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Development of a Knowledge Management Strategy for Academic Staff

Leslie Whyte

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

March 2008

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.

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Date: ***DD Month Year***

ABSTRACT

We are living in a knowledge society. Knowing what we know and managing it better to know more is considered the key enabler to sustainable economic growth. 70 to 80 percent of economic growth is directly attributed to new or better knowledge. With information communication technologies (ICT) readily facilitating the globalisation of economic activity, the key competitive advantage of this era is the ability to create, use and disseminate knowledge effectively. Although traditionally creators, guardians and disseminators of knowledge, universities and institutions need to also adapt to the challenges the knowledge society can bring and evolve their roles in education, research and service to society to meet these requirements. This becomes all the more complex, through the advancement of ICT and the deluge of information and knowledge this can spawn.

The DIT recognises the challenges the knowledge society brings and its role to society in creating, disseminating and transferring its knowledge for society's benefit. Academics are the key to fulfilling this role. It recognises its duty in managing its knowledge better and in more productive ways. It has enshrined this within its strategic aims. What it has not done thus far is develop a plan to make this an operational reality. The faculty of Tourism and Food is a typical faculty within DIT with the same need to manage its knowledge better as all faculties' do. This research project developed a knowledge management strategy to do this.

Building on literature reviews of knowledge and knowledge management and that of knowledge management initiatives undertaken by universities and institutes around the world, it consults academic staff of their knowledge management needs to develop a knowledge management strategy to meet these needs. Although a stated aim of many universities and institutes is that of managing its knowledge better and develop strategies to do so, it is more the exception than the norm for this to have happened. This research provides an insight to what such strategies require.

Key words: Knowledge, Knowledge Management, Third Level Sector Knowledge Management Strategies

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to my supervisor Frank Deignan whose guidance and insight proved invaluable to the completion of this research project. I would also like to thank Brendan Tierney for his assistance and support.

I would also like to express my sincere thanks to my family for all their support, particularly Melanie, Dylan and baby Abigail for making me smile so much.

TABLE OF CONTENTS

ABSTRACT	II
1. INTRODUCTION	1
1.1 INTRODUCTION.....	1
1.2 RESEARCH BACKGROUND.....	3
1.3 RESEARCH PROBLEM	5
1.4 INTELLECTUAL CHALLENGE	7
1.5 RESEARCH OBJECTIVES.....	8
1.6 RESEARCH METHODOLOGY	9
1.7 RESOURCES.....	10
1.8 SCOPE AND LIMITATIONS	11
1.9 ORGANISATION OF THE DISSERTATION.....	12
2 KNOWLEDGE AND KNOWLEDGE MANAGEMENT	14
2.1 INTRODUCTION.....	14
2.2 KNOWLEDGE	18
2.3 KNOWLEDGE MANAGEMENT DEFINED	25
2.4 CONCLUSION.....	29
3 KNOWLEDGE MANAGEMENT IN THE THIRD LEVEL SECTOR.....	31
3.1 INTRODUCTION.....	31
3.2 THE ROLE OF UNIVERSITIES WITHIN THE KNOWLEDGE SOCIETY	32
3.3 THE NECESSITY OF KNOWLEDGE MANAGEMENT STRATEGIES WITHIN UNIVERSITIES	34
3.4 HARNESSING KNOWLEDGE WITHIN UNIVERSITIES.....	36
3.5 SOUTH PACIFIC.....	39
3.6 NORTH AMERICA.....	44
3.7 UNITED KINGDOM	47
3.8 CONCLUSION.....	51

4	ANALYSIS OF HOW ACADEMIC STAFF VIEW AND UTILISE INFORMATION AND KNOWLEDGE WITHIN THE DIT.....	54
4.1	INTRODUCTION.....	54
4.2	SURVEY RESPONDENTS	55
4.3	WITHIN THE DIT CONTEXT	56
4.4	WITHIN THE SCHOOL CONTEXT.....	57
4.5	HOW KNOWLEDGE IS VIEWED.....	58
4.6	ACADEMIC STAFF SKILL SETS	59
4.7	KNOWLEDGE REPOSITORY	61
4.8	SKILLS ACQUISITION	62
4.9	WHERE KNOWLEDGE IS PRESENTLY STORED	63
4.10	INHIBITORS TO EFFECTIVE AND EFFICIENT KNOWLEDGE STORAGE	64
4.11	EFFECTIVE COLLABORATION.....	65
4.12	INHIBITORS WITHIN DIT ENVIRONMENT	66
4.13	CONCLUSIONS	66
5	KNOWLEDGE MANAGEMENT STRATEGY	69
5.1	INTRODUCTION.....	69
5.2	KNOWLEDGE MANAGEMENT STRATEGY.....	70
5.3	STRATEGIC OBJECTIVES	72
5.4	FUTURE IT INFRASTRUCTURE/ DATA STANDARDS	74
5.5	GOVERNANCE	79
5.6	CONCLUSION.....	82
6	EXPERIMENTATION & EVALUATION.....	84
6.1	INTRODUCTION.....	84
6.2	EXPERIMENTATION.....	84
6.3	Q1, 2. AND 3. EVALUATION	86
6.4	Q 4 (A) AND (B) EVALUATION	87
6.5	Q.5 EVALUATION.....	91
6.6	CONCLUSION.....	92
7	CONCLUSION	94
7.1	INTRODUCTION.....	94
7.2	RESEARCH DEFINITION & RESEARCH OVERVIEW	94

7.3	CONTRIBUTIONS TO THE BODY OF KNOWLEDGE	96
7.4	EXPERIMENTATION, EVALUATION AND LIMITATION	97
7.5	FUTURE WORK & RESEARCH.....	97
7.6	CONCLUSION.....	98
	BIBLIOGRAPHY.....	100
	APPENDIX A	107
	APPENDIX B	111

TABLE OF FIGURES

FIGURE 1.9 RELATIONSHIPS BETWEEN MAJOR PROJECT OBJECTIVES	12
FIGURE 2.2.1. THE SECI MODEL. (NONAKA & TAKEUCHI, 1995)	21
FIGURE 4.2 NUMBER OF RESPONDENTS PER SCHOOL	56
FIGURE 5.1.1 KNOWLEDGE MANAGEMENT STRATEGY	70
FIG 5.4 WEB PORTAL ENTERPRISE SYSTEMS ARCHITECTURE.....	76
FIGURE 5.5 KNOWLEDGE MANAGEMENT STEERING COMMITTEE	81

TABLE OF TABLES

TABLE 2.2 CLASSICAL KNOWLEDGE DEFINITIONS IN A MODERN CONTEXT	18
TABLE 2.4 KNOWLEDGE MANAGEMENT DEFINITIONS.....	30
TABLE 3.8 SUMMARY OF KNOWLEDGE MANAGEMENT ATTRIBUTES	52
TABLE 4.3 OVERALL ENVIRONMENT OF DIT.....	56
TABLE 4.4 WITHIN THE CONTEXT OF YOUR SCHOOL.....	57
TABLE 4.5 PERCEPTION ABOUT KNOWLEDGE WITHIN DIT.....	59
TABLE 4.6 PROFICIENCY IN INFORMATION/KNOWLEDGE ACTIVITIES.....	60
TABLE 4.7 A NEED FOR A KNOWLEDGE REPOSITORY	61
TABLE 4.8 ACQUIRED SKILLS AND EXPERTISE.....	62
TABLE 4.9 WHERE INFORMATION/KNOWLEDGE IS STORED.....	63
TABLE 4.10 BARRIERS TO STORING INFORMATION/KNOWLEDGE.....	64
TABLE 4.11 CHALLENGES IN SHARING INFORMATION/KNOWLEDGE	65
TABLE 4.13.1 PEOPLE REQUIREMENTS.....	67
TABLE 4.13.2 PROCESS REQUIREMENTS	68
TABLE 4.13.3 TECHNOLOGY REQUIREMENTS.....	68
TABLE 5.1 STRATEGY NEEDS ASSESSMENT	69
TABLE 5.4.1 TECHNOLOGY REQUIREMENTS.....	77
TABLE 6.3 HOW PARTICIPANTS WOULD DEFINE KNOWLEDGE MANAGEMENT	86
TABLE 6.4.1 PARTICIPANTS RESPONSE TO SPECIFIC.....	88
TABLE 6.4.2 PARTICIPANTS RESPONSE TO MEASURABLE	89
TABLE 6.4.3 PARTICIPANTS RESPONSE TO ACHIEVABLE	89
TABLE 6.4.4 PARTICIPANTS RESPONSE TO REALISTIC	90
TABLE 6.4.5 PARTICIPANTS RESPONSE TO TIME FRAMED.....	90

1. INTRODUCTION

1.1 Introduction

“The emergence of the knowledge society, building on the pervasive influence of modern information and communication technologies, is bringing about a fundamental reshaping of the global economy. What is underway is a transformation of our economy and society.”

“Knowledge has become the key resource. Knowledge has value, but so too does knowledge about knowledge. Creating value is about creating new knowledge and capturing its value. The most important property is now intellectual property, not physical property. And it is the hearts and minds of people, rather than traditional labour that are essential to growth and prosperity.”

(O’Hare, 2002)

Taken from the information society commission report to the Irish Government, the importance of knowledge and how it is managed cannot be underestimated in today’s society. It is estimated that between 70 and 80 percent of economic growth is directly attributed to new or better knowledge (O’Hare, 2002). With information communication technologies (ICT) readily facilitating the globalisation of economic activity, the key competitive advantage of this era is the ability to create, use and disseminate knowledge effectively.

Knowledge management strategies are necessary to sustain competitive advantage that this knowledge can bring. Although the notion of a dawning ‘*knowledge society*’ was first spoken of nearly half a century ago (Drucker, 1959), it was not until this globalisation of economic activity through ICT left companies facing increased competition and ever changing dynamic environments. This drove companies to the realisation that the key asset available for their organisations to compete in these environments was their employees and their expertise in a:

“...vast and largely untapped asset diffused around in the organisation – knowledge.”

(Gupta et al, 2000)

The key focus of maintaining economic growth is that of investing in the workforce, the skills and knowledge they need, as well as investing in our youth. It is estimated that 80 percent of people who will make up the Irish workforce in 10 years time are already in our workforce now (O’Hare, 2002). With this in mind lifelong learning has become a key public policy with a view held by government that we are lagging behind in world terms of adult education and training. Universities and institutes are central to such initiatives being developed and sustained.

However, universities and institutions are faced with the similar pressures all modern organisations find with a rapidly changing world with evolving technologies, financial pressures, public accountability and auditing, and student demographics, diversity and roles of staff. Although traditionally creators, guardians and disseminators of knowledge universities and institutions need to also adapt to the knowledge society and evolve their roles in education, research and service to society to meet these requirements. This becomes all the more complex, through the advancement of ICT and the deluge of information and knowledge this can spawn. Universities as well as organisations require knowledge management strategies to do this effectively and efficiently (Oosterlink and Leuven, 2002).

The DIT recognises the role it has to play within the knowledge society and that this entails managing knowledge better. This recognition is embedded within its strategic plan. What is lacking is putting this into operation. The key *‘knowledge workers’* within DIT are its academic staff. Within the DIT, the faculty of Tourism and Food is a typical faculty comprising of the schools of culinary arts and food technology, hospitality management and tourism, and food science and environmental health. . The focus of this research project is to develop such a knowledge management strategy for academic staff based within DIT faculty of Tourism and Food.

1.2 Research Background

According to Treolar (2006) the amount, complexity, quality and technology employed to store and resource our information has become increasingly more challenging. Within an age perceived to be a knowledge society organisations and higher education institutions alike have had to align their strategic thinking to encapsulate and embrace this socio-economic environment.

“Universities are no longer living in splendid isolation. They have their own place in society, and they have a responsibility to society, which expects something in return for privileges it has granted.”

(Oosterlink and Leuven, 2002)

Universities and institutions have to meet this responsibility by imparting knowledge that is relevant to the workforce and society in general through its education and research and in promoting knowledge as the nature of its business.

Dublin Institute of Technology has recognised this and has included this premise with its strategic plan incorporating this in four core themes. These themes being (DIT, 2006):

- Multi-level learner centred environment.
- Strong postgraduate and research arms.
- Knowledge and technology transfer.
- Broadening the student base.

To exemplify the importance attached by DIT to managing knowledge and its transfer to its strategic vision the opening paragraph of its strategic plan states (DIT, 2006):

“This plan develops the role that the Institute continues to play in supporting the economic, social and cultural development of Ireland. It reflects the changing nature of higher education provision and in particular the shift to a more student-centred pedagogy within a research culture with strong linkages to knowledge transfer. It accentuates the move towards greater flexibility in accessing and participating in higher education.”

Citing leading edge flexible electronic resources as a key enabler, four priority objectives between 2006 and 2009 are to:

- Produce new knowledge and new knowledge workers.
- Support the development of knowledge based businesses.
- Increase direct income, patents and licenses arising from knowledge and technology transfer.
- Expand cross disciplinary activity, research and academic development.

The role of leading edge electronic resources and the role of DIT Information Services (IS) department in delivering these objectives are clearly outlined stating:

“Information Services support the core activities of teaching, learning, research, scholarship, vocational training, entrepreneurship, technology and administration. This entails the creation and operation of effective and efficient information delivery mechanisms encompassing the sourcing, collection, archiving, generation, and dissemination of knowledge. It is underpinned by effective and efficient academic and business processes.”

Further evidence of DIT’s commitment to these aims is evident in its strategic brief for the development of its new campus at Grangegorman (DIT, 2007):

“Accommodate new interdisciplinary programmes and research which characterise the new knowledge economy and create a new synergy between and across disciplines....Have the capacity, flexibility, and built environment, to enable the Institute to evolve and adapt its programmes and activities over time in response to changing circumstances and emerging knowledge and research supportive environment... The thrust of government policy is to continue to grow these activities to underpin the move to a knowledge society, indicating the need to allow for significant expansion going forward. The campus must have the necessary physical infrastructure to underpin DIT’s role in advancing Ireland’s progress to a knowledge society and its interactions between, students, researchers, and knowledge workers.”

No such operational knowledge management strategy exists and yet the case for one is stated succinctly within all strands of DIT’s intended strategic development.

1.3 Research problem

Within the research area of knowledge management and the literature reviewed there is no universally accepted definition of knowledge management. This is further compounded though not unsurprisingly, that there is also no uniform contextualisation and characterisation of knowledge itself. What is apparent even from the needs of the knowledge society is that it must be people focused governed by processes that can be managed and assisted by technology. These are consistent themes embedded amongst the various and varied definitions.

A further research problem also existed within knowledge management strategies and their implementation within universities and institutes. Although being in the business of knowledge, knowledge management strategies are more the exception than the norm within the third level sector. Most universities do aspire to such goals within their strategic plans but very few have acted to put these into operational practice. Whether this is driven by the internal politics culture that all organisations can have or that it is not deemed a priority, given the context of *‘being in the business of knowledge’* it is not really necessary to have one. Those best placed to know whether a knowledge

management strategy is necessary are the academics themselves. This lead to the following interrelated questions:

- How to define knowledge and knowledge management?
- How to assess if academic staff required a knowledge management strategy, and if so, what form it should take?

Within the context of finding the answer to these research questions, it was necessary to perform a literature review. This literature review took the form of defining knowledge management, which firstly took the form of defining knowledge in terms of a meaningful categorisation and developing a working definition of knowledge management referred to above. Under this definition and criteria a further literature review was conducted examining university and institutional strategies in managing knowledge.

To address the issue of whether academic staff believed there was a need for a knowledge management strategy, primary research was conducted in the form of an online survey. This was conducted across the three schools based within DIT faculty of Tourism and Food, each of differing disciplines giving a cross sectional view in terms of being conducted at the same time and applied to staff with differing areas of academic expertise and possible differing cultures within the schools.

The online survey afforded for ease of use for respondents and ease of collation of data which is reflected within an 82% response rate with 58 out of 70 canvassed responding. A secondary survey was conducted for the purpose of evaluating the usefulness of the developed knowledge management strategy with a head of department, information services (IS) and an academic staff member. This again took the form of questionnaire but also entailed telephone interviews to distil findings, with the questionnaire in the form of SMART targets methodology of being (Drucker, 1954):

- Specific.

- Measurable.
- Achievable.
- Realistic.
- Time Related.

1.4 Intellectual challenge

Six intellectual challenges were addresses within the process of completing this research which are in chronological order listed below, with each challenge having to be met before the next could start.

- Understand knowledge and knowledge management categories and definitions in terms of their capabilities or limitations, so that that knowledge and knowledge management can be categorised and defined in terms of DIT.
- Identify and understand various initiatives by universities and institutions in managing knowledge in terms of their capabilities and limitations as containing suitable strategy elements in terms of developing a DIT knowledge management strategy.
- Disseminate the findings and developed definitions from the literature reviews into the form of a survey questionnaire that would be both understandable to non knowledge management practitioners yet contain the necessary questions to ascertain whether a knowledge management strategy would be necessary and what this may require.
- Evaluate the findings in terms of the necessity of a knowledge management strategy.

- Develop a knowledge management strategy that would be operational in terms of being of benefit to academic staff and DIT, aligning this operational aim of the strategic aims of DIT.
- Understand and integrate feedback from management, IS and academic in relation to the knowledge management strategy.

1.5 Research objectives

The primary objective of this research project was to develop a knowledge management strategy for academic staff based at DIT faculty of Tourism and Food. The following objectives have been achieved throughout the dissertation and contributed to the overall outcome:

- Critical review of the knowledge society and its impact on the third level sector.
- Critical review of DIT strategic plans in terms of the impact the knowledge society has on the DIT.
- Critical review of the historical development of knowledge management.
- Critical review in contextualising and categorising knowledge in determining practical categories to assess the knowledge needs of DIT.
- Critical review of knowledge management definitions with the purpose of developing a working definition applicable to the DIT.
- Critical review of universities and institutions initiatives on managing knowledge.

- A report on how DIT and its academic staff manage knowledge and whether surveyed academic staff believed a knowledge management strategy was necessary.
- Description of knowledge management strategy detailing the elements of the strategy and the relationships between them.
- Evaluation of the knowledge management strategy.

1.6 Research methodology

Within the context of the research project, both primary and secondary research methods were employed in this dissertation. The secondary research took the form of literature reviews which was broken down into two main areas:

- Review of the knowledge society in terms of the value and importance associated to knowledge within this era. The contextualisation of knowledge and how it had and can be categorised and how knowledge management has and can be defined for the purpose of its application within the DIT faculty of Tourism and Food.
- Review of the impact the knowledge society has had on universities and institutes and the initiatives they have undertaken to manage knowledge better.

This was done through the use of:

- Books.
- Journals.
- Conference proceedings.
- White papers.

- University, government and company websites.

Primary research took the form of surveys, the targeted audience being academic staff based within DIT faculty Tourism and Food in the initial survey and including information services (IS) and academic management in the follow up evaluation survey. The initial survey was used to establish:

- Whether there was a need for a knowledge management strategy.
- Highlight any gaps that existed that would need to be bridged to develop such a strategy.

This knowledge acquired by this survey was combined with knowledge gained through literature reviews to formulate the knowledge management strategy. A secondary evaluation survey was conducted to evaluate the usefulness and applicability of the strategy in terms of IS and academic management and staff, which was evaluated and presented from their own perspectives of how useful and applicable the strategy was. This concluded the primary research element.

1.7 Resources

The availability of resources was crucial to the completion of this thesis. The following resources were employed:

- Working within the faculty of Tourism and Food for several years greatly assisted in completing this dissertation. Having worked closely with academic colleagues from all schools based within the faculty, academic staff freely responded to surveys sent which was appreciated.
- Regular contact and guidance from the supervisor was crucial and greatly appreciated in the completion of this thesis.

- Library services and resources based at DIT and with partner universities, the availability of these resources online and from home were essential to the completion of this thesis with regard to literature reviews in particular. As were the use of photocopying facilities and book borrowing services.
- Networked PC's provided network printer access and network storage provided a secure storage location and availability of software applications such as Microsoft Office proved invaluable in completing this dissertation.
- Internet, telephone and email services also facilitated the completion of this dissertation.

1.8 Scope and limitations

The goal of this research project is to deliver a knowledge management strategy for academic staff of DIT faculty of Tourism and Food. This will assist the academic staff in managing knowledge more efficiently and effectively assisted by processes that can enable collaboration and promote a culture of sharing and learning. This strategy was primarily focused on the requirements of the faculty of Tourism and Food but could equally be applicable to academic staff within other faculties. However this was beyond the scope of this research, in the main due to scale and timelines this would involve.

It would also be realistic to assume the applicability of this knowledge management strategy across all functions within the DIT such as administration, finance and human resources for example, which the author intends to pursue. However the magnitude of project such an endeavour would entail was well beyond the scope and of this research project. The strategy was presented to relevant parties within the faculty academic management and staff and to IS staff in terms of IT implementation. This is reasonable to assess whether the strategy is useful applicable and implement able. However to truly evaluate these metrics the strategy would have to be implemented within the faculty which was also beyond the scope of this project.

1.9 Organisation of the dissertation

With chapter one being the introduction, figure 1.9 represents the major objectives of this research project showing the relationship between each. Chapter 2 of the dissertation presents the findings of the literature review into knowledge and knowledge management.

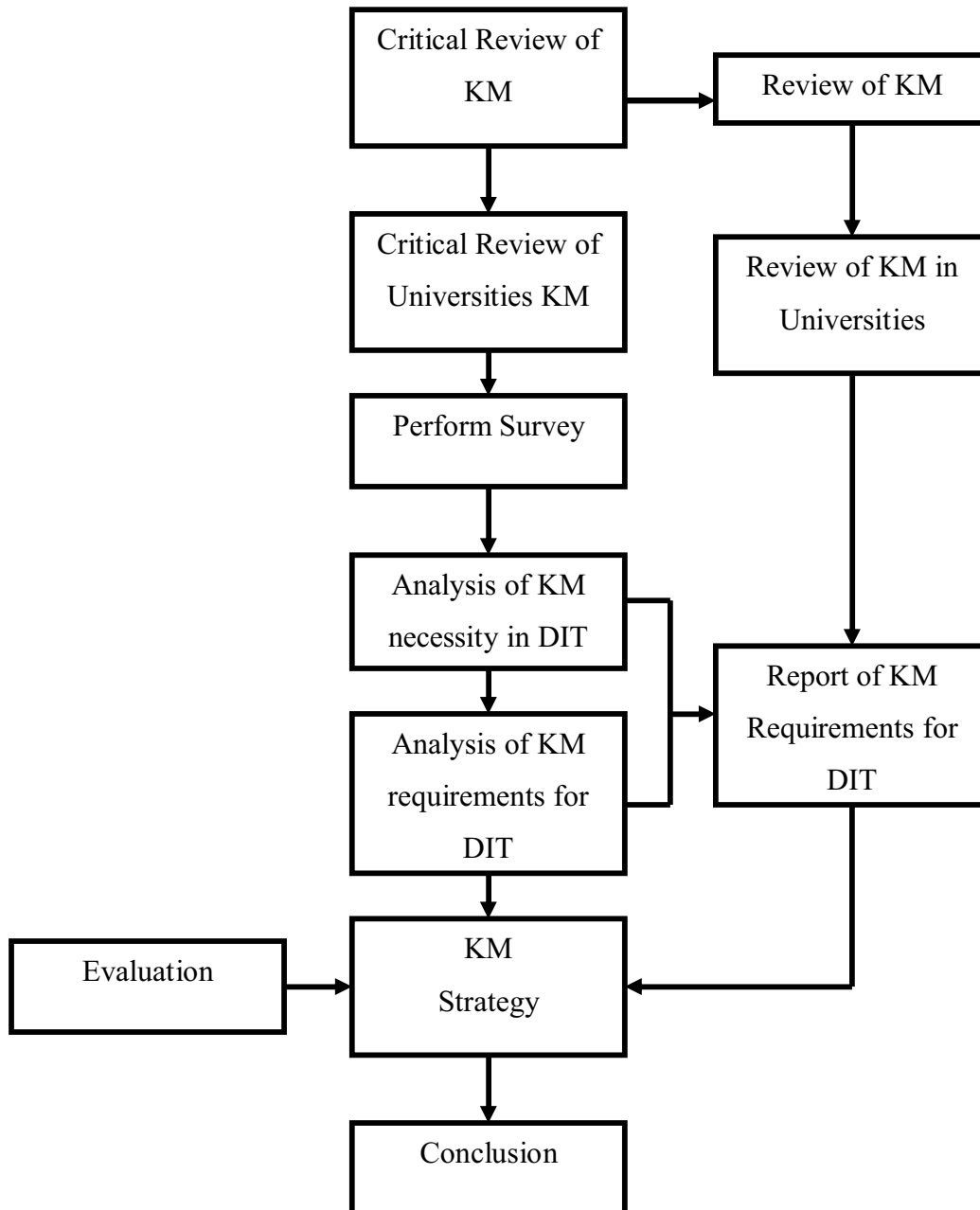


Figure 1.9 Relationships between major project objectives

Focusing initially on the advent of knowledge management brought about by the knowledge society, the chapter firstly reviews the whole concept of knowledge and its categorisation to develop categories to assist in identifying the categories of knowledge necessary to meet the knowledge needs of academic staff within faculty of Tourism and Food. Then followed a review of knowledge management definitions to develop a working definition taking into account the attributes DIT operates under.

Chapter 3 of the dissertation presents the findings of the literature review into various initiatives undertaken by universities and institutes from around the world to manage knowledge. The chapter firstly focuses on the knowledge society environment the third level sector must operate under before critiquing the various initiatives.

Chapter 4 of the dissertation contains the survey findings and analysis into the necessity of a knowledge management strategy within faculty of Tourism and Food. The chapter also establishes the necessary requirements and elements such a strategy must contain to reflect the responses given by academic staff.

Chapter 5 of the dissertation presents the knowledge management strategy. The strategy is devised upon interlinking components built upon the central themes of people, processes and technologies, reflecting the literature reviews of chapter 2 and 3 and the requirements derived from survey analysis in chapter 4.

Chapter 6 contains the evaluation of the knowledge management strategy. This chapter includes SMART targets (Drucker, 1954) questionnaire responses, and telephone interviews with IS and academic management and staff. This chapter concludes with an analysis of the usefulness and applicability of the knowledge management strategy.

Chapter 7 concludes the dissertation containing the conclusions and recommendations which were arrived at following the completion of this research project.

2 KNOWLEDGE AND KNOWLEDGE MANAGEMENT

2.1 Introduction

“We are entering (or have entered) the knowledge society in which the basic economic resource ... is knowledge ... and where the knowledge worker will play a central role...”

(Drucker, 1993)

The emergence of the term knowledge society was born out of society’s social, cultural and economic activities becoming increasingly dependant on the production of knowledge and expertise as its driving force. This notion has moved from being solely in the domain of academia, to one being liberally used in the political domain as a national imperative for future sustainable economic growth, but is a relatively new concept to the public at large. Within the realms of academia the terms knowledge society (Drucker, 1959) and its requisite knowledge workers were phrases first employed in the 1960’s (Drucker, 1967) and early 1970’s by sociologists such as Etzioni when contemplating compliance theory and its sociological impact within organisations (Etzioni, 1970). Whereas information management tends to focus on systematic control and recording of information, knowledge management although encompasses this, focuses also on people management viewing employees as knowledge resources (Gourlay, 2000).

It was not until the 1990’s that the concept of managing knowledge within organisations really began to be highlighted as beneficial to providing a sustainable advantage (Dutta, 1997). The availability and volume of knowledge individually, organisationally and indeed to society has led to the need to manage knowledge more effectively. The discipline of knowledge management was brought about to tackle this need of harnessing knowledge in a more productive way. It has been argued that within the uncertainty of global economics, the manipulation of knowledge is viewed as providing a certain source of lasting competitive advantage (Nonaka, 1991). Indeed cited as key drivers to the widespread adoption of knowledge management processes

was that of continued economic globalisation with ease of access to markets through transportation and through the proliferation of the World Wide Web. Horton (2001) illuminates this *'knowledge economy'* when defining it as:

"One where success depend more on knowledge than on labour or capitol. It is the unique knowledge of the company that is important to determining its success. Knowledge is in many ways the new gold standard."

Schutt (2003) contends that the initial champions of knowledge management, consultants, were driven to implement knowledge management processes borne out of their own need for such systems. Citing with the advent of the laptop and improved ICT, consultants were able to work effectively in a more distributed fashion without the need to return to their desks. This he argues, leads to the breakdown of informal knowledge exchange and collaboration between colleagues when based in the same office. Having developed their own knowledge management processes to overcome this, these consultants then in turn offered these services to their clients enabling a more widespread adoption of knowledge management.

Anecdotally the term *'knowledge management'* has been ascribed by Beckman (1999) at a United Nations International Labour Organisation conference to be first employed by Karl Wiig in 1986. However the term knowledge management would appear to have been first coined by Marchand (1985).

It can be argued to have evolved through three generations since 1990 (Schutt, 2003). Although from a historical perspective a generation is normally considered to entail a minimum 20 year period, with the exponential advancement of ICT since 1990 allied to knowledge management's closely coupled reliance on technology, Schutt's statement would appear reasonable in assumption.

The first generation of knowledge management is considered to be the period from 1990 to 1995 broadly encompassing early adopters. This period and its adopters were predisposed to the notion of the power of computing technology to resolve and advance the management of knowledge but this hypothesis was still evident in later years for example, Zuckerman and Buell (1998) relying on IT to deliver knowledge

management. Analysing this phase of knowledge management Earl (2001) found it to be *'technocratic'* in origin, devoid of acknowledging the importance of human participation and input within knowledge management processes, inferring they were:

"..based on information and management technologies, which largely support, and to different degrees condition employees in their every day tasks."

Moving from the view of knowledge as technocratic, which can condition the employee into better practices, the second generation took a view of knowledge management as both tangible and intangible. Building on the works of Polyani (1966), the socialisation, externalisation, combination and internalisation (SECI) model was proposed by Nonaka and Takeuchi (1995). This proposal was based on a continuum or flow between two extremes of tacit and explicit knowledge.

This was later revised with the re-examination of Polyani's original work from Tsoukas (1997) who found that Polyani had argued that tacit and explicit knowledge were inseparable. Nonaka and Konno (1998) proposing a successor to SECI called *'Ba'* or place, referring to knowledge as *'intangible, boundary less and dynamic and cannot be stocked'* stating:

"..to exploit and create knowledge effectively and efficiently, it is necessary to concentrate knowledge at a certain time and space."

Viewed as lacking in practicality Snowden (2000) points out the proposition also lacks the organisational constructs of social obligation and that of a sense of belonging. This led to the third generation of knowledge management with a premise of what Snowden (2002) refers to as *'just in time knowledge management'*. Snowden's process orientated approach proposed that knowledge flowed between domains of *'complex'*, *'knowable'*, *'known'* and *'chaos'* with this knowledge flowing through the domains which in turn create informal groups which transform informal knowledge to formal, citing:

“..we create ecologies in which the informal communities of the complex domain can self-organise and self manage in such a way as to permit that knowledge to transfer to the formal, knowable domain on a just in time basis.”

This third generation proposed lends heavily to both the first and second generation knowledge management combining both the computer centric and human centric facets of each. Firestone and McElroy (2002) question the validity of how many generations of knowledge management exist or indeed which phase we are in or entering in. Koenig's (2002) view of three generations of knowledge management existing due to technological advancement of the internet and the tools it can provide could be deemed equally valid. In stating this Koenig refers to this third phase of knowledge management as:

“..awareness of the importance of content—and, in particular, an awareness of the importance of the retrievability and therefore of the arrangement, description and structure of that content..”

The approach of finding relevant content, taxonomy development and timely content management is in line with Snowden's (2002) of *'just in time knowledge management'*. Firestone and McElroy (2002) contention that these ideas pre existed may warrant academic attention for the purpose of historical fact. Some of these suggestions could be attributed to Senge (1990) and Wiig (1989) but technological advancements have driven Koenig and Snowden's hypotheses which were not previously available. It is this technological advancement which lends to the theory of a different generation as it is more readily realisable within this new technology.

Regardless of the academic argument of what constitutes a generation within the discipline of knowledge management. There is a practical need to marry technology adapted, people employed and processes adopted when needed to manage knowledge. It is the determination of what constitutes knowledge within an organisation, and how this knowledge is managed is of primary concern. The following sections will define knowledge and knowledge management within this context with the purpose of developing a knowledge management strategy for DIT faculty of Tourism and Food.

2.2 Knowledge

“We had everything before us; we had nothing before us.”

(Dickens, 1859)

The contextualisation and definition of knowledge has a long tradition of raising debate and discussion. Greek philosophers such as Socrates were hypothesising about the limits of knowledge in the fifth century B.C. (Platon, 1981). Greek philosophers differentiated four kinds of knowledge (Prusack, 2000):

- Episteme — abstract generalisations, basis and essence of sciences, scientific laws and principles.
- Techne — technical know-how, being able to get things done.
- Phronesis— practical wisdom, drawn from social practices.
- Metis — an inherent wisdom. *“A form of knowledge which is at the opposite end of metaphysics, with no quest of ideal, but a search for a practical end; an embodied, incarnate, substantial form of knowledge (Baumand, 1994).”*

Episteme	Techne	Phronesis	Metis
Fundamental scientific knowledge such as weights and measurements	Instructions and manuals and technology. Institutes and communities of practice /networks.	Social norms and acceptable behaviour. The culture within a given context.	Natural ability, gifted within a given context.

Table 2.2 Classical knowledge definitions in a modern context

Whilst philosophers would claim that knowledge itself is ‘*somewhat unnatural*’ (McGinn, 2001), the very evolution of humanity, historians would argue, was based on its ability to accumulate knowledge (Bennett & Bennett, 2004). Indeed these four kinds of classical Greek knowledge directly relate to modern day practises as illustrated in table 2.2.

This classical definition when contextualised like this does appear to encapsulate, even without an established definition of knowledge, what can be found within modern organisations:

- The people and expertise engaged in work and the environment they are engaged in.
- The processes, workflows, policies and procedures that are employed in running an organisation.
- The technique, technical understanding/technology to do this.

What is missing is what is deemed to be knowledge and how to articulate what is knowledge in terms of these three themes of people, processes and technology in a practical and understandable sense to all.

The most articulated association of the term knowledge is that with scientific knowledge. Using scientific methodologies and standards this knowledge is developed, tested and validated. Mainly occurring in universities and research centres it is typically explicitly described by means of report, journal and book form. Similar to this function in industry is that of research and development units although the knowledge developed being typically explicitly described and embedded in products and services.

The other key association to the term knowledge is that of '*the knowledge an experienced person possesses*' (Mertins et al, 2003). This type of knowledge is derived from an experiential understanding of knowing when something is right. A worker in a paper mill will know when the paper is right when it '*smells*' right. This give rise to the whole complexity of defining knowledge due to the personalisation of what was intended by, and it's meaning to, the holder.

Romhardt (1998) found 40 dichotomies of knowledge alone which considering the widespread proliferation of knowledge management since 1998 would suggest a further divergence and increase in dichotomies of knowledge exists presently.

Davenport and Prusack (1998) argue for knowledge in its practical form being borne out of information endowed with intentionality or direction:

“Knowledge is information combined with experience, context, interpretation, and reflection. It is a high-value form of information that is ready to apply to decisions and actions.”

This practical definition is in line with the classical Greek definition, but diverges slightly as it does not recognise or take into account that someone may just have a natural ability or gift in a field or discipline. Surprising seeing that one of the authors Lawrence Prusack has published within this area as referenced at the beginning of this section (Prusack, 2000). It would be a fair assumption that one could expect a high proportion of people with a natural ability to be found amongst academic staff. Nonaka and Takeuchi (1995) take a more philosophical view of knowledge being justified, true and believed defining knowledge as:

“Explicit or codified knowledge refers to knowledge that is transmittable in formal, systematic language. On the other hand, tacit knowledge has a personal quality, which makes it hard to formalise and communicate.”

As alluded to in section 2.1 Nonaka and Takeuchi (1995) view knowledge as a continuum or flow between tacit and explicit knowledge. Figure 2.2.1 illustrates this. Explicit knowledge representing systematic formalised knowledge such as reports, documents and studies easily shared and readily distributed. The tacit knowledge continuum being hard to formalise, based on experiential learning and indirectly communicated, personal and contextualised. The knowledge transferring between quadrants illustrates how and where forms and combinations of knowledge may reside. However this view of knowledge may be too complex to be practical as Snowdon (2000) alluded to in section 2.1. It does however contextualise knowledge as the valuable resource it has become today, with its ability to flow through various situations. Like currency if it can be traded it can be saved and stored can add in value to the owner, therefore the necessity to quantify it.

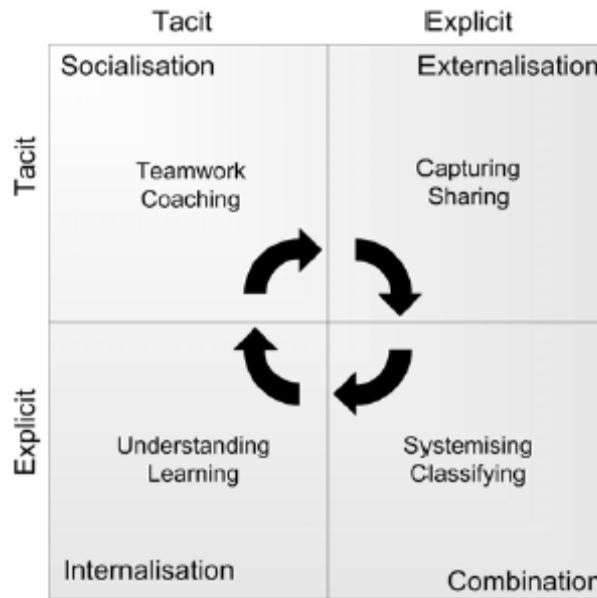


Figure 2.2.1. The SECI model. (Nonaka & Takeuchi, 1995)

Ruggles (1997) proposed a classification consisting of four types of knowledge:

- Process Knowledge - best practices for increased effectiveness and efficiency.
- Factual Knowledge – information about people and simple processes or operations that is in essence basic and easily documented.
- Catalogue Knowledge – directories of expertise, knowledge of where things are.
- Cultural Knowledge – knowing how things get done within an organisation.

This is a very practical view espoused by Ruggles (1997) expressing a similar differentiation to that expressed by the classical Greek philosophers in table 2.2. One could expect however it lacks ability to show the interrelationship of each theme to the other, knowing how things get done and where things are in directories of expertise would be an interrelationship for example. It does express knowledge as a commodity, categorising knowledge and placing it in its respective 'vault', but also presupposes the expertise of those looking for the knowledge, to recognize where it is to be found. However, in the realms of a third level institute one could presume academic staff would be articulate to their knowledge needs, which this model would facilitate.

Situated knowledge is viewed as a practical knowledge as is specific to particular situations, can be shared by groups is readily managed and manipulated. The difference between this type of situational knowledge to that of Nonaka and Takeuchi (1995) is that only experiential, trial and error type learning are contained in situational knowledge. This is typically embedded in language, culture and tradition of the specific situation and is only applicable to that situation (Nidumolu et al, 2001).

This does incorporate the sociology constraint of knowledge espoused by Polyani (1966) central theses of the concepts of knowledge being:

- *“True discovery can not be accounted for by a set of articulated rules or algorithms.”*
- *“Knowledge is public and also to a very great extent personal. That is constructed by humans and contains emotion.”*
- *“The knowledge that underlies explicit knowledge is more fundamental. All knowledge is either tacit or rooted in tacit knowledge.”*

This however leads to an impracticality of knowing more than can be told. A constructionist viewpoint of this representational dilemma is provided by Von Krogh (1998) when stating:

“To the constructionist, some knowledge is explicit but some is also tacit, highly personal, not easily expressed and therefore not easy to share with others. Tacit knowledge involves physical skills such as putting the movements together in a high-precision luxury watch as well as perception skills such as interpreting a complex seismic readout of an oil reservoir.”

Von Krogh (1998) citing whilst explicit knowledge may be possible to transact, he views transacting tacit knowledge as nigh on impossible without a culture of voluntary sharing existing to do so.

The complexity of the explicit/tacit conundrum has led to the hypotheses of duality of knowledge (Hildreth and Kimble, 2002), contending the necessity to view all

knowledge as containing constituents of both 'explicit' and 'tacit' knowledge. A point borne out by Davenport and Prusack (1998) stating:

"..the more rich and tacit knowledge is, the more technology should be used to enable people to share that knowledge directly. It's not a good idea to try and contain or represent the knowledge itself using technology."

An alternative classification of knowledge derived from computer science is that of signal differentiation of data, information, and knowledge (Mertens et al, 2003). Belinger includes the continuum further by including wisdom (Bellinger et al, 2004).

The key difficulty with this being the distinction between what represents information and what represents knowledge. Probst (1998) found that differentiating data and information as typifying the questions 'who?', 'what?', 'where?' and 'when?' to that of questions of knowledge which he proposes are typified by questions of 'how?' and 'why'.

This can suffice in the realms of academia and possibly to skilled practitioners or highly knowledgeable in understanding knowledge, but may not translate to everyday understandings of what is knowledge and what is information.

It can be argued that Churchman (1971) when trying to articulate the difference between information and knowledge only highlights the difficulty the holder of such knowledge has in understanding it to be of a higher value or importance than information stating:

"To conceive knowledge as a collection of information seems to rob the concept of all its life...Knowledge lies in the user and not the collection. It is how the user reacts to the collection of information that matters."

To this extent, what may seem knowledge to one, is just considered a collection of information contained by the holder, this would be in line with the classical Greek determination of Metis in table 2.2 that those who excel within a field would have a certain natural flair and would not give their knowledge the due value or title it deserves. It would be more than reasonable to expect a high level of this natural ability to exist within academia. This is not to say that there is not a clear distinction to what is knowledge and what is information. What maybe unclear is that the gifted in a

discipline may not view their knowledge as such, and must be taken into account to gain a fuller picture in such regards of surveying staff in their knowledge needs.

What is clearly defined so far is that knowledge is a valuable resource and a transferable commodity. It exists explicitly in readable form and tacitly within individuals. To put in place formal procedures to extract this tacit knowledge can be complex, and is voluntary in the sense that one may never know if all has been shared or that the holder can express in understandable terms what is known. Within the realms of DIT, academic staff in general knows what knowledge is in their respective disciplines. Indeed the complexity of such a definition within an academic environment would seem unwarranted given the skill levels of staff. Staff realistically would only need mechanisms whereby they can communicate and have a common understanding. What is necessary is to categorise knowledge within a practical manner. One very simple but inclusive categorisation would be that of:

- People – understanding who the experts are, where they are located.
- Process – governance and knowing the policies, procedures, processes and the culture they exist in.
- Technology – communication and documentation mechanisms and the know how to use them.

This follows the principles referred to in section 2.1 of aligning the technology adapted, people employed and processes adopted when needed, to manage knowledge. These three categories incorporate both the classical Greek categorisation from table 2.2 and that of Ruggles (1997) although simplified from his four into three themes. It facilitates the transfer of tacit knowledge by facilitating who and where the knowledge can be found and the technology to communicate with the knowledge holder. This also incorporates Van Krogh's (1998) view of voluntary sharing of tacit knowledge and Davenport and Prusack's view of technology facilitating tacit knowledge sharing, whilst documentation mechanisms facilitate the explicit function of recording and transferring such knowledge to organisational or personal memory. In the following subsection a working definition on the above premises for knowledge management will be defined.

2.3 Knowledge management defined

As highlighted in the previous sections, the discipline of knowledge management and how to clearly define the term are fraught with academic conjecture. Due to the nature of DIT and its organisational structure, the ability to reward performance by remuneration, or indeed its ability to perceive and aspire to competitive advantage within traditional economic sense, would not be within its remit. Within the context of the DIT a definition of knowledge management will have to encompass this. As referred to being a public sector body it would not be in DIT's remit to be able to reward staff in this manner. Knowledge management's take up would have to be voluntary, so would have to be viewed as beneficial by to them, with management viewing the benefits of more knowledgeable staff justifying its inception. A definition would have to balance these requirements.

Within the contexts where uniformity and standards can be employed, uniform definitions have been applied. Standards Australia (2003) defines knowledge management as:

“Knowledge management is a multi-disciplined approach to achieving organisational objectives by making the best use of knowledge. It involves the design, review and implementation of both social and technological processes to improve the application of knowledge, in the collective interests of stakeholders.”

This definition embodies the concept of addressing the needs of the people involved, the culture involved, the processes employed and the technology to leverage this, but may use terminology that may not be clearly understood by the intended audience, the ‘stakeholders’.

Other definitions look upon knowledge management solely from an organisational business requirement. Hofer-Alfeis (2003) when considering a working definition of knowledge management for Siemens suggests:

“Knowledge management covers all systematic activities involved in the creation and sharing of knowledge across the organisation and in relations with customers, partners and other knowledge stakeholders, and thus contributes to the achievement of our goals and the creation of value added by Siemens. In the knowledge space, knowledge management can be described as any systematic action adapting proficiency, diffusion and codification according to the organisation’s objectives.”

This is also an all encompassing statement of the strategic objective of Siemens’ knowledge management strategy. Stating its objective is to add value to the organisation, its employees and partners, and enriching the service to its customers with this added value brought about by knowledge management. The main drawback of such a worded statement is that if you were not versed in knowledge management ‘speak’ or educating in organisational science, the statement could appear convoluted and incomprehensible to its intended audience. In saying this there may be no need to explain this to this audience, if contractually obliged to follow the processes in place.

Bukowitz and Williams (1999) are more succinct in their definition by claiming knowledge management is:

“.. the process by which the organisation generates wealth from its intellectual or knowledge-based assets.”

Gartner align their definition in focus with information technology at the forefront capturing the tacit and explicit expertise when they define (Gartner, 1997):

“Knowledge management as a discipline that promotes an integrated approach to identifying, capturing, retrieving, sharing and evaluating an enterprise’s information assets. These information assets may include databases, documents, policies and procedures as well as the un-captured, tacit expertise and experience resident in individual workers.”

Although quite a functional approach bordering on a records or information management definition, it does incorporate the requisite knowledge elements such as tacit knowledge and expertise and viewing this information as an asset. Indeed this

turn of phrase of the *'information asset'* of this expertise being part of the knowledge required, could prove useful in not letting the intended audience, academic staff, getting bogged down in a philosophical debate of what is or is not knowledge. Location and access of these information assets facilitates the knowledge transfer. Zuckerman and Buell (1998) go further in IT reliance of knowledge management by defining:

“Knowledge management is the strategy of collective company knowledge and know how to build profits and market share. Knowledge assets – both ideas and concepts and know how are created through the computerised collection, storage sharing and linking of corporate knowledge pools. Advanced technologies make it possible to mine the corporate mind.”

This type of statement clearly indicates this strategy is founded on the principle of employing knowledge management to increase competitive advantage. It's based on the concept of encoding and documenting tacit knowledge into systems. Having considered how complex an operation this could be in section 2.2, the statement further compounds this difficulty, by addressing this issue with rather vague explanation, advanced technologies, of what it would use to capture this knowledge.

Following on from the organisational and IT approaches; Seeman et al (1999) define knowledge management from a more humanistic people centred approach, allowing for the incorporation of those who will use such knowledge management systems within the design stating:

“Knowledge Management can be thought of as the deliberate design of processes, tools, structures, etc. with the intent to increase, renew, share, or improve the use of knowledge represented in any of the three elements (Structural, Human and Social) of intellectual capital. “

This would be in line with what would be required with regard to a people focused solution. Following on from this Crosstal (2003) engages an approach of balance of methodologies as can be seen in Snowden (2002) and duality of knowledge as described in section 2.2 when defining:

“Knowledge management is a concept that combines content (data and information) with organisational processes and people, as well as the technologies that enable their effective use.”

A more conclusive definition is proposed by Malthora (1998) to crystallise this when he defines:

“Knowledge management embodies organisational processes that seek the synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings.”

The notion of what categories of knowledge is stored (Kim et al, 2003), and control and understanding of its interrelation for the purpose of mapping or indexing (Nissen et al, 2000) should also be considered within a definition.

Within the scope of this thesis a clear requirement of knowledge management is access to, identification of, and how knowledge is catalogued and categorised so that it can be created stored found and used again. As there are no reward structures for staff that contribute and use this system, its primary purpose must be to benefit the staff that use it. Knowledge must be viewed as a resource as too information in creating or finding knowledge must also be viewed as an asset. Above all it must be unambiguous and be easily understood by its intended audience. For the purpose of this research knowledge management shall be defined as:

“The connection of information resources, human or electronic, through an institute wide process so that knowledge can be found and transferred to an individual who requires it.”

This definition allows for a people centred focus, that the sharing and collaboration of knowledge is voluntary and for the purpose of their benefit, with the institute benefiting from more knowledgeable staff and their output. It also continues with the themes of people, connecting those who need the knowledge to people or IT resources through institute wide processes.

2.4 Conclusion

This chapter began by introducing the concept of knowledge management and its development from its academic inception to its growth due to the economic importance attached to knowledge within the knowledge society. This showed the historical shift in approaches toward knowledge management from being technology based, to people based to '*just in time*' process based. It would appear that a combination of all three equally would be the correct approach to adopt by marrying technology adapted, people employed and processes adopted.

Chapter 2 delved into what is at the core of knowledge management, knowledge itself. The chapter reviewed the whole concept of knowledge and its definition, exploring its characteristics in the form of categories of knowledge. From Ancient Greek times to present day there is much conjecture on how to categorise knowledge. Indeed as referred to in this chapter having as many as 40 dichotomies. What was clear that these categories could be aligned in terms of knowledge of people, knowledge of processes and knowledge of technologies, although admittedly there were no PC's in ancient Greek times, they did have techniques. From this the following categorisation of knowledge occurred:

- People – understanding who the experts are, where they are located.
- Process – governance and knowing the policies, procedures, processes and the culture they exist in.
- Technology – communication and documentation mechanisms and the know how to use them.

This will assist in identifying the types of knowledge necessary to meet the knowledge needs of academic staff within DIT faculty of Tourism and Food. This chapter then reviewed knowledge management definitions for the purpose of finding a suitable definition or developing such at DIT. This had to fall within the scope of this thesis, taking into account the unique attributes a third level institute such as the DIT operates in, such as not being reliant on providing competitive advantage for example. Table

2.4 shows definitions tended to favour one theme or the other in terms of being people focused, process focused or technology focused.

Theme	People	Process	Technology
Author	(Seeman et al, 1999); (Malthora, 1998)	(Hofer-Alfeis, 2003);(Bukowitz and Williams, 1999)	(Zuckerman and Buell, 1998); (Gartner, 1997)

Table 2.4 Knowledge management definitions

In keeping in line with a balance between these themes and also recognising it has to an element of being of benefit to the people due to the voluntary nature of it usage the following definition was developed to reflect this:

“The connection of information resources, human or electronic, through an institute wide process so that knowledge can be found and transferred to an individual who requires it.”

Chapter 3 shall provide an insight into universities and institutes, their changing roles within the knowledge society and how they are evolving to meet these needs. The chapter will then examine those engaged in strategies and initiatives in better managing their knowledge. A synopsis of approaches taken will be analysed with both this definition and categorisation of knowledge forming the guidelines and criteria under which this will take place.

3 KNOWLEDGE MANAGEMENT IN THE THIRD LEVEL SECTOR

3.1 Introduction

“Cardinal Newman: the duty of a university is to prepare young adults to fill any post with credit, and to master any subject with facility (Ward, 1915). John Stuart Mill: (They) are not a place of professional training...their object is not to make skilful lawyers, physicians or engineers, but to make capable and cultivated human beings.”

(Robson, 1984)

The key differentiator between universities and industry at large is focus on quality. From a company perspective performance of research results would be viewed by how influential they were on profit margins. Within the realms of universities research results are viewed from the perspective of the quality of the work. Profit drives companies whereas quality drives universities (Osterlinck, 2002).

The notion of university contends Osterlinck (2002) first came into creation with the formation of Oxford University in 1187. The focus at this point in time was primarily on the collection and preservation of knowledge rather than its creation and application. This notion held true right through the Middle Ages with universities portraying their role as *‘protectors of knowledge’*. A professor was viewed as a scholar as opposed to researcher, with the notion of *‘wanderstudent’*, where a scholar would travel from university to university seeking out knowledge. This was readily facilitated by the overriding use of Latin in academia.

The notion of scientific observation stemming from luminaries such as Francis Bacon and the *‘knowledge of nature’* as proposed by Newton started a school of thought to how knowledge should be viewed in academia. Willhelm von Humbolt created the notion universities should be *‘producers of knowledge’* as opposed to *‘reproducers’*, when founding the University of Berlin in 1809 (Sorkin, 1984). The notion of a student having the freedom to choose their own curriculum with a professor having the freedom to select their own field was born.

3.2 The role of universities within the knowledge society

With the context of the knowledge society Osterlinck (2002) contends that modern universities can be characterised by the notion of a '*co-existence*' of three fundamental elements (Osterlinck, 2002):

- Knowledge creation. Osterlink cites knowledge creation as the most important characteristic as it encompasses the '*academic world of research*'.
- Knowledge dissemination is characterised by knowledge created by research, is then cast among the student cohort by means of lectures in the traditional sense but also with the notion of attitude formation as alluded to by Newman and Mill (Ward, 1915; Robson, 1984), value transfer and indeed skills training.
- Academic services to society, he contends, are the services to the society at large in the transferring of a university's knowledge and its graduates to the socio/economic world for everyday consumption.

This responsibility in the advancement of and role it plays to society is also a key differentiator with that of industry in terms of considering knowledge management strategies. There is almost a perceived contract in imparting its intellectual assets to society, a view diametrically opposed to that of a for profit industry. The need for society to embed lifelong learning as national strategy for economic sustainability also affects how a university operates, by having to fulfil this social contract (O'Hare, 2002)

Although third level institutes are not driven or governed by competitive advantage in its traditional sense, competitive forces are to be found. Nunan (1999) argues that transformation of the third level sector has been necessitated by:

- Market competition being driven by government funding and measurements to assess funding requirements as well as standardisation of funding bodies, such as the Higher education Authority in Ireland.
- Virtualisation of enrolment and course offerings.

- Internationalisation of student body brought about by globalisation with departments of international affairs being set up by universities including DIT.

This market competition with the widespread introduction to league tables has brought about a view of education and courses as a commodity or product to a certain extent. Although imbued with quality drivers as alluded to at the beginning of this section, Dolfsma (1999) contends that this '*product for sale*' based on a good '*brand*' has led to a more informed and selective choice by prospective students. Bluestain et al (1999) speculate further that with the changing student demographic to that of continuous learners comprised of working adults have led to demands such as:

- Flexible access.
- Partnerships between business and universities.
- Customised curricula.
- High levels of technology use.

Duderstadt (1999) argues that virtualisation provides competitive challenges to the third level sector by provisioning for flexible delivery by eliminating time place and pace restrictions. This can also be viewed as an opportunity to expand as can the ability virtualisation can provide by creating partnerships which facilitate the '*unbundling*' of university '*products*' through modularisation.

Within the virtualisation of student services such as enrolment, courses, curricula and student information in general, comes greater external and internal pressures of accountability (Miller, 2002). These range from richer student information sought by government departments engaged in funding third level sectors to that of internal pressures of departments providing value for money. In short, virtualisation could facilitate the outsourcing of these services if not providing '*value for money*' (Duderstadt, 1999).

This virtual connectivity has also been accompanied by physical infrastructure connectivity and internationalisation driven by the knowledge society and the global economy. The internet in itself provides a vast global knowledge base. Transport,

trade and travel agreements also provide for wider access to education and greater competition to the third level sector.

3.3 The necessity of knowledge management strategies within universities

The third level sector has been the traditional standard bearer for the creation storage and dissemination of knowledge for the past two centuries. It can be argued that information technology has led to the greatest advancement in human educational development. This has led to greater challenges in how the third level sector educates. McArthur and Lewis (1998) argue that information technology can affect the processes of learning, as alluded to in this section, but can also affect the products of learning citing:

“Many parts make up the traditional pipeline for producing educational materials (and intellectual artefacts in general), but four are central: authors create documents; publishers mainly manufacture and market copies of these products; libraries primarily acquire, store and distribute copies to nearby community and readers consume them. These groups have played relatively stable roles in the publication process for decades, even centuries. However information technology is changing their roles; and, more important, it is transforming the copyright and intellectual-property-rights laws that underpin relationships among the groups.”

The internet and its technologies appear to affecting teaching and learning by affecting the education materials in how they are:

- Created.
- Stored.
- Published.
- Consumed.

The advent of information technology sources and types of resources has led to challenges in (Treolar, 2006):

- Growth and complexity in the types and amounts of information.
- Increasing numbers of information islands.
- Lack of quality information available for decision making.
- Convergences of technologies and content domains.

Petrides and Nodine (2003) further expose issues information technology has posed the education sector in their *'knowledge management in education'* citing:

"(They) are pouring millions of dollars into information technology without considering how to effectively integrate those technologies into shared decision making processes to improve academics, operations, and planning."

The rational implementation of information technology by the third level sector has been questioned from a strategic implementation viewpoint. Stephen Gilmore from the University of Edinburgh is quoted as far back as 1999, a relevantly long passage of time in information technology terms, as stating (Ehrmann, 1999):

"Many college presidents today worry that we've passed the point of no return when it comes to spending money on technology, but we don't know where we're going."

It is the combination of the third level sector competitive forces the knowledge society imposes, allied to the implications information technology applications and information in terms of usage, integration, complexity and sheer volume has led to the need for more integrated, defined processes of managing information and knowledge in terms of the people, processes and technologies it resides in.

This has led to the necessity of the third level sector, the protectors and creators of knowledge through the ages, requiring knowledge management strategies themselves to remain both competitive and relevant to their function of providing a quality driven

service in creation and dissemination of knowledge and in the service to society at large.

3.4 Harnessing knowledge within universities

“Providing others with experiences in using data and information in decision making is itself an education process that takes time...the more people share information the more each of them gains: knowledge is created by the interaction of experience with information.”

(Petrides and Nodine, 2003)

The whole notion of educating the user in the application of data and information so that they may become knowledgeable is a concurrent theme within knowledge management. The concept of the interchange ability or inter play of information and knowledge appears to be common within the third level education sector.

Monash university plan is one of information management, but its stated purpose is that of (Treolar, 2006):

“Managing information so that we can better create and share knowledge.”

The University of Auckland information management strategic plan is subtitled (Auckland, 2007):

“Harnessing Knowledge.”

The whole notion of the requirement of a process of re-education is again highlighted by the University of Auckland’s strategic plan with the plan’s covering page containing a quote from Winston Churchill where he is quoted as saying:

“Courage is what it takes to stand up and speak; courage is also what it takes to sit down and listen.”

The University of Minnesota adopts an interchangeable approach but from a different direction, asserting the presence of knowledge creation, dissemination and transfer, but viewing the management of such as information stating its definition of knowledge management to be (Minnesota, 2006):

“Creating, identifying and capturing knowledge; distributing the right knowledge to the right people at the right time; and putting that information into action in ways that improve individual and community health.”

What may be confusing is the use of terms of information management within the traditional sense of systemic control and recording of information as alluded to in section 2.1. However what is contained in these statements is more than the managing of raw facts, but the *‘harnessing’* of knowledge by the use of information resources, driven by processes for the purpose of getting knowledge to the people who need it which is line the developed knowledge management definition.

Petrides and Nodine’s (2003) *‘knowledge management in education’* provided the first insight into the role of knowledge management in education within the United States with a gathering of 40 education professionals. Common barriers found amongst this working group to effective information use were:

- Lack of qualified staff to offer analyses of raw data.
- Data collection not uniform caused by differences in software, definition and means of analyses creating difficulty in usage.
- Lack of leadership.
- Lack of integration of technology with educators adopting a *‘hands off’* approach leaving IT to IT *‘experts’* who know little of the information needs of people in the organisation.
- Unclear priorities with information collection remaining isolated from the strategic mission of the organisation.

- Distrust of data use, referring to the possible auditing of performance of employees from the information gathered, raising fears and distrust.

The following sections will review information and knowledge management strategies adopted and implemented by various universities and institutes. It will focus on three distinct regions for analysis, those being:

- South Pacific.
- North America.
- United Kingdom.

As described in chapter one, it is more the exception than the norm to find knowledge management strategies being engaged by the third level sector, although it is the norm for the desire of such to be contained within their strategic plans. It is not intended to be an exhaustive critique or study of all engaged within developing or implementing strategies but that of a cross sectional sampling to approaches taken. These will be analysed under the criteria the knowledge management definition developed in chapter 2:

“The connection of information resources, human or electronic, through an institute wide process so that knowledge can be found and transferred to an individual who requires it.”

Also encompassing the categories of knowledge of:

- People – understanding who the experts are, where they are located.
- Process – governance and knowing the policies, procedures, processes and the culture they exist in.
- Technology – communication and documentation mechanisms and the know how to use them.

3.5 South Pacific

Driving the push for more coherent and focused information and knowledge management strategies amongst the third level education sector is that of the Council for Australian University Directors of Information Technology (CAUDIT). It is an amalgam of the IT Directors/CIOs of all universities in Australia and New Zealand together with universities in the South Pacific and major Commonwealth Research Organisations. Within its welcome note the council cites (CAUDIT, 2007):

“With 53 members who contribute strategic IT leadership to their universities or research organisations, CAUDIT is able to speak authoritatively to Government, Industry and University bodies on all aspects of IT and this is illustrated by the wide range of Government committees on which CAUDIT is represented and by the variety of company directorships held by various CAUDIT members...CAUDIT also negotiates collective procurement agreements, provides professional development, undertakes projects and fosters collaboration through the sharing of ideas, experiences and best practice amongst its members.”

It would appear that the collaboration in sharing ideas allied to representation on government bodies and bursary funding has driven the widespread implementation of information and knowledge management strategies amongst universities within the Southern Pacific Rim.

One of the earlier adopters to engage in such a strategy was that of the University of South Australia. Espousing an approach first proposed by Privateer (1999) when suggesting universities should create:

“...a set of common, multidisciplinary learning outcomes for students at a given institution (which) can spearhead a strategically guided approach to technology-mediated instruction.”

The University of South Australia set about developing a ‘graduate qualities’ statement with the institutional aims to (Reid, 1999):

- *“Operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice.”*
- *“Is prepared for life-long learning in pursuit of personal development and excellence in professional practice.”*
- *“Is an effective problem solver, capable of applying logical, critical, and creative thinking to a range of problems.”*
- *“Can work both autonomously and collaboratively as a professional.”*
- *“Is committed to ethical action and social responsibility as a professional and citizen.”*
- *“Communicates effectively in professional practice and as a member of the community.”*
- *“Demonstrates international perspectives as a professional and as a citizen.”*

In order to achieve the goals of these vision statements, the university developed a web enabled knowledge management strategy aligned to the cultural changes brought about by the adoption of the ‘graduate qualities’ statements. The university contended that the strategy provided for control of its intellectual property whilst capitalising on convergence of modes of delivery of web based media. Central aspects to this knowledge management strategy were (Reid, 1999):

- *“A consistent universal messaging environment (MS Exchange) accessed via Outlook or Web client.”*
- *“Standardised hardware and software platform for staff and students on-campus high bandwidth on-campus network.”*
- *“Use of corporate human resources, student records and course information databases to produce single-entry stores for all staff, students and educational offerings.”*

- *“The presentation of these databases on the Worldwide Web via consistent templates.”*
- *“The capacity for all staff to enhance these databases with information and interactive educational materials using a web interface. These databases can then store all of the educational materials required for a student’s learning. They can be accessed from anywhere in the world.”*
- *“The capacity for all students to access these educational materials with a standard browser without plug-ins.”*
- *“A single staff and student authentication system to all databases, accessed via the Worldwide Web, to protect intellectual property and facilitate quality assurance.”*
- *“Software tools that can convert legacy materials into online database-driven formats.”*

Although there is great merit in aligning IT infrastructure in this manner, technology alone would not make a knowledge management strategy in itself. There are limited references to processes with those mentioned solely based on IT processes. There is no reference in terms of developing the people skills, of a culture of collaboration, or knowledge sharing or the continuous personal development to enhance this. How to locate the expertise or best practices or indeed how this strategy attempts to address the aim of its *‘graduate qualities’* it was developed for are also unclear. In terms of a learning platform and administration systems they would appear to have worked effectively for the University of South Australia, one can assume by building its IT system on a single platform. Within the context of most universities and institutes a mix of technologies would be more the norm with needed systems being put out for open tender and the use of a points system awarding the tender. One such university would be that on Monash University.

Funded by a CAUDIT bursary Andrew Treolar (2006) developed an information management strategy with a view to *‘create and sharing knowledge’* being its central theme. The strategy is driven by ten guiding principles (Treolar, 2006):

- The corporate importance of information viewed as a strategic resource.

- University created information being available from a core source.
- User centred information systems.
- Information availability.
- Staff and student involvement.
- Information should be managed in a manner that can efficiently contribute to the productivity of the University community.
- Meet and comply with statutory requirements.
- Information from systems should be perceived as trustworthy and reliable.
- Information must be managed correctly for the purpose of retention and comply with disposal when required.
- Information management principles must guide IT principles.

These principles were then incorporated in the form of an intervention plan within four central themes of:

- *“Working with information efficiently and effectively.”*
- *“Using the web to deliver information and services.”*
- *“Providing high quality management information.”*
- *“Support collaborative activity,”*

With the implementation focus being the:

- Incorporation of this intervention plan being reflected in the University’s overall strategy.

- Governance and ownership of such an intervention plan.
- Explaining the rationale to all, the involvement of all, and training and follow up sessions of all in such an intervention plan.
- Intervening and collaborating with how people use information and the processes involved.
- The tools employed to do this including *'how to'* guidelines.

The implementation was then applied to the three strands of the University within the context of its administration and support, research and research management and within its learning and teaching. Within the context of strategy adoption an information management department was set up which was charged with governance of and implementation of the plan. Although quite a detailed plan what is striking is its lack of stating how the plan intends to create and share knowledge itself. The plan does include governance and processes to develop staff *'know how'* in managing information resources and tools to deliver this, but does not address even the fundamental process of connecting people to expertise or the culture of these experts to share knowledge.

Having contacted the author and director of the information management initiative, Andrew Treolar, to discuss this, it became apparent to why these issues were not addressed. Due to the size and scale of the initiative, in the implementation phase of the plan it was decided to concentrate on providing a base for *'information literacy'* as opposed to *'knowledge creativity and sharing'*. The focus was to develop the skills and *'know how'* to collaborate and the processes to do so, before attempting to develop *'knowledge strategies'* which explains the lack of knowledge elements within the plan. This approach is noteworthy particularly if larger institutes and universities are considering such wide scale implementations.

What appears to be a key to the theme of successful adoption and implementation of strategies and initiatives in the Southern Pacific Rim is the willingness to collaborate from the directors working together at CAUDIT filtering right down to all levels of staff. The involvement at government committee level to the overarching funding of projects would appear to promote a culture of collaboration. There would also appear a

possible over emphasis on IT driven solutions as opposed to people driven solutions guided by processes which include the use of IT but do not drive the solution.

3.6 North America

Unlike the South Pacific Rim there are no overarching authorities or funding bodies directly associated with striving for a concerted or unified approach to information or knowledge management strategies. This is possibly due to the sheer size of the university 'market' in North America or indeed the universities themselves wishing to maintain their 'brand identity.' Initiatives are in the main localised to schools or disciplines within the university (Treolar, 2005).

Petrides and Nodine's (2003) 'knowledge management in education' working group has provided some insights to how North American educators would view a knowledge management strategy and what it may contain. Suggestions derived from this working group for strategy implementation were to:

- *“Build on the vocabulary and practices of the organisational context.”*
- *“Focus on people and their need, and go where the energy is.”*
- *“Make explicit the work processes and patterns of information flow.”*
- *“Make sure technology is on board, but do not let it steer the ship.”*
- *“Improve student learning and outcomes; don't settle for procedural tinkering.”*
- *“Expect an iterative process that endures over time.”*
- *“Consider the larger picture.”*

These considerations appear reasonable and in line with the categories of knowledge developed in chapter 2 and incorporate the spirit of the knowledge management definition with the emphasis on people driven solutions. One such instance of a

knowledge management strategy would be that of the University of Cincinnati's knowledge management strategy at its medical centre campus. The university views information and knowledge management key to achieving its long term objectives of (Guard et al, 2004):

- *“Improve teaching effectiveness by improving the assessment of health professional students and residents in laboratory and clinical teaching and learning environments.”*
- *“Improve the ability of researchers, educators, and students to acquire and apply the knowledge required to be more productive in genomic research and education.”*
- *“Increase the productivity of researchers and administrators in the pre-award, post-award, and compliance phases of the research lifecycle.”*

This is done by the development of:

- *“A digital multimedia record, documenting where students and residents acquire the knowledge, attitude, and clinical skills required for awarding degrees and credentialing by accrediting or licensing agencies.”*
- *“A coordinated bioinformatics program with a focus on digital tools for filtering and organising genomics information and for educating researchers and students about the fundamental principles of bioinformatics.”*
- *“An efficient, effective, and comprehensive digital research administration service that converts stand-alone systems and isolated processes into integrated digital services throughout the university; portals to digital research administration information will be created by user profiles that represent the professional roles and interests of the different individuals in the institution.”*

Within the University of Cincinnati, the projects addressed knowledge management strategy requirements by:

- *“The portfolio-based credentialing project will address the challenge of providing the rich communication and documentation necessary for optimal student learning. Students, residents, and faculty will have access to a complete multimedia record of the student's or resident's performance, with real-time feedback and remediation. The portfolio will also serve as a mechanism for conducting curricular review.”*
- *“The bioinformatics project will coordinate our disparate bioinformatics programs, provide knowledge management tools, and provide focused training in bioinformatics applications used in genomic research to students, educators, and researchers. The medical centre has invested heavily in genomic research as a strategic focus and aspires to be a national leader. Developing the proposed bioinformatics program is crucial to that success,”*
- *“The research administration project will enable researchers to improve their productivity by developing grant proposals more efficiently and effectively, with compliance requirements built into the process. Administrators will have access to all context-appropriate information to facilitate the medical centre’s overall research enterprise.”*

This strategy has all the elements of a knowledge management strategy in terms of people, processes and technology and in terms of how it’s defined. The amalgamation of different knowledge sources within one single portal and the ability to track where knowledge was acquired by a student, researcher or educator and the ability for real-time feedback and remediation being of particular note. However it does not indicate how it proposes to teach the skills and know how to operate in such an environment or embedding such a collaboration culture but what is really lacking is, these criteria being met in one single knowledge management project as there is no indication of these projects being linked together or that they feed into one. However this implementation does highlight possible requirements in developing such a knowledge management strategy.

3.7 United Kingdom

Driving and, in cases, funding the adoption and implementation of information and knowledge management strategies within Britain is the Joint Information Systems Committee (JISC) which is in turn funded by the various education authorities. Although the move to knowledge management initiatives can also be seen by the funding of such initiatives offered by the Scottish Funding Council (SFC) with a recent round of funding to colleges for employer engagement and knowledge transfer in (SCF, 2007):

“Generating effective knowledge exchange which utilises the intellectual assets held within colleges.”

From the precursor of validating an initiative this type of funding has proved to be a useful asset in kick-starting such projects. However the key milestone in developing such strategies was the Dearing report in 1997 which recommended that all United Kingdom higher education institutions should have an information strategy (Dearing, 1997).

This has led to the United Kingdom having the most widespread and developed information management strategies within the third level sector globally. Coventry University information strategy is based on the following methodology (Coventry, 2004):

- *“Work out the principles and requirements.”*
- *“Perform a gap analysis on current offerings.”*
- *“Develop strategies to plug these gaps.”*
- *“Determine actions for each of these strategies.”*
- *“Prioritise each of these actions and review annually.”*

This could in practice apply to any strategy in particular let alone a knowledge management strategy. It does assert that it wishes to address the needs of information resources required by people, but is too vague other than maybe being a mechanism of governance for a knowledge management strategy and not a knowledge management strategy in itself. The University of Glamorgan developed a six stage framework of (Glamorgan, 2000):

- *“Defining the strategic objectives of specific corporate/faculty/departmental requirements?”*
- *“Information requirements: what is needed to achieve and monitor towards the strategic goal.”*
- *“Current information provision. What is currently available including internal and external provision?”*
- *“Perceived gaps between information requirements and provision. Gap analysis between key requirements and provision.”*
- *“Identification of potential solutions: what information or information processes or systems are needed to meet and monitor key university goals and objectives?”*
- *“Specific action points targets: development of a series of specific action points or information targets.”*

This in some way goes to addressing knowledge management criteria. It is people centred and focused defining their strategic objectives through consultation and also aligning these to university goals, reviewing what is required to what is in existence in respect of processes and technologies. Where it does not meet the criteria in not stating it's specifically for the purpose of creating and sharing knowledge, or in developing the processes to develop such a culture, though in the pursuit of balance of people, processes and technology it is quite capable of delivering this.

The University of Edinburgh have contextualised their strategy as one of knowledge management, although the underline theme of interchange ability of information and knowledge re-occurs when the stated aims of the university are (Edinburgh, 2004):

“Members of the university want information that is fully integrated, eliminating multiple entry points. They want to browse and explore, and need information of high quality, accurate and appropriate to needs. They require to share information and experience with others, and to contribute to the creation of new knowledge through collaboration and shared learning.”

“The Knowledge Management framework aims to enable all members of the University of Edinburgh to seamlessly and easily connect to whatever sort of information they need, whenever they need it, wherever it resides, and use it effectively for research, learning and teaching, and administration.”

This is in line with definition developed in chapter 2 with the expressed aim of utilising and sharing information resources for the purpose of creating new knowledge. The plan entailed a review of current situations, a vision of what it wished to achieve and a roadmap and milestones for implementation. This was reviewed under the themes of:

- The continued development of information services support focusing on being user centred and of high quality.
- Providing educational technologies and infrastructure to support learning and teaching.
- The development of transferable skills, training courses, support and resources in respect to acquiring the necessary ICT/information literacy skills.
- The development of a world class core infrastructure, information communication technology services and networking underpinning all ICT activities.
- Strategic approach to new and emerging technologies to underpin the knowledge management strategy.

- Continued development of administrative support services with respect to efficient and effective business processes.
- Management and maintenance of information legislation with respect to corporate strategy on risk management, data protection and legislative compliance.
- Management of information resources and services with respect to quality management.
- Human resource policies that allow access to expertise and facilitate collaboration.

Each year on from the plan's initiation a prioritisation of what can be achieved based on a ranking system is drawn up from university stakeholders, which takes into account previous years rankings, a 'to *do*' list and available financial resources.

The University of Edinburgh's appears to be the most complete plan of any. It could well be argued that vested interests charged with the day to day running of the university could possibly be swayed to plug holes in operational gaps as opposed to the more long term strategic ideal of a '*knowledge managed*' university. But in saying this, a steering committee goes a long way in negating such concerns

It could be argued that although less rich of substance, policies such as that of Glamorgan University, could address the requirements of the third level sector in the knowledge society more readily and in a more timely fashion by filling the perceived gaps. However it does not address the underlying premise of embedding a knowledge management culture of collaboration and sharing within all functions of an institute or university. Edinburgh University's plan is sponsored at the highest level by its principal and the long term view more unifying in principle and collaboration. The inclusion of human resources in developing a culture of collaboration through policy making is of particular note.

3.8 Conclusion

The purpose of this chapter was to undertake a literature review of third level sector knowledge management initiatives around the world and to review approaches taken by universities and institutes in developing and implementing such strategies. What became apparent was the roles of universities have had to change to meet the needs of the knowledge society. Their roles have shifted from autonomous protectors of knowledge to one where they are in service to society. They must create, disseminate and impart this knowledge to the society they serve. This knowledge transfer being further embedded that this skills transfer in the form of lifelong learning being considered a national imperative for economic sustainability within the knowledge society.

Globalisation of economic activity through the proliferation of IT has led to further challenges with greater choice to students, government funding bodies' audits, leading to greater competition amongst universities. The virtualisation of everything from enrolment to courseware and the auditing ability this facilitates has even led to schools within the same university competing against each other. This proliferation of IT systems has led to vast complex islands of unmanaged information and knowledge with systems being bought to fill a specific need with little thought of processes for them to integrate with the IT environment that was present, let alone the people who use them. It is under these complex and ever changing environments that knowledge management strategies become a necessary investment.

From the review, those engaged in knowledge management initiatives were the exception rather than the norm. Australia and the United Kingdom do have co-ordinated initiatives in the form of national bodies, CAUDIT and JISC respectively; whilst in the U.S.A initiatives are done independently. There is merit in a co-ordinated approach in generating knowledge management initiatives by providing focus and funding. The competitive nature of the U.S.A. university market place probably prohibits this from occurring.

Table 3.8 shows a summary of knowledge management attributes exhibited by the universities reviewed. This was done under the themes of people processes and technology and applying their strategies to the developed knowledge management definition for scrutiny. Coventry’s strategy could have been applicable to any strategy and therefore not considered further. South Wales fully integrated IT system was laudable, but as with DIT having a multiplicity of vendor solutions, not practical. Monash had very clearly defined processes in terms of people skills and technology integration, but had not addressed knowledge sharing or collaborative elements as yet.

University	People	Process	Technology
South Australia	No Collaboration/ Knowledge Sharing	Integrated	Fully Integrated
Monash	Information Literacy/ No Knowledge Sharing/Collaboration	Fully Integrated	Integrated
Cincinnati	Integrated	Not Integrated	Not Integrated
Coventry	Not applicable	Not Applicable	Not Applicable
Glamorgan	People centred but not clearly focused on Knowledge Sharing/Collaboration	Fully Integrated	Integrated
Edinburgh	Fully integrated	Fully Integrated	Integrated

Table 3.8 Summary of knowledge management attributes

Cincinnati had excellent collaboration and knowledge sharing elements but systems were not integrated or no process to do so. Glamorgan seemed well capable of delivering on all three elements but had not clearly focused on collaborative or sharing elements. However Edinburgh has a clearly defined knowledge management strategy, incorporating all three elements, driven and sponsored from a top down approach yet inclusive of the needs of all elements and people involved. From the strategies examined, it did highlight that integrated knowledge management strategies are the exception rather than the norm. Building on the understanding gained from this review and that of chapter 2 the following chapter will survey academic staff within DIT

faculty of Tourism and Food to assess their need for a knowledge management strategy and what would their requirements entail, if such a strategy is required.

4 ANALYSIS OF HOW ACADEMIC STAFF VIEW AND UTILISE INFORMATION AND KNOWLEDGE WITHIN THE DIT

4.1 Introduction

This chapter presents the findings of the survey analysis of how academic staff view and utilise information and knowledge in their work environment within the DIT. Within the context of this survey, information or knowledge was taken as any resource needed to do their work. This could take the form of a word file, webpage, books, course documents, modular templates, fellow colleagues, other schools, other institutes or professional bodies. In essence, where information or knowledge needed, could be found, or indeed not found, how much collaboration exists, and where it does not and what are the inhibitors impeding this.

This survey was not intended to elicit what understanding academic staff had in relation to knowledge and knowledge management strategies. However this survey did concentrate on the key components of such strategies with regard to people, processes and technologies involved within academic staff's working environment. As academic staff would have a working understanding of these components within their environment, the survey had the objective of:

- Verifying the need for and usefulness of a knowledge management strategy within academic staff based at DIT faculty of Tourism and Food.
- Evaluate the academic staff working environment with regard to how information and knowledge is used and deployed.
- Establish what enables or inhibits information or knowledge flowing to where it is needed.

To achieve this objective 10 questions were employed with 9 closed and one open ended with the components of people, technology and processes assessed in each. The survey was conducted on line using www.freeonlinesurveys.com and analysed using their online filters along with Microsoft Excel for analysis and graphical display.

4.2 Survey respondents

The target respondents were that of the academic staff of DIT Faculty Tourism and Food which consists of the schools of:

- Culinary Arts and Food Technology.
- Hospitality Management and Tourism.
- Food Science and Environmental Health.

The three schools were chosen as although having overlapping interests and interwoven dependencies, they are run as three separate entities. There would be collaborative dependencies and research opportunities ranging from hospitality management and the cuisine of culinary arts to that of the food and food technology employed and that of how it is monitored and regulated within food science and environmental health. It can also be presumed a certain need for autonomy with regard to school budgets and funding allocations and the possible non-collaboration between schools that this may bring. A further perception of how these schools viewed the DIT environment as a whole was also examined.

In total 70 lectures were canvassed with 58 replies which represents a response rate of 82%. Although contained within this Faculty, a facility was left in place to deal with possible respondents from other faculties. This can happen in the case of language lecturers assigned to this faculty, but originating from Faculty of Applied Arts. Of which there were 2 respondents, with a third being a head of school from Applied Arts who was contained within a school mailing list.

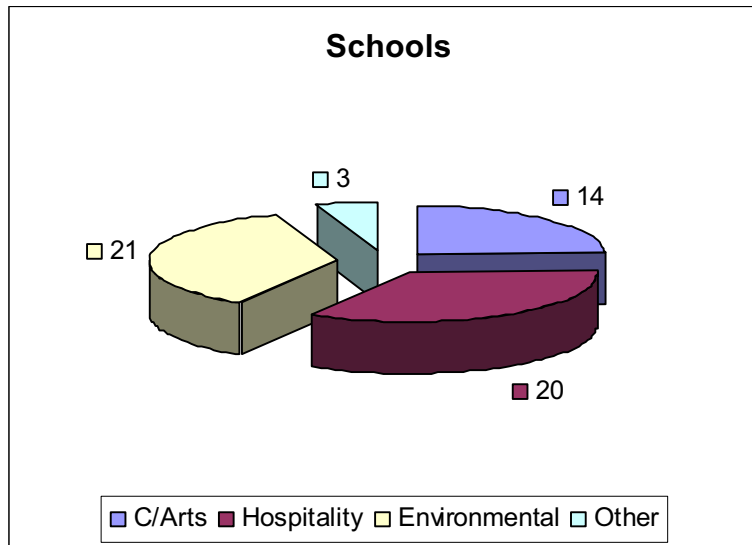


Figure4.2 Number of respondents per school

Results presented are the combined responses of those who replied, as on examination there was no significant deviation in responses given by school.

4.3 Within the DIT context

The purpose of this section was to elicit how people view the overall environment of DIT processes and technologies employed in facilitating finding what knowledge they need.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Facilitates the discovery and capture of	3 (5.17%)	37 (63.79%)	9 (15.52%)	6 (10.34%)	3 (5.17%)
Facilitates the storing of: these resources for institute wide access	2 (3.45%)	25 (43.10%)	15 (25.86%)	14 (24.14%)	2 (3.45%)
Facilitates the transfer of across the institute (email/library)	5 (8.62%)	27 (46.55%)	12 (20.69%)	11 (18.97%)	3 (5.17%)
Enables the organisation to react more quickly to change by sharing of these resources	0 (0.00%)	9 (15.52%)	25 (43.10%)	14 (24.14%)	10 (17.24%)
Speeds decision making by facilitating retrieval across the institute	1 (1.72%)	5 (8.62%)	24 (41.38%)	18 (31.03%)	10 (17.24%)

Table 4.3 Overall environment of DIT

The overwhelming majority of respondents believe DIT facilitates discovery and capture of information and knowledge in finding what they need with 70% agreeing. However there was uncertainty and disagreeing with DIT's ability to store this for institute wide access. In stating this 47.5% believed there was storage potential, which is borne out by some network storage areas set up to do this. There were 55% agreeing to DIT's ability to facilitate the transfer of such across the institute. When canvassed on DIT's ability to share and retrieve information or knowledge to enable the institute to react to change more quickly and speed up decision making; there was uncertainty in this occurring with neutral responses of 43% and 41% respectively. These tables lead to the conclusion that respondents believe that the operational mechanisms are there to facilitate such an environment but are not employed in a structure or strategy to make it possible. It would also be a fair assessment that lecturers are not aware of how or whether DIT uses knowledge to react to change or speed up information

4.4 Within the school context

The purpose of this section was to examine the perceived culture of the schools based within the faculty, and their openness transparency and willingness to collaborate and share knowledge.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All that the school knows (information/knowledge) is visible to and accessible by you in some way	0 (0.00%)	8 (13.79%)	12 (20.69%)	30 (51.72%)	8 (13.79%)
What your school colleagues know and information/knowledge they possess is visible to and accessible to you in some way	0 (0.00%)	12 (20.69%)	9 (15.52%)	28 (48.28%)	9 (15.52%)
Are supportive of collaboration between colleagues	3 (5.17%)	26 (44.83%)	16 (27.59%)	8 (13.79%)	5 (8.62%)
Are willing to collaborate across organisational units/schools within DIT	4 (6.90%)	20 (34.48%)	14 (24.14%)	12 (20.69%)	8 (13.79%)

Table 4.4 Within the context of your school

Within the context of school environs, there was an overwhelming majority expressed all of what the schools know, is not visible or accessible to the respondents, with only 14% agreeing that it is. This trend is continued with only 20% of respondents believing that what their colleagues know is visible and accessible to them in some way. In contrast to this respondents expressed a view that schools were supportive of collaboration amongst colleagues with only 22% disagreeing. Whilst 40% of respondents felt schools were willing to collaborate amongst schools. There would appear to be an element of cultural mistrust. On the one hand respondents felt that neither what the schools nor fellow colleagues know is either visible or accessible, yet they feel that schools do encourage such collaboration amongst colleagues and across schools. These appear at odds with each other and would also allude to the necessity for more visible lines of communication and overarching strategy in making visible what is known to others

4.5 How knowledge is viewed

The purpose of this section was to ascertain where knowledge does or does not reside within DIT, and how easily it can be applied. Only 30% of respondents felt that the specific knowledge they needed did not reside with colleagues, but in information systems. In contrast 35% agreed that knowledge stored needed radical alteration to be of use within their department with another 36% uncertain, whilst 55% of respondents having to constantly seek new knowledge that is not directly available to them through DIT information systems. Indeed only 20% agreed that knowledge found in DIT information systems could be directly applied to current situations with little need for alteration.

The conclusion that can be drawn from this is that the knowledge available through DIT information systems is not sufficient, specifically applicable to individual needs nor up to date to deal with current situations. The fact that a lot of expertise resides with colleagues is not surprising given the academic environment. However, what this does highlight is the lack of this expertise and '*know how*' being recorded and documented for retention and future use, an overwhelming reason for a knowledge management strategy in itself.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The specific knowledge that I need resides with the experts/colleagues rather than being stored in the DIT Intranet/Internet sources because the knowledge is typically difficult to clearly articulate	7 (12.07%)	21 (36.21%)	13 (22.41%)	16 (27.59%)	1 (1.72%)
The knowledge stored from DIT Intranet /Internet sources cannot be directly applied without extensive modifications because of the specific/localised operational requirements of my department	5 (8.62%)	16 (27.59%)	21 (36.21%)	14 (24.14%)	2 (3.45%)
I always have to seek new knowledge that is not directly available in the DIT Intranet/Internet sources	12 (20.69%)	20 (34.48%)	7 (12.07%)	16 (27.59%)	3 (5.17%)
The knowledge that I find in DIT Intranet/Internet sources can be directly applied to current situations with little or no need to seek out or create new knowledge	0 (0.00%)	12 (20.69%)	22 (37.93%)	20 (34.48%)	4 (6.90%)

Table 4.5 Perception about knowledge within DIT

4.6 Academic staff skill sets

The purpose of this section was to elicit how staff viewed their abilities in activities such as creating, finding, maintaining and disposing of knowledge and their understanding of policies and procedures in doing this.

With regard to proficiency in information or knowledge activities respondents expressed an overwhelming view that they possessed the skills necessary in creating, finding the precise or sufficient amount of, and in maintaining information and knowledge. No more than 7% of respondents disagreeing with this view. Not one

person disagreed with the importance of managing knowledge well in the course of their duties. In saying this, only 43% of respondents believed they were efficient in disposing of information or knowledge whilst only 24% of those surveyed believed they were familiar with the institutes policies and protocols for managing records.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Creating information/knowledge	16 (27.59%)	34 (58.62%)	6 (10.34%)	2 (3.45%)	0 (0.00%)
Finding precise information/knowledge that I require	14 (24.14%)	34 (58.62%)	6 (10.34%)	4 (6.90%)	0 (0.00%)
Finding sufficient information/knowledge required	13 (22.41%)	32 (55.17%)	9 (15.52%)	4 (6.90%)	0 (0.00%)
Maintaining information/knowledge	12 (20.69%)	37 (63.79%)	5 (8.62%)	3 (5.17%)	1 (1.72%)
Disposing of information/knowledge	6 (10.34%)	19 (32.76%)	22 (37.93%)	9 (15.52%)	2 (3.45%)
Am familiar with the institute's policies and protocols about managing records	0 (0.00%)	14 (24.14%)	11 (18.97%)	23 (39.66%)	10 (17.24%)
Believe it is important to me to manage information/knowledge well in doing my work	28 (48.28%)	27 (46.55%)	3 (5.17%)	0 (0.00%)	0 (0.00%)

Table 4.6 Proficiency in information/knowledge activities

What can be concluded from this is that although staff understand that managing knowledge effectively and efficiently is integrally important in their roles, less than half feel they are efficient in disposing of it. This could cause beneficial and negative effects co- existing. On the one hand the key resource of knowledge itself is still to hand which facilitates the building of a knowledge repository. Whilst on the other hand, the sheer mass of knowledge retained makes the knowledge itself difficult to use as it could be hard to retrieve. Indeed one of the practical everyday gripes by lecturing staff within the faculty is the lack of storage space for the documents they have amassed. This physical retention of documentation does validate the lack of knowledge or understanding of policies and procedures with respect to managing records. This

lack of understanding could lead to serious compliance issues in respect of data protection acts and freedom of information requests if not addressed.

4.7 Knowledge repository

The purpose of this section was to assess the need for a knowledge repository, whether staff were willing to contribute to such a resource and for a process to be put in place to create reusable knowledge objects.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Creating reusable information/knowledge resources	17 (29.31%)	32 (55.17%)	8 (13.79%)	0 (0.00%)	1 (1.72%)
Reusing existing information/knowledge resources	24 (41.38%)	24 (41.38%)	10 (17.24%)	0 (0.00%)	0 (0.00%)
Contributing to a library of reusable information/knowledge resources	29 (50.00%)	20 (34.48%)	9 (15.52%)	0 (0.00%)	0 (0.00%)

Table 4.7 A need for a knowledge repository

Although possibly the most important section respondents were asked to reply to, it is the easiest to assess. Only one of the 58 respondents disagreed with the need for contributing to a library of, reusing existing or creating new reusable knowledge resources. This can only but lead to the conclusion of the necessity of a knowledge repository where staff can contribute existing or newly created knowledge to a central repository.

With 84% expressing the need to contribute to such a resource, one can also conclude that there is an underlying willingness of staff to share and learn. This may fly in the face of the requirement of needing to reward staff to contribute their knowledge which is apparent in the private sector. This may not seem that unusual when one considers

that education at base level is the vocation of transferring of knowledge from teacher to student. It is this willingness to share and learn which could drive a knowledge management strategy within DIT.

4.8 Skills Acquisition

The purpose of this section was to elicit where staff had developed the expertise and skills they employ in their respective positions.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
From the organisation	1 (1.72%)	14 (24.14%)	17 (29.31%)	22 (37.93%)	4 (6.90%)
From colleagues	6 (10.34%)	28 (48.28%)	12 (20.69%)	9 (15.52%)	3 (5.17%)
Through self learning	29 (50.00%)	28 (48.28%)	1 (1.72%)	0 (0.00%)	0 (0.00%)
Through formal learning	23 (39.66%)	20 (34.48%)	9 (15.52%)	6 (10.34%)	0 (0.00%)
From previous employment	18 (31.03%)	22 (37.93%)	12 (20.69%)	5 (8.62%)	1 (1.72%)

Table 4.8 Acquired skills and expertise

Only 26% agreed that DIT was the provider, whereas 58% had acquired skills from the assistance of colleagues. Self learning was expressed as the main provider with 98% agreeing, whilst formal learning catered for 74% of respondents with 68% of skills being provided by previous employment. The nature of faculty Tourism and Food education would be a mix of formal training and previous experience, with the majority staff having being employed within their respective industries. The faculty itself being born from a craft based school of catering with day release programs, so these tables are not surprising. The continuous development of staff is done through a mix of self learning and through colleagues and not through formal organisational learning. This cultural willingness to share is significant for any knowledge management strategy. There is a need for this knowledge to remain accessible and visible for future reuse. The lack of formal training can be attributed to class based nature of DIT staff training. These training sessions occur during the 9am to 5pm period, a time when most lecturers are in class themselves. One way of overcoming this would be to have these materials electronically available.

4.9 Where knowledge is presently stored

The purpose of this section was to ascertain where information and knowledge needed for respondents to do their work is stored at present.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
In paper-based documents/books/library	7 (12.07%)	33 (56.90%)	9 (15.52%)	8 (13.79%)	1 (1.72%)
In colleagues heads (internal collaboration)	4 (6.90%)	22 (37.93%)	12 (20.69%)	16 (27.59%)	4 (6.90%)
In DIT library online journals	12 (20.69%)	24 (41.38%)	14 (24.14%)	6 (10.34%)	2 (3.45%)
In DIT information systems	3 (5.17%)	16 (27.59%)	22 (37.93%)	14 (24.14%)	3 (5.17%)
On my personal or workstation computer/hard drive	24 (41.38%)	28 (48.28%)	4 (6.90%)	2 (3.45%)	0 (0.00%)
On the Internet	14 (24.14%)	30 (51.72%)	11 (18.97%)	3 (5.17%)	0 (0.00%)
From professional bodies	6 (10.34%)	21 (36.21%)	19 (32.76%)	10 (17.24%)	2 (3.45%)
From other third level institutions (external collaboration)	7 (12.07%)	14 (24.14%)	21 (36.21%)	11 (18.97%)	5 (8.62%)

Table 4.9 Where information/knowledge is stored

As would be expected 90% of respondents kept their knowledge close to hand locally on their PC to work with. The internet was also unsurprisingly a good store with 76% agreeing. The mixture of resources beneficial to do their work included paper based with 69% agreeing. 62% of respondents agreed library online resources were also a good store as were collaboration amongst colleagues. There was a high level of uncertainty with high neutral responses in terms of knowledge located or stored on DIT information systems, from third level institutions and professional bodies. It would be a fair conclusion to state that respondents may not readily be aware of potential knowledge available from these sources. Indeed a key strategic DIT objective is to forge alliances with other third level institutes which highlight the lack of collaboration thus far (DIT, 2006).

A key conclusion to be drawn from this is the overwhelming localisation of stored knowledge. This is understandable for personal use, but necessary to be connected to others for sharing. There would also appear to be a need for awareness of the potential of professional bodies and other institutes and their potential as sources of knowledge. An awareness of what DIT IT infrastructure can facilitate would also appear necessary.

4.10 Inhibitors to effective and efficient knowledge storage

The purpose of this section was to ascertain what staff viewed as the biggest barriers presently to being able to store information and knowledge more efficiently and effectively.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Lack of time/too busy	28 (48.28%)	18 (31.03%)	6 (10.34%)	6 (10.34%)	0 (0.00%)
Poor tools/technology	9 (15.52%)	13 (22.41%)	18 (31.03%)	16 (27.59%)	2 (3.45%)
Organisation policy/directives	6 (10.34%)	9 (15.52%)	31 (53.45%)	11 (18.97%)	1 (1.72%)
Poor information systems/processes	6 (10.34%)	13 (22.41%)	25 (43.10%)	13 (22.41%)	1 (1.72%)
Lack of training	8 (13.79%)	20 (34.48%)	15 (25.86%)	11 (18.97%)	4 (6.90%)

Table 4.10 Barriers to storing information/knowledge

When reviewing what inhibits lecturers from storing their information and knowledge more effectively and efficiently, 78% cited lack of time and too busy. 48% of respondents expressed a lack of training as a cause with 26% being uncertain. This theme of neutral replies continues with regard to organisational policies at 53%, poor information systems/processes and to a lesser extent, poor tools/technology. From these responses, it could be construed that there is a lack of awareness within these areas. Respondents are not familiar with policies and processes and possible tools and

technologies that may overcome these barriers. This is understandable when respondents cited lack of time and lack of training as potential barriers. A structured, practical and understandable knowledge management strategy could assist in lecturers managing their time better by not having to seek out knowledge ‘*in the dark*’ so to speak.

4.11 Effective collaboration

The purpose of this section was to examine what were the challenges, if any, in developing greater collaboration between schools and indeed faculties.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Do not perceive there is an urgent need to share	4 (6.90%)	24 (41.38%)	15 (25.86%)	12 (20.69%)	3 (5.17%)
Lack of open-minded sharing environment	13 (22.41%)	29 (50.00%)	9 (15.52%)	7 (12.07%)	0 (0.00%)
Lack of trust of other people’s knowledge	5 (8.62%)	13 (22.41%)	18 (31.03%)	20 (34.48%)	2 (3.45%)
No proper organisational guidelines on sharing	15 (25.86%)	34 (58.62%)	7 (12.07%)	2 (3.45%)	0 (0.00%)
Bureaucratic procedure involved in sharing information/ knowledge	13 (22.41%)	22 (37.93%)	16 (27.59%)	7 (12.07%)	0 (0.00%)
Tasks do not require cross-departmental information sharing	8 (13.79%)	16 (27.59%)	16 (27.59%)	14 (24.14%)	4 (6.90%)
No proper IT platform to share knowledge	12 (20.69%)	20 (34.48%)	20 (34.48%)	6 (10.34%)	0 (0.00%)

Table 4.11 Challenges in sharing information/knowledge

With regard to collaboration and sharing across departments and schools only 30% of respondents expressed a lack of trust of other people’s knowledge, though 31% were uncertain. This correlates with 79% of respondents who expressed that they did not know what knowledge needs others had which ties in with 48% perceiving no urgent need to share with 25% uncertain. This theme of uncertainty is further expressed with 34% returning a neutral response to the lack of proper IT platform to share knowledge, though only 10% of respondents felt that there was. 85% expressed the view that there

were no proper organisational guidelines on sharing with 60% of respondents feeling bureaucracy impeded such sharing. This is further expressed with 77% citing a lack of an open minded sharing environment.

In stating this 42% thought tasks did not require cross departmental sharing though 28% were uncertain. Although this table must be weighted against that of overwhelming majority of respondents not being aware of other colleagues' knowledge needs. What can be concluded by these responses is this lack of understanding of other departments and school's knowledge needs and therefore a perceived lack of trust. There is no culture of interdepartmental sharing which appears to be driven by neither a strategy on sharing nor a system to share with the notion of bureaucracy impeding such sharing.

4.12 Inhibitors within DIT environment

The purpose of this section was to facilitate respondents the ability to express any views they had with what they feel may inhibit in finding the knowledge they need or what they may find helpful within the DIT environment to facilitate this. 25 of the 58 respondents used this facility. The main inhibitor expressed was a lack of training with regard to IT and indeed information and knowledge literacy skills with the lack of time to doing this being an underlying cause. A lack of user friendly IT facilities for knowledge sharing with DIT information systems cited as being unwieldy to navigate and websites, being not up to date, hard to search and multiple passwords required to gain entry. Bureaucracy and lack of governance, policies and processes were also felt to inhibit with no real culture of sharing and collaboration in place.

4.13 Conclusions

This purpose of this chapter was to assess and verify the need for, and usefulness of a knowledge management strategy for DIT faculty of Tourism and Food academic staff. From the responses given such a need exists. This was exposed by establishing what enables or inhibits knowledge flowing to where it is needed by evaluating the academic staff work environment. With regard to the academic staff, the people, there

was a belief the ability existed to deliver such a knowledge managed environment but no such structure or strategy is employed to facilitate this.

Table 4.13.1 shows people requirements to be addressed within a knowledge management strategy. There appears to be a culture of mistrust amongst staff with regard to their respective schools not disclosing or facilitating access to all the schools knows, yet also express a view that the schools encourage collaboration. This contradictory theme is continued when nearly all personal knowledge was stored locally and therefore not visible for other colleagues to view. Yet colleagues were willing to and did freely share their knowledge but in certain cases were unaware of these needs.

People			
Collaboration/ culture	Visibility	Access	Shared understanding of needs of others

Table 4.13.1 People requirements

It was transparent that the knowledge available through information systems is not sufficient, up to date or specific enough to meet the needs of academic staff. Indeed the majority of knowledge was derived through self learning, formal learning, prior employment, fellow colleagues and not from DIT. With this knowledge being stored out of sight locally on staff machines and in colleagues' heads, DIT runs the risk of loosing these intellectual assets by having no central repository or strategy to catalogue them.

Table 4.13.2 highlights staff process requirements. Staff did feel they were quite competent in finding, creating and maintaining their own knowledge, but were unfamiliar with any policies or procedures about managing such. This was a current theme throughout the survey. There was continued lack of awareness, understanding or existence of processes with regard to knowledge, its sources and its management. This lack of governance mechanisms could explain the mistrust in existence alluded to earlier.

Processes			
Policies and procedures	Training/Flexibility	Compliance	Governance

Table 4.13.2 Process requirements

A lack of visibility of what knowledge is available allied to this vacuum of processes would lead to mistrust. A clear and unambiguous knowledge management strategy would erode this mistrust building on the expressed preparedness academic staff have in collaborating with fellow colleagues. Awareness and training in such a strategy being requested and necessary, with flexible training arrangements to cater for time constraints academic staff are faced with.

Technology			
Single point of entry	Repository	Re-align infrastructure	Collaboration tools

Table 4.13.3 Technology requirements

With regard to technology there was an underlying theme that the technical ability to and elements of technology, were present to deliver a strategy of managed knowledge, but a strategy would be necessary to deliver such an environment. Staff appeared willing to collaborate but also required the end to multiple password entry scenarios, through a unified system.

These points dictate the need to re-align the IT infrastructure and development of collaboration tools. There was a clear mandate expressed by staff for the creation of a knowledge repository with a need for staff to create reusable knowledge whilst reusing existing knowledge. This overwhelming wish for such a system would dictate the need for a knowledge management strategy in its own right with all of these technology requirements illustrated in table 4.13.3. The following chapter will extrapolate such a strategy.

5 KNOWLEDGE MANAGEMENT STRATEGY

5.1 Introduction

Combining the insights gained from performing the literature review in chapters 2 and 3 and the insights gained from survey data analysed in chapter 4, this chapter presents a knowledge management strategy for academic staff based at DIT faculty of Tourism and Food. The strategy will be aligned along the three themes of people, technology and processes.

People	Processes	Technology
Collaboration/ culture	Policies and procedures	Single point of entry
Visibility	Training/Flexibility	Repository
Access	Compliance	Re-align infrastructure
Shared understanding of needs of others	Governance	Collaboration tools

Table 5.1 Strategy needs assessment

Table 5.1 illustrates the elements of people processes and technology which will need to be included in the knowledge management strategy to fulfil the requirements of analysis in chapter 4 and will act as a benchmark for this strategy. There is an unambiguous synergy between the three themes. The organisational structures and culture which people work under are directly associated with policies and procedures when understanding the requirements for developing a knowledge management strategy. Similar links occur between people and processes in terms of training/flexibility and access. In terms of people and technology linkage, collaboration and culture can affect upon how technology is implemented deployed, shared or for that matter not shared. It can affect how visible information and knowledge is and how or if it can be accessed. Does the technology enable or hinder collaboration? These too

have to be considered in tandem in terms of an overall knowledge management strategy in terms of technology requirements and to that of the process of training requirements.

5.2 Knowledge management strategy

Within the context of a knowledge management strategy, figure 5.1.1 shows the components of this strategy drawn from a combination of aligning the principles of the literature review to that of the needs of the survey responses.

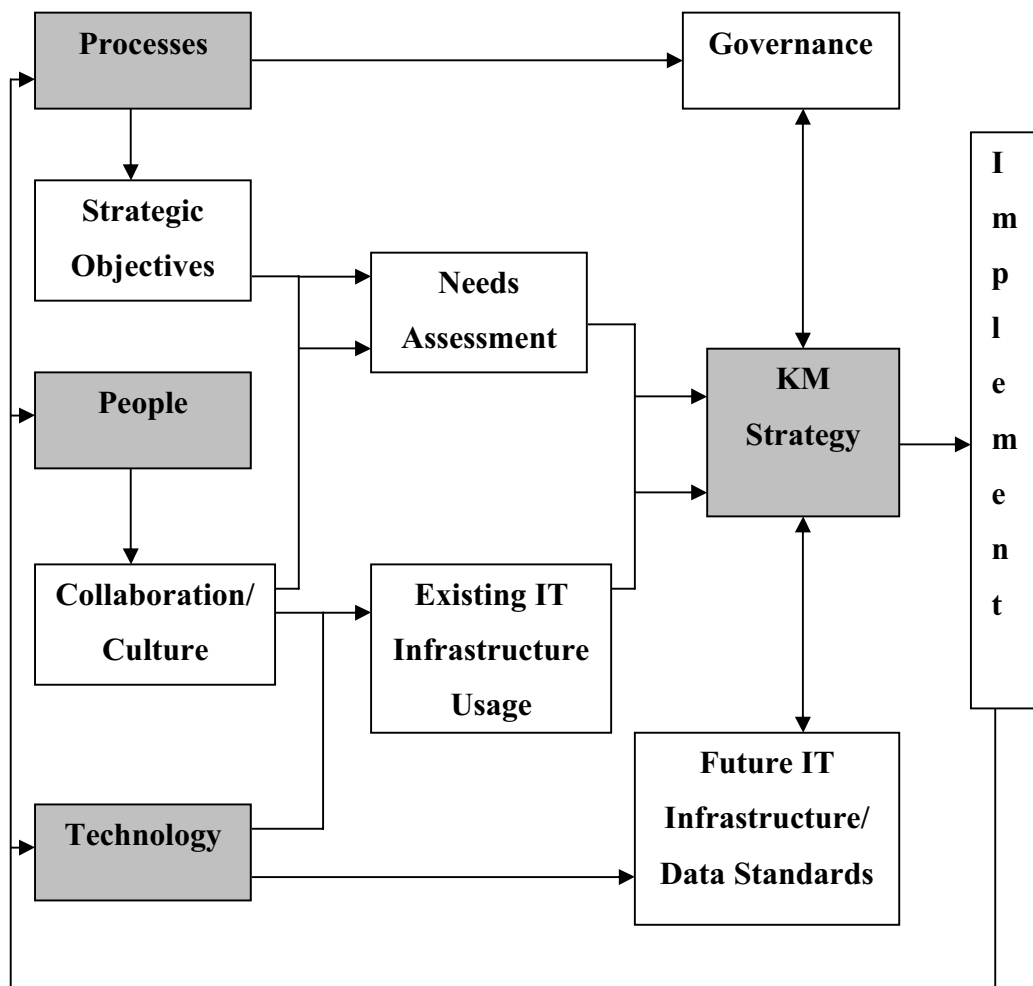


Figure 5.1.1 Knowledge management strategy

The tight coupling between people, processes and technology is clearly illustrated. Within this context the collaboration and the culture of sharing is streamed into both the existing IT infrastructure usage and that of a needs assessment and the strategic

objectives of the processes as policy and procedures and technology will help dictate future culture with regard to collaboration. This feeds into the development of a knowledge management strategy. This process would then drive what governance processes were necessary and what future IT infrastructure/ data standards will be required to implement this strategy.

Although implementation of this strategy is beyond the remit of this thesis, it is included in this strategy for completeness. The implementation would complete the loop by providing feedback mechanisms to measure the benefits of such a strategy allowing the strategy to evolve and change iteratively and as necessary. This implementation would address such questions as:

- Is there an improved visibility and access to knowledge? Easier to create and be reused by others. Is there an organisational memory for future use?
- Are the training needs and personal development of staff being met from a human resources perspective?
- Can staff better understand what each other does? Has this been reflected with greater cross collaboration throughout the institute?
- Does the IT infrastructure align with the institutes strategic objectives going forward?
- Are we using the right tools and techniques to implement such a strategy?
- Have we knitted the institutes knowledge resources together? Are there any islands of information not yet bridged?
- Is there a culture of sharing and learning?

Although not an exhaustive list of what can be measured, it does reflect what any organisational strategy must continually reflect upon to be sustainable within the

knowledge managed environment allowing for both staff and management input and objectives to be met.

With regards to formulating this strategy, three key areas need to be formulated for its development, these being, the strategic objectives, governance and future IT infrastructure/data standards. These three strategy enablers are driven by both the survey findings expressed in table 5.1 and the current IT infrastructure. Whilst governance will formalise a process structure to drive the strategy forward, the strategic objectives of this governance will need to be formalised to reach this point with the future IT infrastructure helping to facilitate the technology required to do this.

Within this iteration of the strategy the collaboration/culture and need assessments components were developed from the analysis of the survey conducted in chapter 4. These findings form the basis of what initial strategic objectives would be required, the governance to deliver a knowledge management strategy and the future IT requirements to deliver this strategy. Future iterations would have to repeat this process and measure user satisfaction. The following three sections will develop these three areas.

5.3 Strategic objectives

Within an organisational sense, mission statements are used to define the organisation and its reason for being, its intended marketplace. Strategic objectives are employed to make the mission statement operational. These objectives can help an organisation work collectively in a timely manner towards a common goal. As shown in chapter 1, the DIT strategic plan (2006) is committed to developing cross collaboration within and outside the institute, increasing income through knowledge and technology transfer and indeed the sourcing, collection, archiving, generation and dissemination of knowledge.

These core principles have been documented but as no knowledge management strategy has been put in place, the views expressed by lecturers in chapter 4 are not surprising. Taking into account the current view as expressed by the academic staff in

chapter 4, to develop an efficient and effective knowledge management strategy, the following strategic objectives must be adopted:

- Provide easier and timely access for staff to information and knowledge they need to get their work done.
- Provide a core infrastructure to deliver the knowledge managed environment, which will provide integrated, pervasive, resilient and secure digital mechanisms of delivery, with support and administration services in place to facilitate this.
- Provide more effective flexible mechanisms for staff to access the knowledge and scholarly resources they need, electronic and other formats, where they need it, anywhere inside or outside the DIT.
- Provide an organised single point of entry, a '*one stop shop*' to access the knowledge that staff need, easy to use and navigate.
- Provide staff with the means to view the specific knowledge they need contained within the institute to improve the institute's ability to learn.
- Improve the ability of staff to find, share and exchange knowledge by providing the skills and knowledge to and promote the culture and environment for this to occur, embedding the sharing of knowledge within the daily work routine of the institute.
- Wherever best practice in knowledge management is found, promote its adoption and use across the institute.
- Promote and maintain practices in information/records legislation compliance.

- Provide flexible delivery mechanisms, including electronic mechanisms, in training and personal development of staff in acquiring transferable skills to assist them work more effectively.
- Provide for effective governance of DIT knowledge management strategy, with the active participation of all required stakeholders with clear roles and responsibilities to maintain an up to date, dynamic sustainable knowledge managed environment.

These ten objectives provide a bridge between the core underlying principles of DIT's strategic plan to that of the operational reality of a functional and necessary knowledge management strategy. They reflect the requirements academic staff feel are necessary as illustrated in table 5.1. They reflect the interrelationships of the people, processes and technology involved by all objectives being closely linked save for distinctive operational output such as information legislation compliance. They can act as an enabling springboard for developing the technology and governance strategies required to implement the knowledge managed environment, yet remain flexible, dynamic and open to change through the feedback loop contained within figure 5.1.1.

5.4 Future IT infrastructure/ data standards

One of the key findings expressed by respondents to the survey in terms of technology and IT infrastructure was the overwhelming believe that DIT could facilitate an IT infrastructure that can contribute to a knowledge managed strategy, implementation and environment. There are operational considerations which lead to or at least impact on this situation arising. Indeed reiterating from chapter 1, the DIT Information Services remit within this regard is (DIT, 2007):

“Information Services support the core activities of teaching, learning, research, scholarship, vocational training, entrepreneurship, technology and administration. This entails the creation and operation of effective and efficient information delivery mechanisms encompassing the sourcing, collection, archiving, generation, and dissemination of knowledge. It is underpinned by effective and efficient academic and business processes.”

The core capabilities already exist but were not presently structured in a means to do this. Firstly, there is no single point of IT governance within the DIT. Information Services (IS) provide for the vast majority of IT related services and applications, but faculties and schools have the ability to opt in or out. There are also different directory infrastructures in place, with a mix of Windows Active Directory and Novell Directory Services in place. This makes the sharing of and access to files not impossible but not intuitive. Secondly all IT initiatives and applications are funded and driven by project sponsors from the wide range of organisational units within the DIT. These can range from the learning technology team and library functions of academic affairs to that of the business units of human resources, finance and payroll. Each unit has its own distinctive view and operational environment.

It is understandable and reasonable that these units primary function is to fulfil their perspective roles and responsibilities. It is also reasonable that after funding such projects that ownership remains with these units. Indeed they are best suited to understand the business requirements of the initiative or application. But this can lead to a myriad of disconnected islands of information and knowledge, with a multitude of passwords for staff to remember, possible differences in data standards hindering interoperability. This should not inhibit the implementation of a knowledge management strategy, it should drive it. An overarching knowledge management strategy can bridge these islands whilst leaving ownership and operation of IT initiatives and applications to the various stakeholders. Following on from survey responses in chapter four academic staff require:

- A single point of entry to gain access to their knowledge resources, a portal which enables a user to log in once, and only once, but gain access to multiple systems. Create a user friendly environment for computer access.
- A knowledge repository where staff has access and visibility to knowledge contained within the DIT and other partnered universities or subscribed databases referred journals. Easy to use, simple to search and up to date.

Mail - File/Application Servers – Repositories – OODBMS

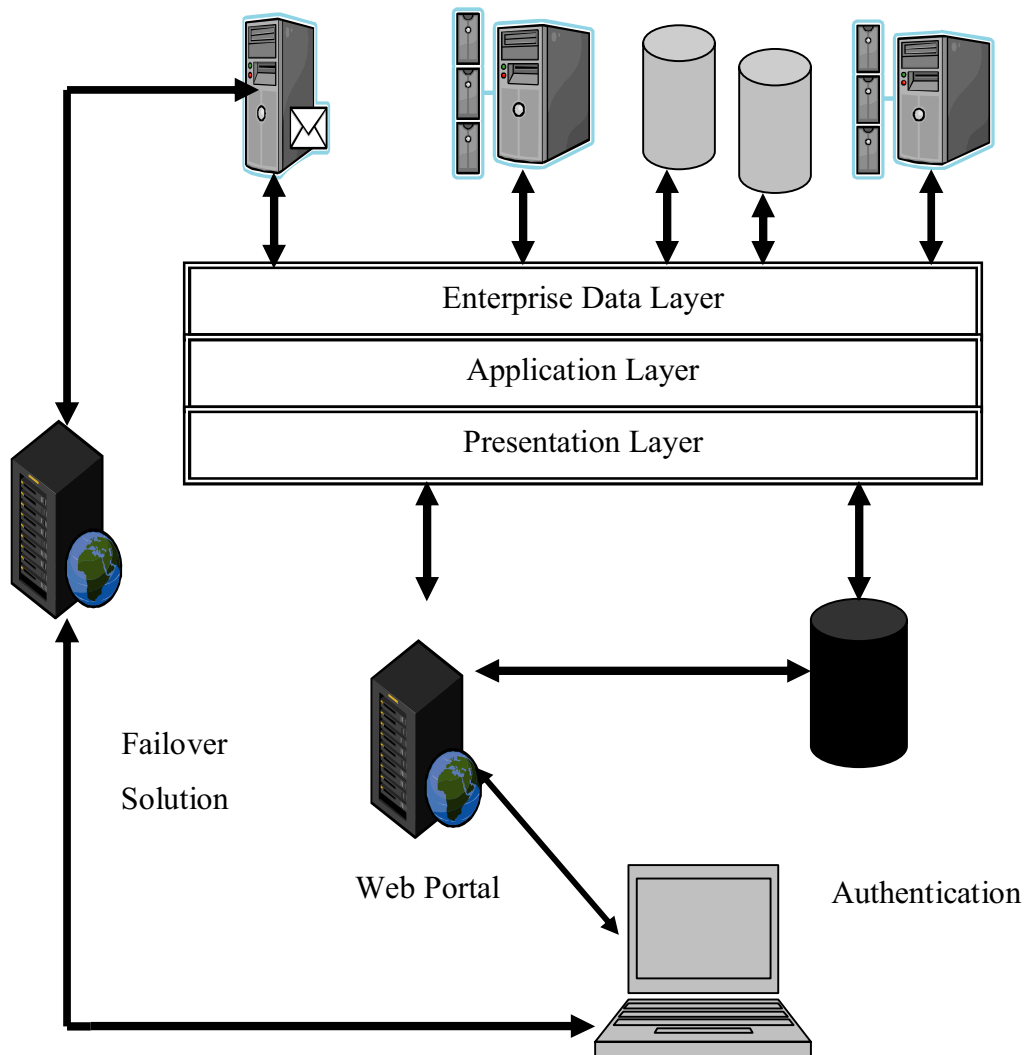


Fig 5.4 Web portal enterprise systems architecture

- Collaboration tools which provide a platform to share and learn, with the ability to seek out communities of practice or individuals, in finding the knowledge they need or understanding the knowledge they have.
- The underlying theme of information and knowledge presented is that it is understandable, useful, and contextual in an applicable and meaningful way. Knowledge stored is categorised, indexed and linked in a manner to facilitate this.

This environment would also have to be implemented in a secure, resilient, robust and pervasive environment. Secure from the traditional viewpoint of, secure and authenticated access, but also from the point of information legislation, with users only being able to view the specific information or knowledge that they are entitled to. The IT infrastructure and architecture must be resilient, robust and pervasive in terms of its ability in delivering such a service.

Figure 5.4 provides an overview of the IT infrastructure architecture to facilitate future IT requirements that will contribute to an overall implementation of a knowledge management strategy. Modelled on Sun Java™ Enterprise System Architecture (Sun, 2008), a proven open systems architecture which facilitates control and integration of applications. The three tier integrated component architecture consists of a presentation layer to facilitate a unified, consistent and user friendly view of the information. The application layer bridges applications by providing common services and functionality, with the enterprise data layer providing managed data storage and access integrity. Authentication services provide for logging on to multiple systems through a single sign-on facility. One contingency must be included even at this stage, is portal or single sign on outage. Therefore another server is employed to facilitate access to applications in terms of failover

Technology Required	Available Technology	Required Technology
Portal	Luminis Portal	
Single Sign On	Luminis Functionality	Failover solution
Collaboration	Luminis mail; squirrelmail; Infoview; Sharepoint; Wiki	Yellow Pages
Repository	Institutional Repository	Connectivity to partner Institute Repositories

Table 5.4.1 Technology requirements

Having looked at architectural requirements, table 5.4.1 illustrates the available and required technology that meet the needs assessment in terms of technology. What is clearly illustrated is that the majority of technologies needed to implement a knowledge management strategy are already present within DIT. A portal with the capability of incorporating single sign on and linking applications and systems is

already in-house being used as the student email service (MyDIT), this will also incorporate staff going forward with the capability of tab browsing to applications.

Wiki's are in use as communication and collaboration tools in isolation throughout the institute. Microsoft Sharepoint can also facilitate this, with the added benefit of sharing and indexing documents for collaboration and employed to do so. This would fulfil staff's need for a central repository to create store and reuse knowledge, though employed in isolation at present. Luminis portal also provides for indexed content managed system with intuitive search mechanisms for fast, easy and accurate retrieval. A scholarly database of staff research interests and past publications already exists in the form of Infoview with a further funded project proposal of electronic yellow pages to further assist lecturing staff to find individuals who can assist them in their knowledge requirements. Institutional repositories and the ability to interact with other institute's repositories through single sign on have sponsors willing to back and fund these projects. The only technology not employed or funded is that of a failover solution, which involves the purchase of a server. That withstanding there is also the significant expense in terms of time to implement, with staff required to integrate systems whilst maintaining a quality of service of day to day IT requirements. In saying this having technologies in place is a great advantage for the adoption and the implementation of a knowledge management strategy.

One could argue that these systems through time will integrate in a form through portal deployment and individual requests such as a possible request for the inclusion of yellow pages or repository as browser tabs in staff profile accounts. However this alone does not make a knowledge management strategy, neither does it view knowledge as the modern day commodity it is. Technology does contribute to a knowledge management solution but no more than the people who use it and the processes which dictate it. This is clearly shown by the responses of staff and their requirements in chapter 4. An overarching knowledge managed strategy is needed to deliver a useful, usable and used solution which meets the needs that staff require and asked for which IT alone, cannot deliver.

5.5 Governance

Key to delivering the policies and procedures necessary to deliver a workable knowledge management strategy are governance mechanisms which reflect the requirements expressed by staff in chapter 4. They must contain a framework which can deliver the anticipated benefits a knowledge management strategy can offer. There are two main theories of governance with regard to, the purpose of the organisation and to whom it may serve. These are (Farrar, 2001):

- Shareholder interest and value as a primary motivator.
- All stakeholders within the organisation as the primary motivator.

The shareholder model of governance, also known as the Anglo-Saxon model, predicated the maximisation of shareholder value, by minimising cost and maximising profit. Whereas stakeholder interest model, also known as the Rhineland model, predicated the need for all stakeholders within an organisation, owners or employees should be consulted and acknowledged within an organisation. This consultative model lends itself nicely to DIT environment from the basis of each school and faculty have differing knowledge needs but sharing the same need for knowledge management.

To further exemplify this common need for knowledge management. Within DIT a Performance Management Development System (PMDS), a government led initiative to help improve performance within the public sector whilst meeting the personal development of staff was introduced on a phased basis, faculty by faculty. On interviewing the facilitator one key trend appeared across the faculties and directorates. Teams were given a list of topics, primarily associated with their faculty/directorate function, and asked to list in order of what they felt was most important. What surprised the different teams and business functions were the similarities in what they found important or viewed as priorities, a practical example of how knowledge sharing could assist, a governance mechanism facilitated this, a knowledge management strategy would achieve this.

Combining the strategy needs assessment of table 5.1, the strategic objectives of section 5.3 and IT requirements of section 5.4 the governance plan vision statement must contain the principles of:

- Acknowledging knowledge and those who create knowledge, as a valued resource within DIT.
- Ensure a consistent high quality user friendly environment, providing the policies, procedures and tools to do so, and governance over which tools to do so.
- Ensure that the governance plan is consistent and aligned to both the strategic and business objectives and knowledge needs of staff.
- Clearly defined decision making authority and terms of reference with defined roles and responsibilities.
- Clear and unambiguous policies in promoting the value of collaboration and, support best practices in knowledge sharing.
- Implement standards in content management ensuring its quality is maintained. It is usable, reliable, timely, accurate and credible? A need for clear procedures on 'how to' operations, such as create, change, reuse and removal of content.
- Monitor information legislation compliance; security and access integrity.

Within the remit of this thesis, a knowledge management strategy for academic staff, figure 5.5 represents a knowledge management steering committee charged with governance. Each spoke in the wheel providing a consultative channel for all interested parties. Central to the committee is dedicated personnel to implement and drive the plan forward. From the sheer size of the organisation a knowledge management office would appear prudent and correct. This would leverage the ability to distil, focus and

implement strategy elements, whilst balancing the strategic and operational needs through a consultative process.

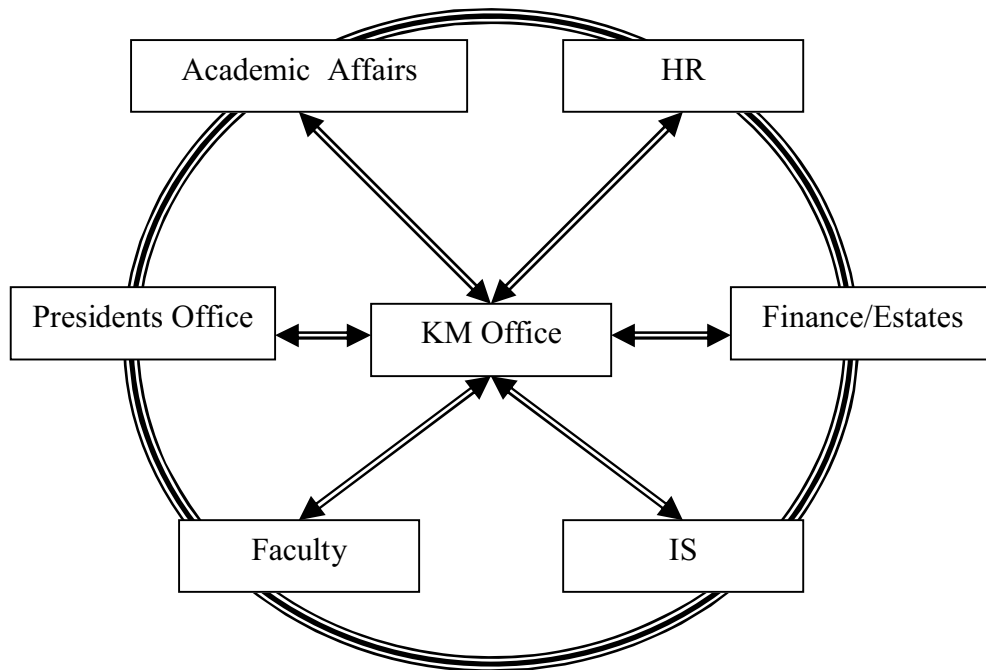


Figure 5.5 Knowledge management steering committee

Each directorate will represent a channel for its relevant departments to contribute to the committee, academic affairs collaborating with faculties and human resources with regard to flexible staff training, transferable skills or future staff recruitment skills for example. Information services in collaboration with faculties and academic affairs developing the institutional repository. Indeed the president's office collaborating with knowledge management office and faculties in promoting best practices of collaboration and sharing. There is no doubt that some of these collaborations are in existence already. However from the survey results in chapter 4 what is not in existence is a coordinated strategy in implementing these initiatives, which this governance plan as part of a knowledge management strategy addresses.

5.6 Conclusion

The purpose of this chapter was to take the findings of the literature reviews and survey and develop a knowledge management strategy for academic staff of DIT faculty of Tourism and Food. This was done under the three central themes of people, processes and technology incorporating the needs expressed by academic staff within the three streams. The strategy encompasses the interrelationship between the three themes with the ability to evolve and change as necessary, taking into account facilitating for both staff and management input and collaboration.

The theme of collaboration of staff and management continues by combining the knowledge needs of staff to the objectives of DIT overall strategic plan to develop strategic objectives in terms of a knowledge management strategy. With these objectives in mind a web portal enterprise systems architecture was developed with an analysis of required technology and applications necessary to deliver a knowledge management environment. Finally principles and mechanisms of governance were developed to oversee, guide and implement the knowledge management strategy.

The underlying themes that this strategy was built upon are collaboration and partnership. This was not difficult to do in terms of developing strategic objectives with regard to a knowledge management strategy. The strategic aims of the institute were in line with the knowledge needs of staff. What was missing was a bridge to put these strategic aims into operation which this strategy addresses.

From the analysis of technology requirements, the technology necessary to implement a knowledge management strategy is almost in entirety, already available, with project funding in place for the rest. What is apparent is that the technology is not employed to do this at present but the skills are in place for it to be. This view must be tempered with that at present these skills would need to be re-directed whilst maintaining existing IT requirements. This could delay any implementation.

The setting up of a knowledge management steering committee could set about addressing this, through governance principles and mechanisms. This committee has

similar representative composition of many committees such as the Information Systems Steering Committee. The overriding difference is how knowledge is viewed and valued taking into account the people and processes which create it, whilst viewing technology and applications as necessary tools to contribute to this. Knowledge and knowledge creators are its key assets and its focus.

6 EXPERIMENTATION & EVALUATION

6.1 Introduction

Having taken the findings of the literature reviews, these were then combined with the findings of the academic staff survey to develop a knowledge management strategy for academic staff based at the faculty Tourism and Food in chapter 5. The purpose of this chapter is to evaluate this strategy. This was done by carrying out structured interviews of stakeholders who would have a perceived interest or role in such a strategy, the questions presented were as per appendix B. A member of the academic staff, a head of department of one of the schools within the faculty and a member of information services steering committee were interviewed. In addition to evaluating the knowledge management strategy a brief evaluation of knowledge management, and what their understanding of knowledge management was, also occurred. Findings and conclusions of chapter 4 survey results were also supplied to provide background information and a means of comparison to whether staff needs were met by the strategy.

6.2 Experimentation

Each participant was sent a copy of the knowledge management strategy, a copy of the findings and conclusions of survey results in chapter 4 in an email containing five questions:

- Are you familiar with the term knowledge management?
- If yes, how would you describe knowledge management?
- Would you consider the following statement to represent what you understand or make you understand what knowledge management is? Is it too simple /difficult to understand?

“The connection of information resources, human or electronic, through an institute wide process so that knowledge can be found and transferred to an individual who requires it.”

- With regard to the knowledge management strategy attached do you (a) consider academic staff requirements have been met in this strategy and (b) using the SMART targets methodology, do you think the targets are?
- Please feel free to comment on any part of the above or strategy.

Participants were then contacted by telephone and interviewed with regard to their views. Embedded within question 4 was a management by objectives methodology known as SMART targets (Drucker, 1954). The objective of these targets is for employees to direct and assess their performance with that of an organisation’s objectives and see if they had been met or are aligned. SMART acronym stands for:

- Specific - Are the objectives clearly defined?
- Measurable - Would it be possible to measure the success of this strategy in terms of value added to the organisation?
- Achievable – Is this strategy achievable in terms of political climate, resources, and skills to implement?
- Realistic – Can the strategy deliver the desired results? Is it sustainable?
- Time Framed – Taking into consideration how you view the culture of an organisation, resources available, how long would you estimate it would take to adopt such a strategy?

As alluded to in chapter 5, as part of the Irish government public service modernisation initiative, all members of public sector organisations regardless of position voluntarily

take part in a Performance Management Development System (PMDS) program (Gov, 2008). All DIT staff, as an individual themselves and as a member of a school or team take part in this voluntary upward feedback mechanism of aligning their personal/school development with that of the institute’s goals using the SMART targets approach. The reasoning behind the author adopting this SMART targets approach was that all participants were familiar with the process. Secondly, as well as asking if participants found the strategy useful and applicable that is, a good idea, participants were also being asked to judge was it readily realisable from their perspective function or role within the institute. If this strategy became an organisation goal in an operational sense could it be readily incorporated into their respective roles? The following sections evaluate these five questions.

6.3 Q1, 2. and 3. evaluation

“The connection of information resources, human or electronic, through an institute wide process so that knowledge can be found and transferred to an individual who requires it.”

(Author, 2008)

The first three questions presented to participants were in connection to their understanding of knowledge management. Were they familiar with the term, how would they define knowledge management and was the above definition an adequate reflection on their understanding of knowledge management.

Function	Definition
Lecturer	<i>“As the collection, storage and dissemination of specific knowledge requirements as appropriate to persons within an organisation.”</i>
Dept head	<i>“Knowledge management is the set of activities that aim at providing, sharing and exchange of information between actors.”</i>
IS	<i>“It meant that staff in an organisation could access through IT the information they needed to make better decisions. The information was created by themselves or by other staff in the organisation.”</i>

Table 6.3 How participants would define knowledge management

All three were familiar with the term with table 6.3 showing their understanding when asked to define knowledge management. All three responses illustrate a clear understanding of the term and are reasonable and acceptable definitions. When asked to comment on the author's definition in terms of did it represent how they understood knowledge management or was it too simple or difficult a definition, all said they found it acceptable and understandable. When asked to re examine the statement and purposely find flaw with it, three interesting but understandable responses were given.

The lecturer again thought it was fine but if pushed found it, '*a more specifically technical description of my understanding*' than he would have thought of. The head of department found '*the statement quite complete*' but could include more '*dynamics*' such as '*procedures, auditing and management terms*' possibly. Finally information services (IS) participant found when asked to re-examine that it could possibly focus more on '*the IT processes that drive it*'. These answers are understandable given their respective roles. One would expect IS to be technology focused and department heads to be process orientated and the lecturer being people focused in terms of only interested in finding the knowledge and not how it's done.

However what this does highlight that the approach taken from the start of this research project of viewing the research question in terms of three central themes of people process and technology, giving each equal footing and categorising knowledge in terms of these themes was the correct approach. The knowledge management definition derived from this principle is well balanced and totally acceptable to those engaged within the three themes. If pushed would like to see more of their theme within the statement, but totally satisfied with the definition as is and fit for use.

6.4 Q 4 (a) and (b) evaluation

Question 4 (a) and (b) dealt specifically with the thoughts of participants about the knowledge management strategy. Question 4 (a) dealt specifically with whether academic staff requirements had been met by the strategy. Question 4 (b) specifically dealt with SMART targets where participants evaluated the strategy in terms whether it was readily possible to incorporate the strategy into their present day functions and

roles. Instead of asking whether the strategy is workable if adopted by the institute participants were asked to align their present day to day roles to the strategy to see if it is viable.

In terms of whether requirements had been met by the strategy, all participants were in agreement that they ‘*broadly*’ had. With regard to the SMART targets, whether the strategy was ‘*specific*’ in terms of are the objectives of this strategy clearly defined, are they too broad or too narrow?

Function	Specific – Objectives clearly defined. Are they too broad/narrow?
Lecturer	<i>“Yes they are. / No they seem to be fine although you might find that they would need a narrower definition for workable units.”</i>
Dept Head	<i>“I think that the strategy is specific, proposes integration using specific software –Luminis.”</i>
IS	<i>“I think they are ok.”</i>

Table 6.4.1 Participants response to specific

As table 6.41 highlights all participants believed that the strategy was specific with objects clearly defined. Two observations of note stood out from the interview. The departmental head felt as long as there was a ‘specific’ IT integration the rest would follow suggesting that other processes would not be an issue. What was even more noteworthy was on discussing with the lecturer on his view on breaking down the strategy into work units; the lecturer did so in terms of making his knowledge available to collaborate and how he could incorporate this in his daily routine. This not only showed the strategy to be specific, but it also showed the lecturer engaging the strategy and aligning it into his daily routine turning the strategy into a working viability.

Table 6.42 shows participants responses to whether it would be possible to measure the success of the strategy, which all agreed it was, but suggesting different approaches. IS suggested a customer focused method in the form of a staff survey, with departmental head suggesting auditing approach such as staff usage, whilst the lecturer suggested that staff output and reuse of knowledge in terms of improved efficiencies as a measure. These measures are responses which one would expect with their respective functions.

Function	Measurable – possible to measure success of strategy?
Lecturer	<i>“Yes it should/ would be easily measured. In terms of improved efficiencies, staff outputs and the reuse of knowledge within the repository.”</i>
Dept Head	<i>“Yes and Perhaps some quantifiable measures such as staff usage of the system.”</i>
IS	<i>“Staff Survey.”</i>

Table 6.4.2 Participants response to measurable

There was a slightly varied response in terms of was the strategy achievable in the present political climate, resources available and skills to implement the strategy. A good sign for DIT as a whole was that all felt the skills to deliver such a strategy were readily available.

Function	Achievable - in terms of political climate, resources, and skills to implement?
Lecturer	<i>“While the skills seem to be readily available the finance and political support may be lacking.”</i>
Dept Head	<i>“Achievable through an integration work”</i>
IS	<i>“Skills present but not available, finance may also be an issue”</i>

Table 6.4.3 Participants response to achievable

The departmental head felt the political climate would not be an issue if approved at directorate, and with IT systems in place, financial strains should not be too great. IS believed the political climate would not be an issue as the strategy would benefit all, even in terms of having an integrated IT system would benefit IS in managing such a system. What was more of a concern was that in relation to IT, the skills were there but there would be a shortage in personnel necessary to implement the strategy, so finance was also an issue. The lecturer believed finance would be an issue, as well as the politic culture with *‘each faculty operating as an island with little interoperability between.’* When asked if DIT directorate approved the strategy would this alleviate this concern, he believed it would.

Function	Realistic - Can the strategy deliver the desired results? Is it sustainable?
Lecturer	<i>“Absolutely, if properly implemented such a strategy would have the desired results and I feel would greatly benefit the institute.”</i>
Dept Head	<i>“Realistic, other institutions have achieved similar levels of IT integration, and processes are viable.”</i>
IS	<i>“Yes.”</i>

Table 6.4.4 Participants response to realistic

All participants believed the strategy was sustainable and could realistically deliver the desired results as shown in table 6.4.4 with the lecturer expressing the belief it would greatly benefit the institute.

Function	Time Framed – Taking into consideration how you view the culture of the institute, resources available, how long would you estimate it would take to adopt such a strategy 1-3 year, 3-5, never adopt a formal strategy?
Lecturer	<i>“May be implemented as part of the new campus development.”</i>
Dept Head	<i>“1-2 years process wise, not sure of IT.”</i>
IS	<i>“3-5 years.”</i>

Table 6.4.5 Participants response to time framed

Table 6.4.5 shows the responses of participants in terms in how long it takes to adopt such a strategy. The lecturer believed that the perfect solution was to incorporate the strategy as part of the overall strategy with regard to the moving of DIT to a new campus at Grangegorman, Dublin. This timeline would envisage this occurring no sooner than 2012 but in terms of adopting a *‘fresh approach to managing knowledge’*, it is an understandable response and an option. The departmental head felt that adopting a strategy would take between a year and two to adopt but with the proviso that it would depend on IT resources being available which appeared prudent with IS believing it could not be adopted no sooner than three years. This view taken due to the amount of IT projects already scheduled, present staff workloads and perceived staff shortages would negate it any sooner.

6.5 Q.5 evaluation

The fifth and final question took the form of an open question where participants were free to comment on any of the questions or the strategy itself. The lecturer expressed the belief that:

“Knowledge management is a very important area especially within institutes such as ours. To be competitive it is imperative that staff within the institute have easy access to knowledge and are able to easily share knowledge. This is unfortunately not the case. Not that we are alone in this being a problem many institutes struggle with this.”

This response is not so surprising considering staff responses to the survey making up the strategy were similar. When asked whether other institutes not having such a strategy should be a reason for not adopting one, he replied that it would be more a reason to adopt it, giving the DIT a competitive advantage over them. IS believed the key hindrance would be staff shortages within IS to get such a project done, but if funding for staff levels were made available then such a project would be ‘*very feasible and necessary.*’ Seamless integration of these systems was viewed as extremely beneficial to IS as much as it would be of benefit to staff. In discussion with the departmental head he stated that:

“I am not very much aware of this mistrust culture among staff: I would say that this compartmentalisation of knowledge is produced in a great measure by the structures that are in place. Under appropriate structures staff would not have this attitude.”

When asked would not a clear and unambiguous knowledge management strategy erode this mistrust building on the expressed preparedness the lecturers have in collaborating with fellow colleagues, his response was:

“Completely agree with it. It would make DIT a very attractive workplace for any professional if this situation would be achieved.”

6.6 Conclusion

The purpose of this chapter was to evaluate the knowledge management strategy developed for academic staff based within the faculty of Tourism and Food. To achieve this, structured interviews were carried out with a member of academic staff, a school head of department and a member of the information services steering committee. After establishing their understanding of knowledge management, they were asked to comment on the suitability of the knowledge management definition developed for this research project. All found this definition quite acceptable.

When pushed on finding a flaw, all expressed there should have been more emphasis on their respective function. IS thought it should be more IT focused, departmental head believed more process orientated and lecturer believing it should be more people orientated in finding knowledge and less focus on how it's done. This vindicated the approach taken in chapter two of putting people processes and technology on an equal footing, categorising knowledge through these themes and then defining knowledge management through this, resulting in a balanced definition which all three themes can subscribe to.

All participants believed academic staff requirements were met by this strategy. Using the SMART targets method all participants also believed the strategy was necessary. They believed it to be specific, measurable, achievable finance permitting, and realistic and with variance, time framed. Resources in terms of staffing or finance were an issue, indeed the staffing levels of IS in particular inhibiting the time frame of the strategy being adopted. The political environment and culture was mooted as a possible inhibitor, with lecturer and manager having polar views on perceived politics and mistrust culture. However both shifted their opinions with the lecturer believing that directorate buy-in alleviating political culture concerns, whilst the departmental head believed the knowledge management strategy itself would alleviate any mistrust culture. He further complimented the strategy in saying that such a strategy would make the DIT *'a very attractive workplace for any professional to work in.'* One would expect that if a strategy could attract world class academics to come to the DIT because of the environment the strategy created, this would make the strategy worth

while doing for that reason alone. One interesting idea was also to tie in such an adoption of the strategy to that of DIT's move to Grangegorman campus.

With the funding of such costing over a billion euro, the cost to implement the knowledge management strategy would probably not be noticed in comparison. The novel approach of using the upward feedback mechanism of SMART targets provided for a thorough and grounded evaluation. Participants were fully versed in its use having used the method in their own Performance Management Development Systems evaluations and fully engaged and applied the strategy within the process. This process facilitated a method where participants engaged the strategy from a standpoint of viewing their day to day to role within DIT and assessing if and how the strategy can be incorporated into their role, with the answer being it could be and a welcomed addition.

7 CONCLUSION

7.1 Introduction

The final chapter of this dissertation presents the conclusions and recommendations formed from performing this research project. The aim of this research project was to develop a knowledge management strategy for academic staff based within DIT faculty Tourism and Food. The knowledge management strategy was developed under the central themes of people, processes and technology, reflecting the knowledge needs of academic staff based at the faculty of Tourism and Food and how these needs are best managed. This chapter presents a summary of this dissertation in the form of how the research aims and objectives were achieved within the research definition and research overview. The chapter will discuss what contributions to the body of knowledge this research has made along with any limitations to experimentation or evaluation within the research project and will also discuss what the potential areas are for future research.

7.2 Research definition & research overview

With the knowledge society and the global economy we live in, knowledge and knowledge about knowledge has become the key resource to sustained economic development and creating competitive advantage with this economic growth being dependent on better knowledge. Governments have incorporated this within their national strategies with lifelong learning of the workforce a national priority in sustaining economic growth. Central to these strategies are the ability to manage knowledge effectively and efficiently to maximise its potential and value.

Competition between universities in this global economy, its service to the society and the rate at which skills need to change and update due to an ever dynamic economic environment allied with the implications ICT with the sheer volume and complexity of information this can bring has led to the necessity of knowledge management

strategies to manage this environment better. DIT within its strategic plan recognises its role in society in knowledge transfer and its need to manage knowledge but has no knowledge management strategy to facilitate this. This research developed such a strategy in terms of academic staff based at DIT faculty of Tourism and Food.

This strategy focused on three core themes of people, processes and technology, that is, focusing on the people employed, processes adopted and technology adapted to manage knowledge and define knowledge management within DIT. The research areas of knowledge and knowledge management were first reviewed in chapter 2, whilst the third level sector and university knowledge management initiatives were reviewed in chapter 3. Chapter 4 then surveyed academic staff in relation to the necessity of a knowledge management strategy and what elements and requirements such a strategy should contain. Under the three themes of people processes and technology a knowledge management strategy was developed in chapter 5 and through structured interviews was evaluated in chapter 6.

This has culminated in the following objectives being achieved in this dissertation:

- Critical review of the knowledge society and its impact on the third level sector.
- Critical review of DIT strategic plans in terms of the impact the knowledge society has on the DIT.
- Critical review of the historical development of knowledge management.
- Critical review in contextualising and categorising knowledge in determining practical categories to assess the knowledge needs of DIT.
- Critical review of knowledge management definitions with the purpose of developing a working definition applicable to the DIT.

- Critical review of universities and institutions initiatives on managing knowledge.
- A report on how DIT and its academic staff manage knowledge and whether surveyed academic staff believed a knowledge management strategy was necessary.
- Description of the developed knowledge management strategy detailing the elements of the strategy and the relationship between them.
- Evaluation of the knowledge management strategy.

7.3 Contributions to the body of knowledge

The primary contribution to the body of knowledge is a knowledge management strategy for academic staff based at DIT faculty of Tourism and Food. Although such a strategy is a strategic aim of DIT, this was the first strategy developed to fulfil this strategic aim. Although a stated aim of other universities and institutes in Ireland is to manage knowledge better there is little engagement in developing such strategies. With knowledge management strategies the exception rather than the norm amongst universities, even within the global context, this strategy devised here significantly adds to the body of knowledge not only to DIT's strategic intent but to the Irish third level sector and further a field.

It most certainly can be used as a blueprint for other DIT faculties' academic staff as a knowledge management strategy as factors and elements such as IT systems and lack of processes are inherently the same. Indeed the approach taken could readily develop strategies for other functions, finance and administration for example.

To help devise a strategy a survey was developed to determine the necessity of a knowledge management strategy and to what components and elements were required to develop this aim. This survey adds to the body of knowledge and could be applied to any third level sector wishing to assess this or to any organisation for that matter.

A definition of knowledge management was developed which under evaluation was found to be equally understandable and practical by those engaged within people (lecturers), processes (managers) and technology (IS staff), without bias to one or the other. This was developed from categorising knowledge in terms of people, processes and technology so as to assess what category of knowledge matched each of these central themes. This definition also adds to the body of knowledge insofar that it may assist others in developing balanced knowledge management systems without bias to people, process or technology in any direction. Finally critical reviews of knowledge, knowledge management, and knowledge management initiatives within the third level sector add to the body of knowledge and may prove useful to those engaged in research within these areas.

7.4 Experimentation, evaluation and limitations

The outstanding limitation to the evaluation process was not being able to implement the strategy for testing. The structured interviews only evaluated the participants' beliefs of the strategy's applicability and not the strategy in operation. This would have meant the faculty of Tourism and Food adopt and pilot such a strategy, but would have also entailed information services restructuring the IT infrastructure, which at present would take at least three years with other project work commitments. This would have been a hardly feasible time frame for doctoral research let alone this research project.

7.5 Future work & research

A number of areas within the dissertation would warrant and merit further research:

- Research of the applicability of the developed knowledge management strategy across other DIT faculties, business functions and other universities and institutes.
- A government funded research project into developing and piloting knowledge management strategies within the third level sector in Ireland.

- The development of an overall DIT wide knowledge management strategy.
- The development of IT procurement and tender processes which align and integrate with the strategic and business requirements. Presently the best fit of a universal tender process alone, will be rewarded the contract, which can result in buying the best system but that system may not integrate with any other.

7.6 Conclusion

The purpose of this research project was to develop a knowledge management strategy for academic staff based at DIT faculty of Tourism and Food. This objective was achieved. Whether this makes this dissertation unique in being the first to develop such a strategy in the context of the third level sector in Ireland is open for debate. During the time taken to conduct this research, no other similar strategy could be unearthed. Even if this strategy is not unique in Ireland, the fact that this strategy is so rare is astounding.

Governments have taken a view that knowledge is the key resource for a number of years. Indeed the Irish government believes creating knowledge and capturing its value as the primary enabler to sustainable economic growth. The key enabler to doing this is managing our knowledge better. This becomes all the more complex, through the advancement of ICT and the deluge of information and knowledge this can spawn. Universities themselves are not immune from the competitive forces a global economy can exert. Competition for places, competition for funding trying to keep up to date with course offerings in a constantly changing and dynamic economic environment. Knowing what you know and managing it better to know more are imperative in this regard.

The third level sector understands this. They offer consultancies to companies in developing knowledge management strategies. Some including DIT recognise its import by offering courses in knowledge management, yet do not practice what they preach. The DIT does recognise the role it has to play in society, has pioneered the

pathways from certificate level to doctoral degrees. It recognises the role it has to play within the knowledge society and that this entails managing knowledge better. It's embedded within its strategic plan. What is lacking is putting it into operation.

This research project has developed such a strategy. It has shown that its academic staff, its people, think it would greatly benefit their knowledge output, its managers, those who manage processes, believe it will make DIT a more attractive proposition to work for, and its information services staff know the technology to do so is already in place. The DIT has the opportunity to take the lead in a strategy it already wishes to engage in.

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APPENDIX A

This appendix contains the survey used to analyse whether academic staff based at DIT faculty Tourism and Food believe they required a knowledge management strategy and what elements should be included if one was necessary.

Q1. Which school are you attached to:

Q2. The overall environment of the DIT:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
Facilitates the discovery and capture of					
Facilitates the storing of: these resources for institute wide access					
Facilitates the transfer of across the institute (email/library)					
Enables the organisation to react more quickly to change by sharing of these resources					
Speeds decision making by facilitating retrieval across the institute					

Q3. Within the context of your school:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
All that the school knows (information/knowledge) is visible to and accessible by you in some way					
What your school colleagues know and information/knowledge they possess is visible to and accessible to you in some way					
Are supportive of collaboration between colleagues					
Are willing to collaborate across organisational units/schools within DIT					

Q4. Perception about knowledge within DIT:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
The specific knowledge that I need resides with the experts/colleagues rather than being stored in the DIT Intranet/ Internet sources because the knowledge is typically difficult to clearly articulate					
The knowledge stored from DIT Intranet /Internet sources cannot be directly applied without extensive modifications because of the specific/localised operational requirements of my department					
I always have to seek new knowledge that is not directly available in the DIT Intranet/Internet sources					
The knowledge that I find in DIT Intranet/Internet sources can be directly applied to current situations with little or no need to seek out or create new knowledge					

Q5. I am proficient in the following:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
Creating information/knowledge	5 (35.71%)	8 (57.14%)	1 (7.14%)	0 (0.00%)	0 (0.00%)
Finding precise information/knowledge that I require	4 (28.57%)	10 (71.43%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Finding sufficient information/knowledge required	3 (21.43%)	6 (42.86%)	4 (28.57%)	1 (7.14%)	0 (0.00%)
Maintaining information/knowledge	3 (21.43%)	10 (71.43%)	0 (0.00%)	0 (0.00%)	1 (7.14%)
Disposing of information/knowledge	0 (0.00%)	7 (50.00%)	6 (42.86%)	1 (7.14%)	0 (0.00%)
Am familiar with the institute's policies and protocols about managing records	0 (0.00%)	4 (28.57%)	6 (42.86%)	4 (28.57%)	0 (0.00%)
Believe it is important to me to manage information/knowledge well in doing my work	9 (64.29%)	5 (35.71%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Q6. There should be a need for:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
Creating reusable information/knowledge resources	5 (35.71%)	7 (50.00%)	1 (7.14%)	0 (0.00%)	1 (7.14%)
Reusing existing information/knowledge resources	7 (50.00%)	4 (28.57%)	3 (21.43%)	0 (0.00%)	0 (0.00%)
Contributing to a library of reusable information/knowledge resources	9 (64.29%)	3 (21.43%)	2 (14.29%)	0 (0.00%)	0 (0.00%)

Q7. You acquired most of your skills and expertise from:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
From the organisation					
From colleagues					
Through self learning					
Through formal learning					
From previous employment					

Q8. Where information or knowledge you need to do your work is located:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
In paper-based documents/books/library					
In colleagues heads (internal collaboration)					
In DIT library online journals					
In DIT information systems					
On my personal or workstation computer/hard drive					
On the Internet					
From professional bodies					
From other third level institutions (external collaboration)					

Q9. The biggest barrier to storing knowledge more efficiently and effectively is:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
Lack of time/too busy					
Poor tools/technology					
Organisation policy/directives					
Poor information systems/processes					
Lack of training					

Q10. The challenges in sharing information and knowledge amongst other schools/departments:

	1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
Do not perceive there is an urgent need to share					
Lack of open-minded sharing environment					
Lack of trust of other people's knowledge					
No proper organisational guidelines on sharing					
Bureaucratic procedure involved in sharing information/ knowledge					
Tasks do not require cross-departmental information sharing					
No proper IT platform to share knowledge					
Do not perceive there is an urgent need to share					

Q11. Please feel free to comment on what you feel may inhibit you from finding what information/knowledge you need, or what you find helpful within DIT working environment to facilitate your needs, or indeed how we treat, store and collaborate with regard to your information/knowledge requirements within your working environment:

APPENDIX B

This appendix contains the questionnaire send to participants of the evaluation phase of the research project.

- Are you familiar with the term knowledge management?
- If yes, how would you describe knowledge management?
- Would you consider the following statement to represent what you understand or make you understand what knowledge management is? Is it to simple /difficult to understand?

“The connection of information resources, human or electronic, through an institute wide process so that knowledge can be found and transferred to an individual who requires it.”

- With regard to the knowledge management strategy attached do you (a) consider academic staff requirements have been met in this strategy and (b) using the SMART methodology, do you think the targets are?
 - Specific - Are the objectives clearly defined?
 - Measurable – Would it be possible to measure the success of this strategy in terms of value added to the organisation?
 - Achievable - in terms of political climate, resources and skills to implement.
 - Realistic – Can the strategy deliver the desired results? Is it sustainable?

- Time Framed - Taking into consideration, how your view the culture of the organisation, resources available, how long would you estimate it would take to adopt such a strategy?
- Please feel free to comment on any part of the above or strategy.