knowledge Management, Allee (1997) advocates the power of knowledge and its function to multiply upon being shared: Allee’s Third Principle is that knowledge “seeks community”. Allee (ibid) also describes knowledge in terms of “capital” for an organisation and the requirement for the implementation of best practices within organisations in managing their knowledge. This ensures that an organisation retains control of how its knowledge is administered and, hopefully, expanded.

In this chapter the concept of Knowledge and its existence in an organisation will be discussed. A definition of what Knowledge Management is will be investigated, identifying some of the basic concepts surrounding Knowledge Management and Knowledge Management Systems. What constitutes a Knowledge Management System for the purposes of this thesis is identified alongside a review of Knowledge Management technologies and the spectrum of lifecycles of Knowledge Management Systems. User roles within a KMS and where the impetus to implement a Knowledge Management Initiative should stem from are also identified in this chapter.

2.2 Some of the Basic Tenets of Knowledge Management

Fundamental to the basic understanding of Knowledge Management are some basic principles that must be understood.
2.2.1 Knowledge

Knowledge must be considered as being separate from data¹ and information² and as a “fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. (...) In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms” (Davenport, 2000, p. 5). Knowledge is not simply having some piece of information but understanding where it fits into, for example, business units or processes. Utilisation of information for productivity comes with the ‘know-how’ and the ‘know-why’ certain things occur within an organisation as they do. Oftentimes this implementation of knowledge happens without members of the organisation being aware of why it is done in this way, techniques and heuristics³ are passed from employee to employee during on-the-job training or overseeing.

In the assessment of knowledge within an organisation, it is not sufficient to allow knowledge to lie where it falls or to simply ‘reside’ in whatever document or repository it may find itself – be that the storage device of paper, electronics or the head of an employee. Organisations may end up with vast silos of information which is never put to productive use. Knowledge must be formally harnessed in order that it may be of the utmost benefit to an organisation. The knowledge that an organisation possesses, and how they make use of (or indeed exploit for the longer term gain of the organisation) their knowledge can define exactly how strong an organisation is and how well it performs in its field.

2.2.1.1 Knowledge as a tool for advancement

Davenport (2000) says that organisations are often perceived to be mere production machines that are purely about turning a profit. While this may be true for some sectors of industry on one level, it is important to include the notion that the members of an organisation’s “values & beliefs have a powerful impact on organisational knowledge; (values & beliefs) inescapably influence their actions (and are) integral to knowledge”. Quoting Nonaka, Davenport says, “Knowledge, unlike information, is about beliefs & commitments” (Davenport, 2000, p. 2)

¹Data is “a set of discrete, objective facts” (Davenport, 2000, p. 2)
²Information is a “meant to change the way (a) receiver perceives something, to have an impact on his judgement & behaviour” (Davenport, 2000)
³Commonsense rules for how things are done or how problems are solved
“Knowledge develops over time, through experience” (Davenport and Prusak, 2000, p. 7) and thus cannot be viewed as mere information but is closely related to processes as carried out by the employees of an organisation, using heuristics (not just know-how but also know-why) which have been acquired and built-up by employees or groups over extended period of time. ‘Working Knowledge’ (that which is useful to an organisation), is not simply knowing how something is done, but also knowing why it should be done and in a certain way – internalizing the process and having the ability to re-use knowledge or perform a task with new knowledge or, indeed, generate some new knowledge from that which has been learned. When discussing Knowledge Management we must take account of such extended knowledge and think laterally in the consideration of what knowledge is and what its function within an organisation is and potentially could and should be in the future.

Knowledge Management should not simply be considered the storage of business information, business processes etc. but must also include the process of taking the tacit knowledge (which primarily resides in the head of employees) gained through on-the-job learning, problem solving and lifetime working experience of an employee and making it explicit and transmittable to other employees in an organisation. This tacit knowledge is powerful, according to Walsham (2001, p. 600) as it is “the way in which we actively shape or ingrate a new experience to discover and believe new knowledge”. The difficulty here lies in the fact that each employee will have varied understanding of concepts and be approaching issues with differing values & belief systems and judgments (Davenport and Prusak, 2000). To make the most use of this internal knowledge, the ideal is to attempt to generate a some sort of ‘group consensus’ or a combined view on organisational matters (a “collective memory” as described by Guy (2000, p. 6)). This collective consensus is discussed in detail further in this dissertation, and becomes a tool for the organisation to grow by its members thinking and learning as one, mutually driven ‘system’.

2.2.2 The Spiral of Knowledge

Making knowledge and any technology concerned with Knowledge Management a useable commodity, they must support the Spiral of Knowledge (Figure 1) as described by Nonaka & Takeuchi (1995, p. 177):
Knowledge within the spiral moves through a number of stages:

- The **Socialisation** process whereby tacit knowledge is transferred between individuals by way of both verbal transference and non-verbal observation and practice as well as on-the-job training and mentoring;
- The **Externalisation** process whereby tacit knowledge is somehow stored and codified in some knowledge repository, making the tacit knowledge available to anyone and for any length of time. It is important to note here that making tacit knowledge explicit requires that a shared or common meaning be created for concepts. Modelling concepts (creating real-word abstractions) for this part of the knowledge spiral is useful as it takes concepts which were formerly tacit and in the head of a staff member and puts context and sense around them in order that they may be understood by other staff members, so long as they too can understand the terms of the model. Team/group discussion regarding these models is useful at this point so that common concepts and ideas are agreed upon and no confusion exists;
- The **Combination** process whereby explicit knowledge is added to more/other explicit knowledge and new knowledge is created. The combining of knowledge which has been stored in multiple sources or formats to generate some new artefact occurs at this phase;
• The *Internalisation* process whereby explicit knowledge as accessed by an individual, becomes part of his or her own tacit knowledge base. This is an active learning phase where an individual incorporates explicit knowledge and, with time, takes their learning onwards through the spiral as this tacit knowledge in fact combines with an individual's existing knowledge to make new tacit knowledge with in turn in socialised then externalised etc.

2.2.3 Knowledge Management

Knowledge Management is a term that was coined by Wigg in 1993 in his discussion concerning the discovery and creation of new knowledge along with its dissemination throughout groups or organisations. Concrete definitions of Knowledge Management vary however and it is vital to bear in mind Stankosky’s 4 Pillars (as discussed by Bixler (2000)) of Leadership, Organisation, Technology, and Learning when deciding on a complete definition of what Knowledge Management (KM) is. Jane McKenzie is Professor of Management Knowledge and Learning at the Henley Management College and her definition as discussed on [2] is that KM should be regarded as:

“A set of tools & practices designed to focus the business mind on harnessing & extending the value of the knowledge that's locked in the heads of individuals & the relationships between people, groups and other organisations”.

This definition combined with that of McNabb (2007) in his book *Knowledge Management in the Public Sector* gives us a broad concept of what KM is and what areas it must encompass, namely Stankosky’s pillars:

“KM is a set of processes, practices, and management philosophies that exist to collect, process, store and make available the organisational knowledge that enables Government agencies (and any organisations) to be more proficient and competitive in delivery of public services (or any goods and services)” (McNabb, 2007, p. 22).

*Leadership* in that KM initiatives as well as their continued promotion and support must come from management; KM must spread throughout an entire *Organisation* to make whole use of knowledge that exists but may be spread about disparate groups; *Technology* comes into play in KM as knowledge must be formally harnessed and it is always going to be a technical tool which will store, codify and process it; and *Learning* as enhancing an organisation’s workforce through KM will lead to a workforce which learns and develops and thus possesses wider capabilities than if no KM practice was in place.
When knowledge that exists within an organisation is formally harnessed and exploited it is made accessible to all members of an organisation/industry (because Knowledge Management can also be considered in the context of the global knowledge economy). From an organisational point of view, a spirit of knowledge sharing should be fostered and KM made an aspect of an organisation’s cultural norms.

2.3 Processes for Knowledge Management – what constitutes a Knowledge Management System

Whether the generation of new knowledge by means of more heavy technical processes such as for example, data mining, should be considered as part of the lifecycle of knowledge or the spiral of knowledge is a useful consideration. Knowledge within a Knowledge Management System\(^4\) (KMS) should provide a good fit for its intended purpose - to transfer knowledge smartly from one person to another by making tacit knowledge explicit etc. - and therefore encourage knowledge in all elements of the spiral. Enabling the storage and appropriate codification and classification of stored knowledge (often knowledge which was formerly tacit & extracted from the head of an employee); making it explicit in order that it is accessible and appropriate for other members of an organisation; and, most importantly, useable and re-useable for as long as necessary. To what degree is the creation of new knowledge relevant to this cycle? Certainly the combination of tacit and explicit knowledge may lead to the discovery of something innovative but whether it is entirely new is debatable.

2.3.1 Knowledge Lifecycle Models

Nissen (Nissen et al, 2000) analyses a number of Knowledge Lifecycle models which differ in their point of view on whether a KMS should begin with the creation of new knowledge which “involves discovery and development of new knowledge” (p. 3) or may simply begin with the capturing of knowledge which “requires only that the knowledge be new to a particular individual or organisation, and formalisation involves the conversion of existing knowledge from tacit to explicit form” (p. 3). Nissen argues that lifecycle models such as those proposed by Despres & Chauvel and the Gartner Group and involve heavy techniques such as Data Mining and AI First Principles, are “more complete (by beginning at) the creation step” (ibid).

\(^4\) A system which, at its most basic, handles the capture and dissemination of Knowledge throughout an organisation
From a real-world perspective, even though there is certain value to these tools which rely on the analysis of existing data and information in the creation of new knowledge (as demonstrated by the Office of the Revenue Commissioners REAP System in Appendix A), the reliability of the “knowledge” generated at this create phase of a lifecycle can be questioned. Whether such knowledge is fully dependable, useable, searchable & capable of being internalized can be difficult to prove. There are certainly fields of industry for which data mining etc. is invaluable in terms of prediction of vital statistics, which are further useable for defining strategy and customer taste or preference, for example, and the above-mentioned REAP system has been generating cases for audit by the Revenue Commissioners successfully for a number of years. Statistics generated by these systems also lend heavily to metrics and benchmarks against which a KMS’s performance can be gauged.

Tools which themselves generate knowledge can be clunky in their execution, however, as well as being expensive and rely heavily on expertise in terms of development, maintenance and analysis of results. Nissen (2000) describes such technologies as “performative” in nature and says that “very few extant Knowledge Management systems currently capable of performing in (such a) manner” (p. 4).

If we consider a KMS to rather be a framework for managing knowledge within an organisation which is to be captured, organized, formalized, distributed, applied and given time to evolve, as proposed by Nissen (Nissen et al, 2000), perhaps a more useful, productive and encouraging system emerges. The elements of a KMS and computing in general that are most helpful to an organisation must be considered as being of utmost importance and, more seriously, the requirement to ensure participation at all levels of the knowledge cycle. Without the buy-in from all areas of the organisation, participation of the people in an organisation and their use of a KMS, no amount of technology will be sufficient in the management of an organisation’s knowledge.

2.3.2 User Roles Within a KMS

If technology is considered the channel and the enabler used for the storage, classification and access of knowledge with a view to its reuse and spread throughout an entire organisation then the act of Knowledge Management should primarily be about the people in an organisation:
Contributors of tacit and explicit knowledge;

Experts throughout the organisation who share their experience and make it their business to ensure knowledge passed-on is accurate, relevant and precise;

Developers of the KMS and those who maintain the system;

Codifiers of new knowledge who ensure it resides in the appropriate area of the KMS and is correctly classified and tagged;

and Users of the KMS\textsuperscript{5}. The goal of a KMS according to McLure and Wasko (2000) is to “connect experts with knowledge seekers” (p. 159)

2.4 A top-down directive

Usage of the KMS should ideally be extended to all members of staff from senior management downwards (Sinclair (2006). Staff must realise the value of collaboration and see that the directive and encouragement is coming from the top of the organisation down. Due to varying IT abilities that are inevitable within an organisation then, the technology utilised must be easy to use and intuitive for all users. A KMS must provide immediate and visible benefits for both users of the system and management (Walsham, 2001). If a system is not usable or does not display its usefulness from the outset, it will fall from favour and no longer be useful or used. In turn, knowledge will not be correctly maintained and will become obsolete. There must be obvious motivations for users and experts to contribute to the KMS, for active collaboration and communication throughout the organisation (McLure Wasko and Faraj, 2000). The measuring of a KMS is extremely important as well as being beneficial in showing how successful the system is and therefore, encouraging use and contribution.

2.5 A single platform collaborative tool

A collaborative tool should consist of a single platform upon which people share knowledge and documentation that is appropriately organized and classified; a tool which recognises the “tacit basis of all sense-reading and sense-giving\textsuperscript{6} activities (and which tries) to make these activities more meaningful and valuable to all parties” (Walsham, 2001). McLure Wasko and Faraj (2000, 156) maintain that any system for

\textsuperscript{5} Users may adopt many roles within the lifecycle of knowledge and with their own interaction of the KMS

\textsuperscript{6} “Both the way we endow our own utterances with meaning and our attribution of meaning to the utterances of others are acts of tacit knowing. They represent sense-giving and sense-reading within the structure of tacit knowing (Polanyi, p. 181)”, (Walsham, 2001, p. 600)
Knowledge Management must be “designed specifically to facilitate the sharing and integration of knowledge”.

2.6 Conclusion

This chapter presented definitions for Knowledge, and what knowledge means in the context of being a business asset, and for Knowledge Management alongside a discussion about how knowledge evolves through the Spiral of Knowledge. Varying concepts of Knowledge Management Systems were identified and the notion discussed that a KMS must capture, organise, formalise, distribute, apply and allow knowledge to evolve. An argument for how knowledge is created within a KMS compared technologies, such as Data Mining and AI first principles, with a single collaborative platform for knowledge sharing, a platform which does not focus on creating new knowledge but is designed to assist in knowledge sharing.
3 KNOWLEDGE MANAGEMENT SYSTEMS FOR COLLABORATION

3.1 Introduction

Wenger (2006) describes the idea of a group of interested parties that come together to collaborate, and hopefully learn from one another as a Community of Practice: 
Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. In this chapter the notion that collaboration and in particular Communities of Practice are of strong importance when attempting to promote Knowledge Management in an organisation is explored. People are the primary tool for a KMS with the technology, which hosts the KMS, being regarded as a supportive structure or an enabler to its success. The World Wide Web is mooted as an ideal platform for a KMS. The concept of Communities of Practice is introduced in this chapter and barriers and motivations for contributing to such communities is analysed. This chapter then moves on to assessing how the WWW facilitates Communities alongside enduring issues that exist in Communities of Practice and how these may be overcome.

3.2 People, Process and Technology

Any Knowledge Management System is only as strong and as useful as the people who are participating in knowledge contribution and using the system. The responsibility for Knowledge Management within an organisation has widely been assessed as being 20% Process, 70% People and 10% Technology (Bhatt, 2001). The ‘People’ and the ‘Process’ elements cannot operate separately (as it is the people who generally know and engage in business processes) and therefore make up 90% of KM leaving ‘Technology’ as being perceived as the least important element by far. By no means unimportant, nonetheless, but rather it should be supportive to Knowledge Management, something which should be quick and easy to develop and maintain and which runs seamlessly away in the background of the users’ work. Technology should create no hindrance or stress on a user but rather motivate use, integrate easily into everyday work, and hopefully extend collaborative practices.
3.2.1 Technology: The enabler

It is more advantageous and prudent for an organisation to consider the technology, which creates a framework for a KMS, to be an enabler in the promotion of the aforementioned spiral of knowledge. The system itself need not be weighty but rather would benefit more by being lightweight, easy to obtain and develop, easy to maintain and – most importantly – easy to access and use from a technical and a user point of view. When the technology behind a KMS is viewed as the actual tool that creates knowledge, it can become cumbersome and unusable as discussed above.

3.2.1.1 Open Source Technology for the Support of Knowledge Management Systems

More frequently, Open Source (OS) technologies are being used to develop collaborative tools such as Knowledge Management Systems. OS refers to software for which the source code is freely available, without licence. Support regularly comes from community-based user groups. Obtaining unlicensed OS software is becoming more popular with large organisations, including SUN Microsystems, who are utilising such technologies for both software acquisition and provision. Traditionally, OS has a negative connotation for professional use due to its perceived lack of (formal) support. In more recent years, and with the growth of collaborative online spaces, active online communities (the reputation of whom grows stronger as the abilities of members are exposed) provide full and varied support and enhance the attractiveness of going OS. There are many considerations to OS, however including the Total Cost of Ownership (TCO) of such products:

- Will future requirements lead to licensing costs?
- Are there support issues involved and will support lead to problems with the ongoing use of the software?
- Training in Open Source tools must be supported in-house; will this be an added problem or cost?
- Will there be costs to upgrade or integrate an Open Source tool into other organization IT solutions?

3.3 Web 2.0 Technologies for Knowledge Management

Web 2.0 is a term relating to web development, which facilitates communication, information sharing, interoperability, user-centred design and collaboration on the
World Wide Web. Web 2.0 tools include such things as Blogs, WIKIS, RSS Feeds, Tagging, Social Networks, advanced Search Engines.

In terms of technologies which provide a decent ‘fit’ for the above discussed KM life-cycle, Web 2.0 tools are fast becoming front runners with users’ time online more progressively spent “contributing (to the) contents of their Knowledge Space” (Lee, 2007, p. 49) as opposed to simply surfing the web. In general, people are making extended use of the World Wide Web as intranets’ spread within (often multi-location) organisations and as powerful communicative and business tools. Harnessing this interest and utilising technologies which are already existing (SQL databases behind HTML interfaces, message boards, JavaScript coding for dynamic elements and so on) and the extension of such technologies using tools such as AJAX⁷, XML⁸, OPEN API⁹, FLASH¹⁰ etc., which are reasonably straightforward to develop and implement, and which once users are familiar with, mean the real Knowledge Management side of a KMS can become its true focus. Nissen (2000) remarks that some KMS’s “are supportive in nature (in that they) organise, formalise and distribute knowledge in the enterprise (and) support people in the loop, who in turn apply, evolve and create knowledge in the organisation”, essentially that such a KMS lends to the sharing of Knowledge with its users in turn being provided with the facility and ability to create new Knowledge without being too focused on the technology.

When using the term Web 2.0, it is important to note that the WWW has not, in fact, changed to facilitate Knowledge Management and the clean, economic building of powerful KMS’s. The majority of these web technologies have existed all along. What has changed, or rather evolved, from the use of the WWW is the increased use of interactive trends and the discovery of just how powerful communication across the WWW can be for organisations. Industries are replacing stand-alone applications with networked enterprise tools¹², which are distributed throughout organisations,

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⁷ Intranets are internal networks within organisations which are used to share information primarily via private web sites
⁸ AJAX: Combined JavaScript and XML
⁹ XML: eXtensible Mark-up Language which is creates custom mark up language for web pages
¹⁰ Open API: allows websites to interact with one another through messaging techniques
¹¹ Flash: technology for adding animation to web pages
¹² A networked enterprise tool is one that utilises an n-tier (multiple-layered) architecture. Separate layers of processing manage the presentation of data (user interface), the application processing (logic of the application, calls to a database etc) and the management of data (storage and retrieval of data). Keeping these three main areas separate allows for independent modification, maintenance & upgrade of each area without knock-on effect to other areas. For example, any changes to the ‘presentation tier’ will not affect the ‘data tier’, etc. It is the ‘presentation layer’ which is accessed by users through a web-browser (either an internal intranet or the WWW)
(sometimes) partner organisations and industries as a whole. The focus of the WWW has moved from primarily being used to publish & search for information to a space for collaboration, enhancing creativity amongst like-minded/interested groups no matter where they are located and in general allowing stronger interaction and participation amongst users.

3.4 Communities of Practice

One aspect of a KMS as a collaborative tool is that of the creation of virtual Communities of Interest or Communities of Practice (CoP) (Wenger, 2006). Community is a principle aspect of collaboration and sharing. Rao (2002, p. 2) discusses the heavy reliance of successful Knowledge Management on “groups of people who work on business-relevant topics across organisational boundaries”, the creation of ‘conversations’ amongst groups of interested parties which can only lead to enhancement of knowledge and work practices. A CoP develops a “shared understanding of what it does, of how to do it, and how it is related to other communities and their practices – in all, a ‘world-view’ ... (CoP’s) are a sensible focus for Knowledge Management initiatives (sharing) some common language, purpose and ways of acting” (Walsham, 2001, p. 601). The idea that multiple minds are better than one pervades in the collaboration with like-minded professionals. There is also scope for learning through CoP’s as, according to Sinclair (2006, p. 99) “we learn from our communities” and from our experiences “spending much of our lives learning from others and sharing our experiences and lessons learned with them in exchange”. The transformation of tacit knowledge to explicit is strongly supported through dialogue and concept development through such community learning.

3.5 The WWW for Communities of Practice

CoP’s are nothing new in terms of a concept with experts meeting for discourse dating back to Roman times but for contemporary CoP’s to be at their most effective, Allee (1997), endorses the WWW as an ideal location for knowledge sharing: “knowledge seeks community ... nothing illustrates this principle more than the internet”. Likewise, McLure Wasko and Faraj (2000, p. 160) describe knowledge creation and transfer as “social phenomena and an integral part of a community”. If communities use a KMS as a host application for their collaboration (as opposed to, say, a lengthy and uncontrolled email thread), the spiral of knowledge is adhered to: knowledge is
captured, organised and formalised via message boards, forums, uploading of information to Wiki’s etc; this knowledge is distributed and accessible to other members; responses to questions are included in a knowledge base; and the system has the power to extend and transform existing knowledge, including it in other member’s personal knowledge base.

3.5.1 Participation in Communities of Practice

A number of studies have been carried out to determine what motivates people to participate in Communities of Practice (for example: Ardichvili, et al, 2003 and McLure Wasko and Faraj, 2002) and, conversely, what hampers/deters participation. Communities of Practice are not viewed as forums in which to socialize or form new relationships but rather the business at hand is central. McLure Wasko and Faraj (2000, p. 162) say that “work units behaving as focused communities are more innovative”. It is essential to understand what returns motivate such innovation and participation.

3.5.1.1 Motivations

There are reasonably clear ‘returns’ for less well-informed participants in any knowledge sharing activity in that they hope to become more knowledgeable and gain the knowledge and insight of more experienced workers. But there must also be returns to be gleaned for experts who are prepared to share their knowledge or provide answers to less knowledgeable members. Returns for participation fall into two categories, **tangible** and **intangible** (McLure Wasko and Faraj (2000, pp. 163-167)):

3.5.1.1.1 Tangible Returns for Participation

- CoP’s provide access to “useful information and expertise, answers to specific questions, and personal gain”; help is received quickly, is at its most up-to-date, unavailable elsewhere (McLure Wasko and Faraj, 2000, p. 163). Communities of Practice are excellent sources of expertise. This is exemplified in the online community that supports the interactive web-building application DRUPAL [3]13.

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13 The online community that makes up Drupal is an encouraging example of a Community of Practice in action. While the technology that makes up DRUPAL is not revolutionary, the community that supports it is extremely proactive in the domain of knowledge collaboration. DRUPAL is Open Source and members are encouraged to extend DRUPAL’s capabilities by developing new functionalities and making them available to the community. Furthermore, online forums provide space for members to resolve issues they are experiencing with all levels of DRUPAL and its associated technologies.
Communities of Practice can provide help on specific problems with threaded discussion forums. However, it is criticised that members who post questions and problems to such boards are often acting out of self-interest and do not participate in the group regularly and are therefore not truly contributing to the community.

Some view being an active member of a Community of Practice in terms of what it can provide for them in terms of personal gain. The prospect that contribution may enhance “standing in the profession, establish a reputation that will hopefully translate into a job ... generate personal clients” is foremost. (McLure Wasko and Faraj 166)

3.5.1.1.2 Intangible Returns for Participation

- Selfish (though not selfish in a pejorative sense) motivations such as satisfaction & ‘self-actualisation’, exposing expertise and gaining peer-kudos for such can drive participation.
- Community collaboration is viewed as a challenge which encourages one to refine thinking and develop new insights.
- Some people get a sense of ‘fun’ when participating in a community, comparing and competing to discover best practices and so on. Also there is enjoyment to be gained through learning and sharing with others.
- Online communities keep members abreast of innovations & issues within their field, which, without the CoP may be difficult and untimely to discover.

3.5.1.2 Barriers

Conversely to analysing why people participate, barriers should be identified:

- There is no financial reward to participating in a Community of Practice, such rewards would be prohibitive to implement and maintain and are not in keeping with a community spirit. However, Walsham (2001, p. 603) says that, “in a context where individuals see little in the way of financial reward for knowledge-sharing activities, it is not surprising that knowledge hoarding may take place”. Rewards exist in some form and must be viewed as individual and personal. The benefits of the intangible returns as discussed above must be emphasised over tangible returns. Walsham (2003, p. 603) says of his research into the benefits and limitations of computer systems in the context of communities of practice that a “strongly individual-based reward system did
not encourage collaborative behaviour” is an area for senior management to address when promoting new KM initiatives and addressing the strategic issue of a change in organisational culture.

- People must become comfortable with their own level of expertise in order to feel their participation is valuable (McLure Wasko and Faraj, 2000 p. 169). Again, this is something which must be nurtured in individuals over time but feeling comfortable and confident will certainly become stronger as participation increases & positive feedback is forthcoming.

- Finally, there is a “danger of being seen to be politically incorrect in terms of current organisational thinking” (Walsham, 2001, p. 603) by sharing views in a CoP that are not strictly in keeping with senior management views. This is particularly notable when it comes to Public Sector organisations as mentioned by Sayed and Rowland (2004). Guy’s (2006) discussion of WIKI technologies in public sector organisations says that some aspects may “go against the organisation’s acceptable usage policy (and) by their very nature provide a collective view and this may not always represent an unbiased view.” (p. 4). A resolution to this can be found by restricting access to a CoP to members only, meaning just those with direct interest in a specific area in order that “individuals in a community of practice may share views, knowing that their organisational superiors have no access to their exchanges” (Walsham, ibid).

3.5.2 Enduring Issues of Collaboration in Communities of Practice

Major pitfalls still exist in encouraging the use of Communities of Practice. There must be an impetus on users to make use of new KMS tools for collaboration. Traditional and comfortable methods for communication, which were formerly used such as e-mail, must be rescinded in favour of new, web-based tools and applications such as wikis, forums, knowledge maps and online directories. Employees must be encouraged (without feeling forced) to embrace these new tools and applications and the positive aspects of utilisation must be reinforced in terms of positive feedback as well as encouraging user experience and clear display of the benefits of collaboration. Likewise, experts must feel that they too are ‘getting something’ from these new practices and not becoming the sole source for contribution. McLure Wasko and Faraj (2000, 160) highlight the danger: “instead of experts focusing their time and attention on creating new innovations, their role shifts from that of knowledge creators to knowledge disseminators”. The CoP should be as valuable in the expert’s search for
new knowledge as it is for the *newbie* (a new user) who knows relatively little. This is not always an easy task and one that requires adequate access to, and participation in, the community from all levels of the organisation or community.

### 3.6 Conclusion

In this chapter the importance of people in Knowledge Management and Knowledge Management Systems has been analysed and it has been determined that KMS are primarily people-driven tools. Developing lightweight, web-based tools to support Communities of Practice will encourage participation and, hopefully, break down barriers that naturally exist for Communities of Practice. Communities exist across many business areas such as HR, IT etc. and these communities must be supported efficiently and effectively. Web 2.0 tools have been identified in this chapter as being the most effective tools for supporting such communities.
4 KNOWLEDGE MANAGEMENT IN PUBLIC SECTOR ORGANISATIONS

4.1 Introduction

Knowledge Management is very much about managing and harnessing knowledge for competitive advantage but within Public Sector, or indeed non-business, organisations, there is no profit to be made and goods & services which are provided by the public sector are not intended to give these organisations an ‘edge’ over other organisations (though, through Benchmarking against other EU countries, competition for Public Sector service delivery does exits). The onus on the public sector is to provide cutting edge services to citizens of an economy, to formulate and implement policy which will ensure services are provided to an economy at the best level and, ultimately ensure value for money for the citizens (taxpayers) of a country. The challenges for managing knowledge within a public sector organisation differ from that of a private sector organisation. Those drivers and motivations such as increasing profit and sales or reaching targets for the earning of bonuses do not exist for public sector employees. The knowledge that is held within public sector organisations, however, should be viewed as its most valuable asset and organisations with this structure can be viewed as fitting the definition of Knowledge-based organisations better than most business organisations.

This chapter provides an analysis of the Irish Public Sector and the Civil Service, motivations for Knowledge Management and a discussion on how Knowledge Management can benefit the Civil Service. Also discussed is the need for some form of change management in order that KM may successfully be implemented into an organisation as well as the need to embed Knowledge Management at the grass-roots of an organisation’s strategic mandate.

4.2 Knowledge: “An Asset”

As discussed in Chapter 2, the knowledge held by an organisation, although not always tangible, must be seen as just as important an asset as its products, market share-hold & customers. An asset which will depreciate if not used but will grow if used and harnessed appropriately (Syed-Ikhsan and Rowland, 2004, p. 95). This is of vital consideration while analysing & discussing Knowledge Management within the Public
Sector. Government organisations are not as concerned with turning a profit as Private Sector organisations are. Government organisations are primarily knowledge-based: “The activities of governments are frequently knowledge intensive, with the need to maintain a whole-of-government perspective an important consideration ... access to knowledge & transparency is critical ... ageing civil servants & increased staff turnover create new challenges for the preservation of institutional memory & the training of new staff” (O’Riordan, 2005 p. 13)

Therefore, a KM initiative or strategic change within a Government organisation must address how things have always been done along side new initiatives and attempt to blend the two so that the organisational culture may subtly shift towards one that encompasses KM as a ‘norm’; an organisation whose ‘values’ become primarily knowledge focussed.

4.3 The Irish Public Sector

In his 1998 book Improving Public Service Delivery, Humphreys differentiates between Public & Private sector organisations by stating that Public Services are predominately “funded by taxation; distinguished by an absolute, or at least a comparative, lack of competition in the normal market sense” (Humphreys, 1998, p. 9). Traditionally, the Public Sector business/organisational model was one of “tight control, (distinct) separation of functions and diffusion of responsibility” (O’Brien, 2002, p. 444). Public Sector organisations in general have not been particularly successful at adapting to rapid rates of social change as identified by McNamara, 1995 and O’Dowd & Hastings, 1998 (O’Brien, 2002, p. 442). For example, the UK Public Sector has been diagnosed by Ferlie *et al* (1996) in O’Brien’s 2002 paper (p. 442) as being “bloated, wasteful, and underperforming”. In the Republic of Ireland, a program for Public Sector Reform has been gathering momentum since the 1994 launch of the Strategic Management Initiative (SMI) (as introduced by the then Taoiseach Albert Reynolds).

O’Brien discusses Humphries and Worth-Butlers 1999 analysis of the SMI which is aimed at reducing bureaucracy, providing excellent service to the public through a customer-focused culture, more effective and efficient use of resources and better

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14 A frequent issue & barrier to change within the Civil Service is the inability for staff to change work practices due to the fact that “things have always been done this way”. Routines are very difficult to break amongst employees who have been serving within the same boundaries for a long number of years. (O’Riordan, 2005, pp. 11-12)
policy co-ordination between departments (Humphries and Worth-Butler, 1999). A “different culture prevails” in Public Sector organisations (Humphreys, 1998, p. 10) to that in the private sector which must be addressed to achieve public sector reform. The Public Sector discussion paper Delivering Better Government: A Program for Change for the Irish Civil Service (Government of Ireland, 1996) clearly states that Human Resources Management is a primary linchpin of the SMI and there must be employee involvement in and ownership of any change in processes (O’Brien, 2002, p. 442) – it is the People who are employed in Public Sector organisations who will determine the success of any change in strategic led direction.

4.3.1 The Public Service and the Civil Service

The Government of Ireland represents a number of administrative areas, which are responsible for ‘Executive Authority’ for the Republic of Ireland. The Public Sector comprises of: Public Services such as local authorities, educational committees and an Garda Síochána; and the Civil Service which comprises of a number of Departments of State15 and some State Agencies which are responsible for implementing departmental policy, advising and working for the Government of Ireland in various roles ranging from clerical to administrative and senior management. The Civil Service is a diverse employer with careers in a number of arenas ranging from Legal, Medical, Accountancy, and HR as well as administrative and clerical roles.

Each department in the Civil Service is responsible for an area of Government. For example: the Department of Finance is responsible for “the administration and business generally of the public finance of Ireland and all powers, duties and functions connected with the same, including in particular, the collection and expenditure of the revenues of Ireland from whatever source arising....” (Ministers and Secretaries Act, 1924) with its Mission Statement being “To support the achievement of the Government’s economic and social objectives by promoting a sound, sustainable economic and budgetary environment, continuing improvements in the efficiency of public services and an effective framework for financial services” (Department of Finance, Statement of Strategy 2008-2010, p. 5); The Office of the Revenue Commissioners is responsible for “effective tax and customs administration (which) is at the core of Ireland’s fiscal, social and economic foundations” with missions and goals of ensuring compliance with taxation and customs responsibilities, providing quality and innovative service and support to customers, contribution to economic and social development and the development of its “people, processes and technology to
make sure (the Office of the Revenue Commissioners is) a capable, responsive, results-oriented organisation” (Office of the Revenue Commissioners, Statement of Strategy 2008-2010, p. 4-5).

Every Government department is obliged, in line with the SMI program, to produce a Statement of Strategy on a biennial basis in order to set out its mission, goals & how achievement of such goals will be measured.

Although the focus of analysis for this dissertation is primarily the Irish Civil Service and both intimate and disparate groups of staff working for Government Departments, the question of whether Web 2.0 technologies can assist collaboration and communication amongst large groups of workers should stand effective for both Civil Service groups and Public Sector workers. For this reason, a number of sections of this dissertation discuss the Public Sector with more specific study being scoped within single Government Departments, such as the Department of Finance or the Office of the Revenue Commissioners.

4.4 Knowledge Management for the benefit the Public Sector?

The Civil Service is awash with highly skilled & trained staff and, due to its non-profit generating nature, it should be considered primarily a knowledge entity with activities being knowledge-driven service provisions. It is also important to note that each department behaves for the most part as a separate business entity with commonalities existing across departments such as HR, IT, Accounts etc. It is essential to the maintenance (and longer-term, the development and improvement) of such knowledge-driven services that the knowledge and experience of all employees be formally retained, adequately managed and the potential for new knowledge generation maximised to the highest degree.

According to an OECD Survey (2003), “Knowledge has become a critical determinant of competitiveness for the public sector. In a knowledge-intensive

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15 A full list of Government Departments & links to their individual sites can be found at [4]
16 Many Government departments including the Office of the Revenue Commissioners and the Department of Finance have, in the past, conducted graduate and top level management recruitment drives leading to the employments of highly skilled people as well as securing experienced senior management from the private sector. As mentioned above, many careers from Legal, Architectural, and Medical are encompassed within the remit of the Public Sector.
economy, goods and services are increasingly intensive in intangible capital, making knowledge an important element of competitiveness between public bodies. Public bodies increasingly compete with each other for the use of knowledge-intensive inputs (e.g. researchers) and for the provision of knowledge-intensive outputs (e.g. universities) ... Ageing civil servants and faster staff turnover also create new challenges for the preservation of institutional memory and the training of new staff ... Increasingly knowledgeable citizens require governments to be on top of newly created knowledge, as it is increasingly rapidly produced by more differentiated actors. Finally, public policy goals have become more ambitious and complex than before.”

There is a need within the Public Sector to achieve a competitive edge and position themselves strategically in terms of best practices amongst peer organizations around the world. An EU Benchmarking initiative to compare online Public Sector service delivery was introduced in 2008 and is discussed further in this dissertation.

4.5 Motivations for Knowledge Management in the Public Sector

According to the CPMR Discussion Paper *A review of Knowledge Management in the Irish Civil Service*, (O’Riordan, 2005, p. 13) Government organisations have “different incentives, strengths & weaknesses compared to private companies in relation to the management of knowledge. On the one hand, the pressure of competitiveness and the incentives to lower costs are traditionally less important. In addition, outcomes are typically less clear & less measurable. Finally, management structures tend to be quite hierarchical which provide fewer incentives for innovation & teamwork.” In the comparison between US & UK state agencies, Guy (2006), notes changing audiences and participants (in terms of staff etc.), and changing expectations as difficulties that hinder the adoption of Knowledge Management into Public Sector organisations. It is essential to strike the correct balance between engaging in new work practices and adopting new technologies, and offering quality services to both internal and external customers. If some element of service fails or deteriorates as a result of a move to new working practice or technology, the new initiative should probably be considered not to have been a success.

The OECD’s survey on Knowledge Management Practices (as cited by O’Riordan, 2005, pp 12-14) describes public organisations as being more “knowledge intensive” where “staff are usually highly educated”. The same survey also stresses the need for knowledge sharing across Government organisations to “maintain a whole-of-
Government perspective on policy-making and service delivery.” Finally, “there is an existing critical mass of knowledge within Government itself.”

In discussing factors motivating KM in the public sector, the survey lists:

- Concerns for efficiency & productivity; minimizing duplication of efforts between divisions
- Improving transparency and outward sharing of information as well as improving working relations and trust within organizations as well as the public. The Freedom of Information Act came into effect in Ireland in 1998 and gives any citizen the right to request access, without prejudice or reason, to any records held by Government Departments and certain public bodies. Reasons must be given if records are not available.
- Decentralisation & horizontality are major factors in Government agenda & with the loss of staff in geographical or cross department moves, so too moves their knowledge unless adequately captured. (Although the October 2008 emergency budget [5] has deferred all official Decentralisation of staff to rural locations, there is still a requirement of public sector staff for flexibility to work in almost any area of any department (skilled specialities excepted)).
- Incentives to “decentralise and delegate authority to lower hierarchical levels and create internal networks to share information” and devolve authority to local management.
- HR issues such as “temporary staff … contractors, consultants, auxiliaries, secondees and interns” mean expert knowledge may move on in short time frames. Skills transfer and retention is essential to maintain high service levels.

4.5.1 Factors affecting successful Knowledge Management in the Public Sector

Syed-Ikhsan and Rowland list a number of further benefits to Public Sector organisations of knowledge sharing such as: the enhanced capability for decision making within public services; helping the public in effective decision making; building societal intellectual capital capabilities; and the overall development of a Knowledge-based workforce which leads to people and institutions working smarter (Syed-Ikhsan and Rowland, 2004, pp. 101-103). The same paper lists a number of vital factors which affect Knowledge Management in a public organisation which are further highlighted throughout this paper:

- **Organisational Culture**: this determines the effects of other variables such as management decisions and the direction in which an organisation moves technologically. Culture must promote sharing which should be natural rather
than forced. This is predominantly achieved through a personally motivated staff who have overcome concern for the loss (and indeed gain) of new knowledge.

- **Organisational Structure**: this determines the success of the flow of communication between departments and how transferable procedures and regulations are between areas as well as different techniques for documentation. Whether knowledge sharing can be achieved across various agencies and departments depends on the ability for information to flow effectively across various organisational channels. Technology must be regarded as the channel for this flow.

- **Technology**: The tools for knowledge sharing must be seen as an enabler and, as discussed in Chapters 2 and 3 and should involve as little implementation, training and indeed extra workload as possible but slot seamlessly into an employee’s work while at the same time appearing to assist with performing everyday tasks in a more efficient manner.

- **People/HR**: As mentioned previously (Chapter 3), it is the people in an organisation who determine the success or failure of any KM initiative. Their previous skills and experiences should be exposed as adding value to their organisation and sharing must be encouraged. Appropriate assignation of staff to the KMS is essential, particularly at the pilot/rollout stage. Sinclair (2006) recommends that groups taking part in Knowledge Management initiatives (particularly at a pilot stage) be already made up of some sort of stable business unit, though not necessarily a geographically linked team. Further along in this dissertation, an initiative to develop a virtual CoP throughout Civil Service networks is analysed representing stable and existing groups who had already been communicating and collaborating in person before being introduced to an electronic sharing tool. That the skills and experiences of such groups had formerly been exposed through face-to-face meetings should encourage usage of the electronic tool and knowledge sharing.

- **Political Issues**: Sharing of any knowledge, particularly in a public sector organisation, has its difficulties regarding what is safe to share? Who should sharing be done with? How to share? Etc.
4.6 Change Management: How can Knowledge Management best be Adopted by the Public Sector?

In former times, Knowledge Management was frequently seen as a further IT function that would hope to organise data & information on behalf of staff and/or generate new knowledge from existing organisational data and this was where it was viewed to sit in an organisation. As discussed in Chapter 3, Knowledge Management should be seen as a ‘people-based tool’ and thus should be viewed in terms of Organisational Structure and Change Management with Information Technology being a support and enabler to its function in an organisation. Members of an organisation must ‘adopt and embrace’ a KM strategy in order to sustain and progress KM within an organisation. A change in cultures & attitudes from both top-down & bottom-up is a backbone issue of KM and its success must be addressed. Any organisation must nurture a Culture of Sharing and the remainder of this section will investigate whether such a culture has, in the past, or could possibly be ingrained into the Irish Civil Service by an analysis of past Knowledge Management initiatives.

4.7 The need to include Knowledge Management in Organisational Structure

The implementation of a KM initiative is not a straightforward process. Some key issues as to why organisations should employ a KM initiative are:

- Organisations are unaware of what knowledge is held in employees heads/local PC drives/filing cabinets etc; that each employee is unaware of the majority of knowledge which his or her colleague knows;
- There is a constant through-flow of employees at any one time in an organisation – from contractors & employees who are close to retirement to perhaps younger employees who are constantly seeking new challenges & remaining with one organisation for a short number of years until they feel they have gleaned all that they can. Public sector workers are often redeployed (through transfer, promotion etc.) and services decentralised which can often mean that new skills must be adopted by inexperienced workers at relatively short notice.
- In former times it could be seen as detrimental to an employee to share the knowledge he carried. Better to become the indispensable worker who was solely responsible for the function of his or her job than risk someone else being able to come in & take over his or her work.
Creating a framework for moderated knowledge sharing allows for great ideas to be shared & therefore for improving the way things are done.

4.7.1 Embedding Knowledge Management at the Grass-Roots of an Organisation

Indeed, Sinclair (2006) does not see that organisations have a choice but to implement KM into their strategy but attests that KM must be “embedded” into the grass roots of the organisation (Sinclair, 2006, p. 98). He describes Government Organisation as being “cumbersome in nature & slow to react to change (it is) difficult for them to adapt or respond to change at the speed that citizens are demanding” (ibid, p. 98). Organisationally, also there may be a number of barriers when it comes to Government organisations such as:

- A lack of understanding of where KM might fit
- Entities within the public sector are often fragmented & disconnected
- Existing barriers to knowledge sharing such as territorial, organisational & cultural hindrances.

It would never be possible to entirely restructure Government (or, realistically, any existing organisation) so strategists must make KM blend in with current work practices. It must be positioned “as just another part of good business management practices” (ibid, p. 99). Sinclair says there is “no such thing as a supportable stand-alone KM strategy” and discusses Stealth KM wherein organisations (both public & private sector) must discover “where knowledge can help make the organisation more effective in the future & link those areas to the organisation’s long-term goals in (a) KM strategy” (Sinclair, 2006, p.101). KM should be embedded into an organisation in such a way that it “keep(s) it functioning the way it always has done, at a grass roots level” (ibid, p. 98). A number of Knowledge Management initiatives which have been implemented in the Irish Civil Service will be discussed further on.

4.8 Conclusion

This chapter introduced the concept of Knowledge Management for the Irish Public Sector while differentiating between the Public Sector and the Irish Civil Service. The benefits and motivations of implementing a KM initiative in the public sector were addressed along with the requirement for a change management program as well as integrating KM into an organisation’s structure from both the top-down and the bottom up by threading it throughout strategic initiatives.
5 STRATEGY FORMATION

5.1 Introduction

The key to the successful implementation of any Knowledge Management initiative in an organisation, and its success going forward, is its inclusion in the organisation’s strategic framework. Thought not necessarily a single strategic initiative on its own, Knowledge Management should derive from senior management and be instilled in the general ethos of the organisation. Strategic initiatives from technological to human resources to customer service must embrace the knowledge, which is central to an organisation and ensure it is being utilised to the greatest advantage of the organisation.

In this chapter construction of Statement of Strategy documents for Government departments is discussed and the attempt to create a position of competitive advantage. Organisational factors affecting strategy formation are considered alongside a discussion on e-Government as a strategic measure. The necessity for KM to be integrated into an organisation’s current strategic framework as opposed to as a stand-alone strategic initiative is highlighted at the end of this chapter.

5.2 Statement of Strategy

Since 1994, in line with the Irish Government’s Strategic Management Initiative (as discussed in Chapter 4) all Irish Government departments have provided a Statement of Strategy every two years. Such a statement is intended to focus attention on what Departments are doing & how they are performing while providing an explicit framework in which each department operates. The statement of strategy “constitutes a coherent, proactive agenda for the Department as a whole, & provides the framework within which the individual Divisions and Sections formulate and pursue their annual work programmes” (P. Mullarkey, Secretary General, Department of Finance, 1998 [6])

5.2.1 Key Performance Indicators

By providing an updated Statement of Strategy on a biennial basis, the Departments realise that some areas of strategy are transient and must be revisited regularly. Within
a Department’s Statement of Strategy, each strategic priority is described in terms of its objectives followed by a comprehensive list of “indicators of progress”, i.e.: measurable achievements of the success of each priority. Performance Indicators are established using some basic steps:

<table>
<thead>
<tr>
<th>Specify objectives</th>
<th>What needs to be achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set targets</td>
<td>For each objective</td>
</tr>
<tr>
<td>Identify required outputs</td>
<td>What is needed to achieve objectives</td>
</tr>
<tr>
<td>What outcome is to be achieved</td>
<td>What will its impact be</td>
</tr>
<tr>
<td>Cost/benefit analysis</td>
<td>Does the cost of achieving the objective outweigh its benefit? Is this justifiable?</td>
</tr>
</tbody>
</table>

Figure 2 - (5.1) Performance Indicators: A Users Guide

Through clear Objectives and Performance Indicators, Departments should be in a position to monitor the progress of each of its strategic priorities; to identify where shortfalls have occurred; and reassess strategy in the context of social and economic changes.

5.3 Competitive Positioning for Government Departments

According to Porter, a competitive strategy creates “a unique & valuable position” for an organisation (Porter, 1996, p. 68) and the search for a favourable competitive position in an industry. As mentioned previously, Departments within the Irish Civil Service do not necessarily operate in traditional competitive industrial arena. They do not incur traditional threats to market nor require the direct need to achieve a favourable competitive position amongst competitors (as occurs in private sector business areas such as manufacturing, retail, IT etc.). Governments should still be seen to interpret Porter’s definition of what a strategy is, however. For example, the Department of Finance must ensure that the elements of its Statement of Strategy are structured, managed and its goals achieved. Such ‘goals’ as laid down in the Department’s Statement of Strategy as: advising and supporting the Minister for Finance on Economic and Financial management of the public envelope; overseeing overall management and development of the public sector while at the same time providing quality customer service and value for money to its “customers” (the Irish Taxpayer, other Government Departments, Government Ministers, European Departments of Finance etc.).
5.3.1 A Unique and Valuable position

Creating a “unique & valuable position” for an economy in this context means nurturing the success of the Irish Economy, which rests on the competitiveness and rising levels of educational attainment and, in doing this, enhancing Ireland’s Knowledge Economy and a more skilled workforce. Chandler (2000, p. 98) states that “new directions in economic strategy (include) administrative reforms, many of which are aimed at promoting a viable economy and enhancing Ireland’s status and competitiveness internationally”. Essentially, the Irish Government must create a globally attractive, effective & efficient knowledge-based workforce as well as an attractive location for foreign investment. This is becoming ever more apparent as the constant shifts occur in global as well as domestic economies throughout the years 2008-09.

5.3.2 EU Benchmarking

In December 2008, as part of the Lisbon Strategy the EU Commission adopted an e-Government benchmarking strategy to measure the percentages of services which are available to EU citizens online and the extent of use of online public services for information and completion of forms (Bannister, 2007, p. 182-185). While, in theory, this seems like a positive move for comparison of EU member states and competitive goals to be striven for, this benchmarking cannot always be considered accurate as there is a strong focus on the “supply side” of service delivery with no real context of the demand for these services or, indeed, the quality of the service delivered. Quite often like is not being compared with like or the service being benchmarked performs outside of the bounds of the benchmark but more effectively and efficiently in fact. Although Bannister (ibid, p. 185) describes benchmarking as an unreliable “tool for measuring real e-Government progress” he does concede that it provides “a useful political purpose in focusing public and, more importantly political, attention on the need to develop e-Government services”. To have something to aim for in a global context provides a framework for ambition of online services.

5.4 Strategy Formation within the Irish Civil Service

To achieve coherent & cohesive strategy across the civil service, the Public Service Management Act (1997) [9] lays out guidelines for the Secretary General of a

18 The Department of Enterprise, Trade & Employment has produced a paper designed to build and market Ireland primarily as a highly-skilled knowledge workforce in order to promote foreign investment in Research and Development. Full text available at [8]
Government Department within the Irish Civil Service for strategy formation. Below is a summary of these guidelines:

- Strategy formation should begin with a *Strategic Review & Analysis* which involves an analysis of the internal & external environments which do/could affect an organisation; Analysis of the strengths, weaknesses, opportunities & threats affecting a department (SWOT analysis); the identification of the Department’s clients’ interests is also a major consideration here.
- The Department should identify its mission (a formal statement of an organisation’s purpose) and set out high level objectives for achieving this.
- Particular strategies should be identified to address strategic issues and choices need to be made.
- An action program for each strategy must be chosen & implemented with objectives and performance targets set.

5.4.1 Organisational Factors affecting Strategy Formation

As with any strategy formation and implementation, a number of organisational factors must be considered:

- *Human Resource* factors and strategies must be aligned with business strategies including policies in relation to promotion, training & development. Appropriate resources & competencies must be developed & retained to meet strategic priorities and objectives.
- The implementation of a new strategy brings with it change & an effective *Change Management* programme must be aligned in order to ensure that no organisational cultural issues arise. Team-building projects as well as ascribing responsibility to staff for changes that are occurring is required to ensure staff are meaningfully engaged in the change & as a consequence, the strategy.
- The efficiency and effectiveness of strategies and goals must be *measurable* both in financial & performance terms with reviews of strategies considered for subsequent strategy formulation.

Frequently, and particularly when it comes to issues of Knowledge Management, change management issues surrounding Organisational Culture should be addressed as being of paramount importance when implementing a strategy which will involve requiring employees to work in a different manner whether it be using a new piece of technology or collaborating amongst themselves in any manner. Syed-Ikhsan & Rowland (2004) agree with this saying that including Knowledge Management in strategy involves an analysis of where Knowledge resides in an organisation,
integration of existing strategies and the building of a Knowledge Sharing Culture engaging willing participants, who understand that sharing knowledge is to their mutual benefit, in co-operative behaviour.

5.5 e-Government as a Strategic Measure

As a non-profit generating organisation the Irish Civil Service considers e-commerce under the aegis of e-Government with similar objectives & intentions of e-Commerce (the delivery of goods & services online) and this is not refined to the delivery of services to external customers/taxpayers but also internal delivery. A Knowledge Management System should be included when considering e-Government practices.

According to Layne and Lee (2001, p. 123) “[electronic government] refers to the government’s use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government agencies [with the] potential to help build better relationships between the government and the public by making interaction with citizens smoother, easier, and more efficient [and] improve core business operations and deliver information and services faster, cheaper, and to wider groups of customers” (customers here refers to any person interacting with areas of a Department be they internal staff, officers of other Departments as well as citizens of Ireland). Knowledge Management Strategies are often likely to be, at least partly, intertwined with a Departments e-Government or internal IT strategy as, even though the fact that any KM initiative relies most heavily on the participation of people, an IT solution is almost always involved, and in the current technological environment a solution utilising Web 2.0 concepts can be advantageous as discussed in Chapter 3.

5.5.1 Core Competencies

As mentioned above in relation to the development of strategy HR factors must be considered and appropriate competencies & resources must be aligned with strategic initiatives. In terms of implementing a Knowledge Management system using Web 2.0 tools and keeping in line with strategic objectives, major changes to business processes must be considered and thus appropriate recognition & training must be included in staff development procedures. The “core competence” (the merits of focussing & developing this are discussed by Prahalad and Hamel, 1990) of a Department have not necessarily changed and its basic missions remain the same. However, an enhanced
range of skills (IT, new and different customer service skills etc) will have to be developed among the staff body.

5.6 Change Management

An effective Change Management Program must be implemented as overhauling procedures and processes will almost certainly bring a number of Organisational Culture issues. It is often the case, particularly within the Civil Service, that staff are desirous to know exactly what their position is & are oftentimes reluctant to embrace change. There are many ways to encourage staff to change and ensure that ownership for new working processes is adopted such as team building projects and ascribing responsibility to staff for changes. In the document, “The Role of Strategy Statements” (Boyle et al, 2000, p. 2), the importance of involving staff in strategy formation and implementation is highlighted in order to “encourage shared ownership” of changes. O’Brien (2002) insists that change in Public Sector is reliant upon an alteration of the manner in which their people and activities are managed, a task which is not always easy to perform.

5.6.1 Change Management and the Introduction of new IT Systems

An important feature, on which the success of rolling out any new system rests, can be its usability with a clean & informative front-end. Oftentimes it is more worthwhile to investigate the acquisition of a ready-built but customisable system (such as an Open Source tool as discussed in previously) which has been tried and tested for its functionality rather than building such a system in-house. As examined in Layne and Lee (as discussed by Siau and Long, 2005) in their 2001 framework for electronic Government, e-Government initiatives focus on “connecting the internal government system to on-line interfaces”. Participants must trust in the security & integrity of their information and its transmission across electronic channels. The introduction & implementation of a technology strategy must take these concerns into account. This implementation of such a system is discussed in detail further on.
5.7 Integrating Knowledge Management into Current Strategic Framework

It is important to note that a KM strategy or the integration of KM into other strategic initiatives is not a diverse move away from traditional Strategic Management but rather an evolution that encompasses those top-down, production-increasing strategies employed by an organisation with cultural shifts (such as encouraging input from non-senior staff) so that it is an amalgamation of both top-down & bottom-up strategic initiatives that give an organisation its competitive edge.

Again, bearing in mind that knowledge is an asset of an organisation, the need to harness embedded knowledge must considered extremely important to its growth, development & market success. Jack Welch, CEO of General Electric attested “Our behaviour is driven by a fundamental core belief: The desire, and the ability of an organization to continuously learn from any source – and to rapidly convert this learning into action – is its ultimate competitive advantage” (Senge et al, 1999, p. 22). One such ‘source’ must be not only new information & knowledge that is waiting to be gleaned by a company through its new innovations & developments but also that knowledge which currently exists within an organisation.

5.8 Conclusion

This chapter delved into the distinction between the Public Sector and the Civil Service while analysing strategy formation in the Irish Civil Service. E-Government and benchmarking against other EU states was discussed, alongside the necessity for KM to be integrated into an organisation’s current strategic framework as opposed to being a standalone strategic initiative. No matter how seamless an attempt to integrate a new strategic initiative is, there will always be a need for some form of change management in order to ensure the new initiative takes hold and is maintained over the long term.

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19 Strategic Management is a top-down initiative whereby chief business executives within an organisation specify objectives, policies & broad-level frameworks for success of plans & objectives alongside budgetary considerations for these goals.
6 JUSTIFYING THE CHANGE

6.1 Introduction

“In order to justify change, (it must) have an objective” (Rowley, 1992). Introducing Knowledge Management into an organisation’s strategy must display to the organisation and its members as a whole what its objectives are and where its benefits lie. Any form of KM must, by its very nature, comprise of a number of initiatives for, amongst other things, capturing, organising & transferring knowledge.

While justifying & constructing the inclusion of Knowledge Management in the Strategic Framework of an organisation, it could be easy to persuade organisation members that such a strategy might well succeed & be seen to be of benefit to the organisation. There can, however, be no guarantee that it will work. Peter Senge (1996, p. 6) says, “Most change initiatives fail”. He considers ‘flavour of the month’ initiatives that can fall somewhat flat within an organisation (with the exception of a small group who may consider the change initiative a ‘religion’ of sorts) a reasonably short period after implementation. Knowledge Management, then, could be a ‘risk’ to an organisation and must be buffered with real tangible benefits throughout its lifecycle.

This chapter will discuss the importance of measuring a Knowledge Management initiative for its maintenance and ongoing success. The challenges to initiating change and sustaining momentum are analysed and a thorough discussion of cultural factors and how a cultural change must be fostered follows, particularly from a Public Sector point-of-view. Finally, a number of existent KM initiatives are discussed.

6.2 Measuring a Knowledge Management Initiative

Even though KM should attempt to embed itself in underlying strategy, it must nonetheless possess measurable goals and objectives in order to prove its value to an organisation. The promise of displaying the benefit of a new strategic initiative and,

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20 For example, allow members of an organisation time to meet with Communities of Practice throughout the industry to both share & generate new ideas as well as factoring in the time costs involved in implementing, becoming familiar with and general usage of new technologies.
more specifically, a new piece of technology will almost always be required in order to get senior management buy-in and approval. Concrete measurements will be required but the nature of Knowledge Management can often mean that it is difficult to quantify potential gains of a KMS upfront. There are so many mitigating factors (as previously discussed these factors range from engagement in new technology, to a reluctance in participation, to a lack of understanding of where KM may fit into an employees role) and ‘soft’ gains such as Knowledge Management provides (i.e.: a more advanced workforce does not always translate directly into profit) can be difficult to quantify upfront. Sinclair (2006, p. 103) highlights the difficulties of measuring any Knowledge Management system and recommends that benefits are clearly understandable and provide “feedback about (the/any) business strategy” with which they are aligned in order that they are seen as being of value to their specific business unit.

6.2.1 Objectives of metrics in Knowledge Management

Any project should be designed with strong objectives and goals that should prove the success or failure of a project or, at least, provide feedback to allow management to gauge whether a project is meeting its proposed milestones. Metrics therefore aspire to:

- Define goals and scope for projects.
- Develop criteria for success.
- Predict return of investment.
- Track on going viability of Projects.

6.2.2 Types of Metrics

Even though he recognises that “numbers will tell (a) story far more convincingly to senior managers that soft measures can”, Sinclair recommends a mixture of quantitative (statistical) and qualitative (which are defined on their quality or difference between some quality they possess or display and that which another measurement displays) measurements wherever possible as this mix shows “value across the whole organisation” (Sinclair, 2006, p. 103). As Knowledge Management is a people-focused process so displaying measurements in hard data such as an increase in sales or profit will rarely display its true benefits.
A number of factors must be kept in mind when measuring a Knowledge Management initiative:

- There is no one size fits all approach.
- A combination of many techniques will work based on the objectives of the KMS.
  - **Quantitative**: Clicks, calls statistics, reduction in helps desk calls reduction in errors.
  - **Qualitative**: Questionnaires, interviews, observation and lessons learned.

### 6.2.3 Benefits of Measuring Knowledge Management Initiative

James Roberston discusses the broad theme of Knowledge Management metrics in his paper *Metrics for Knowledge Management and Content Management* [11]. In order to ensure a KM project maintains interest from senior management as well as from the staff cohort, Roberston shows that metrics must be very specific in order to gauge and estimate the success of a particular initiative, its ongoing viability and the likelihood of similar or more widespread initiatives succeeding in an organization. Amongst his measurement criteria are:

- **Targets to be set**: Metrics provide clearly defined goals and scope for projects, allowing for more concrete design, planning and implementation. Metrics state “this is what we plan to do, and this is the benefit it will have”.
- **Success to be assessed**: Metrics provide very specific ’success criteria’ for projects, allowing the outcomes to be assessed at the end of implementation.
- **Return on Investment (ROI) to be estimated**: In the current times of tight IT budgets, there is an expectation that projects will deliver quantifiable benefits. This is often defined in terms of ROI. Without strong metrics, estimating ROI is little more than guesswork.
- **Ongoing viability to be tracked**: Metrics continue to provide value beyond initial implementation. Appropriate measures will quickly highlight issues, allowing them to be resolved before they grow or spread.
- **Lessons to be learnt**: By providing a concrete way of assessing the success (or lack of) various approaches, a greater understanding can be gained. This can then be applied when establishing new initiatives.
6.3 Challenges to Initiating Change and Sustaining Momentum

The most common reason why this failure occurs is because a KM plan fails to bring about significant, tangible & immediate benefits. Senge (1999) suggests that, if the change initiative is solely a top-down, leadership strategy, it is doomed to failure. Trying to convince employees to change purely because a leader says it is so and without considering potential to grow individually will lead to disheartenment & disappointment. Leaders must “understand the limiting processes that could slow or arrest change” and foster a cultural change within their organisation, “shared commitment to change develops only with collective capability to build shared aspirations” (Senge, 1999, p. 9). If such a change can be initiated & more importantly maintained, learning capabilities are developed in the “context of working groups & real business goals (and this) can lead to powerful reinforcing growth processes” (ibid) which are not only beneficial to the Organisation as a whole but also to each of its members individually.

Senge goes on to discuss a number of challenges to initiating change & sustaining momentum (Senge, 1999, pp. 26-29). If examined, many of these can be attributed to staff & how they consider their job & what they know, for example: “We don’t have time for this stuff!”, “This stuff isn’t relevant!”, “Who’s in charge of this stuff?”, and “Where are we going/What are we here for?” Importantly, he says that a new culture cannot be created but that it must be grown. It would not be feasible to expect the members of an organization to arrive in work one morning to be told: “we’re not doing things like that anymore; this is how it is to be done”. From a Public Sector point of view, Syed-Ikhsan & Rowland (2004) say that it is the hierarchical and bureaucratic organisational structure which determines knowledge as being power and hampers knowledge sharing amongst staff.

6.4 A Culture of Change: Knowledge Sharing

A change in culture towards Knowledge Sharing will not be a process which happens overnight but something which can be achieved by observing current work practices & methodologies & proposing new values & ways of doing things. “If people who adopt (a) new behaviour feel that it helps them do better, they may try it again and (eventually) the organisational culture may embody a different set of assumptions, and a different way of looking at things (...) Even if you haven’t changed the culture, you have set the stage for culture to evolve”, Senge (1999, p.14) makes Knowledge
Management sound like a slow & uncertain challenge but the benefits of KM are can reach the organization as a whole.

A cornerstone goal of any KM strategy & more importantly its success (in order that it be a more certain challenge, however slow it may progress) must be a cultural shift towards knowledge sharing which proves how it will be both beneficial to the organisation as a whole & its strategic measures, as well as to each individual who has become involved in the strategy. Nurturing such a culture of knowledge sharing allows a KM strategy to blend with organisational strategy and becomes a tool that is ingrained into staff & organisational culture.

6.4.1 Groups who must be Involved

From the outset, then, it would seem quite important to engage the right people in a Knowledge Management initiative. O’Brien (2002, p. 443) reiterates that it is “the attitude of management and staff and their receptiveness to new ideas” which is the tripwire for the success of KM. Sinclair advises of the importance of finding “points of stability in the organisation and look for Knowledge Management deployment opportunities there” (Sinclair, 2006, p. 103). Although many knowledge sharing initiatives are intended to encompass entire enterprises and organisations, frequently pilot deployments to specifically appropriate business units can prove the relative success (or indeed failure) of the initiatives as well as exposing areas of change management which are essential to address.

6.5 A Framework for Cultural Change

Guy (2006, p. 1) describes how Public Sector organisations must maintain existing functions alongside new Knowledge Management practices with limited resources and with existing public sector expectations to maintain, as well as existing users to support. Alongside these obstacles, participation must be encouraged and a “collective intelligence” generated. Knowledge Management consultant, David Gurteen discusses the need for creating a knowledge sharing culture in an organisation:

6.5.1 Creating a Knowledge Sharing Culture

What then does it mean to create a Knowledge Sharing Culture? Well it's about making knowledge sharing the norm. To create a knowledge sharing culture you need to encourage people to work together more effectively, to collaborate and to share -
ultimately to make organisational knowledge more productive. But we need to remember a few things:

• We are talking about sharing knowledge and information – not just information.
• The purpose of knowledge sharing is to help an organisation as a whole to meet its business objectives. We are not doing it for its own sake.
• Learning to make knowledge productive is as important if not more important than sharing knowledge. Michael Schrage in a recent interview said that he thinks, "Knowledge management is a b*****it issue" as "most people in most organisations do not have the ability to act on the knowledge they possess".

Changing a culture is tough. Not only does it mean change – which has always been tough – it means seeing the world in a different way. It means revealing our hidden paradigms like the tacit acceptance that "knowledge is power" [2].

6.6 Beginning Cultural Change

A KM strategy is not an esoteric, organic process (although it will be constantly evolving), but rather it must be quite a formally devised set of procedures & projects, which are integrated into broader strategic initiatives and put into practice in an organisation. The balance between the formalised strategy and the successful implementation of new KM strategy rests firmly on the people who are involved in the initiative; from senior management, to line managers with a vision to encompass the entire organisation in the process.

Guy (2006) cites Library and Information service areas as being the first amongst Public Sector organisations to adopt Knowledge sharing tools (specifically WIKIS) for a range of uses including staff development (in the US) with a staff “collective memory” being stored. Although a number of barriers to the adoption and widespread usage of such technologies exist (as discussed in Chapter 3), the ultimate aim is to ensure “everyone on (a) team is aware of everything that is going on and to provide a degree of transparency to the rest of the department”, not simply documenting activity but also “documenting things that might be of interest to others (such as) code snippets” (Guy, 2006, p. 6). A cultural shift must occur in order for this level of knowledge sharing to succeed.
6.7 Fostering a Climate of Cultural Change in the Civil Service

There are a number of elements that an organisation must employ if an appropriate change to management & culture are to occur:

- To foster a climate of cultural change, an organisation must show its employees where the benefits of knowledge sharing will lie in relation to themselves & their position within the organisation. A sense of “Personal Mastery” (Senge, 1999), as discussed further, must be instilled so that employees can “expand their capacity to make better choices & achieve results” with a combination of a personal vision & a realistic assessment of their current state. Asking people to simply ‘donate’ what they know & may consider a precious resource (& perhaps the reason for their status & position within an organisation) would likely harbour further hoarding of knowledge. Rather, presenting them with the awareness that sharing is as valuable to them & their position makes for openness.

- Create a positive orientation to knowledge. Encourage knowledge sharing through the aforementioned Communities of Practice, allowing members of the organisation time to pursue elements of their work that they enjoy (c.f. www.google.com) with a view to releasing tacit knowledge & expertise locked in employees’ heads. Such an outlook on knowledge should be considered, by executives, as just as valuable to the organisation as day to day procedures.

- Create a “Shared Vision” (Senge, 1990 & 1999) within the organisation. Rather than initiatives appearing in a seemingly inexplicable way from the top-down, they should come with a mutual purpose for the organisation as a whole. A commitment to the group that all involved will advance on foot of any changes. This is tricky to get right but, by involving & informing members of the organisation from the time a KM strategy is launched and right through its continuance will allow all to feel involved and promote a sensation of commitment to the overall goal. O’Brien concretes this by advocating the development of staff abilities which “enables change, whilst the desire to learn is enhanced by improved co-ordination and the need to work differently to solve concrete problems. Subsequent results generate stronger commitment to change leading to a mutually reinforcing cycle of increased commitment, co-ordination and abilities” (O’Brien, 2002, p. 443).

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21Google engineers all have "20 percent time" in which they're free to pursue projects they're passionate about. This freedom has already produced Google News, Google Suggest, AdSense for Content, and Orkut – products which might otherwise have taken an entire start-up to launch.
• Create a “Learning Organisation” where employees are involved in “generating information, integrating it into the big picture, making sense of it, and deciding how to act” (Senge, 1999, p. 444). Moving away from a traditional instruction-led workforce to an independent, self motivated workforce where knowledge is not simply recorded & disseminated appropriately but is also self-generating – “there are no more thinkers, separate from doers; all doers are thinkers” (Senge, ibid).

• Think about the organisation as a whole system. Rather than considering one job in isolation, encourage people to understand “interdependency and change” (Senge, 1999, p. 32) within the organisation as a whole and be more willing to take responsibility & ownership for where their work fits into the organisation as a whole.

• Encourage ‘multiple channels for knowledge transfer’ (Davenport, 2002, p. 159). Alongside providing knowledge repositories etc. avenues such as Communities of Practice, Yellow Pages etc must be explored & implemented. A Web 2.0-based Knowledge Management System should ideally offer multiple options for knowledge sharing such as WIKI, forum, discussion groups etc. to develop diverse channels for communication.

• Motivating members of an organisation to change the way they do business by informing them that sharing will help them do their jobs better & advance in their career.

• Rewarding sharing. As mentioned in Chapter 3, this can prove to be a difficult element as it could be viewed that the knowledge a worker has gleaned on foot of his or her employment is the intellectual property of the organisation (this debate is a long running & complex one22). Extracting & codifying this knowledge, while it may seem the ‘right’ of the organisation, still requires a subtle reward system in order that the employee feels he or she is being praised for knowing what they know. David Gurteen [2] attests that it is more appropriate to remove boundaries to knowledge sharing rather than reward it but perhaps there is a fine line to be drawn here (See further discussion on PMDS).

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22 Debate on Intellectual Property is explored in the text *Information Technology for Management* (Turban et al, 2006)
6.8 Knowledge Management Initiatives in the Irish Civil Service

In 2005, the Committee for Public Management Research (CPMR) produced a discussion paper, *A Review of Knowledge Management in the Irish Civil Service*. This paper addresses how a number of Irish Government Departments have implemented Knowledge Management (KM) strategies within their organisations from conducting a KM audit at Sustainable Energy Ireland, to developing a KM strategy at the Offices of the Attorney General & the Chief State Solicitors.

6.8.1 IPA Knowledge Network

More recently, at the beginning of 2007, the Institute of Public Administration (IPA) has facilitated the creation of a Knowledge Management Network the aims & objectives of which are to:

- Provide a platform for sharing experiences
- Stimulate a debate on KM in the public sector in Ireland
- Provide input to members own KM agenda
- Facilitate meetings that support sharing amongst participants
- Seek guest speakers from public & private sectors that provoke reflection on KM practice
- Identify common threads for potential collaboration amongst members.

In the 2 years since the IPA KM Network has been running, the most common thread by far has been “How do you get started with KM/create a KM strategy?” This has, indeed, been the dominant thread for the whole network. According to members of the Network, the answer to this question is made up of two main parts:

1. *Stakeholder Engagement*, i.e. how do you get people to buy in/participate (management and staff)? Changes in organisational culture, attempting to engage staff in a learning organisation and instilling a sense of self development by promoting the motivators to knowledge sharing will, hopefully, engage stakeholders.

2. *Strategy Mechanisms*, i.e. what tools & techniques will be employed? E.g. WIKIS, debriefings, sharing events, etc. As discussed in Chapter 5, it is not recommended that Knowledge Management be a standalone strategic initiative but rather that techniques and initiatives be blended into HR, IT and other broad strategies to ensure that Knowledge Management is filtered through as much of the organisation and becomes a part of everyday strategy and working practices.
If these two elements are addressed and managed effectively, a KM initiative can and should be successful. A further popular thread throughout IPA Knowledge Network meetings was KM Measurement (as discussed above), i.e. how to demonstrate the KM program is making a difference? This question spans across the two areas above. The outcomes of #2 must be used to prove the benefit to the stakeholders in #1.

6.8.2 Performance Management and Development System (PMDS)

A Civil Service wide commitment was given in 2000 to a Performance Management & Development System (PMDS). PMDS encourages employees to clearly define their job roles, where they see their job going & what tools they require to perform to the best level possible. The move away from the traditional Civil Service working practices began with PMDS and a move towards an expert, skilled and knowledge-driven Government.

6.8.3 Knowledge Sharing in the Department of Finance

The importance of embedding Knowledge Management principles in the Department of Finance has been recognised for a number of years. According the CMPR discussion paper A Review of Knowledge Management in the Irish Civil Service (O’Riordan, 2005, p. 36-38), the Department of Finance, or more specifically the Centre for Management and Organisational Development (CMOD, which incorporates the Department’s ICT unit), undertook a knowledge sharing initiative which aims to develop “a better understanding of peoples’ roles: what they do and, critically, how they do it.” A ‘Yellow Pages’-like application was proposed which will present “the work of all units (...) mapped out, with the possibility of clicking on any entry to follow up a line of enquiry”. This is intended to allow all staff understand the work of the Department and identify relevant contact details, relevant data & information services & individual role profiles for each staff member.

CMOD staff are encouraged to utilise networked directories for all storage of work-related documents for example project proposals and templates. Such structures can be

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23 PMDS strives to “generate capability at the level of individual organizations” by looking “to the performance and development of people, as it is their unique knowledge and skills which provide the foundations for success (...) It is undoubtedly true that, in the past, the Irish Civil Service did not sufficiently invest in people through giving them clear roles and supporting them by training them to do their job well. That is why the Performance Management and Development System is so important as it will give us the tools to better manage and develop our people at all levels.” An Taoiseach, Bertie Ahearn, speaking at the PMDS launch, 11th May 2000 [12]
rather difficult to search (and exponentially so as document sizes and volumes grow). This searching issue is one which a formal Knowledge Management System attempts to overcome with appropriate tagging and classification of WIKI entries, forum discussions, documents etc. This is explored in further detail in Chapter 8 with the introduction of an Online Resource Centre. An Internet forum site was created with the original intention that it would be used for both discussion & instruction regarding work processes & practices. Staff members within the unit are encouraged to upload any interesting links, documents, code snippets etc. to this forum.

In the past number of years, skills shortages were identified within CMOD & appropriately trained & experienced staff were recruited to fill these skills. New staff members were been encouraged to not only utilise their skills but also to transfer them to other staff members in an explicit way. Shared directories allowed newer staff to upload documentation relating to their job specification, current work, & areas of expertise in order that such relevant experience would be available to the department as a whole.

6.8.3.1 Knowledge Sharing and Implementing Knowledge Management in the Civil Service as a Whole

As discussed above (O’Riordan, 2005, p. 17), the process of implementing Knowledge Management procedures is “in effect, a change management project”, O’Riordan highlights the necessity for a cultural change which must evolve from senior management.

In attempting to encourage KM throughout the civil service, key areas for examination and/or development must be addressed, including:

- A review of organizational arrangements to ensure that KM practices are embedded into the everyday work of staff. Examples of such practices that should be investigated are, for example: a possible Central Government Coordinating Unit for KM (See discussion below on The Department of Finance’s “Electronic Resource Centre” Chapter 8) as well as the structured development of Communities of Practice and Knowledge Networks (See discussion on the Knowledge Network as hosted by the IPA).
- The active promotion of Knowledge & Information sharing amongst other Organisations, Departments & offices.
- The implementation of specific knowledge initiatives such as informational meetings, peer reviews & quality reviews; new filing mechanisms, electronic archiving.
• Training, mentoring & coaching practices; ‘Good work practices’ & training manuals

• In terms of communications, it is essential that line managers devote time disseminating information to their staff. In doing this, managers facilitate the horizontal flow of information between their staff and to some extent devolve authority and instil a sense of responsibility downwards.

• Any knowledge/information management strategy must be included in Departments’ Statement of Strategy and widely disseminated throughout the organisation as well as being available and well known to staff.

• It is essential to educate and develop staff in the general management of their own knowledge and process documents: Personal Knowledge Management. The value of what staff members know should be highlighted and important terminology should be used vis-à-vis “Knowledge Management”; “Information Management”; “Knowledge Sharing”; “Learning Organisation / Learning Government” should be appropriately used.

• In relation to Department Internet sites, it must be clear that all important documents and information are delivered upon and that information is clear, understandable, easy to find (online storage and appropriate classification of documents is essential) and updated on a regular basis. A serious attempt at this is being made in the “Electronic Resource Centre” as discussed in detail further in this dissertation.

• There must be an aim to minimise or eliminate duplication of efforts between divisions, sections & Departments in order that correct and up-to-date information can be released more quickly while making it more widely available to the public & promoting life-long learning.

• KM effectively included in overall strategy should help to improve transparency and working relations across departments as well as preventing any loss of knowledge which may occur due to shorter staff turnover, transfers, promotions, retirement, departures etc.

• Traditionally, there were difficulties in implementing knowledge management practices because of a strong focus on information and communication technology, rather than on people or organisational matters. If managers are aware of the barriers and, indeed, the motivators to participation, appropriate measures may be taken to pre-empt resistance and encourage communication.

The above measures, while they may be viewed as broad ranging, should not be considered as being beyond the scope of any one Department and, if successfully
administered & encouraged will, without doubt encourage a culture of change and of knowledge sharing amongst organisation members

6.9 Conclusion

This chapter began with a discussion on the importance of measuring any Knowledge Management initiative. Challenges to initiating change were addressed in the context of a shift in organisational culture which is required to accommodate active knowledge sharing. A framework for changing the culture of the Civil Service was developed addressing both individual and group issues and motivations. To conclude this chapter, a number of KM initiatives which have been rolled out to various civil service areas from PMDS to the IPA’s Knowledge Network to an attempt to integrate Knowledge Sharing in the Civil Service as a whole were addressed.
7 ORGANISATIONAL LEARNING

7.1 Introduction

The concept of Organisational Learning has been mentioned a number of times throughout this dissertation. This chapter attempts to delve a little deeper into what is meant by a Learning Organisation and how managing the knowledge of individuals can lead to a more intelligent, more productive and smarter-working organisation. A trip through Peter Senge’s 5 Learning Disciplines demonstrates how learning capabilities may be built within an organisation and create life-long learning for its members. Allowing individuals to grow and develop; creating group mental models in order to create generic structures for understanding more complex concepts; generating a shared vision for an organisation or a business unit; encouraging teams to learn collectively; and finally, investigating whether groups can think as a whole provide environments which are conducive to creative thought and which grow with a strong, actively-working workforce. A case-study of an Irish Civil Service project which incorporated a number of the above learning disciplines is presented in the hope of demonstrating that giving individuals more scope to think and grow creatively will change the basic structure of how a group work and how leaders manage their team/organisation.

7.2 What is Organisational Learning

Organisational learning encourages a workforce which is open to change, adaptable & capable of utilising new knowledge; An organisation which is able to sense changes from internal & external environments and adapt accordingly; And, using Knowledge Management practices as discussed in Chapter 2, knowledge within the organisation is created, captured, transferred to other employees, and with the benefit of some sort of formal process, knowledge is stored and appropriately utilised to enable it to adapt to changing environments. Organisations should be flexible in this way due to technological advancements and changes in how business is performed (with the advancement of online business processing or e-Business etc.) which mean that the structure of an organisation may have moved to a more knowledge-intensive basis with information being distributed and disseminated across organisational and geographic divides.
Communication has become bi-directional and very often with reduced barriers between departments in the organisation; each worker is part of a team whos collective knowledge adds to a larger pool of knowledge (Nonaka, 1995). Organisations should focus on “developing the (their) culture and (...) human capabilities, and promoting organisational learning” (O’Brien, 2002, p. 443) while bearing in mind that it is “people, individually and collectively, (who) are the key to successful change” (ibid, p. 444).

7.3 Peter Senge’s 5 stage process for bringing together Individual Knowledge to benefit the overall organisation.

In his book The Fifth Discipline: the Art and Practice of the Learning Organisation (1990), Peter Senge discusses the importance of dialogue when it comes to groups of people learning from one another, expanding their knowledge and, in turn, making an organisation more powerful and adaptable. Groups thinking together discover insights which may not have been individually attainable (Senge, 1990, p. 10). Senge outlines 5 core disciplines which must be mastered in order to build a learning organisation:

7.3.1 Stage 1: Personal Mastery

In order for an organisation to learn, its component individual employees must also learn and gain a sense of ‘growing’ and ‘developing’ within themselves. People should not simply be able to produce results but also have a deep understanding of both how and why their actions produce results; they should be aware of their own competence and skills and with these two attributes, combine a sense of creativity and searching out new interests within their current work practices. If an organisation challenges its employees to invest in increasing their potential, the resulting workforce will be empowered and stimulated and the resulting environment is more flexible and adaptable. Learning is triggered by engaging peoples’ interest and curiosity and people with high levels of personal mastery are more committed, take more initiative and display more responsibility in their work (Senge, 1990, p. 143).

The workplace should attempt to accommodate the basic needs and requirements of employee, in order that they may become closer to realising a self-vision (pushing themselves & working harder) and self-actualisation which means a person truly becomes aware of themselves and their surrounding environment and can thus develop a higher level of self-discipline and reaching their full potential; interpersonal and ethical skills; knowing and managing emotions. Once basic needs are met as Maslow
defined in 1943, people transcend these needs and in fact will become more self-motivated and better at handling relationships and the emotions of others. This Self-Actualisation is learned by seeing benefits from others. However, in order for the true sense of Personal Mastery to be realised, an individual realises that he is responsible for his own personal and professional improvements, even though it is the organisation who should facilitate them.

Organisations and managers who encourage individuals to practice Personal Mastery will witness several changes within staff such as:

- An Integration of Reason and Intuition – not simply relying on how thing have always been done, rational problem solving and traditionally seeing how groups and processes have always performed, but listening to one’s intuition, drawing on intuitive analogies and being more creative in problem solving;
- Seeing our Connectedness to the World – continually expanding awareness and understanding and viewing interdependencies previously not seen but now realised as being influential to reality;
- A Commitment to the Whole – committing to interests beyond one’s self leads to a broader vision, a desire to benefit a group or organisation as a whole.

People must feel safe in their organisation to create their visions, and able to challenge how things are traditionally done based on a confidence which has been instilled in them. This is a continual and ongoing process which requires a supportive environment with a management structure which models exactly that which it attempts to instill in its workforce. Leaders should be seen to encourage a sense of Personal Mastery in their team and also to embody such an ethos in their actions (Senge, 1990, pp. 167-173).

7.3.2 Stage 2: Mental Models

Models are “internal images of how the world works” (Senge, 1990, p. 174), “the images & stories which we carry in our minds of ourselves, other people, institutions and every aspect of the world” (Senge, 1994, p. 235). They assist in the understanding of a person’s environment but oftentimes only demonstrate the viewpoint/image/story of one person. Mental Models affect how we see things and how we shape our perspectives. They often exist as tacit knowledge within an individuals head and traditionally may have been seen as an impediment to developing a business. People

24 The father of modern management, Abraham Maslow’s theories are available at [13]
may be locked with their mental, tacit ideas and viewpoints but Mental Models (or concepts) should also be viewed as having potential to assist in both individual and organisational learning and development. Extracting Mental Models from people’s brains can be difficult but group discourse on one or many models encourages the generation of a new consensus model which is closer to that of all group members. Engrained Mental Models can prevent new and powerful insights and organisational practices from being implemented (stuck in a rut) but if deeply held belief-structures and generalisations are be unearthed groups may be in a position to understand how they dramatically influence how we operate in our work/lives.

If managers can learn to reflect on current mental models which exist within a team or an organisation, they can bring prevailing assumptions into the open (Senge, 1990, p. 203). This should bring about realisation and a focus on openness within the group and, hopefully, what will be created is a list of “generic structures” (ibid, p. 204) representing elements of the business such as technology and products which are used throughout the organisation. Exposing the relevant Mental Models (and storing them explicitly in a KMS) of an organisation and discussing them so that the contribution of all members of a group are understood, assists an organisation in shifting the way managers think about models in the longer term and in seeing patterns of change in models, exposing improved models which should be integrated into policies and strategies.

7.3.3 Stage 3: Shared Vision

Senge describes an organisation which has a Shared Vision as being a “force of impressive power” (Senge, 1990, p. 206) in which decision makers endeavour to create a unified focus within the organisation. The beliefs and values (culture) of the organisation must be explicitly stated and enshrined in all employees. As with mission statements, it is necessary to instill a unified focus for the organisation throughout all members, to be the best in its field. This ethos should become something aspirational to each employee and make work and learning in and through work become a larger purpose.

Courage from employees ensues from this sensation, courage to find their own sense of Personal Mastery, to take risks and experiment. Courage to strive, with compliance, for goals which the organisation and the individual wish to achieve – “Shared Visions emerge from Personal Visions” (Senge, 1990, p. 211). Rather than promote a Shared Vision from a strict top-down viewpoint (which is essentially, the personal vision of a
leader), employees should be encouraged to reflect on and discuss the vision and what it means to them. Creating and spreading a unified focus in an informal manner succeeds better than formally as discussion is helpful, compliance should not be forced but rather stem from commitment to the personal visions of many. Leaders should enthusiastically share their vision and encourage others to follow with them through discussion and dialogue (while all the time maintaining its focus), as people discuss and ‘thrash out’ issues together, the Shared Vision – as held by all – becomes clearer.

7.3.4 Stage 4: Team Learning

An organisation is more powerful when it is “Functioning as a whole”. The organisation thus begins to think in more synergistic ways and a greater collective understanding for all the aspects that my influence thinking such as peoples’ own beliefs & values (Senge 1994). Teams must attempt to explore new ideas, become more creative in their roles &, using shared vision, encourage vision of the team as a single entity. The group must think about complex issues, as a team, drawing on the potential of all members being aware that differences of opinion will invariably exist within the group. Personal opinions and defensive attitudes must either be suspended or, if they are of ultimate value to the group, the beliefs of others should come together to form a collective group opinion.

A leader is essential in coordinating the actions of the team in order that each member is aware of the value of the viewpoints of other members. To avoid frustration, team members should be reassured that differing opinions are a natural part of group discourse which leads to a group consensus. A shared language of the team begins to develop which means complexity is better understood amongst members and team members converse with one another in a new way. From this, the group should begin to act as a single cohesive unit with members functioning collectively and successfully enquiring into issues which are presented to them. If the above chaos is overcome and the group can think collectively (and this primarily applies to a group who are advanced in their collective thinking), a group creativity can emerge where collective wisdom exists within the group who have compassion and understanding of other members vision with no defensive behaviour. The team learns as a whole and challenges are easily overcome.
7.3.4.1 Dialogue and Discussion

At every level of developing an Learning Organisation, dialogue and discussion are of utmost importance to a team “capable of continual generative learning” (Senge, 1990, p. 240) with discussion involving common interests and opinions being analysed from the multiple viewpoints of the team members and dialogue generating a larger consensus of common meaning which differs from individual understandings. Going beyond what is understood by an individual to achieve a new way of thinking and understanding.

In dialogue, a group explores complex difficult issues from many points of view. Individuals suspend their assumptions but they communicate their assumptions freely. The result is a free exploration that brings to the surface the full depth of people’s experience and thought, and yet can move beyond their individual views (Senge, 1990, p. 241).

Dialogue is essential as it is draws conception and implementation together in a common meaning not merely analysing problems but creating innovative shared knowledge in a collective consciousness which encompasses the viewpoints and actions of not one individual but of all individuals involved. Team members must be prepared to:

- Stay open to others’ opinions and remain honest and truthful to their own
- Expose assumptions and the reasons they are made while realising if they are valuable or should be challenged
- Listen to all members of the group without prejudice or interruption
- Inquire on proposed ideas and concepts and reflect on them to uncover value as new ideas can develop through silence and questions.

Team members must feel they are building a new and deeper understanding. Team Learning is a skill which must be practiced and developed and the language of communicating as a team leads to the organisation thinking as a system wherein they are not simply looking for a quick-fix but instead possess the ability to see the big picture and to distinguish patters instead of conceptualising change as isolated events.
7.3.4.2 The Advanced Spiral of Knowledge

The aforementioned Spiral of Knowledge is heavily supported through dialogue as can be seen in Fig 7.1 below:

- **Step 1**: An individual has an idea/a mental concept.
- **Step 2**: This idea is explained to others.
- **Step 3**: All elements of the original idea are ‘thrashed out’ with others, any confusion regarding what is meant by any part of the concept are clarified through discussion and discourse until a group consensus is reached.
- **Step 4**: The group consensus view is revealed to the organisation.
- **Step 5**: Explicit Organisational input (e.g: relevant files or articles of work) is combined with group view.
- **Step 6**: The entire model is exposed to the organisation as a whole in order to get further input and feedback.
- **Step 7**: If new knowledge is accepted & incorporated into working life of organisation, confidence (that valuable input can come from unexpected source & individual confidence) grows.
- **Step 8**: This new method of developing organisational knowledge spreads through the organisation in the hope that others will attempt to participate also.
- **Step 9**: A newly innovative, actively learning organisation emerges.
7.3.5 Stage 5: Systems Thinking

A fifth and most difficult stage to attain, Systems Thinking, occurs when a group is thinking in harmony and had a strong shared vision. It is an extremely advanced way for a group or organisation to behave and all of the previous 4 stages must be fully functioning to enable a true learning organisation to come about – the organisation must move from being unconnected to connected with the thoughts, perceptions and feelings of all involved come together to advance the understanding of the overall system.

7.4 Organisational Learning and the Public Sector

O’Brien notes that public sector organisations traditionally “demonstrate bureaucratic norms and behaviour patterns that would be at odds with the principles of Organisational Development” and Learning (O’Brien, 2002, p. 444) due to its traditional hierarchical decision making structures. Bringing about a Learning Organisation requires the engagement of “the wider group of organisational members in the decision making process” (ibid) and a movement from a hierarchical to a more holistic, integrated decision-making process. Encouraging a learning organisation, such as is advocated by Senge, requires tapping into employees’ potential for contribution and discovering that there exists an “impressive reservoir of potential”.

O’Brien (2002, p. 452) cites a project as run within an Irish Government Department (Social Welfare Services) wherein project managers encouraged suggestions from employees regarding key issues in Human Resource communication and training. Results revealed that, with some probing, the ideas which employees presented were extremely valuable. Contributing, and feeling that their contributions were valued, created a sense of personal involvement for staff, their initiatives were put to practical use and thus their importance to the organisation as a whole was displayed. A “management philosophy based on a more personalised approach (…) encourages a diversity of views and empower employees to develop their own ideas” (O’Brien, ibid). As a result of this, employees see willingness in management to “attribute a more positive interpretation to their intentions and objectives”.

Following on from this team member contribution, the original project implementation changed: “Staff commitment to change was mobilised through joint diagnosis of business problems in the form of employee and subsequent discussion and planned
action by employees and management. Through a process of dialogue, a shared vision of how to organise and manage materialised” (ibid, p. 452).

Alongside team members engaging in new thought processes, managers/team leaders must learn to respond to workings in new and encouraging ways: “a shift from the controlling management style typically associated with large public administrations to the more facilitative and supportive style of management required” (ibid, p. 452). O’Brien concedes that this cannot be achieved overnight particularly within Government Organisations but that this should not be a deterrent to attempting to foster a Learning Organisation.

In any organisation, but especially in the Public Sector, new initiatives for making contribution of knowledge and skills transfer must be designed, questions posed and team members and leaders must engage in active listening. Leaders must resist the temptation to behave in the traditional, hierarchical manner of being “the ones to generate the ideas and instead see the leadership role as one of developing and focusing motivation, energy and commitment and providing the necessary synergy”. This more personalised approach to management “encourages a diversity of views and empowers employees to develop their own ideas.” (O’Brien, 2002, p. 452) generates a workforce that interprets management view as a “willingness to attribute a more positive interpretation to their intentions and objectives” and they in turn are more likely to continue to participate.

Encouraging participation is gradual and involvement and participation must be fostered as the “most powerful levels that management can use to gain acceptance and change”, employees must be recognised as the most valuable resources of the organisation. Beer et al (Cracking the Code,1990) are cited by O’Brien as describing a collaborative approach to management as being one which relies on “direct participation of the workforce which, when successfully applied, can lead to a self-reinforcing cycle of commitment, co-ordination and competence” (p. 453).

7.5 Conclusion

In this chapter, the concepts surrounding Organisational Learning have been further investigated including what it means for an organisation to learn and how all members benefit from open dialogue and communication. Knowledge Management is proved to actively support a Learning and Growing Organisation. Peter Senge’s 5 stages for harnessing knowledge from the individual to the group level was discussed in detail
with an emphasis on discussion and dialogue as vital points for launching and progressing knowledge management initiatives. An advanced version of the Spiral of Knowledge, with a strong emphasis on discussion and integrating individual ideas into group thinking and the organisation as a whole, was considered. Finally, a change in management practices within a real-life project allowing and building on input from all staff members proves that strong ideas exist at all levels of an organisation and attempts should be made to encourage and draw out knowledge and ideas from wherever they may lie in an organisation. A KMS is the ideal to facilitate such attempts.
8 A COMPREHENSIVE, COLLABORATIVE WORKSPACE FOR THE CIVIL SERVICE

8.1 Introduction

In this chapter a model for e-Learning and moderating online collaborative tools will be introduced. Civil Service Network groups are analysed alongside the benefit of such groups collaborating together and developing consensus viewpoints on critical group concepts and issues. Knowledge Management within the context of Social Constructionist theory is investigated and an Electronic Resource Centre (ERC) for the aforementioned networks, developed using the Open Source technology MOODLE, is described including roles and responsibilities of participation as well as all the many features that MOODLE offers and their implementation in the online resource centre. How interest should be maintained in this tool, top-level management buy-in and change management practices are all considered in this chapter. Finally a number of existing collaborative initiatives are discussed in the hope of proving the ultimate success of the ERC.

8.2 Gilly Salmon’s Model for e-Learning

Gilly Salmon is Professor of e-Learning & Learning Techniques at the University of Leicester who has built a model to develop an ideal scenario for online learning & development. Following these stages as much as possible will encourage both the usage of an online tool for learning as well as the construction of new knowledge through discourse and collaboration – in the case of this dissertation, a Knowledge Management System.

1. Access & Motivation – Exploring the technology and motivation building are key issues. The e-moderator helps by meeting with people and displaying the environment to them.

   Essential steps are:
   a. Online group is set up with a welcome message
   b. Ensure students know how to access the online group

2. Socialisation – Building on the first stage, this stage focuses on social processes and 'community building'. A moderator is required to build bridges
amongst users and groups.

Essential steps are:

a. Lead a round of introductions, online icebreaker
b. Welcome new members
c. Provide structure for getting started: rules, (n)etiquette etc
d. Avoid individual interaction where possible but attempt to involve others for opinions and ideas
e. Encourage quieter members
f. Provide online summaries of discussions. This is called ‘weaving’

3. Information Exchange – Information is exchanged and co-operative tasks can be achieved. Interaction happens with contents, other participants and the e-moderator that assists exploration activities.

Essential steps are:

a. Provide highly structured activities at start of group life
b. Encourage participation
c. Ask questions
d. Allocate online roles to members, e.g.: provide a summary of a discussion
e. Close threads where appropriate
f. Encourage the online group to develop itself with shared language etc

4. Knowledge Construction – Knowledge development and discussion activities become important. Participants start recognising the value of text-based asynchronous interaction and take control of knowledge construction.

Essential steps are:

a. Provide more open activities
b. Facilitate the learning process
c. Pose questions for the group to consider
d. Encourage questioning of theories and practice

5. Development – Participants become responsible for their own learning and that of their group. Ideas are applied to individual contexts. This stage is characterised by reflection and assessment.

a. Encourage group members to lead discussions
b. Encourage group members to transfer their skills to other areas of their work
c. Support individual ‘risk’

d. Encourage reflection on different learning processes (individual &
group)

(Salmon, 2000)

8.3 Civil Service Networks

The main area responsible for Civil Service training and development, the CSTDC
(Civil Service Training and Development Center), is located within the Department of
Finance. This area also facilitates and coordinates a number of Civil Service wide
networks. These networks are primarily made up of middle & senior managers who are
responsible for a specific area of business within each department (for example
personnel officers or training officers) and an executive committee (who arrange
network meetings & decide on discussion topics etc.). Network members uphold
standards, implement policy and, where required, make business process decisions and
establish best practice guidelines within these business areas across the Civil Service.

The main networks which are currently facilitated by CSTDC are:

- The Departmental Training Officers (DTO) Network
- The Women Managers Network
- The Pensions Network
- The Personnel Officers Network
- Performance Management & Development System (PMDS) Officers
- Project Managers Network

8.4 Electronic Resource Center

Networks vary in their activity levels, how frequently they meet and collaborate in
general. Some, for example the Pensions Network & the Personnel Officers Network,
meet quarterly to discuss issues regarding their specific areas of work. Whereas the
Women Managers Network meet and communicate less frequently, perhaps this is due
to the fact that there may be (perceived) less pressing issues to discuss within their
forum. CSTDC spotted a gap in the nature of facilitating these groups of networks in
that, oftentimes, meeting only 4 times a year does not give sufficient opportunity to
expose real, current group and business issues which should be addressed as a group as
and when they arise.
CSTDC realised the necessity encourage and expand participation of each group and has created a so-called “Electronic Resource Centre” (ERC) where members of networks can communicate with one another online and in a real-time fashion. The ERC is being used to facilitate “Communities of Interest” (CoI or Communities of Practice, CoP, as discussed in Chapter 3) across the Civil Service with the intentions of:

- Encouraging the sharing of data, knowledge, experience & expertise;
- Supporting these CoI/CoP’s electronically;
- And, providing an online workspace which can be utilised for communication and collaboration as opposed to participants having to physically meet.

Although traditionally CSTDC is seen as a training arena, the ERC is not intended to be viewed specifically as a training tool but rather viewed as an online resource & communication tool. The term training is not used when demonstrating and encouraging usage of the ERC but networks are rather encouraged to utilise their workspaces. This technique attempts to promote the ERC as being an assistive tool which should be incorporated into their everyday work not as a chore but as a means to enhance and ease their daily work as opposed to being for one single specific activity such as training (which some may view as not necessarily applying to their day-to-day work).

### 8.5 The tool for the ERC: MOODLE (www.moodle.org)

What was required from the ERC was a neat & easy-to-use, yet comprehensive tool which would facilitate communication amongst disparate groups as well as provide a solid platform for e-learning within the Civil Service, where required. No budget for the acquisition of a new piece of software was available, either for a technical team to develop in-house or to be purchased from an external provider. This meant investigating an ‘Open Source’ (See discussion on Open Source in Chapter 3) product was the preferred avenue. The customisation of the appropriate application was developed in a ‘quick and dirty’ manner. That is to say, an Open Source product was only briefly investigated for its breath of capabilities, ease of customisation and how its features would match the perceived requirements of a collaborative tool for bringing the above networks together. There is one primary developer in CSTDC who chose an appropriate piece of software and who was responsible for the customisation of the new tool to fit with what was required.
Although no other tools were investigated, the e-learning tool MOODLE [1] was discovered to have sufficiently powerful collaborative capabilities which would be appropriate for knowledge sharing as well as training and that it contained as much if not more capability bundled into Open Source as any comparative tool freely available. A number of Knowledge Sharing tools have been discussed throughout this dissertation from Communities who physically meet to discuss shared interests, to traditional avenues such as email and shared network directories, to social technologies such as blogs, WIKIs, forums etc. which allows people with shared interests to connect. MOODLE makes full use of this broad spectrum of social technology for knowledge sharing.

8.5.1 Background to MOODLE

MOODLE V1.9 was developed in Australia in the late 1990’s by Martin Dougiamis who was an IT manager at an Australian University. A Computer Science & Education graduate, his Ph. D focussed on “The use of Open Source software to support a social constructionist epistemology of teaching and learning within Internet-based communities of reflective inquiry” [15] and the subject of his thesis would become the development and analysis of MOODLE, an Open Source software package for producing learning management systems & web sites, is built around such Social Constructionist Pedagogy.

8.5.2 Social Constructionist Theory

Social Constructionist theory emphasises that actors who are involved in collaboration and learning activities contribute to and, in diverse ways, actively “construct new knowledge as they interact with their environments” [16]. Participants test new experiences against what is already known and, if it is possible, form new knowledge and expand experiences based on their activities and those of others involved, similar to Senge’s (1990) ideas on dialogue as discussed in the previous chapter.

From a Knowledge Management perspective, such theories consider how social phenomena develop in social contexts and whether knowledge, when it is exposed into a social situation (such as conversation), can be built upon to form new knowledge. Social Constructionist Theory also asserts that one learns more and generates a deeper knowledge by ‘constructing’ something that will be used as part of others’ experiences (see Senge’s Mental Modelling).
As discussed previously in relation to Peter Senge’s work surrounding dialogue, conversation and organisational learning, Holland (2006) draws on the work of Tuominen, Talja and Savolainen: Social Constructionist theory “focus(es) on talk, interaction and language” and “dialogue and discourse (are) the essential elements in people describing and producing their experiences. Dialogue and discourse stress the role of language in the building of social reality. All associated experiences, emotions, identities and social worlds are language based, and thus best researched with a dialogue and discourse focus.” (Holland, 2006, section 2.2). This is not to say that all Knowledge Management arises from a Social Constructionist viewpoint (as has been seen in Chapter 2 during the discussion on Knowledge Management Lifecycles), but in the context of using a web-based/Web 2.0 tool (such as a KMS) to encourage communication and collaboration it is most beneficial to encourage discussion, discourse and debate in the construction of a shared opinion & a collective concept for an organisation.

CSTDC believed that MOODLE would be of benefit to groups involved as, not only was it straightforward to implement and customise, free of charge to acquire, and straightforward to use, but also users would be in a position to construct knowledge for one another, “collaboratively creating a small culture of shared artefacts with shared meanings” [17] and that they would, thus, learn by building on their own & one another’s knowledge and experiences.

8.5.3 MOODLE & the Electronic Resource Centre

MOODLE was considered an ideal tool with which to build the Electronic Resource Centre for CSTDC as, not only does it contribute to the learning & training aspect of CSTDC but it is feature rich and should expand to cater for the elements of learning within a job- and career-development context. Using appropriate MOODLE features allows users/participants to build upon their knowledge and contribute to a larger body of knowledge within their individual departments & the civil service or public sector as a whole. This is achieved by providing users with online workspaces, allowing them to participate in online discussions, peer reviews, and amalgamated document construction, all of which should be easily classifiable and searchable. Hopefully resulting in the expansion of not just individual knowledge but also in the creation of new knowledge that is accessible to a number of users. MOODLE thus facilitates the Spiral of Knowledge as discussed in Chapter 2.
8.5.4 MOODLE Implementation and the MOODLE Community

MOODLE is developed using the PHP scripting language which is interpreted by the Apache web server and supported using an SQL database (in the case of CSTDC, mySQL is used but SQL Server would also be appropriate). If MOODLE is attempting to encourage communication & collaboration amongst groups who utilise its features, then it is also truly a community in its own right. Its Open Source ethos encourages developers (under fairly strict guidelines) to develop new modules for distribution with future release versions as well as encouraging both new & experienced users to contribute to forums and discussions on the tool itself. There is a large developer community25 across 198 countries with 159 registered developers who contribute to core code with 1000’s of others regularly subscribing to forums etc. If a developer posts a new module/feature, it is reviewed by other developers and its inclusion on MOODLE is voted on by users. Moodle is enveloped in a community spirit (much like the previously discussed Drupal) and CSTDC felt the ease-of-use that MOODLE provided would pass this spirit onto its participants.

The primary administrator of the ERC, the Superadmin, subscribes to MOODLE forums as well as frequently contributing to same. This has led to the discovery of many gems which MOODLE provides as well as bug fixes, tips & techniques but equally important is the Superadmin’s recognition of the benefits that participating in the greater MOODLE community provides. Such recognition as well as the fact that the Superadmin reaps concrete benefits from the community will be of assistance in promoting the concept of an online community of interest throughout users of the ERC as is discussed further in this chapter when referring to KMS Champions.

8.6 MOODLE and Public Sector Knowledge Management

As mentioned by Guy (2006), MOODLE is frequently used by library and information science areas as well as being used by a number of Universities to facilitate online course management (for example, in the Republic of Ireland a number of third level education institutions such as DCU26 & the NCI27). An example of how MOODLE has proven a more than adequate tool for public sector collaboration is within the planning department of the Mexican Government of Jalisco28. This department were looking to

26 *DCU*: Dublin City University
27 *NCI*: The Nation College of Ireland
co-ordinate many actions and smoothly handle an increasing reliance on consultancy as well as develop an efficient mechanism for sharing information. The department wanted to utilise the internet efficiently and create Communities for information sharing and analysis as well as developing some form of online learning for staff. Their MOODLE implementation facilitated their needs and gave them a strong culture of learning and training as well as opening up lines of transparency through its virtual communities as all conversations and contributions being stored on the organisation’s MOODLE server.

From a Knowledge Management perspective, implementing a collaborative tool within CSTDC was intended to assist in the sharing of knowledge and documents, communication between participants in similar areas of different Government departments, and the building of collaborative documents. In line with the aforementioned Social Constructionist ethos, the attempt with the ERC is to “construct” new, collective knowledge from the knowledge of multiple participants. The value of Knowledge Management has been seen as vital within the Irish Government’s Department of Finance for many years and a number of tactics where previously implemented to encourage knowledge sharing, retention & creation, as discussed in Chapter 6.

8.6.1 Career-long Learning

The implementation of MOODLE by CSTDC is a strong step towards embedding KM practices in users’ everyday jobs by showing how beneficial collaboration can be in a real and concrete sense. Likewise, the reference of the tool as an Electronic Resource Centre as opposed to a Knowledge Management tool or a Training tool is a concerted effort to move away from the tool as being viewed purely for training, or singularly for a KM purpose, but rather as an assistive area for collaboration, life-long (career-long) learning and development. In terms of an organisation’s development, O’Brien (2002, p. 444) espouses the values of “empowerment, open communications, a culture of collaboration, the promotion of continuous learning and facilitating ownership of change processes and its outcomes”.

8.6.2 Focused Areas of Interest

Participants are encouraged to see what others are doing, read further into areas of interest and contribute with their own knowledge (using a number of features as described below). Participants can nominate areas of interest in their user profile which
is searchable on the ERC site and can browse other areas of interest which other like-minded participants are interested in – a service much like one which is provided by social networking sites but, in this case, restricted to other ERC users. Furthermore, a facility to *tag* (highlight) many elements of the ERC is in use wherein users note something as being relevant to an area of interest. Users can tag their interests within their profile or may tag various elements of the site (documents, forum posts, pages etc.). This functionality means other users who have the same tag outside a users own workspace can be communicated with (via an internal messaging system or email); other workspaces which users, who have similar tagged interests, are involved in may be useful to join so tagging could potentially be a powerful way to find people with similar interests around the whole of the Civil Service.

- The Spiral of Knowledge is supported here with the *Socialisation* of tacit knowledge between like-minded groups/individuals. This knowledge becomes explicit through communication with the ERC tool.

### 8.6.3 Searchable Valuable Documents

An example of how searchable, tagged documents could be of benefit to life-long learning and the Organisation as a whole is in the area of third level & postgraduate courses which Government Departments regularly fund for their employees. Departmental & Public Sector-relevant research is thus being produced but which more often resides in the library archives of an Educational Institution and may be regarded as their intellectual property. It is proposed that these bodies of research could and should be used by other members of staff as a starting point for discourse regarding new policy or new investigations into current policies and practices. Content and fresh ideas can be generated from amalgamation of theses alongside business procedures. If such pieces of research were incorporated into the ERC, and stored in such a way that they were easily searchable and referrable, they could prove invaluable to the body of Public Sector Knowledge as a whole.

- Once again the Spiral of Knowledge is supported with the *Combination* of explicit (academic research) knowledge and further explicit (e.g.: policy documents) resulting in some new knowledge which is worthwhile to the organisation.

### 8.6.4 Workshops

Likewise, *Workshops* are specific activities where members of Networks come together online to, in effect, peer review a piece of work which one member has
uploaded to the workspace. Each member of the group is encouraged to comment and contribute in order to eventually find a perfect expert model of a topic. It is possible that such online peer-review would apply to new articles of policy & legislation. Policy documents can be weighty, fact-based documents but oftentimes the collective experience of Civil Servants and policy implementors is equally important and relevant. Such peer contribution of relevant pieces of experience can enhance surrounding knowledge of policy and business processes.

8.6.5 Executive Stream versus General Stream

It is desirous from executive committees of networks that areas of the site are restricted from general usage (e.g.: forums and wiki pages) until information has been signed off and approved by all members & attested to as being correct. It is an objective of workspaces, therefore, that there will be two streams – an Network Executive stream and a more General Network stream. Once information has been validated as being correct by all executives, it will be moved to the general stream. This is a subtle tool for maintaining interest and usage of the site as it lays the responsibility on senior users for correct postings and following on from this, correct and standardised business processes and rules.

As Osimo (2008, p. 43) says “Web 2.0 users appear not to fully be aware of the implications of publishing their details (and opinions) on the web (Hogben, 2007) and Web 2.0 applications in the Government context could become a further source of sensitive information being published”. As mentioned earlier, when it comes to a Knowledge Management System, participants may adopt a number of roles depending on what tasks they perform at particular times. From the perspective of the ERC, most users will have one role per network (as either a member of the limited Executive Committee or the general Network) but may be a member of a number of networks maintaining any number of roles at any one time.

8.7 ERC: Roles & Responsibilities

Within the MOODLE application in CSTDC, there are a number of Roles. The rights associated with most of these roles are fully configurable and may vary from workspace to workspace and and from user to user:

- **SUPERUSER**: There is one primary administrator for the application. This user is known as a Superuser and effectively has complete control over the entire site. It is this Superuser who sets users up on the system, creates new
workspaces for groups/networks on the site, specifies the rights of each group in the workspace, moderates the site both on a high and general level and oftentimes on a workspace level and generates reports for a number of areas of the site.

- **FACILITATOR**: Each workspace has a CSTDC-based Facilitator who adopts the ‘Teacher’ role and who administers the layout of the workspace (they can add to/change/remove items from view). The facilitator can develop content and activities for participants. They cannot create new users but can add users to a workspace on request. Furthermore they cannot create new workspaces but are limited to being active on their own specific workspace where they are responsible for creating new forums and discussion topics (upon instruction from the Moderator). Facilitators are also responsible for moderating and encouraging usage of forums on their own workspace. Facilitators should attempt to follow Salmon’s model as closely as possible to engage participants. This is discussed in detail further on.

- **MODERATOR**: A Moderator is usually the chair of a network and does not contribute to the workspace on a technical level but rather may decide on what content is relevant, what direction WIKIS and Forums should take etc. based on communication with other members of the Executive Committee. Frequently, Moderators may see content which is not viewable to other site participants. The moderator must confirm that the content is indeed correct & that it is in the appropriate direction of the workspace.

- **PARTICIPANTS**: Other members of networks who engage with the ERC are known as participants who are provided with a number of features for assistance in communication and collaboration.

### 8.8 Features of MOODLE which are implemented in the ERC

User groups (be they networks or groups involved on CSTDC training courses) are provided with ‘workspaces’ on the MOODLE platform and therein are two streams of work:

- **ACTIVITIES**: Forums, Wikis, Quizzes, Questionnaires, Surveys

- **RESOURCES**: Links to pages on workspace/other relevant workspaces, links to pages on WWW, Documents (MOODLE supports many types of files & folders which can be loaded to the CSTDC server: Images, PDF, Documents, Presentations, PowerPoint slides)
The tool itself is neat in appearance & reasonably intuitive for users who are somewhat familiar with web applications as can be seen in Fig 8.1. The ‘central panel’ contains general information, activities and resources which are current & relevant to the users workspace/s. A customisable number of ‘blocks’ are located on left hand panel – e.g.’s of blocks: network-relevant material such as training manuals, quizzes, links and shortcuts.

**Figure 4 - (8.1): The Electronic Resource Centre**

8.8.1 Forums

Each network is provided with a threaded ‘News Forum’ to which everyone on the network is automatically subscribed and are alerted to via email or at login. Depending on how the workspace is set up, new forum threads may be created either by the workspace facilitator or by any workspace member. Forums are searchable and may be archived or split by either the administrator or a workspace facilitator.

Two Principal Types of Forum:

- **General Forums**: Depending on the access level of various roles, it may be the facilitator who can start a new forum or contribute to a discussion or this activity may be generated by any workspace member. Again, depending on access levels, participants may only be permitted to read forum threads and not to contribute.
• *Social Forums*: These forums are related to one specific topic and everyone on the workspace may contribute

8.8.2 WIKI

Within the CSTDC workspaces, WIKI pages generally contain pre-populated first pages to which users may add content. This technique forces the direction of a topic within a workspace. Users who are members (with the appropriate rights) of a workspace may also edit existing pages either to correct current information or to add and contribute to content that has already been included. Links to other pages on the workspace WIKI, other documents, external sites etc. may also be added. If a link is created but does not yet exist (is not connected to another relevant page), MOODLE offers the participant the facility to create this new page.

8.8.3 Wiki restrictions: Pension Network

WIKIS require a reasonably strong level of moderation as new pages and edits are available to other users and information may not be correct. For this reason, a number of networks (noteably the Pensions Network) have chosen to disable this feature. Indeed, the executive committee of the Pension Network have chosen to restrict access to the ERC tool to the committee only and not to general pension users. It was deemed that mass-user contribution could not be relied upon and, due to the sensitive and tricky nature of pensions rules and specifics, and that it would prove unsafe to publish user opinion to a pension-based WIKI.

8.8.4 Pension Service Statement

This is interesting as, in the run up to this dissertation, a new pension feature was rolled out to pension users (of the shared HRMS service that all departments utilise for HR processing) from all 39 Government departments. Members attended a number of week-long implementation courses in-house at CMOD offices. Users benefitted greatly being in each others’ company from a practical point of view and discussion was continuous regarding the hows and whys of pension processing from multiple-departments points-of-view. Following from this implementation, attendees were surveyed to gather opinion on whether a collaborative tool, where they could continuously communicate with other pension users, would be of use to them in their work. A summary of results of this survey is available at Appendix B but the overall feeling from users that such a tool would be of great benefit for sharing pension process information amongst users which comments such as:
“It would be great to benefit from the varied experience available in other Departments and also to have a forum to learn from and contribute to different pension scenarios”

“ABSOLUTELY”

“Yes, shared communications are always beneficial”

Salmon’s model for e-Learning, as outlined above, could prove invaluable with groups such as this as there is an emphasis on continuous moderation of online collaboration tools in particular at the opening three stages of Access and Motivation, Socialisation, and Information Exchange.

8.8.5 Superadmin responsibility for Wiki Maintenance

The Superadmin is responsible for performing a number of tasks when the WIKI tool is implemented such as:

- Orphaned links (links to pages which do not exist) must be cleared.
- Pages must be stripped of unnecessary and incorrect information.
- Differential Reports must be run on newly edited pages to view what changes have been made & assess whether information included is correct & appropriate.
- The History of pages must be maintained. MOODLE reporting means changes to pages can easily be tracked so that information is always correct & appropriate.
- Content may be cleared entirely from workspaces without losing the integrity of the workspace structure. This is useful for example, at the end of training course (see further down), the WIKI is cleared down & archive leaving a clean WIKI available for next course.

8.8.6 Questionnaires

Questionnaires are structured depending on the type of questionnaire which is being created with answer formats varying in type:

- Check box
- Date/number validation
- Drop down lists
- Text editor etc

Questionnaires are powerful in their ease-of-use and are thus a good way to introduce the site and workspaces to participants and new groups. For example, Network members are asked to respond to meeting requests with a choice button. Upon
responding, they are integrated into their workspace, all workspace members can see who is attending and view the profile of other members and their interests etc. Users may save questionnaires midway through and bookmark to complete them later. Questionnaires vary from the simple to more complex where opinions, viewpoints and experiences may be shared. Once again, tagging of important information comes into play here.

8.8.6.1 Questionnaire Responses

Upon submitting a questionnaire, responses may be viewed visually and analysed using MOODLE’S reporting tools. Results may be extracted to a CSV file and exported to a spreadsheet tool such as excel which makes for easy management reporting and data collection. As discussed in Chapter 2, such results are useful from a management point of view to define preference or direction of participants use of the tool as well as their knowledge and indeed knowledge gaps.

8.8.6.2 Security of Information and Knowledge Submitted

Like other survey/questionnaire tools, responses are stored for reporting & further use but, unlike some other online tools such as the popular “surveymonkey” [17] which stores results on public servers, results are stored on the internal MOODLE mySQL database. From a Public Sector point of view, this is particularly important as users are regularly concerned with the security & integrity of sensitive data being stored on remote, public machines (see discussion on Barriers and Motivators to participation, Chapter 3).

When discussing security, it is important to note here that the ERC is, in fact, public facing – a conscious decision made to provide more extensive access to participants in order that activities could be performed remotely from home if necessary or desired. It is possible to restrict access to the site to IP addresses which are within the Government Network DMZ29, an issue which will likely be addressed as and when uptake on the ERC becomes more widespread. Whether the fact that the site is exposed to WWW could pose a problem to participants (even though users must be registered to actually access all areas of the ERC which is password protected) and may contribute to resistance to participation, must be alleviated for participants. Aleviating such fears by ensuring the site be as secure as possible could ensure the ERC is more

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29 DMZ – Demilitarized Zone: an additional layer of security for sites restricted to the Government Network. Such sites are not available to the general public but limited to Government Departments who are connected to the Irish Government Network.
widely used. Anonymity and Security of data submitted to the ERC are addressed further when analysing a post-implementation questionnaire which was issued to participants.

8.8.7 Glossaries

Glossaries are alphabetically linked lists of related terms, for example lists of Pensions terms or Public Financial Management terms. The group facilitator will initiate the glossary for a group and force the direction of a group list by including terms and encouraging participants to add descriptions, but, depending on participant roles, users may add new terms to the list. CSTDC encourage participants to add to and moderate lists but these lists must be confirmed by the executive committee before they appear on LIVE group workspaces.

One objective of this Glossary function is to create a comprehensive list of terms for each workspace and network and for this Glossary to be available to each staff member who is involved in this area of work, whether they are involved in the Network or not. Once again, access to the ERC for this feature could prove invaluable to general staff as Glossary definitions are amalgamated from the knowledge of many contributors and therefore comprehensive in their nature. Across departments, staff will have access to up-to-date and correct information relevant to their field of interest.

The group-specific Glossary feature is also a useful method of getting experienced staff members to release knowledge which resides in their heads. Staff are encouraged to contribute to, to constantly add to, and to tag/classify their entries to the Glossary. Through these activities, the bank of relevant, experienced knowledge should hopefully grow and become complete. MOODLE allows terms to be autolinked from a Glossary page to another, relevant, on a WIKI.

8.8.7.1 A Civil-Service Wide Glossary of Terms

A long-term objective of CSTDC is to develop a civil-service wide glossary which will be distributed to new-entrants in the hope that it will not only familiarise staff with terminology but also be a resource which they can revisit whenever required and, again, introducing them to and demonstrating the power of the ERC to their everyday work. This continuous level of participation must be “cultivated” (Osimo, 2008, p. 45). Introducing the tool to new staff can show the benefit of usage from the start of their career and assist in career-long learning and development.
8.8.8 Reports

The Superadmin and each Facilitator of the ERC have the capability to run extensive reports which assist in monitoring all levels of activity & usage of the site. Reports can be viewed at individual participant level exposing what areas have been viewed/accessed and when (times when user was logged in, pages which have been viewed in this timeframe, whether a contribution was made etc.). Alternatively, reports can be run on all participants, at a workspace level, on the site in general, specific forums/wiki pages, per user session or per day/month etc.

Such reporting capabilities will expose where user participation has lagged and give the workspace facilitator opportunities to find out why interest has fallen and to re-introduce participants to the site & implement measures to encourage contribution.

8.9 Usability

“Usability means re-visiting an application to suit use” (Osimo, 2008, p. 45). This revisiting can relate to both the development new features (or release of bundled features which have previously been restricted) as well as observation of usage to see what areas are used or which participants are most, or indeed, least active. To maintain usage of the tool, facilitators must carefully monitor usage of workspaces (which participants are actively posting queries and responses to queries as well as new topics and wiki pages; whether users are logging in but not being active; whether large time gaps are occurring between users logging in etc.) and put in place a structure for encouraging and re-introducing members to the value of the ERC. Those who were at one point seemingly active but have lapsed, should be queried and encouraged, as per Salmon’s model above.

A major facet of encouraging involves having the right people on board for the job. It is expected that, as the tool is still in its infancy, the majority of contributors will be at executive level as networks are generally made up of this level of staff. Unless the value to their work of using the ERC to its fullest potential is exposed, it may prove difficult to maintain a strong level of interest and participation from any users however.

A thorough list of motivations for participation in Web 2.0 tools is investigated in Chapter 3 but senior participants and sponsors of the ERC should particularly bear in mind the inate drivers to participation as being the desire for visibility and recognition as well as the altruistic desire to share knowledge and be ‘generous’ to peers (Osimo,
2008, p. 45). Incentives come from contributions being published, viewed and productive comments posted relating to an individual's knowledge.

8.10 Change Management for the Promotion of the ERC

Osimo also discusses the need for a “dedicated effort and especially an open and flexible approach that encourages contribution” (2008, p. 45) and that it is not simply a one-off addition or visit to a site that sufficiently constitutes participation. Currently, network participants of the CSTDC Electronic Resource Centre are, as previously discussed, generally of middle to senior management levels (age ranges are predominantly in the 40-50 and 50+ age brackets, as discovered from post-implementation survey which is discussed fully in Chapter 9) and the issue remains of how to encourage and maintain participation in such WEB 2.0-based technologies amongst this type of user group. There is no doubt that a younger generation may be more comfortable with technologies which are viewed as ‘social’ and are more willing to share many aspects of their lives and work online but an older, more traditional generation are increasingly fearful of exposing their knowledge to the WWW. This holds especially true for Public Sector employees, as discussed previously. From the post-implementation survey, it was discovered that all respondents use e-mail, a little over 50% use forums, but only a handful contribute to Wikis (8 respondents) and use Social Networking sites (14 respondents).

There is an insecurity as to where contributed information will reside, what will it be used for, and whether negative repercussions could fall out from participating in online discussions and collaboration with Security being rated as extremely important by 35 of the 55 responses to the post-implementation questionnaire and Anonymity rated at quite important to very important by 40 of the participants.

8.10.1 A Professional Tool for Professionals

Freedom of Information [17] legislation (which came into effect in 1998 and allows members of the public to avail of access to any Government-held information) means that all information contributed in any form by Civil Servants must be justified and verifiable. Just like emails which are sent from official Government email addresses may at any point be queried under FOI, so too could any contribution to an online resource. It is vital to instill the ERC with a reputation which ensures it is a professional tool for professional people but that contribution is as beneficial to individual participants as it can be for groups and for the organisation as a whole.
8.11 Engaging Top Management

Change Management and addressing barriers and motivations to participation must be addressed if the ERC is to prove to be “sticky” (a phrase coined by Malcolm Gladwell in his 2000 book which describes the point at which something moves from early adoption by a few to ‘epidemic’ status where its value is seen by many and mass adoption occurs, somehow using something such as an online tool/watching a certain television program sticks with multiple audiences). Certainly, in order to convince people to engage, it is essential to engage management at a top level that an online collaborative resource is of benefit to the networks involved and that this benefit will filter down to all staff (who in turn will be more knowledgeable) as best practices are established and any outstanding issues are resolved much more timely than if the network group were only to meet on a quarterly basis.

Introducing new working cultural practices will almost always “stick” better if the directive is seen to have been adopted from a senior management position. It is vital, then, to convince managers at departmental top-level, Assistant Secretary level in the Civil Service, of the power of the collaborative tool. Realistically, it is only with top management on board that appropriate and necessary time and resources will be allocated to each area of collaborative projects. The positive aspects of collaboration must be demonstrated such as savings which could be achieved in other areas (as discussed below in use of ERC for Assistant Principal training course) but they need encouragement and clear direction. It is hoped that, as benefits are shown and tangible savings are made, encouragement & broader usage will filter downwards and laterally in organisation.

8.11.1 ERC Champion

As with all such projects, a “Champion” who will push and sell the benefits of collaboration must be active and currently, the Superadmin in CSTDC could be considered to have such a role as this staff member has investigate MOODLES capabilities, decided that it was an appropriate tool for the ERC, implemented and customised the tool, and monitors usage from a high-level. However, from a management point-of-view and in order that the tool is fully incorporated into the organisation, a more realistic “Champion” should be at a reasonably high-grade and would possibly be the network chair or member of an executive committee who is enthusiastic enough about and has a broad enough understanding of the benefits of collaboration, communication and online resources that they can demonstrate how the
short-term pain of encouraging participation, allocating resources and so on, will bring about long-term gain in the form of knowledge retention and a more knowledgable and productive work-force. This can be a rather nebulous concept and a “Champion” must be prepared to demonstrate both real results (e.g.: time-savings) and those which may be harder to pin-down (e.g.: staff with broader knowledge).

8.11.2 Bi-lateral Conversations versus Dialogue and Discussion

To make such a Knowledge Management initiative as an online collaborative tool a success, it is essential to prove the difference between bi-lateral conversations and group discussions which are hosted amongst an often disparate group. If a discussion is just one-to-one, it is hoped that at least one and possibly both parties benefit but if a participant posts a query to a forum or discussion page, it is possible for multiple opinions to be contributed and a large, group confirmed opinion to be generated, a collective consciousness as discussed in Chapter 7. This discussion resides on the site indefinitely or until it is no longer determined as necessary or requires an updated opinion.

8.12 How to Encourage use of the ERC

As with forcing the direction of forum posts and WIKI pages, it is essential that all participants gently encourage or, in a way push other users to go online for information. This is achieved by experts refusing to answer questions via e-mail or telephone but directing people to the relevant workspace or discussion group within the online resource; Demonstrating how queries are posted to forums and how the incorporated tag and search facilities work so that existing contributions may be browsed.

8.12.1 Online Searching: Parliamentary Questions and FOI Requests

It is essential for all users of the tool to be pro-active when dealing with queries. For example, Parliamentary Questions30 (PQ’s) which are often similar to other/previously posed queries but responses must be sought for all submitted PQ’s. If all previous PQ responses were stored in an online resource and users were directed here and advised on how to search for the last relevant answer, it could be seen whether an update is indeed required or whether there is sufficient information residing in current answer.

30 Parliamentary Question as posed to Government Ministers by TD in the Irish Dáil at the request of members of the public.
The Department of Communications, Energy & Natural Resources (DCENR) [18] - have published all Freedom of Information requests to their public website and, in an effort to be thus pro-active, FOI requestors are directed to this site to determine whether a fresh FOI request is required.

8.12.2 Pension Queries

In a similar initiative, the Pension Network are analysing all queries which are submitted and creating explanatory documents which cover these queries. This proactive approach certainly requires initial resources to be dedicated to analysing queries and formulating responses but over the long-term this is an efficient time-management exercise. The explanatory documents will be available on the ERC with the objective that similar queries will no longer be repeated and that staff time is more productively managed over the long term.

8.12.3 Using the ERC to Create a Helpdesk Situation

As usage of the ERC grows, it is envisaged that “how-to” process maps could be created around specific topics. Information should be presented to participants with optional answers given which branch to other areas of the site which are relevant to the information sought. This ‘decision-tree’ type application is similar to an expert system31 and it will be the contributing participants who will build the information store through their usage of the ERC and tagging of relevant areas of the system. Process Maps and Procedural Documents created will encourage other participants to self-help and aims to reduce time spent answering and re-answering similar questions. MOODLE provides a built-in interface tool for creating such a system.

Persistant yet gentle encouragement to take small steps both in their access of the system for their requirements and in contributing to the ERC, should display to participants the immediate benefits of the system to their work. Once again, Salmon’s model comes into play here when in Stage 3: Information Exchange, contributing participants are assigned roles within the online workspace and given responsibility for directing forum threads and Wiki pages.

31 **Expert System**: a system which models the reasoning of an expert using a number of known rules in such a form that the system can offer intelligent advice to the user.
8.13 Case Study: Departmental Training Officers

As will be addressed fully, the most active group currently using the ERC is the Departmental Training Officers (DTO) network who have replaced mailshot communication with workspace updates. In the course of their access, users are submitting queries and becoming more comfortable using this seemingly modern – social – tool in a professional work environment. For this group also, there is a desire to move training out of the classroom and allow for some work to be performed on users own time, pre-course as well as through post-evaluation. Online statistics can assist to set standards for training.

8.13.1 Assistant Principal Development Course on the ERC

A significant next step towards integrating the ERC into every day work for the DTO network is to address a specific training course aimed at the development of Assistant Principal Officers (AP’s):

- Using the MOODLE site, nominees for this course will register their interest in attending the course during a specific date range. Posting notification of course details and requesting confirmation of attendance should provide maximum level of interest and therefore reduce the need to run a number of similar courses over a prolonged period of time. This releases training officers and can assist in appropriate timetabling of courses.

- The Superadmin then sets up a workspace for all nominated attendees who are given login details.

- On the workspace, various elements of the AP development course are presented such as a lengthy case study which participants are required to read before attending the course.

- A questionnaire must be completed pre-course giving opinions and experience notes related to the case study. Such contributions could be tagged as relevant to the larger body of knowledge to which the case study relates.

- Participants must address what their expectations of the course are provide pre-evaluation on the course.

- Post-course, participants must complete a further questionnaire giving their post-evaluation and assessing whether their expectations have been met.

DTO’s can see who has completed the relevant pre-course work and, by highlighting the benefits of online work, take steps to encourage those who are not accessing the ERC to do so.
8.13.2 Displayed Benefits of the ERC to the DTO Network

It is envisaged that using the ERC in this way will be of benefit to the DTO network in particular as class times can be reduced and therefore staff are out of their own office environment for a shorter period of time. This, along with reduced travel and subsistence payments to staff who are out of the office, is a vital selling-point which provides real tangible benefits to line-managers. Furthermore, the time of departmental training officers is freed-up as much of the work is actually performed outside of the training environment. This is a real and tangible cost saving measure which the ERC will provide.

A similar workspace could be set up for external training providers in order to maximise attendees on expensive training courses and, through questionnaires and participant input, to ensure that participants’ expectations both pre- and post-training course are met as well as ensuring that participants meet course pre-requisites. Feedback on external training providers can also be uploaded to the ERC for analysis by management as well as feedback from external providers on course attendees.

8.14 Conclusion

In this chapter, an Gilly Salmon’s model for e-Learning was introduced alongside motivations for the introduction of an online collaborative tool for geographically disparate Civil Service Networks. The enhancement of knowledge through a Social Constructionist viewpoint is considered, particularly through the use of Web 2.0 tools. The choice of MOODLE for developing an Electronic Resource Center within the Civil Service was discussed along with an analysis of MOODLE features used and their benefits to Civil Service collaboration. A distinction was drawn between executive committees and general Civil Service users and their usage of the ERC as well as a reviewed discussion regarding barriers and motivations for contribution from a Civil Service viewpoint. The full potential for online collaboration using the MOODLE resource center is discussed and the necessity for a top-level champion is cemented.

There is no doubt that online collaboration holds benefits to the Public Sector and this Electronic Resource Center could provide extensive capabilities for discourse and a more knowledgeable workforce alongside providing reduced costs when it comes to facilitating Network meetings and sharing costs with regard to training of staff across departments. It is a feature-rich tool which is easy to use and is of undoubted benefit to
both Networks and the Civil Service as a whole. Salmon’s model for e-Learning, if implemented effectively provides a framework for groups to operate in a moderated online space. The Departmental Training Officers network is certainly the group with the most activity on the ERC and which would gain the most from close monitoring in the vein of Salmon’s model as they are the group who is seeing the strongest benefits of online collaboration for business related needs.
9 EXTENDED USE OF THE ERC AND EVALUATION

9.1 Introduction

In this chapter an extension to the current usage of the ERC is discussed. With more intensive moderation, a selected group of participants are encouraged via Salmons 5 Stage model in their use the resource. Reasons for the choice of network used are discussed along with the facilitator’s profile. Results of this extended use are analysed against a post-implementation survey, which was issued to all networks participating. Finally a discussion on the extent to which Peter Senge’s model for disciplined Organisational Learning assesses further work which should be done in order to bring existent Communities of Practice together for the advanced learning of the organisation as a whole.

9.2 The Introduction of the ERC to Network Users

The development and implementation of the ERC occurred before this dissertation analysis formally began, and was introduced to each executive committee by way of a brief presentation and walkthrough of the tool followed by a discussion on potential usage. For each network itself a slideshow presentation was given with screenshots of the various elements.

9.3 The Choice of Network for Extended Use

As mentioned in Chapter 8, the activity levels of groups involved vary with the DTO network, for example, being extremely active whereas other groups such as the Women Managers Network are significantly less so. A preliminary analysis (via interview with the Superadmin) of the networks exposes the CSTDC facilitator of the DTO as being very pro-active in encouraging participation on the Electronic Resource Centre. For the purposes of this experiment, the facilitator of the DTO was engaged in an attempt to further moderate the DTO workspace and engage users in increased use of the ERC while using Salmon’s 5 Stage Model.
9.4 Addressing Salmon’s Model for Assessment of Increased Usage of the ERC

According to Salmon, there is a specific curve of stages which online participation must take and the DTO network were actively engaged in these stages in an effort to increase activity on the ERC.

9.4.1 Stage 1: Access & Motivation:

For all participants of the ERC, it has been proven that motivation already exists (see Appendix D for evaluation on Post-Implementation questionnaire regarding levels of participation in quarterly meetings & consultation with other network members on network-related issues) as members were currently meeting to discuss issues and policy on a quarterly basis. It is clear that peer group communication works to ensure that there is transparency and uniformity in the methods used across all business areas regardless of Department. Participants are all given access to the ERC tool with each member being set up according to the Network(s) they are members of. Following on from an introductory speech regarding the new tool, its purpose and how communication and collaboration enhances participant’s knowledge and their skill base. DTO Network members were given a further demonstration of the tool with detailed guidance on how to activate their account. Features were presented in a step-by-step manner with the benefits to participants highlighted in a practical fashion. Upon activation of account, participants were welcomed by the DTO facilitator and given guidance as to how each feature should be used, how to reset passwords and practical site navigation.

9.4.2 Stage 2: Online Socialisation:

For DTO Network members who had been included on the site ground rules were established. The tool must be seen as a professional tool but without this being a disincentive for use. It is very important for the facilitator of the Network to set firm ground-rules (and in context, netiquette) for using the tool in order to ensure the ERC is viewed as a social environment and a professional tool. In order to generate interest and attempt to maintain participation amongst the DTO Network, the facilitator began communicating with network members both via the more traditional method of email and through the ERC tool. Gradually, members were encouraged to access the tool for more and more features such as forums. Eventually, members were contacted solely through the ERC and advised not to email one another but to use the features of the ERC for communication and collaboration purposes. For example, there is a "Latest
News" forum which is the only medium of getting info out to members of the Network (e-mail is not used). This means they must access the site to keep abreast of news items.

Participants were forced to use the ERC for communication with group forum-based discussions being used rather than one-to-one conversation. In this way, a dialogue surrounds issues with a group consensus being (hopefully) eventually reached where many network members have been involved. At this stage, the facilitator began provide a summation of discussions and, more importantly, conclusions which have been reached, resolutions to issues raised etc.

9.4.3 Stage 3: Information Exchange:

This stage involves the development of highly structured activities for the group to engage. In the case of the DTO Network, the facilitator has created two forums for use by the Network:

- The “Can you help?” & “Latest News” forums – Participants are encouraged to use these two channels to pose questions and discover how things are done in other departments as well as being notified of news items regarding the Network only through the news forum.

There are some elements of this stage which have not yet been achieved such as assigning roles to individual participants (e.g.: closing threads) as participation is still tentative for a number of the Network members and forum posts appear to be emanating from a narrow group of participants.

9.4.4 Stage 4: Knowledge Construction:

No network involved in the ERC is quite at this stage and this may be predominantly due to the relative newness of the tool. However, a good way to kick-off this stage would be for new, specific activities to be designed for each Network. Stemming from executive committee meetings, activities for participants should be decided upon; Activities, which engage participants and encourage them to release knowledge to the wider Network and realise the vast potential the tool can provide: As one respondent to the Post-Implementation survey has noted:

"The contents of the online discussion have to be so significantly important to members to ensure that they cannot afford to miss the opportunity to go online."

At this stage it would be useful to utilise the Glossary feature of the tool to attempt to develop group thought on network-relevant concepts and terms. The moderator of the Network should pose questions for the group to consider which would demonstrate the
relationship between policy-driven theory and work-based practice. At this stage, it will be more beneficial for the Executive Moderator to adopt a more pro-active role in developing a sociable Community of Practice amongst network members, as they are aware of business issues. Learning amongst group members should really start to emerge at this stage as discourse has been proven to facilitate learning.

9.4.5 Stage 5: Development:

Salmon’s last stage occurs when a group has become extremely comfortable communication with one another in an online arena, understands the rules of communicating in such a way and can actively see the benefits to collaboration both to their individual work and knowledge but to the Network as a whole. The facilitator and moderator are able to take a step back from heavy monitoring of the site as participants are, for the most part, comfortable with tools and features. Both roles are still fulfilled, however, as Web 2.0 tools need ongoing monitoring in order to ensure that content remains up-to-date, relevant & appropriately classified into its relevant area. At this stage, group participants should feel confident and comfortable enough to lead discussions and not feel they are exposing themselves or carrying too much ‘risk’. A strong feeling of confidence in how the ERC tool works as well as in their own appropriate behaviour should remove risky feelings. Participants should be in a position to transfer their skills to other, perhaps new members.

9.5 Post-Implementation Questionnaire

The post-implementation questionnaire intends to expose demographics and online tendencies of participants of the ERC. The structure of the questionnaire is located at Appendix C. Age ranges are broad but some correlation can be drawn from the fact that few participants in the upper age bracket are familiar with or use many Web 2.0 tools but are limited to email as their primary electronic communication device.

By maintaining a strong level of encouragement and insisting that communication occurs through the medium of the ERC, the facilitator has made participants feel that it is not a chore to contribute to the Network group but that it is of benefit on both an individual and a group level.

9.5.1 Has Following Salmons Model Changed Usage of the ERC

In response to using the ERC & visibly being able to see its benefits, the DTO Executive Committee have made some requests to CSTDC for extra business tools to
be made available to the network. The first of these will be a database to allow DTOs advertise their intentions to host a training course and to offer places to others in the locality as a way of spreading the cost of hosting training courses & maximising participation in any course at a particular time with the intention of achieving Value For Money for all departments who are involved.

9.6 Potential areas which may benefit from extended contributions:

- Innovative concepts drawn from dialogue could emerge in the field of policy creation.
- Best practice on a number of common areas such as Personnel, IT Systems Development or policy implementation could be ensured
- Strategic alignment of Departments on common issues

9.7 Conclusion

In this chapter, the fact that collaboration was already occurring within these Civil Service Network groups by their mere membership of these networks, in meeting on a quarterly basis, and their introduction to the ERC was discussed. By formally integrating Salmons 5 Stage e-Learning Model for moderation and online participation, however, interest and input to the Electronic Resource Centre has visibly increased and the facilitator of the chosen network has realised the necessary extent to which moderation and encouragement is required to maintain interest and increase participation. Finally Senges Learning Organisation was aligned with the Networks’ involvement in the ERC in an attempt to understand whether participants could mastery those skills required to become a part of an organisation that actively learns and improves itself through communication and collaboration.
10 CONCLUSION

10.1 Introduction

Knowledge Management in the Public Sector is an area which cannot afford to be ignored under any circumstance, particularly when one notes the extensive movement of staff (through promotion, location transfer, retirement etc.) which is prone to occur amongst Civil Servants. Furthermore, a formal KM process should result in a more creative, confident and able-to-learn staff cohort. A gap in existing knowledge required to perform one’s job is an excellent jumping-off point for a Knowledge Management initiative, as motivation will stem from a desire to be in a stronger position to perform. It would be desirous that, if a straightforward KM initiative (such as that which was employed by the Civil Service network groups), once implemented and accessed, would be supported by strong moderation and encouragement processes, will enhance collaboration, become part of employees’ everyday work, and in turn generate a stronger and more knowledgeable workforce.

This chapter will revisit the originally defined research definition and draw together literature reviewed and extended moderation experiment of the Electronic Resource Centre to ascertain the extent to which online collaboration can be achieved across geographically disparate Civil Service network groups.

10.2 Research Definition & Research Overview

A number of research objectives were defined at the outset of this dissertation which have been achieved in the following manner:

- Through a review of literature in the field, work done to date with regard to Knowledge Management in the public sector was discussed including a number of current initiatives for KM which have been implemented in individual Civil Service departments (O’Riordan, 2005).

- The need for a change in organisational culture is highlighted as being essential to both the adoption and maintenance of a KM initiative as well as the
importance of threading Knowledge Management into a number of strategic areas of an organisation, both from top-down and a grass-roots levels.

- Existent Communities of Practice across Civil Service departments were identified as being an ideal test bed for this project, not least because they are currently collaborating by physically meeting on a quarterly basis.

- Best practice for Knowledge Sharing amongst these disparate Civil Service groups was identified as utilising Web 2.0 technologies primarily due to their supportive nature and ease of use. A KM initiative, which relies on rules-processing and ranking of customers for the creation of new knowledge, is running successfully in the Office of the Revenue Commissioners and was introduced as a comparison between online collaboration tools and more traditional knowledge creation tools.

- Monitoring extensive moderation using Salmon’s (2000) model for e-learning and moderating and, through the full use of a facilitator when it comes to collaborative groups, extended use of the online resource ERC was proven to be a success with the majority of users identifying the value of the tool and feeling uninhibited by any concerns they had. Participants have already begun to see the value which is gained from the comprehensive tool and request access to further areas of the resource which they see would have value in maximising contributions and, equally importantly, to making the most of that knowledge which is contributed to the online tool.

10.3 Contributions to the Body of Knowledge

As discussed above, extended moderation of the ERC led to a more active group who could visibly see the benefits of using an online tool and were anxious to investigate further potential of use of the system. The potential for Organisational Learning has also been uncovered:

10.3.1 Senge’s 5 Stage Model and Organisational Learning through usage of the ERC

By following, to some degree, Salmon’s model for encouraging participation online, the group are (perhaps inadvertently) adhering to Senge’s stages for creating a Learning Organisation up to a point. It is essential to bear in mind, however, that the
creation of a Learning Organisation must be a formal procedure which is instigated by forward-thinking management and is something which is not easily achievable. Notwithstanding this, some interesting conclusions may be drawn between the use of Salmon’s model for collaboration and the development of a learning organisation.

- **Senge’s First Stage: Personal Mastery**
  Salmon’s model encourages, through the endeavours of the facilitator, group (Network) members to be responsible for their contribution and to be aware of their skills and competencies. As participants can contribute to forums and Wikis, and in doing so they see that their input can be of value to others and benefit them in their working life. Confidence ensues from this and the desire to be more and more active and develop oneself further.

- **Senge’s Second Stage: Mental Models**
  A number of commonalities occur across Civil Service departments and it is beneficial for participants to have a platform for exposing their own viewpoints on certain issues, learn shared metaphors and language terms, and through discussion and discourse arrive at consensus mental models for common concepts. Salmon advocates the encouragement of shared language and discussion amongst group members as a function of moderation.

- **Senge’s Third Stage: Shared Vision**
  A shared vision should be instilled within group members and the sensation that everyone is working together with the same goal in mind – a goal which must be seen as being of benefit to both the organisation as a whole as well as to the group and its individual members. Once again, the outlet for discussion which the online ERC allows for shared vision to be generated and gives enthusiastic leaders an ideal platform for spreading their word.

- **Senge’s Fourth Stage: Team Learning**
  With extended use of the ERC, teams should be encouraged to attempt to explore new ideas in order to become more creative in their roles develop the vision of the team as a single entity. The tool should facilitate the growth of all network members by providing a forum for discussion and the facilitator will adopt a different role as the group become more confident in the tool and visibly see the benefits of collaboration. Encouraging participation will no longer be so great an issue (though as new members join, some moderation will be required) but, in order to attempt to generate an actively learning group, the facilitator takes on the role of supervisor of discussion, easing concerns when
conflict arises with the confidence that this is quite a natural occurrence which will resolve itself.

- Senge’s Fifth Stage: *Systems Thinking*
  This stage, although supported by online collaboration, is not something that will come about through a Knowledge Management initiative but rather must be a fully functioning directive which has effectively changed the thought processes of the members of an organisation.

For the organisation to truly be changed, however, management would have to have an awareness of how effective an organisation which learns can be and, by insisting on widespread and heavy usage of the ERC throughout the organisation, make full use of suggestions, inputs and contributions which arise from all areas of the organisation through this collaborative tool. Strong monitoring processes would have to be implemented on the tool in order to make full use material which is contributed to various forums and Wikis.

### 10.4 Future Work & Research

It is envisaged that other Government Departments & Offices would also make use of the collaborative tool when its value and use has been proven within the CSTDC area. For example, MOODLE is currently being proposed as a communications facilitation tool for the Office of the Taoiseach in relation to their “Regulatory Impact Assessment” as well as providing a work space of a number of groups (e.g.: A Financial Shared Services work group and a Means Testing work group) in their work on Public Sector Reform.

The Office of the Revenue Commissioners’ training section are intending to roll-out an e-Learning and collaboration tool in early 2010 and are currently investigating MOODLE for this implementation. This research would be of value to the department in its proof of the requirement for continuous moderation of such tools. This tool is intended to encompass multiple areas of collaboration for the department from online training courses, just-in-time training for auditors, podcasts & video-casts of training courses and interviews etc. It is vital, for such a tool to succeed, that the system be monitored and moderated in its usage and also in the content which is uploaded to the tool to ensure its currency and relevance.
10.5 Conclusion

This research set out to investigate the viability of virtual Communities of Practice in within the Irish Civil Service. Although they were not the original intended group to be investigated in the dissertation, a number of such communities already exist across Government departments as facilitated by the Department of Finance. These networks were active in that they physically meet on a quarterly basis, but the challenge arose in the introduction and moderation of an online tool to enable further collaboration.

Organisational culture will be the tipping point in the success of online collaborative tools (Orlikawski, 1992) and organisations must: from a high level, make conscious decisions to include Knowledge Management in their strategic planning; be open and encouraging to the input of staff from all levels of the organisation and afford opportunity for this contribution (the ideal forum for this opportunity is an easy-to-use, multi-functional online tool such as the ERC which is moderated effectively); encourage a change in attitude to the contribution of innovative ideas by alleviating fears which may stem from personal or political viewpoints; and, realise the potential for growth that can stem from an organisation, and in particular a Public Sector organisation, which actively Learns through its productivity.
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APPENDIX A:

Office of the Revenue Commissioners REAP Project

Detailed View of Risk Components

Figure 5 - (A.1): REAP Graphical Representation

The REAP system (Risk Evaluation Analysis and Profiling) was developed on the basis of the experience and knowledge of Revenue staff and taps into the extensive data and information sources to which Revenue has access. This system reflects Revenue's intention to target its activities at risky cases and allocate its resources accordingly. Data is extracted from the internal operational repositories (e.g.: OAG: Offshore Assets System, ITS: Integrated Tax head System, TRS: Tax Relief at Source System) and other external sources (data from other Government departments such as...
the Department of Social & Family Affairs and Agriculture) and forwarded to a data mart within the larger Revenue Data Warehouse. The Risk Analysis Engine (RAE) is an inference engine which incorporates a Knowledge Base of over 150 profiling rules. The RAE applies each rule to all taxpayers’ data and a comprehensive profile of each taxpayer is produced in the form of multiple data sets with scores and rankings. The data sets are then indexed and made available in the data warehouse for interrogation and selection of cases for intervention by Revenue auditors. Each case that is selected is forwarded to a Case Management tool which assigns a Revenue caseworker to work the case with prescribed business processes, procedures and reports. The Spiral of Knowledge is completed when each auditor makes an electronic report on the accuracy and relevancy of each rule. This cycle of continuous feedback ensures the currency of the rules and the knowledge base.
APPENDIX B

Pension User Group Questionnaire

A questionnaire was conducted amongst Pension users across all Government Departments in order to assess levels of pension data which has been input to the HRMS; whether statements of Pensionable Service have been rolled out to staff in departments; where personal and departmental confusion regarding pension rules & processes lie; and most importantly, whether users perceived a collaborative tool to be useful for their work on pensions.

Section 1

Levels of Pension Data input to HR system gives an indication of comfort levels of users with the HRMS

- Pension data ranges from basic inclusion of a member of staff on a specific pension scheme to the inclusion of supplementary information such as any additional service which may have been accrued to any unpaid leave which incurs a reduction in pensionable service

Levels of pension data input into the HRMS varied between departments with some departments having entered less than 10% of staff whereas other departments had completed entry off all staff to the module. Some departments had entered just basic schemes for staff while others had comprehensively entered all details for all staff onto the pension module and were processing the Pension Service Statements for all staff members.

Section 2

Levels of pension knowledge assessed

- Most departments (bar one) expressed some level of confusion and knowledge gaps when it came to pensions rules, HRMS data input of pension data and how the correct input of pension data equates to a correct pension calculation on the PSS, with knowledge described as “extremely limited” in some cases.
- Confusion exists surrounding: Pension Schemes, previous service, transferred service, extra attendance, unpaid leave, parental leave and how such things
affect a pension of a staff member. There is “insufficient knowledge” as to why
the PSS does not produce correct statements if data is not entered correctly into
HRMS even though this issue was covered in intricate detail while participants
attended the PSS implementation week.

- Also noted was the vagueness of some pension related circulars and that
changes in the calculation of pensions were not always filtered correctly to
individual HRMS users (pensions section? Own dept/personnel officer?).

- Further responses included:
  - “I rely heavily on Department of Finance circulars & FAQ’s (…) but this is
    no substitute for experience – I would welcome the ability to collaborate
    with others”
  - “There are a few gaps in my knowledge of pension rules ... these gaps
decrease as a result of attending the Pension Network meetings”
  - All staff in personnel are new, no knowledge of pensions/no one else in unit
knows pensions/not personally comfortable/limited knowledge/ “nobody in
office equipped with pension knowledge to address issues and queries”

Section 3

In answer to the question: “Do you think a tool for communicating with other pension
experts in other departments would be useful to expanding your knowledge of pension
procedures” all respondents expressed a desire to be in communication with other
users. A sample of responses to the question are:
  - “ABSOLUTELY”
  - “Yes, shared communications are always beneficial”
  - “Absolutely, I have been looking for that since I helped set up the pensions
section over 2 years ago”
  - “Definitely. I find that where officers have transferred from other
  Departments, sometimes their files do not transfer with them and the
  information needed to complete the pension page (on HRMS) is not
  available. So, if there was a panel of contact names in each Dept where
  such information could be sourced, it would be very useful and save time”
  - “Yes, we are a small office and so we sometimes do not get the experience
to deal with the more unusual cases and it is very important to make sure
that what we are doing is in line with everyone else”
  - “It would be great to benefit from the varied experience available in other
Departments and also to have a forum to learn from and contribute to
different pension scenarios”

A number of departments, although positive enough at the concept of a
communication tool expressed concerns for the quality of information which could
be posted on a shared resource:
  - “I think it would be very helpful to have a resource which would allow for
the flow of information, similar to a database or forum. This would reduce
the need to contact the Department of Finance continuously. I would suggest that monitoring of the information from this flow would be essential to ensure the accuracy of the information”

- “Who will the *expert* be? Staff (...) who claim to be experts are not (...) can be unsure and slow to communicate. Information can be conflicting depending on who you are talking to. This tool of communication would have to be monitored”
APPENDIX C

ERC Post-Implementation Questionnaire Structure

A Post-Implementation questionnaire was extended to all participants of the ERC in an attempt to judge attitudes to online collaborative workspaces. Full analysis of this survey is located in Chapter 9.

![Survey Image]

Figure 6 - (C.1): Determining age ranges and comfort levels with online sharing of information
Figure 7 - (C.2): Determining Experience of Online Collaborative Tools & Network Membership

Figure 8 - (C.3): Determining Interest Levels in Network Collaboration
Figure 9 - (C.4): Determining Experience Views of the ERC
APPENDIX D

1. Moodle Post-Implentation Questionnaire

A post-implementation was released to all Network groups in an attempt to ascertain attitudes of participants to online participation and communication.

2. Results: Question 1

![Figure 10 - (D.1): Question 1 Responses](image)

In an attempt to discover the demographic of participants of the ERC, Question 1 gives users a choice of age-brackets. It was well understood that participants are of a middle-to upper-management grade (Higher Executive Officer and above) so the results from users as being mostly 40+ years old, at 66% of users, and a further 35% being 30-40 years old, is no surprise. Age demographics, along with the results of question 2 (The importance of certain factors in determining online information sharing attitudes) can be useful in drawing assumptions between age and the attitudes of participants to the Web 2.0 technologies on which the ERC is built.
3. **Results: Question 2**

![Figure 11 - (D.2): Question 2 Responses](image)

Question 2 asks participants of the ERC to rate the importance of certain attributes to sharing information online. All respondents highly rate the importance of *furthering knowledge* as well as the *ease of access* of any tool and the *security of information shared*. A number of barriers and motivations to sharing information online are identified in Chapter 3 and, as expected, participants in the online communities which the ERC supports have the expected concerns. Interestingly however, the majority of respondents (72%) had very low or neutral concerns regarding the anonymity of their contributions. Even though users will be aware that senior management can access the results of their contributions (which, although the results of this survey are confidential) are not anonymous. As mentioned, the ERC is intended to be a professional tool and it is comforting that opinions exposed in the tool will not deter usage by the majority of users.
4. **Results: Question 3**

![Figure 12 - (D.3): Question 3 Responses](image)

As discussed in Chapter 8, the predominant software tools which fall under the Web 2.0 category that are used by ERC participants who complied with this survey are email, with all bar users having access email either for work or personal uses, and discussion forums, with 55% of all users having either accessed or contributed to a forum. This is indicative of the ubiquitous nature of such technologies and the fact that e-mail has become the predominant method for communicating for agencies. The disparate nature of staff along with the speed of such technologies can be attributed to their popularity.
5. **Results: Question 4**

![Figure 13 - (D.4): Question 4 Responses](image)

Question 4 ascertains which network participants have responded to the questionnaire. Results are not exactly as expected based on the evaluation of moderation and collaboration in Chapter 9. It would have been expected that the predominants would have emerged from the DTO network as it is this group who have received the highest degree of coaching and moderation of the ERC and perhaps that the Pensions network would the least inclined to participate. The DTO network did perform strongly, at 36% of total respondents, but the highest proportion of respondents emerged from the PMDS network. There are a number of reasons why this may have occurred not least the fact that the questionnaire was released during the summer months when a number of potential respondents could have been on leave or absent from their post on a term-time working arrangement. All other networks were reasonably low in their response rates.

6. **Results: Question 5**

![Figure 14 - (D.5): Question 5 Responses](image)
7. **Results: Question 6**

From the results of question 5, it is positive to note that the majority of respondents regularly attend their quarterly network meetings. This demonstrates that participants realised the value of networking amongst their peer group and the value of collaborating at the physical meetings.

![Figure 15 - (D.6): Question 6 Responses](image)

Over half of users consult with other members of their network on network-related matters a number of times a year 84% of users in total relying on the advice of peers throughout the year at some point. As with high attendance at network meetings, this is encouraging in determining attitudes to communication and collaboration. Without some impetus for gain, people will not use the online resource – as Salmon and a number of others listed in Chapter 3 when discussing motivations for participation indicates there *must* be Motivation for collaboration and some perceived gain to be achieved in consulting with others.
8. Results: Question 7

When discussing the benefits of networking with others of similar interests, participants were invited to comment on other perceived benefits as well as being allowed to select multiple reasons from a pre-populated list (results beginning with *Other* are user-defined). Results above are extremely encouraging with almost all users valuing *Sharing Knowledge* and *Skill Transfer* as being of the utmost importance and *Seeking Assistance* being important to 75% of all users. Those responses falling under the *Other* category are interesting in themselves with a member of staff in a small department taking advantage of seeing how things are performed in larger departments and one respondent enjoying the feeling of there being “support out there”. This tool is intended to enable and support users in their every day job and, if used effectively, it should accommodate all of those needs that are currently being addressed simply by being a member of a network.
9. **Results: Question 8**

![Figure 17 - (D.8): Question 8 Responses](image)

Of the total respondents to the post-implementation questionnaire, there is a predominantly positive reaction to using the online Network spaces as facilitated by the ERC with no respondent feeling they do not have time to contribute. It appears, however, that many respondents are not fully comfortable in the demonstration of the features (60% chose between 1 – strongly disagree and 3 – neutral to the question “The features were sufficiently demonstrated to me”) and advantages of using the tool (similar result of 59% of respondents chose between 1 & 3 on the rating scale). This indicates that perhaps a re-introduction of the tool to all networks by their facilitator, making full use of Salmon’s model as was employed for the DTO network, would be helpful. The most promising result is that more than 83% of total respondents are **Comfortable Sharing Knowledge** and 58% being **Comfortable Sharing Business Information** using the tool. As discussed, this is a professional tool and a number of departments would be, rightly, reluctant to share business data (which may be of a personal taxpayer nature) through this medium. It is essential to highlight to all users that this tool is not intended for personal data but rather the sharing of business processes and rules which would be common to all departments, thus ensuring standards of best practice across all departments.
10. **Results: Question 9**

![Image](CSC_Network_Survey_ичетка_Report.png)

Figure 18 - (D. 9): Question 9 Responses

Responses to the *Further Comments* section of the ERC vary from some negative views:

- *It is still easier and quicker to send an email over logging into the Form [sic: Forum]. I also feel that you can't (that I am aware off) just send a message to one / select group of people without some effort (versus Outlooks auto email function...eg type couple of letters and the email address pops up). Some of the discussion forms I would not reply to openly, rather contact the member*
directly with the information. I think the form related to the discussion on Refund of Fees and Career Breaks, and the open anger of one respondent, is a
case in point. Forms are fine otherwise for general sharing of information and
seeking support from members, beyond that I am unsure.

- Navigation (not very intuitive) seems cumbersome to me but will get easier for
  me with more frequent use. Because I have broad responsibilities I am not a
  frequent user. I would like to follow queries placed by others on the system, but
  I have not observed much query traffic on the system since the tool was
  launched.

The predominant viewpoint appears to be that users fully understand the benefit of the
tool for supporting the business of their workspaces but that a heavy cohort of users
must participate to make the tool a success, e.g.:

- I think it is the way forward, especially considering that we will be working
  with constrained resources, and I will be decentralising so might not be able to
  attend all of the meetings. Not everybody appears to be using it though, but
  hopefully it will pick up after a while
- very convenient to get others views etc but it is a pity all do not use it as you do
  not know whther [sic] people just dont bother or haven't seen what you have
  posted
- This is a new concept for me but so far I have found the resource useful..

A number of users also commented on a possibility that the tool would be better
accessed if it was re-introduced to members. Following Salmon’s model for this, as
was done with the DTO network, should prove effective in encouraging more
widespread usage:

- Now that we are using it, may be a short recap on navigation may be useful
- A more comprehensive approach to showing people how to use these tools
  would be good. Could be that a lot is being presumed in terms of the level of
  familiarity out there (we're not all on facebook!). To be honest I don't really
  know where to start - q. 8 I don't have an opinion on some of these questions
  because I haven't the experience to draw on.
- members should be encouraged to use it more regularly
- The contents of the online discussion has to be so significantly important to
  members to ensure that they cannot afford to miss the opportunity to go online.

This final listed response is very interesting as the user appears to be very aware of
how such an electronic tool becomes viewed, by users, as being of importance to them.
This necessity has been highlighted throughout this dissertation in discussion regarding
knowledge sharing as well as organisational learning.
11. **The Value of Contribution**

Participants *must* be encouraged that their contribution is of importance to other members of their community and to the organisation as a whole in order that all members will grow and develop with communication and participation. Participation has the potential to reach Stages 4: *Knowledge Construction* & 5: *Development* of Salmon’s model but this will only occur with maximum usage, which in turn will only occur if the benefits and advantage to online participation are highlighted to all users effectively.