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Exploring the Impact that Organisational Culture and Structures have on Knowledge Management Initiatives

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Exploring the Impact that Organisational Culture and Structures have on Knowledge Management Initiatives

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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 2015

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 test 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: ***06 March 2015***

1 ABSTRACT

The project builds on research in the domain of knowledge management, with a literature review covering several aspects of the domain. There is particular emphasis on knowledge management implementations within organisations. Several researchers in the area offer methodologies or strategies for organisations to adopt, when implementing knowledge management initiatives. These options are covered at length in the literature review along with real world case studies on organisations that have implemented knowledge initiatives with varying degrees of success.

A key aspect of the research is assessing the impact of organisational culture on knowledge management initiatives. The literature review contains an extensive section on organisational culture. Included is a definition of what constitutes organisational culture, with several authors in the area detailing the various types of culture that can be found in organisations. The final part of the culture review highlights how culture can impact on an organisation's knowledge processes.

With the aim to assess the impact that organisational culture and structure has on knowledge processes, a knowledge audit has been designed and deployed. The purpose of this experiment is to complete independent research to assess and evaluate the impacts that organisational structure and culture actually has on knowledge processes. Results are presented and evaluated through three lenses which are designed to answer specific aspects of the research question.

The research provides recommendations based on the findings of the experiment. These recommendations could prove useful to organisations seeking to implement a knowledge initiative. Coupled with these recommendations are ideas for future research on the topic, which could expand the scope and scale of what was covered in this research.

Key words: *Knowledge management, Knowledge processes, Organisation structure, Organisation Culture, Knowledge audit, knowledge creation, knowledge sharing, knowledge bottleneck*

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1. INTRODUCTION

1.1 Project Background

In a world where knowledge is said to be power, Zach (1998) says "*business organizations are coming to view knowledge as their most valuable and strategic resource, and bringing that knowledge to bear on problems and opportunities as their most important capability. They are realizing that to remain competitive they must explicitly manage their intellectual resources and capabilities*". This quote indicates that organizations wishing to capture and use their knowledge resources need a knowledge strategy to ensure that the resources are best utilized and that maximum competitive advantage is gained from their use. This reinforces the need for knowledge management.

Ikujiro Nonaka is viewed as a seminal figure in knowledge management, his 1994 paper sets out how knowledge is created within an organization, and develops a framework which indicates how this created knowledge can be managed for the benefit of both the organization and the individual. The paper sets out the difference between knowledge and information, with information defined as "*justified true belief*". This is in line with a traditional view of an organization, i.e. that the organization is static with set inputs which are processed with the aim of achieving desired outputs. Nonaka challenges this view of an organization when it comes to knowledge creation, and proffers a view that the organization is dynamic, and that this dynamism is a requirement in order to foster knowledge creation.

Nonaka states that the creation of knowledge is dependent on the continuous dialogue between explicit and tacit knowledge. Explicit knowledge is "*transmittable in formal systematic language*" (Nonaka, 1994). Tacit being personal knowledge which is hard to codify unlike explicit knowledge. Tacit knowledge is perhaps accurately described by the following quote "We can know more than we can tell" (Prolanyi, 1966). Nonaka states that tacit knowledge is transferred via metaphors, or indeed can be transferred via learning by doing. Nonaka's basic concept is that a continual dialogue

between explicit and tacit knowledge is what drives the creation of new ideas and concepts. He represents these dialogues on the following matrix:

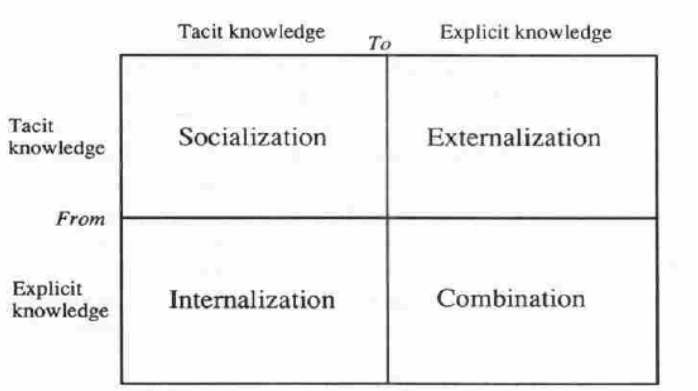


Figure 1.1 Modes of Knowledge creation (Nonaka,1994)

Organizational Knowledge Creation

Nonaka states in the paper that an organization should strive to integrate emerging knowledge into its strategy. He describes a "spiral model" that shows how this can be done, and also discusses the shape the organization needs to adopt in order to foster and capture effective knowledge creation.

One point of note is that Nonaka broaches the topic of "communities of interaction" as a means of the organization amplifying and developing created knowledge. This would appear to be the foundation stone of Wenger's methodology. Wenger as will be shown later espouses the use of "Communities of practice" by organizations to manage their overall organizational strategy and thereby placing knowledge management at the centre of that strategy.

Model Shift and Spiral of knowledge

As stated above Nonaka is of the opinion that the four modes of conversion are required to create new knowledge independently. An important point he makes is that "*organizational knowledge creation hinges on dynamic interaction between the different modes*." (Nonaka,1994) Organizational knowledge creation according to Nonaka involves the four modes being managed to form a continual cycle.

Nonaka states that in practical terms this will be done by formation of teams from across various functions of the organization. "*Socialization*" is expected to occur with

meaningful dialogue amongst the team promoted. He states that this will benefit all functions, as existing knowledge can be shared from one function to another. Another benefit is that new knowledge created within the team structure can be taken by the individual back to their functions for use in solving local issues.

The nature of the process is an iterative one, where trial and error is accepted, and learning through doing is also an accepted norm. As the teams become more familiar and begin to start working more effectively, the level of interaction between the modes of conversion will get faster and longer, with more and more people becoming involved in the process. Nonaka states that this leads to an upward spiral of knowledge creation, which he represents on the following diagram (figure 2).

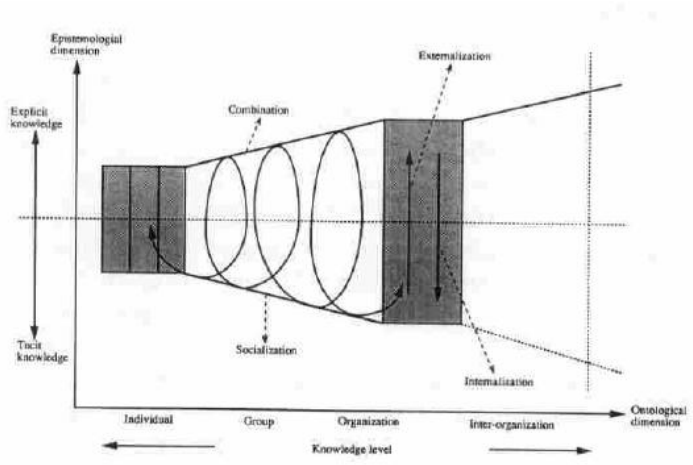


Figure 1.2. Spiral of Organizational Knowledge Creation (Nonaka,1994)

Process of knowledge organizational knowledge creation.

Nonaka identifies the processes that are involved with an organization creating knowledge. He states that an individual creates knowledge, and that the organization must enlarge this knowledge, and ensure that it is amplified and justified.

Nonaka (1994) says "*Individuals accumulate tacit knowledge through hands-on experience*". The quality of the knowledge created will depend on the variety of the individual's experiences and their knowledge of those experiences also. This is an important point for an organization, as varied experiences will lead to better knowledge creation. This puts an onus on the organization to ensure that individuals

should be stimulated via multiple experiences, rather than having to do repetitive mundane work practices.

The amplification of the knowledge is the practice of sharing the knowledge. Nonaka cites the example, that in Japan a wide array of individuals can be involved in an organizations product development, including customers and suppliers, those being outside of the actual organization. Nonaka suggests two methods to aid amplification. The first is creation of "*fields*" which sounds again like Wenger's concept of a "*domain*." The second is the creation of "*self-organizing teams*." Similar to Wenger's "*communities of practice*" concept.

Justification of the new knowledge concepts is done after a process which Nonaka names "*Crystallization*". New concepts are tested for reliability and applicability to the issues that the various functions of the organization are facing. Once this process is complete the knowledge is justified by various quantitative and qualitative measures. In a commercial organization the quantitative measures are likely to be cost reduction or profit margin increase for example.

Managing the Process of Organizational Knowledge Creation

Nonaka identifies "*organizational wide enablers*" of effective knowledge creation. These are creative chaos, redundancy and requisite variety.

- **Creative chaos** plays to the point that we are more effective when we face a crisis. Individuals will consider options in a chaotic situation that would never be entertained were normality prevailing. On this basis Nonaka identifies it as an enabler. He also states that if an organization suspects that individuals are in the comfort zone, that a certain level of chaos may be introduced into the scenario to drive the knowledge creation process.

- **Redundancy** relates to the database definition of the word, where there may be duplication of information in multiple sites. Nonaka sees this as a positive, as it means that multiple people are looking at the same information, and that multiple sets of knowledge may be derived from the same information.

- **Requisite variety** relates to what was said earlier, regarding the organizations individuals being stimulated by variety in their jobs. With an increased array of experiences, individuals are more likely to create higher quality knowledge.

Nonaka proposes two strategies that an organization can adopt for the management of knowledge creation. They are what he refers to as "*Middle-up-down management*" and the "*Hypertext Organization*" structure. It should be noted that he does not view these as mutually exclusive, and states that the Hypertext structure will facilitate the adoption of the Middle-up-down management technique.

Communities Of Practice

Etienne Wenger builds on the work of Nonaka in his 2004 paper. There are very similar themes in Wenger's paper as to those revealed in the Nonaka paper.

Wenger (2004) states "*Knowledge management requires the proper organizational context. You need to have processes in place to coordinate the management of knowledge and integrate it into business processes such as technology for information flows, interpersonal connections, and document repositories, as well as institutional and cultural norms of paying attention to knowledge. However, while all of these are important enablers, they do not do knowledge management*."

Extracts from the paper can be linked to equivalents in Nonaka's work. For example: "*Practitioners, the people who use knowledge in their activities, are in the best position to manage this knowledge*." (Wenger,2004) This very much endorses the point made by Nonaka that everyone is responsible for knowledge creation, and that Top level management are not the best people to manage the knowledge process. This is similar to "*Middle-up-down management*" put forward by Nonaka.

Wenger's paper states also that "*Communities of practice are groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn how to do it better*." (Wenger,2004). Again this is similar terminology to Nonaka's "*community of interaction*."

Wenger goes on to say that "*Communities of practice manage their knowledge*." (Wenger,2004) – Again this builds on the work of Nonaka who said that the team set up within an organizations "*Project System layer*" should be self-organizing teams.

The additional concept that the Wenger paper gives, is a management technique that he refers to as the doughnut.

Knowledge management as a doughnut

This is probably best represented by the diagram below.

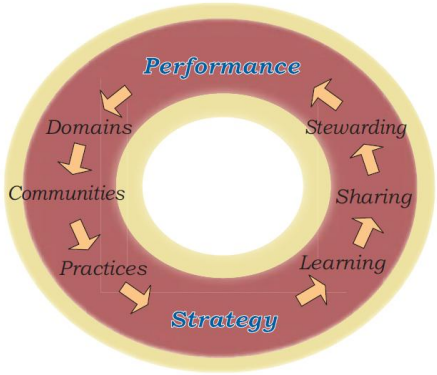


Figure 1.3. The doughnut model of knowledge management (Wenger, 2004)

Within this methodology Wenger talks about domain, community and practices, which are the essential parts of a community of practice.

- **Domain**: the area of knowledge that brings the community together
- **Community**: the group of people for whom the domain is relevant
- **Practice**: the body of knowledge, methods, tools, stories, cases, documents, which members share and develop together

From the model you can see there are three other items included, namely learning, sharing and stewarding. This is similar to the amplification and development that Nonaka talks about, with regard to the organizations role. Strategically speaking Wenger states that "*Engaging in this dual process of producing and harvesting knowledge gives practitioners a unique perspective on the strategic value of knowledge*."

The operation of this model is iterative and continuous in a cyclical manner. Again this is linked to the Nonaka spiral model of knowledge creation. Wenger states that the

doughnut and community of practice must sustain themselves by seeking new domains within which to learn. This is essential as otherwise the doughnut model becomes a self-extinguishing model. If the domain is set, eventually all knowledge that can be garnered in that domain will be found.

A Traditional View

A paper by Zach takes a more traditional view to knowledge management. It puts forward a traditional approach to organizational strategy development, and states that this traditional method can be applied to the generation of a knowledge strategy also.

Traditional strategy development

The framework quoted for strategy development by Zach, involves identifying where you are, and where you want to get to. Zach proposes the use of GAP and SWOT analysis to do this. Stating that "*the strengths, weaknesses, opportunities, and threats (SWOT) framework is perhaps the most well-known approach to defining strategy*."(Zach,1998). While this is a technique used for wider business strategy development, Zach identifies it as an applicable technique for KM strategy development.

1.2 Project Description

Building on the research illustrated above, the project will expand the literature review, and carry out an extensive review of case studies on organisations that have undertaken a knowledge implementation strategy.

The aim is to assess the impact of organisational culture and structure within the area of knowledge strategy implementation and knowledge processes.

The experiment will involve the development of a knowledge audit to assess and evaluate the impacts that organisational structure and culture have on knowledge management.

Key to both Nonaka and Wenger is the '*People*' in the process. Nonaka states that "*individuals create knowledge*" and Wenger refers to practitioners and their

management of the process. Despite this focus on '*People*' by domain experts, knowledge bottlenecks will form part of the literature review, and will be assessed in terms of '*Process*' and '*Technology*' as well as '*People*'.

Because of the emphasis by subject matter experts, on the individual in knowledge processes, and the impact organisational culture has on an organisation's individuals, the literature review will contain an evaluation of organisational culture within a context of knowledge management. The review will identify what organisational culture is, and detail how it impacts on knowledge management. The findings of this review will provide a useful comparator, and inform the evaluation of the responses received to the knowledge audit.

Further analysis of case studies highlighting issues with knowledge strategy implementations has already highlighted the following sample of findings.

- Management Support required for successful implementations.
- Integration of Monetary and Nonmonetary Incentives
- Knowledge Management is Cultivated and Nurtured, as opposed to a big bang implementation approach.

It is envisaged that the research will likely contain the above as part of its findings.

To satisfy the research question, the sections contained within the knowledge audit will seek to find the respondents individual experiences of knowledge management and knowledge processes in their own organisations. The sections of the audit will include sections similar to the following:

- Demographic data
- Basic Knowledge Profile
- Work analysis in a Knowledge Context
- Knowledge & Information sources
- Company / Organisational Culture
- Knowledge Management in the Organisation

The sections are selected based on the themes which the knowledge audit seeks to cover, namely Knowledge processes and Organisational culture and structure.

Analysis of the knowledge audit findings will be compared to the detail derived from the literature review. On completion of the analysis and evaluation of the experiment, the findings will be presented in the dissertation document with recommendations for further research in the area. The dissertation documentation will include a key findings artefact which can then be shared with all participants of the audit on request. This artefact will also be supplied to a small number of independent individuals to capture feedback on research findings, prior to submission of the dissertation documentation. This availability of the research will hopefully be an incentive to ensure the required number of participants in the knowledge audit actually participate and complete the audit.

1.3 Project aims and objectives

The aim of the project is to evaluate the impacts of organisational culture and structure, on organisations undertakings in knowledge strategy or knowledge process initiatives. Through the synthesis and execution of an appropriate experiment the research appraises these impacts and assesses levels of commonality across multiple organisations. Finally, the findings are summarised and made available for organisations as a reference point for when they seek to undertake a knowledge strategy implementation in the future.

To achieve this, the project objectives are:

- Examine the impediments identified in organisational knowledge strategy initiatives in Ireland and worldwide
- Investigate the current views and research conducted to date on organisational knowledge strategy and knowledge processes.
- Investigate the current views and research conducted to date on organisational cultures and structures and their impact on knowledge strategy and knowledge processes.
- Develop an experiment to ascertain whether the findings of the literature review and case study analysis can be independently verified.
- Document and evaluate the findings from the experiment
- Based on the evaluation, suggest a set of recommendations for organisations to reference when undertaking future knowledge based initiatives.
- Make recommendations for any future research in this area.

1.4 Project Scope

The research question offers quite a broad subject base to review and analyse. The research is seeking to assess impacts on knowledge management by organisational culture and structure. As such the scope of the project covers two broad knowledge domains, namely the knowledge management domain, but also the organisational theory domain.

The limiting factor of the project scope will come from the level of responses received in completion of the knowledge audit. A significant level of responses for such a research undertaking would be over 40 responses. Anything above this level would compare favourably to similar research undertakings.

The scope of the project will ultimately be defined by the sections that are contained in the final knowledge audit deployed. Potential sections are contained in Section 1.2 above, and determine the areas for which respondents will be surveyed on.

The researcher will use his professional contacts via LinkedIn as a means of distributing the knowledge audit. This has the potential to limit the scope of the responses to individuals working in similar sectors to the researchers own professional background. Efforts will be made to broaden deployment beyond this potential restriction.

1.5 Thesis Roadmap

Chapter 2 contains the literature review of material in the knowledge management domain which is relevant to the research question. This includes papers by subject matter experts, and relevant case studies on organisations that have implemented knowledge management initiatives and their associated experiences.

Chapter 3 covers the literature associated with knowledge bottlenecks and identifies how they can be classified between knowledge acquisition and knowledge re-engineering bottlenecks.

Chapter 4 examines the literature and research associated with organisational culture. The starting point is to define organisational culture. The chapter then examines the

link between organisational culture and the success or otherwise of, knowledge management undertakings within various cultures.

Chapter 5 gives an review of the literature associated with the knowledge audit process, detailing the importance of knowledge audits in any organisations knowledge strategy. The chapter discusses various techniques that are required in the implementation of the knowledge audit process.

Chapter 6 covers the literature associated with knowledge audit design. The chapter explores what the likely contents of a knowledge audit is in terms of themes and sections, based on the prevailing circumstances giving rise to the audit.

Chapter 7 details the development of the knowledge audit for this research including the appropriate themes and sections included. It covers the journey from initial draft through to final draft and describes the deployment method also.

Chapter 8 takes the results detailed in chapter eight and evaluates them in line with the research aims and objectives. The responses are evaluated through three distinct lenses. Each lens is concerned with a certain aspect of the research question.

Chapter 9 presents the research conclusions and key findings associated with the three lenses used in evaluating results.

Appendix A presents the final draft of the knowledge audit as it would have appeared in Microsoft Word.

Appendix B presents the responses received for each of the questions contained in the knowledge audit. Results are presented graphically with associated commentary for each question included.

Appendix C presents the template sent to two independent people, containing the research findings to assess whether they agreed or disagreed or had any comments on the findings. This iteration of the results provides further weight to the findings.

2 KNOWLEDGE MANAGEMENT STRATEGY – WHY?

2.1 Introduction

In a world where knowledge is said to be power, "*business organizations are coming to view knowledge as their most valuable and strategic resource, and bringing that knowledge to bear on problems and opportunities as their most important capability. They are realizing that to remain competitive they must explicitly manage their intellectual resources and capabilities*" (Zach, 1998). This quote indicates that organisations wishing to capture and use their knowledge resources need a knowledge strategy to ensure that the resources are best utilized and that maximum competitive advantage is gained from their use.

In the book "*Knowledge Management Handbook*" Liebowitz states that organisations are jumping on the knowledge management bandwagon. He refers to several specific companies, citing their efforts to try and harness their '*intellectual property*', and in particular the '*human capital*' in the organisation. "*Many CEO's will agree that their most competitive advantage is their 'brainware' or their 'human capital*'" (Liebowitz, 1999)

This emphasis on knowledge management is discussed significantly in academia in the nineteen ninety's and early into the new millennium. One could assume that as the growth of the technology sector into areas other than the production of hardware and software increased, organisations desire to retain and manage their intellectual property became even more important than had previously been the case. If we look at industry at a macro level, the history of producing tangible items, e.g. cars, has now been diluted by the production of services with high knowledge content. This leads to the emergence of technology sector powerhouses such as Google, Facebook and Twitter. These organisations are producing services that require significant levels of intellectual property to develop. To maintain or develop competitive advantage, they must ensure they manage their intellectual assets to the optimum.

Clark and Rollo (2001) describe knowledge as a 'social construct' which must be managed in a different manner to that of physical assets. The paper highlights the role of people in knowledge management, when stating that "*the transformation of raw data and information into useful knowledge requires a sense of trust and reciprocity on the part of people.*" Clark and Rollo also discuss the importance of the flow of knowledge, and that any knowledge initiative must do more than simply creating an inventory of knowledge assets, it must map the flows. To re-iterate the point on the importance of people the researchers state that "*knowledge produced by individuals reaches its full potential to create economic value when it becomes embedded in organisational routines.*" This quote shows the link between the individual's knowledge and that which can be elicited into the organisational knowledge base, for application in day to day activities of the organisation.

The above literature shows the importance that organisations and senior executives are placing on knowledge management. This chapter will detail significant researchers in the knowledge management domain, and highlight their work in offering organisations a framework to manage their knowledge management initiatives. This theory will then be evidenced by the review of case studies on organisations that have undertaken knowledge management initiatives.

2.2 A Dynamic Theory of Organisational Creation

Ikujiro Nonaka's 1994 paper "A Dynamic Theory of Organizational Creation" sets out how knowledge is created within an organization, and develops a framework which indicates how this created knowledge can be managed for the benefit of both the organization and the individual.

The paper sets out the difference between knowledge and information, with information defined as "*justified true belief*." From my own experience, information was taught as "facts" with "knowledge" being processed information. This is in line with a traditional view of an organization. The traditional view sees the organization as static with set inputs, which are processed with the aim of achieving desired outputs. Nonaka challenges this view of an organization in terms of knowledge creation, and

proffers a view that the organization is dynamic, and that this dynamism is a requirement in order to foster knowledge creation.

2.2.1 Knowledge Creation

Nonaka states that the creation of knowledge is dependent on the continuous dialogue between explicit and tacit knowledge.

Explicit knowledge is "*transmittable in formal systematic language*" (Nonaka, 1994). Tacit being personal knowledge which is hard to codify unlike explicit knowledge. Tacit knowledge is perhaps accurately described by the following quote "*We can know more than we can tell*" (Michael Prolanyi, 1966). Nonaka states that tacit knowledge is transferred via metaphors, or indeed can be transferred via learning by doing. His basic concept is that a continual dialogue between explicit and tacit knowledge is what drives the creation of new ideas and concepts. He represents these dialogues on the following matrix:

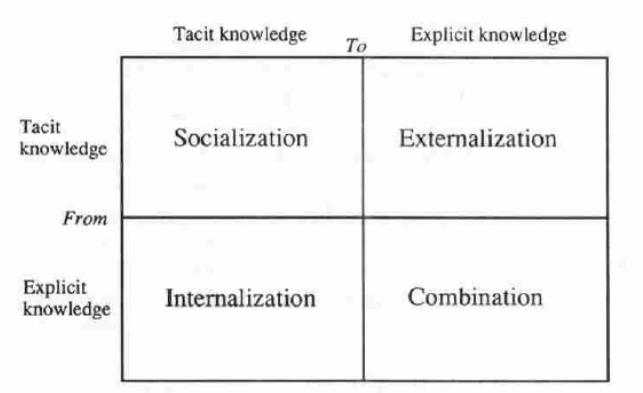


Figure 2.1. Modes of Knowledge creation (Nonaka,1994)

From Figure 2.1 it can be seen that there are four modes of dialogue:

2.2.1.1 Tacit to Tacit dialogue

Nonaka classifies this form of dialogue as "*Socialization.*" which can be as simple as two people with a common interest meeting and sharing ideas at a water cooler.

2.2.1.2 Explicit to Explicit dialogue

This dialogue is classified as "*Combination*" and happens when explicit knowledge is created from other explicit knowledge. From an organizational perspective, this would be seen as information processing.

2.2.1.3 Tacit to Explicit dialogue

Classified by Nonaka as "*Externalization*" where a person's tacit knowledge is identified and codified into explicit knowledge. Tacit knowledge may be communicated using metaphors, thereby allowing the receiver of the knowledge to contextualize it relevant to their own context or experiences.

2.2.1.4 Explicit to Tacit dialogue

Nonaka calls this "*Internalization*" and indicates that this is the closet mode to what would be considered traditional learning. Nonaka uses this to differentiate between an organization that calls itself a learning organization, and one that is concerned with knowledge creation. A learning organization may only employ the "*internalization*" mode of knowledge creation, where as a true knowledge organization will employ all four modes to ensure maximum knowledge creation.

The above covers Nonaka's two identified dimensions of knowledge creation. The first being the distinction between explicit and tacit knowledge, and the second being the ontological dimension. Nonaka states that all individuals can partake in the creation of knowledge, and that it is the place of the organization to ensure that created knowledge is "*enlarged, amplified and justified*." We now look at the organizational aspects addressed in the paper.

2.2.2 Organisational Knowledge Creation

Nonaka states in the paper that an organization should strive to integrate emerging knowledge into its strategy. He describes a "*spiral model*" that shows how this can be done, and also discusses the shape the organization needs to adopt in order to foster and capture effective knowledge creation.

One point of note is that Nonaka broaches the topic of "*communities of interaction*" as a means of the organization amplifying and developing created knowledge. This struck a chord as it would appear to be the foundation stone of Wenger's methodology.

Wenger as we will see later espouses the use of "*Communities of practice*" by organizations to manage their overall organizational strategy and thereby placing knowledge management at the centre of that strategy.

2.2.2.1 Model Shift and Spiral of knowledge

As stated above Nonaka is of the opinion that the four modes of conversion are required to create new knowledge independently. An important point made in the paper is that "*organizational knowledge creation hinges on dynamic interaction between the different modes*"(Nonaka, 1994). Organizational knowledge creation according to Nonaka involves the four modes being managed to form a continual cycle.

The paper states that in practical terms this will be done by the formation of teams from across the various functions of the organization. "*Socialization*" is expected to occur with meaningful dialogue amongst the team promoted. Nonaka states that there will be benefits for all functions, as existing knowledge can be shared from one function to another. Another benefit is that new knowledge created within the team structure can be taken by the individual back to their functions for use solving local issues.

The nature of the process is an iterative one, where trial and error is accepted, and learning through doing is also an accepted norm. As the teams become more familiar and begin to start working more effectively, the level of interaction between the modes of conversion will get faster and longer, with more and more people becoming involved in the process. Nonaka states that this leads to an upward spiral of knowledge creation, which he represents on the following diagram (Figure 2.2).

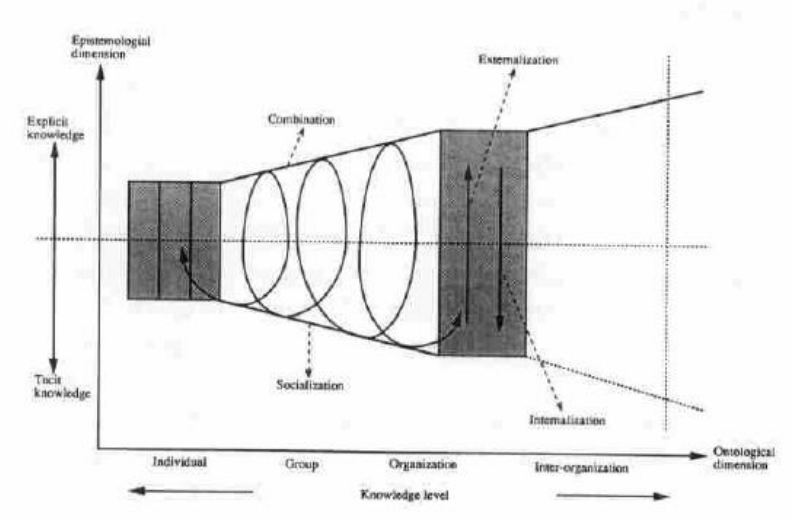


Figure 2.2. Spiral of Organizational Knowledge Creation (Nonaka,1994)

2.2.2.2 Process of knowledge organizational knowledge creation.

Nonaka identifies the processes that are involved with an organization creating knowledge. He states that an individual creates knowledge, and that the organization must enlarge this knowledge, and to ensure that it is amplified and justified.

"*Individuals accumulate tacit knowledge through hands-on experience*" (Nonaka, 1994). The quality of the knowledge created will depend on the variety of the individual's experiences and their knowledge of those experiences also. This is an important point for an organization, as varied experiences will lead to better knowledge creation. This puts an onus on the organization to ensure that individuals should be stimulated via multiple experiences, rather than having to do repetitive mundane work practices.

The amplification of the knowledge is the practice of sharing the knowledge. Nonaka cites the example, that in Japan a wide array of individuals can be involved in an organizations product development, including customers and suppliers, those being outside of the actual organization. Nonaka suggests two methods to aid amplification. The first is creation of "*fields*" which sounds again like Wenger's concept of a "*domain*." The second is the creation "*self-organizing teams*." Again I am reminded of "*communities of practice*" here.

Justification of the new knowledge concepts is done after a process which Nonaka names "*Crystallization*". This is where the new concepts are tested for reliability and applicability to the issues that the various functions of the organization are facing. Once this process is complete the knowledge will be justified by various quantitative and qualitative measures. In a commercial organization the quantitative measures are likely to be cost reduction or profit margin increase for example.

2.2.3 Managing the Process of Organizational Knowledge Creation

Nonaka identifies "*organizational wide enablers*" of effective knowledge creation. These are creative chaos, redundancy and requisite variety.

Creative chaos plays to the point that we are more effective when we face a crisis. Individuals will consider options in a chaotic situation that would never be entertained were normality prevailing. On this basis Nonaka identifies it as an enabler. He also states that if an organization suspects that individuals are in the comfort zone, that a certain level of chaos may be introduced into the scenario to drive the knowledge creation process.

Redundancy relates to the database definition of the word, where there may be duplication of information in multiple sites. Nonaka sees this as a positive, as it means that multiple people are looking at the same information, and that multiple sets of knowledge may be derived from the same information.

Requisite variety relates to what was said earlier, regarding the organisations individuals being stimulated by variety in their jobs. With an increased array of experiences, individuals are more likely to create higher quality knowledge.

Nonaka proposes two strategies that an organization can adopt for the management of knowledge creation. They are what he refers to as "*Middle-up-down management*" and the "*Hypertext Organization*" structure. It should be noted that Nonaka does not view these as mutually exclusive, and states that the Hypertext structure will facilitate the adoption of the Middle-up-down management technique.

2.2.3.1 Middle-up-down management

The paper proposes that management of the knowledge creation process should be the responsibility of middle management. Nonaka states that this layer of management is best placed to communicate both laterally and up and down the hierarchy of the organization. This according to Nonaka makes it more likely that all individuals, at all levels, will be the creators of knowledge. This is as opposed to having it knowledge creation centred at either the top or the bottom of the organization.

2.2.3.2 Hypertext Organization

Nonaka proposes the adoption of what the paper calls the hypertext organization structure. The paper states that this structure will support the implementation of middle-up-down management style and will allow the organization to acquire new knowledge in a circular process, similar to the spiral model detailed above.

Nonaka talks about self-organizing teams being set up, for the purposes of knowledge creation. He concedes the point that this structure may not be the most efficient for getting the routine day to day tasks completed. As a result the hypertext structure has three dimensions to it. The base layer being the existing knowledge base of the organization and its individuals, a traditional hierarchical structure - "*Business system layer*" - to ensure effective completion of day to day tasks, and a dynamic "*Project system layer*" for the purposes of knowledge creation.

The project system layer will be populated by different people at various points in time, which will lead to its dynamism. Teams within this layer will be focused on a particular field, but individuals will come from the various different functions of the organisation.

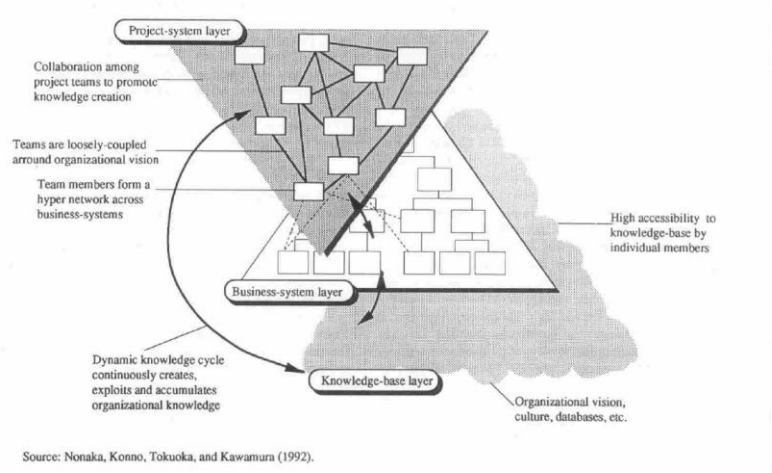


Figure 2.3. Hypertext Organizational Structure (Nonaka,1992)

2.3 Knowledge management as a doughnut

The paper "*Knowledge management as a doughnut: Shaping your knowledge strategy through communities of practice*" written by Etienne Wenger (2004) clearly builds on the work of Nonaka, with similar themes in Wenger's paper to those revealed in the Nonaka paper.

Wenger states "*Knowledge management requires the proper organizational context. You need to have processes in place to coordinate the management of knowledge and integrate it into business processes such as technology for information flows, interpersonal connections, and document repositories, as well as institutional and cultural norms of paying attention to knowledge. However, while all of these are important enablers, they do not do knowledge management*." (Wenger, 2004)

Extracts from the paper can be linked to equivalents in Nonaka's work. For example: "*Practitioners, the people who use knowledge in their activities, are in the best position to manage this knowledge*" (Wenger, 2004). This very much endorses point made by Nonaka that everyone is responsible for knowledge creation, and that top level management are not the best people to manage the knowledge process. This is similar to "*Middle-up-down management*" put forward by Nonaka.

Wenger's paper states also that "*Communities of practice are groups of people who share a passion for something that they know how to do, and who interact regularly in*

order to learn how to do it better." (Wenger, 2004). Again this concept is similar both in terminology and in conception to Nonaka's "*community of interaction*."

Wenger goes on to say that "*Communities of practice manage their knowledge*." (Wenger, 2004) – This builds on the work of Nonaka who said that the team set up within an organizations "Project System layer" should be self-organizing teams.

The additional work that the Wenger paper gives is the management technique that he refers to as the doughnut.

2.3.1 Knowledge management as a doughnut

This is probably best represented by the diagram below.

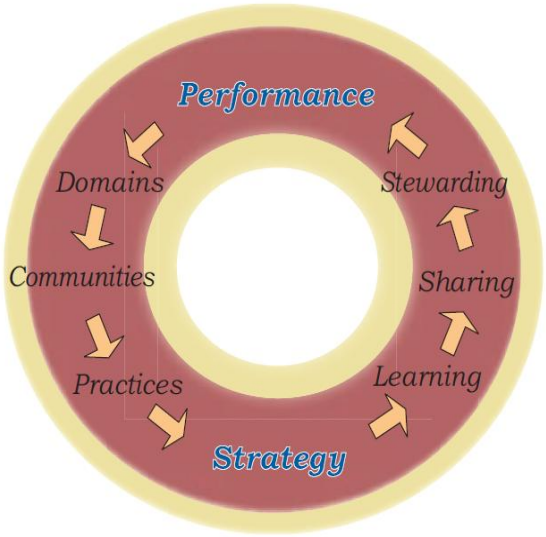


Figure 2.4. The doughnut model of knowledge management (Wenger, 2004)

Within this methodology Wenger talks about domain, community and practices, which are the essential parts of a community of practice:

- "*Domain: the area of knowledge that brings the community together,*
- *Community: the group of people for whom the domain is relevant,*
- *Practice: the body of knowledge, methods, tools, stories, cases, documents, which members share and develop together.*" (Wenger, 2004).

From the model you can see there are three other items included, namely learning, sharing and stewarding. This is similar to the amplification and development that

Nonaka talks about, with regard to the organizations role. Strategically speaking Wenger states that "*Engaging in this dual process of producing and harvesting knowledge gives practitioners a unique perspective on the strategic value of knowledge.*"(Wenger, 2004)

The operation of this model is iterative and continuous in a cyclical manner. Again this is linked to the Nonaka spiral model of knowledge creation. Wenger states that the doughnut and community of practice must sustain themselves by seeking new domains within which to learn. This is essential as otherwise the doughnut model becomes a self-extinguishing model. If the domain is set, eventually all knowledge that can be garnered in that domain will be found.

2.4 A traditional view

Zach (1998) takes a more traditional view to knowledge management, he puts forward a traditional approach to organizational strategy development, and states that this traditional method can be applied to the generation of a knowledge strategy also.

2.4.1 Traditional strategy development

The framework quoted for strategy development by Zach, involves identifying where you are, and where you want to get to. Zach proposes the use of GAP and SWOT analysis to do this. Stating that "*the strengths, weaknesses, opportunities, and threats (SWOT) framework is perhaps the most well-known approach to defining strategy*". While this is a technique used for wider business strategy development, Zach identifies it as an applicable technique for KM strategy development.

2.5 Real world case studies

The above sections have detailed the theory behind implementing a knowledge strategy and discussed how organisations might set about managing the business as usual process of knowledge management.

This section will now look at various case studies on organisations that have undertaken a knowledge management strategy. The case studies will show incidences

of successes and also of failure. This section will lead to the next section where the requirements for a successful knowledge management initiative will be discussed.

2.5.1 Siemens Case Study

Siemens are regarded as an organisation that has been exemplary in their implementation of knowledge management. The book "*Knowledge Management Case Book: Siemens best practices*" (Davenport and Probst, 2002) details the journey that Siemens undertook in their implementation of knowledge management. Another paper "*Why communities of practice succeed and why they fail*" (Probst and Borzillo, 2008) discuss Siemens use of 'Communities of Practice' as described by Wenger above.

In the paper the "*Holistic Development of Knowledge Management with KMMM*" Siemens through Karsten Ehms and Dr. Manfred Langen discuss their approach to ensuring knowledge management develops into a professional management discipline as opposed to a short-lived fad. The paper states that "*it is essential to have a reliable instrument for defining ones current position and driving long-term corporate development*". To ensure this is achieved, Siemens developed and patented what they call the "*Knowledge Management Maturity Model.*"(KMMM) Siemens have a dedicated knowledge management unit called the "*Competence Centre for Knowledge Management*." This unit is responsible for the development and application of the KMMM methodology within the organisation. The methodology comprises of three components:

- An analysis model - to look at all aspects of knowledge management and identify which areas and topics need to be developed.
- A development model - looks at what the analysis tool has identified, and what development can be done in these areas and topics so they reach the next maturity level.
- An auditing process - looks at all the steps involved in both the previous models, and ensures that results are as expected from these models.

The application of the methodology according to Siemens "*generally leads to understanding and appreciation of a gradual and integral development of knowledge management*."(Ehms and Langen, 2002)

Ehms and Langen mention that the first step involved in the implementation of KMMM is to analyse the current situation of KM. This should be done so systematically and the absence of such systematic concepts in the KM domain led to the development of KMMM. The other factor behind its development was the need to capture both qualitative and quantitative measurement of the current situation.

Siemens state that they wanted an instrument that could achieve the following:

- "*allow an holistic assessment of the KM activities of a given organisation which covers all relevant key areas of knowledge management*
- *derives suitable steps for development which are based on the current status of knowledge management, and thus shows the most appropriate starting point before a KM project actually kicks off*
- *supports ongoing development of the company through KM projects*." (Ehms and Langen, 2002)

They also state that the model should meet the following requirements:

- "*Provide qualitative and quantitative results, taking into account the different views of the participants on the KM tasks of an organization.*
- *It should be possible to apply the model to an organization as a whole, to classical and virtual organizational units or to KM systems.*
- *There should be a systematic and structured approach which ensures transparency and reliable handling of the procedure.*
- *The underlying structure or the "model" should be comprehensible and – if possible – allow cross-references to proven management concepts or models*." (Ehms and Langen, 2002)

The methodology derived to satisfy all the requirements above is as mentioned the KMMM model. We have seen above that it consists of three elements, analysis, development and audit. From the above descriptions we note that the development model is concerned with devising steps to get the area or topic to the next maturity level. This is referring to the Siemens view of knowledge management, where they view it as having five maturity levels. This is shown graphically below (Figures 2.1):

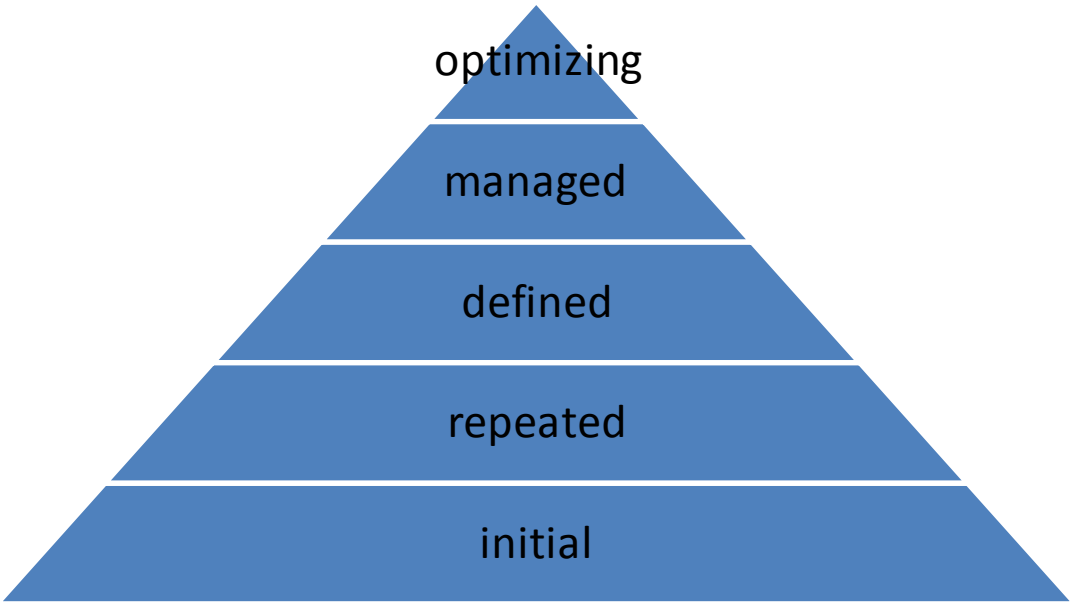


Figure 2.5 Representing the Five maturity levels of Knowledge Management (after Ehms & Langen, 2002)

In summary the analysis model identifies what level the topic or area is currently at and the development model then decides on the best way forward to move the topic or area to the next maturity level.

Ehms and Langen (2002) describe the development model as defining each of the maturity levels, and indicate that the 5 level model is a derivative of the Capability Maturity Model from the 'Software Engineering Institute' at Carnegie Mellon University. They also mention that "*the maturity levels should be seen as relatively robust states of an organization which are based on in-place activities and processes practiced over time*." (Ehms and Langen, 2002). To that end, each of the levels are described as follows:

- Initial - Knowledge processes such as creation, sharing, usage and indeed loss are not controlled by an organisation identified as being at this level of knowledge management. There will be no perceived link between these processes and the survival or success of the organisation.
- Repeated - Here KM has been linked to the organisations goals. KM will generally be the remit of 'KM pioneers' with pilot KM projects in existence.

- Defined - there are stable and "practiced" activities integrated into day-to-day which effectively support the KM of individual parts of the organization. A characteristic of an organisation at this level is KM roles which have been defined and filled.
- Managed - Here organisations demonstrate a common strategy and standardized approach to knowledge management, with "*indicators relating to the efficiency of .... KM activities ... regularly measured*." (Ehms and Langen, 2002)
- Optimizing - "*organisation has developed the ability to adapt flexibly in order to meet new requirements in knowledge management without dropping a maturity level*." (Ehms and Langen, 2002)

In determining what level the organisation is at via the analysis model, Siemens have identified 8 key areas of knowledge management that need to be assessed as part of the analysis model. These are shown on Figure 2.6 below which is extracted from (Ehms and Langen, 2002).

Figure 2.6 The Eight key areas of Knowledge Management. (Ehms & Langen, (2002)

This thesis will not go into the detail of what each of the areas are, as they are reasonably intuitive. However it is worth pointing out that both culture and organisation i.e. structure, the focus of this research, are both mentioned in Figure 2.6 as key areas of knowledge management.

Processes, roles and organisation area is described as "*matters relating to the organisational structure and the assignment of knowledge management roles*". The paper also mentions that the "*aim in this area is to discover how knowledge management activities can be added to specific business processes*" (Ehms and Langen, 2002).

Collaboration, culture "*addresses the collective "soft factors" which have a significant influence on the knowledge management of an organization. These include topics such as corporate culture, communication and team structures or network and relationship structures.*" (Ehms and Langen, 2002)

Both descriptions from the Siemens paper show the relevance of this research to real world examples of corporate initiatives in the knowledge management domain.

The above details the approach taken by Siemens to knowledge management via their KMMM model. It details what the analysis model and development model, both constituent parts of the KMMM entail. This review is relevant to this research as it shows in real world terms the implementation of the theory reviewed in earlier sections in this chapter. The above also highlights the significance of organisational structure and culture, as part of analysing the current position of the organisation in knowledge management terms. This analysis leads into the development model. The development model delivers the approach for Siemens to drive the improvement of the area under analysis to the next maturity level. It should be noted that the model only allows for incremental change in knowledge management, with an area or topic only allowed to move to the next level in the maturity pyramid detailed in Figure 2.5. In other words an area or topic cannot skip a level in its assent up the maturity pyramid, it must visit each level before moving onto the next.

2.5.2 HS case study

The Siemens case is one which is widely regarded as being a very successful approach to knowledge management. As a counter it is worth looking at an incidence on a knowledge management initiative where the outcomes were not as successful.

The following case is by Ivy Chan and Patrick Y.K. Chau both of the University of Hong Kong. The case study is contained in a book by Murray Jennex of San Diego University, entitled "*Case Studies in Knowledge Management*." As can be derived from the title, this book contains multiple case studies in the knowledge management domain. The case study by Chan and Chau (2005) is called "*Why Knowledge Management Fails: Lessons from a case study*" and discusses the initiatives of a handbag and premium leather product producer exporter. The organisation has been granted anonymity in the case study and is simply referred to as HS. HS has a production facility in China but is a Hong Kong based enterprise.

The case study mentions that the organisation was keenly aware of what knowledge management entails and what competitive benefits could be achieved by undertaking KM initiative. Without going into specifics the case study indicates that due to a fragmented approach to their KM activities and a lack of buy in to them by individuals, the KM initiatives failed to gain any traction within the organisation. The case study identifies four principle lessons learnt in this failure case. These are as follows:

- **Start with a KM plan based on realistic expectations**.

  This is related to the approach that Siemens take in their KM endeavours. They do so on an incremental and iterative basis, beginning with an analysis of the current status of the area or topic. This was not evidenced in HS where the initiatives were beyond their current capabilities.

- **Management support needs to be consistent and cohesive**

  A key point in most KM literature is that top level management buy is required to ensure success. This does not mean that the top level management must constantly drive the initiative. In fact Nonaka (see section 2.2.3.1), espouses a "*Middle-up-down management*" approach, where middle management are tasked with the knowledge processes. However the onus on top management is to facilitate and create an environment where this approach will prosper.

- **Integration of monetary and nonmonetary incentives**

  A good way to effect a change in people's behaviour, specifically knowledge sharing and creation, is to ensure that the desired behaviour is rewarded. Obviously one must then ensure that the right behaviours, consistent with the

strategy being implemented are those that are rewarded. Incentives can of course take the form of monetary reward, but may also included non-monetary rewards where the desired behaviours are publicly recognised.

- **KM to be cultivated and nurtured, not a push strategy**
  This lesson learnt is indicating that the KM initiative cannot be implemented in one big bang approach. Instead it is done so on a gradual basis, consistent with Nonaka's spiral model, where over time the iteration and spirals become faster and larger, with more and more people becoming involved in the KM processes as they mature in the organisation.

The above case study shows that despite the organisation realising the strategic value in undertaking a Knowledge Management initiative, along with the application of money and resources does not necessarily guarantee success. This provides a good contrast to the success story of the Siemens approach.

2.5.3 Reserve bank of New Zealand Case Study

The final case study in this literature review is relevant to the research being undertaken for this thesis. The case study is called "Reserve Bank of New Zealand: Journey toward knowledge" written by Yogesh Anand from the Reserve Bank in conjunction with David Pauleen and Sally Dexter of the University of Wellington, New Zealand. The case study is also taken from the same book by Murray Jennex as the last case study in Section 2.5.2.

The case is relevant to this research on a couple of fronts. The first of which is that the RBNZ is a public sector or government organisation. The second relevant point is that the structure of the organisation is hierarchical and based around functional silos. This research will look at both organisational structure and culture and their associated impacts on knowledge management.

The background to the knowledge initiative in RBNZ is one of key staff risk. According to the case study the average career in RBNZ is 9+ years. Significant knowledge is built up over an individual's career, and together with the specialist nature of this knowledge the bank became worried about the loss of this knowledge

when long term staff departed the bank. The prevailing culture of the organisation was influenced by a downsizing initiative that had seen staff numbers being drastically reduced over a number of years. This cultural point is an interesting one, as employees who feel threatened in terms of security of tenure are not likely to engage in sharing knowledge. The perception being a loss of competitive advantage by the individual sharing the knowledge base with others.

Various knowledge initiatives were implemented by the bank with a view to mitigate this loss of knowledge when staff departed the bank. There were various findings highlighted in the case study as result of these initiatives, which are as follows.

- **Knowledge management is not a project, it is a continuum**

  This lesson would be in line Nonaka's spiral model that the process is iterative by nature. This would tally also with the Siemens 'Defined' maturity level where ultimately the KM activities need to be adopted into the day to day practices of the organisation.

- **Need for a framework that will evolve organically**

  In line with Nonaka's 'hypertext' organisation, or indeed Wenger's 'Communities of practice' the organisation structure for knowledge management needs to be able to adapt organically to, for example, changes in the knowledge domain or indeed other influences to the KM initiative.

- **High level of commitment from within the organisation**

  Another demonstration that top management need to support the initiative and allow the initiative the right level of autonomy to grow organically. Perhaps the requirement for top level support is more a requirement for a hierarchical organisation, as opposed to an organisation with a flatter structure.

- **The intangible nature of benefits**

  The case study notes that "*the benefits from knowledge management initiatives are often intangible and hard to quantify*" (Anand, Pauleen, and Dexter, 2005) The case study also indicates that the New Zealand government of the time was interested in promoting New Zealand as a knowledge economy. This meant that a lack of tangible benefits to the KM initiative was overlooked when the

required investment was being approved. It would appear that the RBNZ could have done with researching the Siemens approach, and in particular their KMMM model which is designed to capture both qualitative and quantitative benefits associated with KM initiatives.

The above case study is of interest to this research because as mentioned the organisation in question is a public sector body, with a hierarchical structure. There is also an interesting cultural issue, which would be perceived as not being conducive to a knowledge sharing environment. All these aspects of organisational theory will be examined as part of this research paper.

2.6 Building blocks for implementing Knowledge management

The final section in the chapter involves looking at what one organisation believes are the building blocks of a successful knowledge management implementation. Dataware Technologies Inc. a consulting company in the knowledge management domain, have identified seven building blocks that organisations should seek to achieve. These building blocks will increase the chances of a successful knowledge management initiative. The building blocks are reasonably intuitive and are as follows:

- **Quickly improve ROI on existing knowledge assets**

  ROI is the abbreviation for 'return on investment', and this building block refers to the fact that organisations should ensure they are maximising the usage of their existing knowledge resources. By doing so will mean they are maximising the competitive advantage from their knowledge resources.
- **Enhance the process of locating applicable knowledge**

  The organisation should ensure that individuals can locate the required knowledge in the most efficient way possible. Knowledge mining software is suggested.
- **Increase the accuracy and speed of classifying knowledge**

  New knowledge should be stored in the appropriate category in the most efficient manner possible. An automated categorisation tool is suggested.
- **Provide substantially enhanced functionality, security, and performance for the growing knowledge management activity in your organisation**

The knowledge base should be stored appropriately to allow flexibility for future development in the knowledge base and changes to processes associated with knowledge management.

- **Start capturing valuable "tacit knowledge" that was previously lost to retirement, downsizing and employee turnover. Make the contribution of knowledge easier and faster.**

  This point is reasonably intuitive, and means the organisation should try an formalise how tacit knowledge is captured.

- **Enable faster access to critical knowledge. Reduce the risks of not finding key information.**

  Organisations should seek to implement a knowledge map that allows them to ensure all knowledge is quickly accessible.

- **Quickly find people in your organization who have specific knowledge**

  A corporate directory detailing all employees and their areas of expertise, stored in a manner that would facilitate query by knowledge area would facilitate this building block.

All the above points (building blocks) are success drivers for knowledge management initiatives that are recommended in a white paper by 'Dataware Technologies, Inc.' called "Seven Steps to implementing knowledge management in your organisation."

2.7 Conclusion

This chapter reviews literature relevant to organisational knowledge management initiatives. In doing it covers what knowledge management is, and details why organisations should be looking to implement such initiatives.

The authors reviewed in the knowledge management domain in this chapter are deemed to be subject matter experts whose work has influenced the approaches of many organisations. Nonaka is seen by many as an early pioneer in knowledge management with his work acting as a foundation for others including Wenger. The work of both Nonaka and Wenger not only details what knowledge management is, but offers theories and methodologies to organisations on how they can implement knowledge management strategies.

There is a review of some real world case studies, where the knowledge management experiences of three particular organisations is covered. This focus on real corporate examples continues, with detail of one organisation operating in the knowledge management domain, and their recommendations of practical items that can enhance an organisations chances of a successful knowledge management implementation. The corporate examples covered in this chapter are relevant to the research that this thesis is undertaking. In particular in terms of the cultural and structural issues that were encountered in the case studies in their journeys with knowledge management. Key findings for each of the three case studies did have some similarity. The continuous nature of knowledge management was a common thread, between all case studies, with the requirement for top level management support of the process mentioned in more than one of the case studies.

3 KNOWLEDGE BOTTLENECKS

3.1 Introduction

The term 'Knowledge bottleneck' is the term used to describe an inhibitor to the knowledge management process. It is generally accepted that knowledge bottlenecks can be categorised into two distinct types: the 'knowledge acquisition bottleneck' and the 'knowledge re-engineering bottleneck'. (Hoekstra, 2010)

A knowledge acquisition bottleneck will prevent, or slow the development of new knowledge, or the capturing of existing knowledge into a knowledge base or expert system. It is predominantly associated with artificial intelligence (AI) and was highlighted by Feigenbaum (1982), who said: "*The problem of knowledge acquisition is the critical bottleneck problem in artificial intelligence.*"

The knowledge re-engineering bottleneck "*refers to the general difficulty of the correct and continuous reuse of pre-existing knowledge for a new task*", according to Hoekstra (2010). This indicates that the bottleneck relates to the application of an existing knowledge base or expert system to the solution of a new task or problem.

This chapter discusses the knowledge acquisition bottlenecks as identified in "*Breaking the Knowledge Acquisition Bottleneck through Conversational Knowledge Management*", Wagner (2006) in section 4.2 below.

In Jawadekar (2011) knowledge management systems (KMS) are identified as being about the management of the interactions between People, Process and Technology. This is represented by the Venn diagram below.

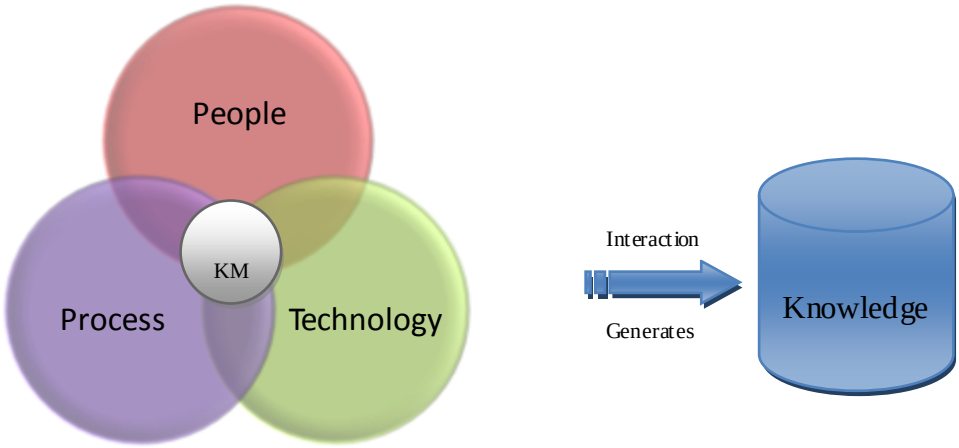


Figure 3.1 The relationship between people, process and technology (after Jawadekar (2011))

Jawadekar (2011) maintains that the KMS sits at the intersection of all three components, and that the interaction between the three components leads to the generation of knowledge. This is not a dissimilar concept to that of Nonaka's basic concept of continual dialogue between explicit and tacit knowledge, in so far as there is continuous interaction generating new knowledge.

Jawadekar (2011) is specific about what knowledge each interaction is creating. This chapter will examine these interactions and discuss issues that arise from them in sections 3.3 through to 3.5.

3.2 Bottlenecks

As mentioned above Wagner (2006) identifies the knowledge acquisition bottlenecks as follows:

- Narrow bandwidth
- Acquisition latency
- Knowledge inaccuracy
- Maintenance trap

Each of these are discussed below.

Narrow bandwidth

Wagner (2006) says "*the channels that exist to convert organizational knowledge from its source (either experts, documents, or transactions) are relatively narrow*". Wagner is referring to the fact that the ability the organisation has to convert the knowledge, may very well be restricted. There could be a multitude of reasons, including ones that could be classified into the people, process and technology model. Not having the technical ability to convert the knowledge into the knowledge base, or a lack of suitably qualified knowledge engineers within the organisation, would be examples.

To acquire the knowledge one must be able to query those that currently possess it. In a busy organisation the expert may view the elicitation of their knowledge as hindering them from doing their day job. In other they would rather be applying their knowledge in the roles that they were employed for, rather than spend time transferring their knowledge to an alternate knowledge base.

There are motivational issues associated with a person's enthusiasm for transferring their knowledge. Knowledge could be viewed by the practitioner as giving a competitive advantage, and they will not want to cede this advantage by transferring it to a widely available knowledge base.

Organisational culture may be a restraint impacting people's willingness to transfer knowledge. In an organisation that requires secrecy for commercial reasons, it is likely that this will affect an employee's approach to work and knowledge held. They may well guard the knowledge that they posses based on the prevailing organisational culture.

Processes and technology within the organisation may also inhibit the ability of the organisation, where they are not fit for purpose. Inadequate processes, or out dated technology being the principle issues.

Acquisition latency

Wagner (2006) says "*the slow speed of acquisition is frequently accompanied by a delay between the time when knowledge (or the underlying data) is created and when the acquired knowledge becomes available to be shared*."

In a fast moving environment the need for up-to-date and timely information or knowledge could be critical to an organisations commercial success. In such a situation, it is imperative that captured knowledge is dispersed to the required consumers to ensure the full strategic benefit of the knowledge base is realised. Where a process of codifying knowledge into the knowledge base is taking long, the benefit of the captured knowledge to the wider knowledge base users may well be lost. Again this could be related to the processes and technologies being employed by the organisation once the knowledge has been captured.

Knowledge inaccuracy

Wagner (2006) says "*Experts make mistakes and so do data mining tools used to mine data and information.... Maintenance can introduce inaccuracies or inconsistencies into previously correct knowledge bases.*"

This issue is associated with the People aspect of knowledge acquisition, is the fact that the expert may actually get things wrong. This builds errors into the knowledge base from the start, and can impair the benefits of the knowledge base once these errors are codified. Methods of elicitation need to be considered carefully, with control mechanisms devised to ensure that captured knowledge is as accurate as possible. This could be seen as devising processes and placing a reliance on them, to ensure that the people aspect of the knowledge system is not allowed to generate human error.

Maintenance trap

Wagner (2006) says "*as knowledge base grows, so does the requirement for maintenance.... Previous updates that were made with insufficient care and foresight accumulate and render future maintenance increasingly more difficult.*"

Over time the accuracy of the knowledge base may be degraded with maintenance updates. This is similar to issues caused with any database when updates lead to data redundancy. It could be categorised as people, process or technology issue. Similar to any database, the knowledge base should have sufficient controls (processes) to ensure that new knowledge is captured and codified accurately. The individuals charged with maintaining the knowledge base (people) should ensure that updates to the existing base are only completed as required. The knowledge base design and solution

(technology) should ensure that the potential for redundancy is minimised, and that the knowledge base ensures referential integrity for all updates as much as possible.

3.3 Process, People and Technology Bottlenecks

A look at each, and in particular their interactions with each other.

3.3.1 Process Issues

"*In people process interaction, process operators identify the bottlenecks holding the process, process inefficiency causing delays and quality problems and knowledge gaps in operators which require training and guidance. This exercise of solving process problems adds to the knowledge of the process designers, which emerges out of experience of applying existing knowledge*." (Jawadekar, 2011)

The use of a Venn diagram in the introduction, details the relationship between people, process, and technology. The Venn diagram indicates the central link between all three, but also the various interactions that happen between pairs.

The quote above mentions how process problems can be identified, and that this newly found knowledge can be used to improve future process design and correct the existing processes also. The knowledge garnered is explained as being captured by the process designers (People), but the organisation should ensure that this new process related knowledge is codified for future process design, and to ensure that it is shared with the widest possible audience.

3.3.2 People Issues

Jawadekar (2011) indicates that there is knowledge creation for the individuals involved in the People and Process interaction also. It discusses the People issues that are highlighted by the interaction between People and Process. It mentions the fact that training and guidance may be required to overcome any issues that this interaction highlights.

Similarly the interaction between People and Technology will also highlight any issues that the users may have with technology employed. This could also lead to further training and development for People regarding the Technology.

In both interactions the outcome should be increased knowledge for the individuals involved, with training and guidance identified to counter any issues. Where there are no issues identified, there should still be a generation of knowledge, of a more tacit nature, where people become more familiar with processes and technology, and more efficient in their use of same as a result.

3.3.3 Technology Issues

"*In people technology interaction, people learn the capability of the technology and its effectiveness in delivering the outcome in an efficient manner. This knowledge is captured and used in other process reengineering projects. The interaction also creates knowledge about limitations of technology in solving problems.*" (Jawadekar, 2011)

The quote above shows that the interaction between people and technology also generates knowledge about the limitations of the technology. As with knowledge garnered about processes, knowledge about the technology can influence future technology developments and help improve the existing platform also.

Technology issues could include the ability to load the information into the knowledge base taking too long. This would lead to issues of acquisition latency as identified by Wagner (2006). Where there are automated loads into the knowledge base, controls must ensure that that the data is accurately loaded and does not differ from knowledge which has been elicited from the experts.

The process technology interaction can also cause issues on the technology front. This could manifest itself where an organisational process needs to be changed. The flexibility of the technology will be tested in this situation. Technology should be able to adapt in line with process changes, with minimal impact on business as usual performance. Maintenance issues are then potential problems in this regard. Maintenance in terms the system having to adapt to process change, but also in terms of the knowledge and any required maintenance that is needed. Again Wagner (2006), would indicate that the technology should seek to eliminate the maintenance trap that is associated with technology and knowledge updates.

3.3.4 Discussion of Bottlenecks in Process, People, and Technology

Anecdotally it is said that 80% of knowledge bottlenecks are people related. One can see why the people part of a knowledge process is so important. Technology and processes are generally a product created by people. It takes an individual to build the specification for a technology or a process, and as such the importance of people in these processes is understandable.

This is important in this research, as organisational culture will impact on how people carry out their day to day duties, and how they will interact with knowledge processes. Research into organisational culture's impact on knowledge management has a direct link to alleviating bottlenecks by changing the way processes are viewed and completed within the organisation.

3.4 Conclusion

This chapter discusses the detail associated with knowledge bottlenecks. It details how research to date has categorised bottlenecks into two distinct categories, namely the acquisition bottleneck and the re-engineering bottleneck.

The various types of bottlenecks are further discussed, with classification by Wagner of the acquisition bottlenecks, and the re-engineering bottlenecks in the context of the People, Process and Technology framework as proffered by Jawadekar.

Specific examples of each type of bottleneck are detailed, evidencing of the theory discussed in the literature reviewed. This research is concerned with the impact on knowledge management of organisations culture and structures. It is possible that organisation culture in particular could be used as means of alleviating certain bottlenecks identified by an organisation. For example a change in culture could alter peoples attitude to knowledge sharing, and therefore play a role in alleviating any bottleneck in this process.

4 ORGANISATIONAL CULTURE

4.1 Introduction

This chapter examines the literature and research associated with organisational culture. The starting point is to define organisational culture. The chapter then examines the link between organisational culture and the success, or lack of, knowledge management undertakings in various organisations. This research is seeking to study links between the prevailing organisational culture in an organisation, and that organisation's approach to knowledge management.

Schein (1985) defines organisational culture as "*a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration…a product of joint learning*." Schein also refers to a "*growing interest in the cultures of small coherent units within organisations*" he gives the example of surgical team or task force (project team) that cut across occupational groups. Schein notes that within these units there can be a subculture that differs from the main organisational culture, which is interesting to examine in terms of a knowledge management context.

Schein's definition mentions joint learning, which is organisational learning in a knowledge management context. The second quote mentions growing interest in subcultures, which is interesting in terms of Wenger's "*Community of practice*" and Nonaka's "*Hypertext Organization*" structure proposals. Schein is indicating that irrespective of the overall organisational culture, that specialist teams that are formed for example, to undertake a knowledge management exercise, can foster their own subculture which may overcome any limitation of the prevailing organisational culture with regard to enabling a successful knowledge management initiative.

4.2 What is organisational culture

The chapter introduction gives a definition by Schein as to what organisational culture is. Other authors in this area give detail as to what organisational culture is, and how it is formed.

Deal and Kennedy (2000) in their work on organisational culture, suggest the basis of corporate culture involves the interaction of an interlocking set of cultural elements. These cultural elements are as follows:

History

This element indicates that the decisions of the past, and the way achievements to date have occurred, will impact on the decisions an organisation is currently making. In other words the history of the organisation in arriving at its current position will affect the decisions that same organisation will make when deciding on its future path.

Deal and Kennedy state that "*A shared narrative of the past lays the foundation for corporate culture*." They state that organisations that ignore the manner of how they achieved in the past, in favour of a current management trend, may do so to their detriment.

Values and Beliefs

Cultural identity is formed around the beliefs which are shared convictions. These are the widely accepted notions of what is really important, and the values that determine what the organization stands for. Values "*are what we rally around even when things get tough*" (Deal & Kennedy, 2000).

Deal and Kennedy note that the link identified between values, beliefs and profitability has led to organisations endeavouring to create mission statements. Organisations are trying to capture the essence of their culture in a summarised sentence, that is then usually displayed publicly. This is done as a means of communicating their culture to those who read it.

Rituals and Ceremonies

Values and beliefs are intangible by nature. Many organisations use rituals or ceremonies to give tangible evidence of the organisations culture. This can consist of many and varied approaches, from informal sessions discussing the work ahead, to more formal recognition of employee efforts. Employees deemed to demonstrate the desired behaviours of the organisation, will be visibly rewarded in these ceremonies or

rituals. Ceremonies could also be the things that employees do every day that bring them together, more in formal by nature, but part of how things are done.

Rituals and ceremonies will be the most effective way that the organisation will communicate its culture to the employees. This will have a more significant impact on new starters, or employees with lower levels of service to the organisation. The corollary of that being that the experienced employee probably has tacit knowledge of the organisational culture, even if they don't recognise it themselves.

Stories

Corporate stories typically exemplify company values, and capture dramatically the exploits of employees who personify these values in action. Above we mentioned that the rituals and ceremonies will reinforce the desired behaviour with the individual. Stories are a useful method of sharing the exploits of 'cultural heroes' with the wider employee base, to further the organisational culture communication across the entire employee roster. Stories allow employees to learn about what is expected of them and better understand what the business stands for.

Heroic Figures

'Cultural heroes' are mentioned above in the 'Stories' section, these figures who the organisation view as the embodiment of the organisations culture, will generally be the principle characters in these stories. These heroes serve as role models to other employees, and their words and actions signal the corporate ideals to aspire to.

The Cultural Network

The informal network within an organization is often where the most important information is learned. Deal and Kennedy identify the following informal players:

- 'Storytellers' - those who create stories that can be passed on to initiate people to the culture.
- 'Gossipers' - those who feed people a steady diet of interesting information. These could be the organisational culture sceptics, know not to take the information at face value, but enjoy the gossiping of a good story.
- 'Whisperers' - seen as those close to the powerful people in the organization. These people are a useful communication method, for up-the-line

communication and down-the-line communication, where employees don't want to use formal communication channels.

- 'Spies' - provide valuable information to top management, and let them know what really happens on a daily basis.
- 'Priests and priestesses' - these will generally be long term employees or members of the organisation. They know the history of the company inside out, and can be relied on to interpret a current situation using the beliefs, values and past practices of the company. Often viewed as the guardians of cultural values.

Deal and Kennedy state that the above elements will play a role in identifying and communicating the organisational culture. Other authors in the area may agree or disagree, but the elements are useful in exploring what it is that constitutes a corporate or organisational culture. It does not contradict the simple edict of 'how we do things around here' but certainly adds detail as to how an organisation arrives at its methods of 'doing things'.

4.3 Different organisational culture types

There are multiple frameworks and models that identify various different cultural types. Deal and Kennedy studied many organisations through the prism of their suggested 'cultural elements' and derived a model as a result. Deal and Kennedy's cultural model identified two other elements that affected the organisations culture. These being:

- The level of risk associated with the organisations activities.
- The speed with which the organisation learned whether its strategies and tactics were successful.

Assessing the 'cultural elements' along with the two additional aspects identified, the Deal and Kennedy Cultural model was developed.

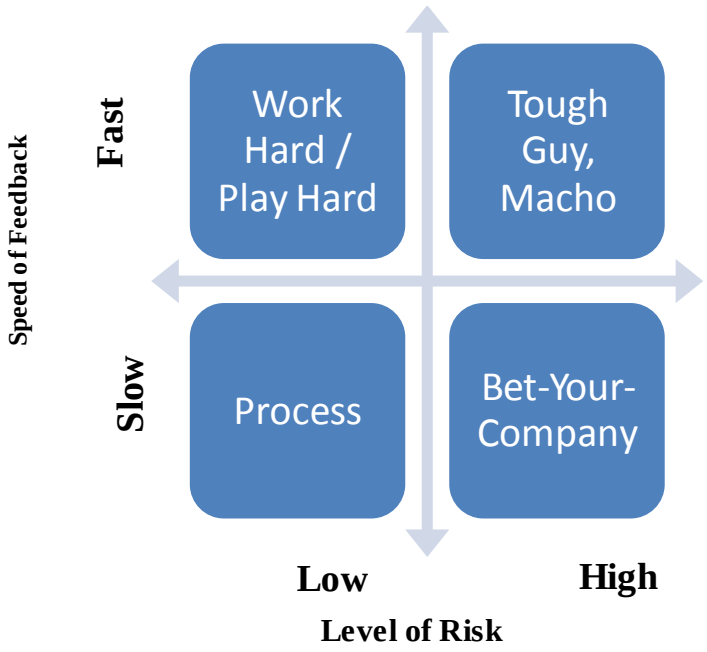


Figure 4.1 Redrawing of Deal and Kennedy Cultural Model

The text inside the grid boxes indicate the four culture types that Deal and Kennedy identified in their research.

Tough Guy, Macho culture

"*A world of individualists who regularly take high risks and get quick feedback on whether their actions were right or wrong*." (Deal and Kennedy, 1982, p. 107)

This culture is one that you could imagine prevailing in a stockbrokers, or commodities trading environment. The initial investment is at stake, but the rewards are substantial and the communication of success or failure can be immediate. The film 'Wolf of Wall Street' comes to mind.

Work hard/play hard culture

"*Fun and action are the rule here, and employees take few risks, all with quick feedback; to succeed, the culture encourages them to maintain a high level of relatively low-risk activity*." (Deal and Kennedy, 1982, p. 108)

Characterised by high levels of activity, and each employee has to take few risks. The sort of organisations that might demonstrate this culture would be large corporates, for example those that operate in the motor industry. From reading about this culture type,

the central theme here is that the customer is of utmost importance, and as result so is the product that is being delivered. There are probably high levels of organisational reputation involved here, with individual employees being very much subservient to the corporate way.

Bet-your-company Culture

"*Cultures with big-stakes decisions, where years pass before employees know whether decisions have paid off. A high-risk, slow-feedback environment*." (Deal and Kennedy, 1982, p. 108)

Project orientated organisations might demonstrate this, where perhaps the organisation is set up for the specific purpose of completing a particular project or task. Perhaps organisations involved in large infrastructure construction, such as new motorways, airports etc. Typically this type of project can see many large companies coming together to form a special purpose vehicle (SPV) to complete a task that the SPV has most likely had to tender for against other similar organisations.

These organisations generally involve massive levels of investment, and their success will be measured on whether they can hit deadlines consistently and bring deliverables in on budget. Here we see the high risk via large investment, and slow feedback, as ultimate success will not be deemed until the project is actually finished, which may be years in some cases.

The Process Culture

"*A world of little or no feedback where employees find it hard to measure what they do; instead they concentrate on how it's done. We have another name for this culture when the processes get out of control – bureaucracy!*" (Deal and Kennedy, 1982, p. 108)

Their low-risk, slow feedback fosters an environment where employees focus on how work is done – the process – rather than looking back at the bigger picture, as to why the work is done. Employees in these cultures may be very defensive, fear getting something wrong. Defensive mechanisms will be employed by the employee in an

attempt to protect themselves. Examples could be circulating emails copied to everyone remotely concerned with an issue.

Deal and Kennedy would admit that the four-culture model is simplistic, but provides a useful starting point for assessing your own organisation. In reality all four cultures may be found within a single organisation, which again hints at Schein's observation of the existence of subcultures. Deal and Kennedy note that companies with very strong cultures will skilfully blend the best elements of all four types to maintain responsiveness in a changing environment.

4.3.1 Culture categories - Edgar Schein

Schein in his research identifies four categories of culture detailed below. As mentioned already these are interesting, because Schein introduces the concept that an organisation will have more than one culture. He does this by highlighting the existence of sub and micro cultures in an organisation, and their existence indicates that they differ from the wider organisation culture.

- **Macro-cultures**

  This is concerned with scenarios larger than the organisation. This will involve for example national cultures, which one could argue may even be a stereotype. For example, the Germans are efficient, or the Irish are friendly. It could also relate to cultures associated with professions, again open to the criticism of being a stereotype, but accountants are careful or risk adverse, would be an example.

- **Organizational Cultures**

  This is likely to be the culture that we have discussed in the Deal and Kennedy research, or from one of the other researchers in the organisational culture domain.

- **Sub-cultures**

  This is of interest to those in the knowledge management domain, as this indicates that Wenger's 'communities of practice' could be facilitated by a different culture to that of the prevailing organisational culture. It could also be seen as a facilitator to Nonaka's 'hypertext' organisation structure, in that the hypertext structure would have a culture favourable to the fostering of

knowledge management, which could be different to the overall organisations culture.

- **Micro-cultures**

  This is a further subset of a subculture. It hints that even in the smallest teams, individuals may have preferred way of working which deliver team objectives, but may not be how other team members are achieving the same goals.

Schein identifies 3 levels of culture:

- **Artefacts**

  The physical embodiment or tangible evidence of the culture. These as mentioned in Deal and Kennedy's rituals and ceremonies element are the visible elements of the culture. The organisation's mission statement could be included in this.

- **Espoused beliefs and values**

  The message that is being communicated by the organisation's mission statement will incorporate these beliefs and values. These beliefs and values will be re-enforced by rituals and ceremonies that recognise those employees that embody the organisations cultural values. They will be communicated via the corporate stories that Deal and Kennedy reference in their identified cultural elements.

- **Basic underlying assumptions**

  This refers to the tacit knowledge that the employee will have developed in relation to an organisational culture. It will be built on the foundation of the organisations beliefs and values. Schein views this as the most important level as he states “Human minds need cognitive stability and any challenge of a basic assumption will release anxiety and defensiveness”. Therefore it is these underlying assumptions that all organisations should pay heed to, as they impact on the employees’ satisfaction and morale.

Schein indicates in is his research, similar to Deal and Kennedy, that there is not likely to be just one culture in the organisation. Schein actually identifies three types of subculture, and stresses the importance to the organisation of having these three subcultures aligned. The identified subcultures are;

- ***"Operator's*** *- based on human interaction, high levels of communication, trust and teamwork.*
- ***Engineers*** *- elegant solution, abstract solutions to problems, automation and systems.*
- ***Executives*** *- financial focus, lone hero, sense of rightness and omniscience."*

Source: (Schein, 2013)

Schein is quoted on the same source as saying *"many problems that are attributed to bureaucracy, environmental factors or personality conflicts among managers are in fact the result of the lack of alignment between these subcultures."* (Schein, 2013)

This places significance on the role of the individual in the organisation, as all three identified subcultures are based on roles. This indicates that the position you hold in the organisation will drive the subculture to which you follow. The mention by Schein of the importance of having these subcultures aligned indicates that the success of the organisation is linked to the overarching 'Organisation culture' and various 'sub-cultures' being aligned.

Graphically Schein's cultural model has been represented as an inverted pyramid or stacked Venn diagram. These representations are recreated below:

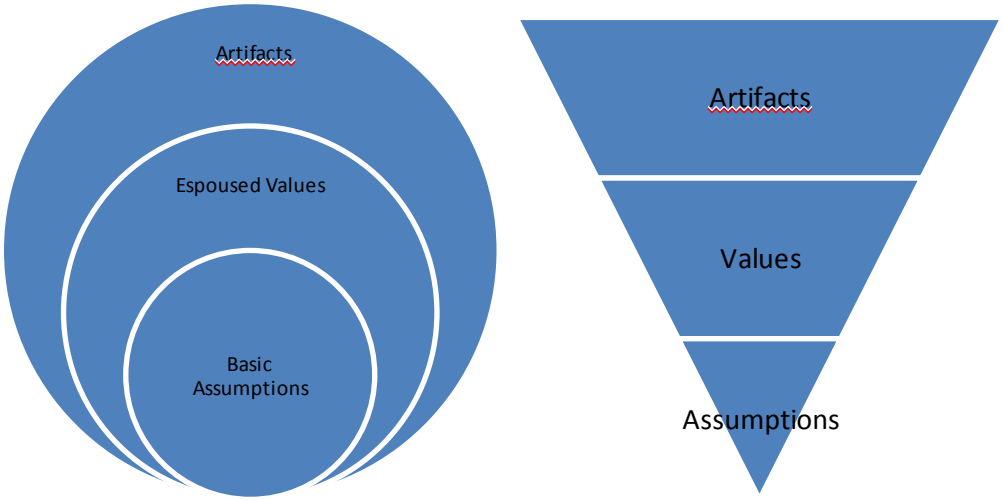


Figure 4.2 Redrawing of Schein's Cultural Model representations

4.3.2 The Cultural Iceberg Model

In 1976 Edward T. Hall introduced a model based on societal culture, which draws a distinction between visible and invisible elements to a culture. From the model in Figure 4.3, there is a strong similarity between its elements and those that are identified as part of the Schein cultural model shown in figure 4.2.

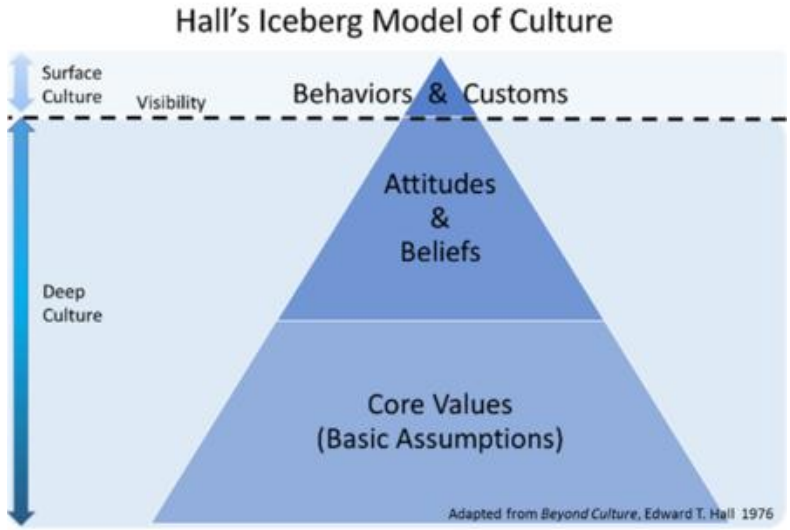


Figure 4.3 Hall's Iceberg Model of Culture. **Source**: (Hall, 1976)

Hall's model indicates cultural elements which are visible and invisible. This is consistent with other models discussed to date. The visible element of the model could be deemed to be the 'External' culture, while the invisible seen as the 'Internal' culture. If we examine this further certain characteristics can be identified under the external and internal culture classification which would have parallels with explicit and tacit knowledge from a knowledge management perspective.

Internal	**External**
Implicitly Learned	Explicitly Learned
Unconscious	Conscious
Difficult to Change	Easily Changed
Subjective Knowledge	Objective Knowledge

Source: (Hall, 1976)

The internal culture here can be viewed as being strongly aligned with tacit knowledge, that being the deep level knowledge that is hard to explain. Similarly the external culture can be viewed as being strongly aligned with explicit knowledge.

7.3.3 Handy's Four Types of Organisational Cultures

Another noted researcher and author in the area of organisational theory is Charles Handy. The interesting point about Handy's work is that his model looks at the organisational culture and structure simultaneously. The inference from this approach is that the organisation structure has a very important role to play, and that the organisations culture is likely to reflect its underlying structure and vice versa.

Source for below: (Handy, 1999)

Power

This culture type will be prevalent in organisations where there is a very hierarchical structure. There will be clears line of authority and communication. The power within the organisation remains at the top of the hierarchy, with various responsibilities delegated to subordinates lower down in the hierarchy. This is likely to be a very rigid environment, similar that espoused by Max Weber in his bureaucratic vision of an organisation, where employees will be expected to follow recognised norms and not apply any individualism in the completion of the responsibilities.

Task Culture

This is the prevailing culture in organisations where teams are formed to achieve the targets or solve critical problems. In such organizations individuals with common interests and specializations come together to form a team. This would be prevalent in organisations that undertake many projects, and is similar to Wenger's 'communities of practice' from a knowledge management perspective. Handy stated that in such a culture every team member has to contribute equally and accomplish tasks in the most innovative way.

Person Culture

There are certain organizations where the employees feel that they are more important than their organization. Such organizations follow a culture known as person culture, although it could be argued that the organisation has at best a weak culture, if possibly none at all. Individuals will tend to be more concerned about their own interests rather than the organisation. Over time the organisation will eventually suffer, with a prevailing attitude from employees of coming to work purely for the money. Loyalty towards the organisation and the management will be very low if existent at all. Any employee’s decisions made are likely to be done so as to benefit the employee and not

the organisation. An organisation with this culture seems destined to failure, unless the culture can be changed.

Role culture

Role culture would be a culture associated with a functionally structured organisation. There would be clear lines of demarcation in terms of roles, with for example defined Finance, IT, HR departments all with separate reporting lines up the hierarchy. Employees are delegated roles and responsibilities according to their specialization, educational qualification and interest to extract the best out of them. Every individual is accountable for their responsibilities, and has to take ownership of the work assigned to them. Power comes with responsibility in such a work culture. This differs from the Power culture, as the individuals would have more autonomy to complete responsibilities, once the overall objective is met.

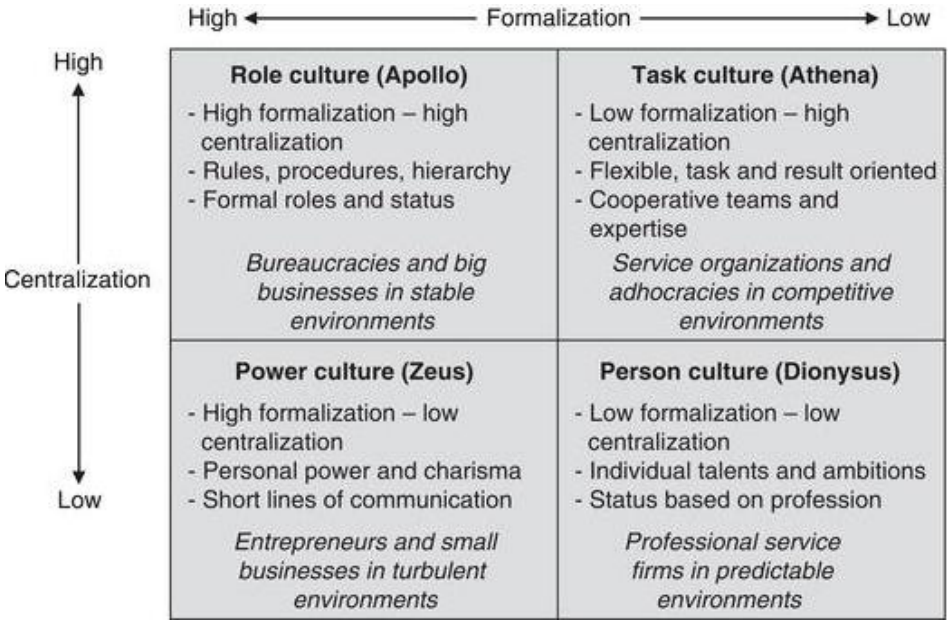


Figure 4.4 Handy's cultural types.

Source: (Boonstra J., 1999)

Handy's identified cultures are tied to the underlying organisational structure, which would make sense in one regard. As the originators of an organisation will look at the best way to structure their organisation to achieve the desired goals, they will also try to engender a culture to achieve those same goals. In this regard it is likely that there will be a direct correlation between structure and culture. However over time, one could envisage that as the organisation matures, the development of subcultures that

Schein talks to may arise. In this instance it difficult to see there being one culture linked to the structure of the entire organisation. It may be that the organisations also develops sub structures, e.g. a project team to complete a very specific task, and that in this incidence more than one of Handy's culture types could be seen in the same organisation.

4.4 Organisational culture conducive to knowledge management

Leidner, Alavi, and Kayworth (2006) look at knowledge management in terms of organizing communities or the processes of knowledge creation, sharing, and distribution. The paper notes that these approaches may not be mutually exclusive and organizations may adopt aspects of both. The research assumes that certain organisations might be more receptive to the community approach, whereas others may be more receptive to the process approach, depending on their prevailing culture.

In other literature, culture is often cited a challenge in knowledge management initiatives, but the paper notes that many studies have considered the implications of organisational culture on knowledge sharing, while few have addressed the influence of culture on the approach taken to knowledge management. The research uses a case study approach to compare and contrast the cultures and knowledge management approaches of two organisations, and the study suggests ways in which organizational culture influences knowledge management initiatives. Of the two organisations studied, the knowledge management effort became little more than an information repository, while in the second organisation it evolved into a highly collaborative system fostering the formation of electronic communities.

Figure 4.5 Organisational culture influences on knowledge management (Leidner, Alavi, and Kayworth, 2006)

Cultural Perspective	Influence of Culture on Knowledge Management
Bureaucratic (Wallach, 1983)	• Favours an initial process approach to KM • Creates expectation among members that senior management vision is essential to effective KM
Innovative (Wallach, 1983)	• Enables subgroups in organizations to experiment with KM and develop KMs useful to their group
Individualistic (Earley, 1994)	• Inhibits sharing, ownership, and reuse of knowledge
Cooperative (Earley, 1994)	• Enables the evolution of process-oriented KM to practice-oriented KM • Enables the creation of virtual communities

The table shown in 4.5 is a summary of the findings in the research. The culture types noted are different to those we have reviewed for this thesis, but they could be compared to Schein or Handy's identified types discussed in this thesis.

De Long and Fahey (2000) study fifty plus companies to assess the impact that organisational culture has on knowledge management initiatives. The paper is focussed on the knowledge processes of creation, sharing and usage. It identifies four ways in which culture influences these behaviours.

De Long and Fahey (2000) quote Roger Craddock - Associate director of Computer Sciences group "*Obviously, there is a set of tools, such as Lotus Notes, Intranets, etc, which you need to be knowledge based. But technology is only twenty percent of the picture. The remaining eighty percent is people. You have to get culture right*." This quote emphasises the importance of the individuals in a knowledge process, and states that the appropriate culture must be nurtured to ensure success in the knowledge process.

The four ways identified by De Long and Fahey that culture influences knowledge processes are as follows:

- **Culture shapes assumptions about which knowledge is important**
  The culture and subcultures within the organisation will define what knowledge is important. The organisation must be careful that the organisational culture does not promote the needs of the individual to the detriment of the organisation. This could result in the wrong knowledge being prioritised, knowledge which the individual deems important, but not necessarily the correct priority from an organisational perspective.

  This is particularly important where subcultures exist. The goals of the subcultures must be aligned with those of the organisation and its culture. Schein's quote above about the alignment of subcultures is very relevant here.

- **Culture mediates the relationships between levels of knowledge**
  This point is relevant to the relationship between the individual and the organisation. It highlights the impact that the organisational culture will have on the individuals willingness to share his or her knowledge for the organisations benefit.

  De Long and Fahey are of the opinion that the culture helps define what knowledge belongs to whom. For example, is the knowledge possessed by the individual also the property of the organisation? De Long and Fahey state that "*culture dictates what knowledge belongs to the organisation and what knowledge remains in control of the individual or subunits.*" (De Long and Fahey, 2000)

- **Culture creates a context for social interaction**
  De Long and Fahey note that the culture of the organisation will define how individuals interact with each other. This naturally will have an impact on the knowledge sharing processes in the organisation. Examples of organisational norms given in the paper include "*Don't interrupt a superior*." or "*Challenge everyone but the CFO*." (De Long and Fahey, 2000)

- **Culture shapes creation and adoption of new knowledge**
  The attitude of the organisation to developing and accepting new knowledge is evidence of the culture impacting the knowledge creation and adoption processes. "*A firms culture, and the relationships among its subcultures, heavily shape how new knowledge about its external environment is created, legitimated (or rejected) and distributed throughout an organisation*". (De Long and Fahey, 2000)

4.5 Conclusion

This chapter defines what organisational culture is. It details what constitutes culture, and discusses many different researchers literature in the area. This discussion highlights various different frameworks and culture types that have been developed by the authors.

Finally research to date is explored which shows the impact that organisational culture plays in the various knowledge processes and initiatives. It is envisaged that my research being carried out as part of this dissertation, will provide interesting evidence to agree and disagree with many of the hypothesis in this chapter.

5 KNOWLEDGE AUDITS

5.1 Introduction

This chapter gives an overview of the knowledge audit process. It details the importance of knowledge audits in any organisation's knowledge strategy. The chapter discusses various techniques that are required in the implementation of the knowledge audit process.

A knowledge audit is defined by Gartner as "*A formal determination and evaluation of how and where knowledge is used in business processes .The knowledge audit identifies implicit user needs, as well as explicit information stores. With the audit, enterprises can identify and evaluate all information resources and workflows, and determine enterprise user access requirements..... The knowledge audit is a rigorous process using questionnaires, interviews and resource descriptions*." The importance of the knowledge audit cannot be underestimated as evidenced by the quote, it will play a big part in capturing research data for this thesis.

Looking at the generic strategy planning diagram below, it is possible to identify which steps the knowledge audit impacts on.

Figure 5.1 The Strategic Planning Process

A knowledge strategy process will follow a similar cycle to the above, and will use the knowledge audit in the internal and external review of its knowledge resources. This is evidenced in the subsequent section 'Objectives of a knowledge audit', by the various researchers in the area.

5.2 Objectives of a knowledge audit

To assess the objectives of a specific knowledge audit, it is important to be aware of the individual circumstances that have given rise to the audit. However in general terms, any knowledge strategy or initiative will almost always include a knowledge audit as part of its delivery.

Hylton (2002) says that "*A KM initiative is unlikely to succeed without a knowledge audit*". This clearly highlights the importance and relevance of the audit within the Knowledge Management arena. The objective of the audit can therefore be simplified to being a means of informing those organisations and individuals, tasked with implementing a knowledge strategy or initiative, with a snapshot of the current situation of the organisations knowledge position.

Stating this from a strategy development position, and reiterating the point made in the introduction, the knowledge audit facilitates a gap analysis (Hylton, 2002) or indeed a SWOT analysis (Hylton, 2002), against which the desired position can be compared to the current position identified by the audit. This comparison then facilitates the development of the required knowledge or change strategy to close the gap between the position identified by the knowledge audit, and the stated desired position.

Various authors in the knowledge management domain have undertaken research on the uses and effectiveness of knowledge audits. An important and often cited paper is "*The Knowledge Audit: Knowledge and Process Management*" (Liebowitz et al., 2000) which integrates one coherent review of the range of existing research in this domain.

Dataware Technologies (1988) states the objectives of the Knowledge audit as follows:

"*In order to solve the targeted business problem, what knowledge do we have, what knowledge is missing, who needs this knowledge, and how will we use it*?" This indicates the usefulness of the knowledge audit tool in terms of data gathering for this research paper.

Debenham and Clark (1994) state that "*a knowledge audit is a planning document which provides a structural overview of a designated section of an organization's knowledge as well as details of the qualitative and quantitative characteristics of the individual chunks of knowledge within that designated section. The document also identifies the knowledge repositories in which those chunks reside. They feel that the knowledge audit is a scientific measurement of the state of affairs of specified sections of corporate knowledge*." Again demonstrating the usefulness of the knowledge audit tool in terms of data gathering for this research paper.

These researchers are consistent in their views, that a knowledge audit is essential in identifying the current position of an organisation or groups of organisations, so future strategies can be identified to attain the desired outcomes.

Debenham and Clark (1994) further explain the detailed objectives of a knowledge audit as:

- Giving a view "*of the extent, nature, and structure of the knowledge*" in the area/organisation being audited.
- Providing "*meaningful hard data input to the strategic plan for knowledge processing*" and thereby facilitating the appropriate strategy development.
- Identification of "*relevant knowledge repositories.*"
- Provision of a description or "*qualitative characteristics of the chunks of knowledge*" identified in the first point above.
- Provision of "*scientific estimates for the quantitative characteristics of the chunks of knowledge*" thereby enabling evaluation of the requirements and benefits of the proposed knowledge strategy.

The above objectives demonstrate the type of data that the knowledge audit used in this research will gather, and hints at the types of evaluations that the audit will facilitate.

5.3 Knowledge audit approaches

The literature reviewed also contains various approaches and steps that need to be taken when completing a knowledge audit. Liebowitz *et al*. (2000) highlight the following steps in the knowledge audit process:

Knowledge audit steps

1) The identification of what knowledge currently exists in the area/organisation including:

   (a) A determination of the existing repositories and flows associated with them, while also identifying any potential bottlenecks that can inhibit this flow. Other environmental factors which influence the areas knowledge management should also be identified.

   (b) This step will include the differentiation between tacit and explicit knowledge resources and the location of same.

   (c) As a result of the step in the process the practitioner should be able to "*build a knowledge map of the taxonomy and flow of knowledge in the organization in the targeted area.... relating topics, people, documents, ideas, and links to external resources, in respective densities, in ways that allow individuals to find the knowledge they need quickly*."

2) Another step in the audit process will be to Identify what knowledge is missing in the targeted area/organisation:

   (a) Including the performance of a gap analysis to determine what knowledge is missing in order to achieve the stated business objective driving the knowledge initiative.

   (b) Determine who needs the missing knowledge.

3) The final step of the audit process should be to provide recommendations from the knowledge audit to management regarding the current position, and possible strategies that could be adopted by management to deliver the desired improvements to knowledge management activities in the area/organisation.

The steps identified by Liebowitz et al. (2000) appear to broaden the scope of the knowledge audit beyond what I have identified. Referring back to the Strategy Planning Process in the introduction, the knowledge audit was linked to the internal and external review steps of the process. However Liebowitz et al. (2000) indicate that

the GAP analysis and indeed recommendations for the appropriate strategy should form part of the audit steps.

In very specific terms, Debenham and Clark (1994) indicate that the report emanating from the knowledge audit process should include:

- *"An executive summary highlighting the major findings of the knowledge audit*
- *A clear statement of the reason for conducting the knowledge audit*
- *A description of the audit process*
- *An analysis of the accuracy and sensitivity of the findings*
- *The conclusions, which should summarize the detailed findings of the knowledge audit in an easily digestible form, and should relate these findings to the reasons why the audit was conducted.*
- *A 'block map'—a diagram displaying the various knowledge blocks audited, their relationships to one another and the knowledge repositories in which they reside*
- *A section containing 'block proformas'—the means used to record information about the qualitative characteristics of a block, as well as to record the values for the quantitative characteristics of a block—in a knowledge audit report, there is usually one proforma per page and one proforma per block*
- *An index providing the page numbers of the various blocks and corresponding repositories.*"

The above show what deliverables a knowledge audit can provide. Some if not all may not be applicable to the audit used in this research, but they merit inclusion in the literature review on knowledge audits.

There is similarity across all the research reviewed on the knowledge audit. Other research by Shah *et al.* (1998), details generic question types that the knowledge audit should contain. This paper is quite specific in what it looked at, but some of the suggested questions are applicable in a more general way. The paper categorises the questions into various topics, and then offers what the audit should be investigating:

Business concept

Shah *et al.* (1998) state that the audit should be based on the concept for the business, and this business concept will drive the mission or objectives of the area/organisation

under review, and the audit will examine whether or not those objectives are being met by the current strategy being employed.

Enterprise know-how

The knowledge audit according to Shah *et al.* (1998) should identify the importance of knowledge resources to the organisation. The audit should identify how these knowledge resources are generated, stored, codified, and shared by the organisation. Sample questions for the audit supplied by the paper include:

- *"How dependent are you on knowledge and expertise?*
- *How do you generate knowledge?*
- *Please describe various methods in which you codify knowledge (e.g. knowledge maps of who knows what), printed sources (rule books), experience databases (repository of customer problems and actions)*
- *Do you codify knowledge related to both successful and failure experiences?*
- *What mechanisms exist to transfer knowledge from expert people/teams to other people/teams (e.g. training, informal talks, etc.)?*"

Knowledge workers

The audit should analyse the workers who are important to the knowledge strategy, identifying whether they are being focused on what they are best at. The approach of management in terms of communication, training and remuneration to these workers should also be examined to ensure that these valuable resources are being maximised.

Knowledge mediated through IT

The role of IT in the knowledge strategy should be addressed by the audit. Depending on the purpose of the organisation, the role of IT will differ between simple data processing data to an important role in manage knowledge. A sample question that the audit should answer according to Shah et al. (1998) to assess this is:

- "How do you implement your IS projects related to knowledge management?"

Organizational design

Relevant to this research paper, is the culture and structure of the organisation and Shah *et al.* (1998) indicate that this point should be addressed by the audit, with a view

to examining the organisational structure and its fitness for purpose in terms of knowledge management.

Liebowitz *et al.* (2000) indicates that traditional audit techniques can be applied in the knowledge audit context. The paper gives several examples of same:

- "*Walkthroughs—trace a document, transaction, or activity through a process from beginning to end in order to become familiar with the process*
- *Flow charts*
- *Input–output models.*"

Wiig (1993) lists several analysis methods which could be employed as part of the audit:

- "*Questionnaire-based knowledge surveys: used to obtain broad overviews of an operation's knowledge status*
- *Middle management target group sessions: used to identify knowledge-related conditions that warrant management attention*
- *Task environment analysis: used to understand, often in great detail, which knowledge is present and its role*
- *Verbal protocol analysis: used to identify knowledge elements, fragments, and atom*
- *Basic knowledge analysis: used to identify aggregated or more detailed knowledge*
- *Knowledge mapping: used to develop concept maps as hierarchies or nets*
- *Critical knowledge function analysis: used to locate knowledge-sensitive areas*
- *Knowledge use and requirements analysis: used to identify how knowledge is used for business purposes and determine how situations can be improved*
- *Knowledge scripting and profiling: used to identify details of knowledge intensive work and which role knowledge plays to deliver quality products*"

Choy, Lee, Cheung (2004) indicates graphically its approach to the Knowledge audit process. They reference other authors that are concerned with the traditional audit process and develop a graphical representation based on these traditional methods. The process involves three steps:

- **Pre-Audit Preparation**

  This part of the process involve the audit team familiarising themselves with the situation with which they have been asked to audit. This will involve assessing the organisation in terms of culture, structure and their impact on knowledge management.

- **Audit Processes**

  The processes are the mean by which the audit is actually carried out. No doubt the techniques detailed by other authors above will be prevalent at this stage.

- **Audit Analysis**

  Once the audit has gathered the relevant detail in the second phase (Processes) then the analysis of the detail begins. In a knowledge audit context this will include developing the knowledge inventory and knowledge flows between individuals and the various knowledge repositories.

Graphically Choy, Lee, Cheung (2004) represents the three step approach as the following:

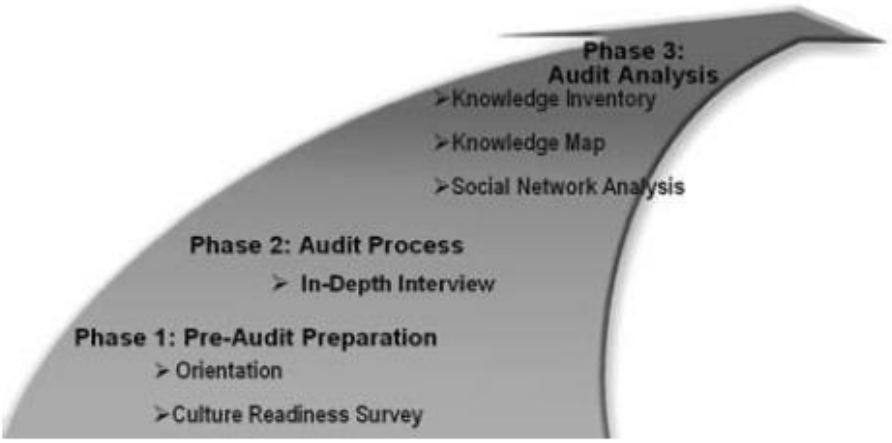


Figure 5.2 Audit Roadmap (Choy, Lee, Cheung, 2004)

Gourova, Antonova, and Todorova (2009) examine the role of knowledge management in the modern economy. It specifically focuses on the role of the knowledge audit in the pursuit of a knowledge management strategy implementation. Similar to the other research this paper examines the processes and practice of the existing knowledge audit process.

They identify a three-step process for knowledge audits similar to that of Choy, Lee, Cheung (2004). They also cite much of the research cited here when discussing the process and practices that might be used. They recommend an extension of the knowledge audit process to include an environmental knowledge assessment, above the traditional internally focussed processes. Porter's Five-forces model is mentioned as a suitable means for this analysis. They graphically represent the extended knowledge audit process as follows:

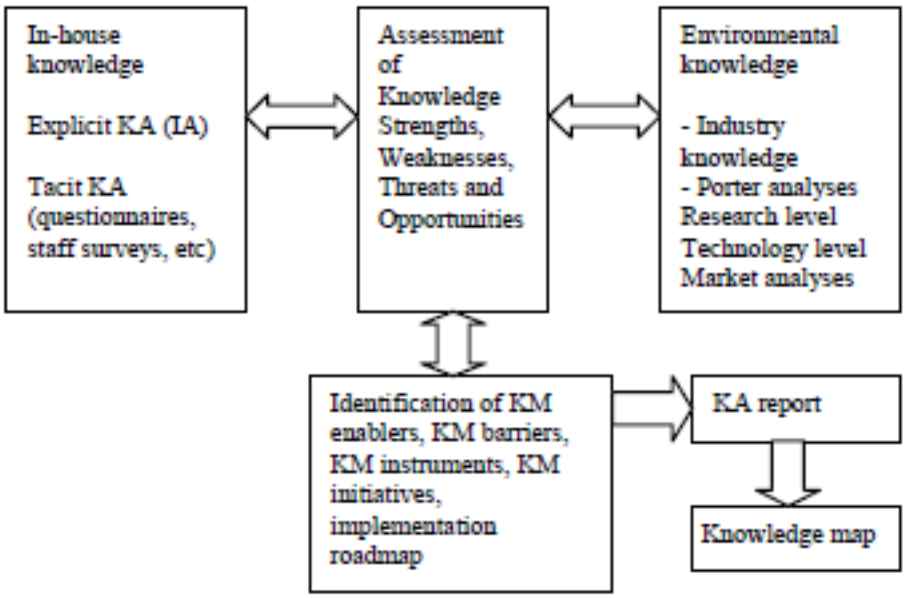


Figure 5.3 Knowledge Audit Process (Gourova, Antonova, and Todorova (2009))

The recommendations of Gourova, Antonova, Todorova, (2009) are consistent with the previous researchers work mentioned, where the Knowledge Audit was proposed as a tool for both internal and external review. It would also be consistent with Liebowitz *et al.* (2000), whom as indicated above, suggests that the scope of the knowledge audit should be broadened to include GAP analysis and recommendations for the appropriate strategy, which could not be done satisfactorily without both internal and external (environmental) issues being analysed.

5.4 Conclusion

As can be seen from the above, there are many varied approaches as to what a knowledge audit should consist of. There is no one off-the-shelf design or template that will fit all organisations. The findings of this research paper highlight the impacts of individual organisations and their specific circumstances have on their approaches

to knowledge management. This can be summed up by the fact that not all organisations are starting from the same place, and nor are they endeavouring to get to the same place. This ensures that strategies employed for knowledge management and other strategic areas will differ. As a result the requirements for each organisations strategy development will differ too. This indicates that organisations deploying a knowledge audit, as part of a knowledge management initiative, will have very bespoke requirements. By extension their knowledge audit design, while following generally accepted principles, will be bespoke too.

6 KNOWLEDGE AUDIT DESIGN

6.1 Introduction

As detailed in Chapter Three, the knowledge audit plays a key role in any knowledge management initiative. Also discussed previously is the fact that the audit will provide the organisation with a snapshot of its current knowledge resources, and their usage. The knowledge audit will also provide suggested strategies on how to achieve the desired objectives in terms of the management of knowledge.

In the three phase model of knowledge auditing from Choy, Lee, and Cheung (2004), the first stage, prior to the knowledge audit process beginning, is the pre-audit preparation. This preparatory work according to Choy, Lee, and Cheung will consist of the orientation by the audit team of the area to be audited. It will also consist of what they call "*Culture Readiness Survey*". This initial phase will shape the audit processes and audit design that will be implemented. It will help decide the key themes of the audit and therefore the sections that will be included in the knowledge audit to ensure that these themes are accurately assessed.

In the following chapter sections, this chapter explores what are the likely contents of the knowledge audit in terms of themes and sections in greater detail.

6.2 Themes

Gourova, Antonova, and Todorova (2009) also identify a three-step process for knowledge audits. Specifically they state that the following three steps or phases would be included:

- Phase 1 - define the main parameters of the Knowledge Audit:
  - Planning of its scope, activities and time schedule
  - Selecting the knowledge audit team
  - Define the methodology of how to perform audit tasks and activities.
- Phase 2 - relates to the Knowledge Audit implementation:
  - Design the knowledge audit questionnaire relevant to specific company needs.

    - Decide on methodology for audit distribution e.g. e-mail, paper, interviews, or a mixed approach.
    - Analyses of the knowledge audit results, testing and verifying hypothesis based on the collected quantitative and qualitative data.
- Phase 3 - is Knowledge Audit finalisation:
    - Preparation and presentation of knowledge audit report being the major deliverable.
    - Knowledge management roadmap consideration

If we examine the second phase, we see that the specific company needs will play a defining role in what themes are examined in the audit. This effectively means that the organisation will have a specific area of knowledge management, or indeed part of the organisation that they are seeking to examine.

From a knowledge management process point of view, the key themes that are likely to be included will be one of, or all of, the key knowledge processes. This means the themes covered in the audit could be:

- Knowledge **generation**: The organisation may be concerned that they are not generating enough knowledge to maintain or improve their competitive position.
- Knowledge **storage**: The organisation may be looking to examine the efficiencies or lack thereof, of the storage methods employed. Perhaps there is a problem with knowledge users accessing the knowledge in an efficient manner.
- Knowledge **sharing** or **transfer**: Again the organisation may be looking to examine whether knowledge is been distributed to the correct users, and done so in a timely manner.
- Knowledge **usage**: The audit could be used to assess the level of usage by individuals of the knowledge repository, or knowledge systems already in place.

The above are examples of themes that the organisation may wish to examine in the knowledge audit process. Stepping away from a knowledge process aspect, perhaps the audit might be targeted to look at key organisational aspects associated with knowledge management. The focus of the current knowledge audit is to look at the

prevailing organisational culture and structure within organisations. The audit endeavours to assess the organisational design in terms of culture and structure, and the impact that this has on knowledge management within the organisation.

From the above it can be seen that the themes included in the knowledge audit can look to examine knowledge specific processes, or indeed other factors that may be influencing the implementation of knowledge management in the organisation.

6.3 Sections

The sections included in the audit will obviously be defined by the designated themes that the audit is examining. In the design of my audit, a range of other knowledge audits from previously submitted dissertations were explored. The review these audits highlighted the sections that can be contained in a knowledge audit.

Examples of the sections that might be included are below. This is not an exhaustive list, and indeed in certain circumstances some may not be included at all. As has already been stated the sections that are included or excluded is wholly dependent on the set of circumstances that the organisation is looking to examine.

- **Demographic data**

  This section is looking to garner detail on the individual that is completing the knowledge audit. It may query detail about age, gender, length of service with t he organisation.

- **Basic Knowledge Profile**

  Again the audit is looking at the individual completing the audit, and endeavouring to assess that person's level of knowledge. This may involve looking at the individual's level of education, but also assessing perhaps there professional network. Possible reasoning behind this section may be to assess the knowledge that is contained within the organisation that may not be explicitly defined as organisational knowledge.

- **Work analysis in a Knowledge Context**

  A knowledge audit with this section is looking at how the organisation is applying its knowledge base in the fulfilment of day-to-day duties. This could

be seen to be assessing the usage and sharing processes of knowledge management.

- **Knowledge & Information sources**

  This section is self-explanatory. The audit would be examining the sources of knowledge in the organisation. This may prove useful detail when looking to track any knowledge bottleneck in the organisation. It could also be used to identify whether new knowledge sources are required, to fulfil any knowledge gap that might be identified. The audit is likely to be assessing the levels of tacit versus explicit knowledge in the organisation in this section also.

- **Company / Organisational Culture**

  In the chapter on organisational culture, the impacts that organisational culture has on knowledge management are detailed. Any audit containing this section is naturally looking to assess this aspect. The audit might highlight the existence of subcultures in the organisation, and identify if these subcultures are aligned as Schein (1985) indicated as an essential for the success of the organisations knowledge and overall initiatives.

- **Motives and Salaries**

  This section would probably be looking at the wider employee base, and trying to assess peoples reluctance or otherwise to share knowledge. The audit may also try and identify how the organisation can achieve a desired knowledge sharing process, thorough the implementation of a reward schemes. In other words can they motivate employees to adopt a knowledge sharing process, via financial reward or otherwise.

- **Knowledge Management in the Organisation**

  One of the stated outcomes of a knowledge audit is to give the organisation a snapshot of the existing knowledge management processes or initiatives in the organisation. This section would be attempting to identify the current status of knowledge management in the organisation.

6.4 Typical knowledge audit questions

Taking the sections given above we can look at typical questions that a knowledge audit might contain when trying to fulfil the objective of that particular section.

- **Demographic data**
  - Job Position:
  - Department:
  - Age:
  - Gender:
  - Number of years working at current organisation:
  - Total number of years work experience:
  - How do you rate your working experience in relation to a particular work process: Poor - Average - Strong

- **Basic Knowledge Profile**
  - Level of education: E.g. School certificate, Degree, Masters, PhD, Professional qualification.
  - Language skills: E.g. Grade your oral and written English skills.
  - Levels of IT Skills: Use a ranking scale. E.g. Poor - Average - Competent.
  - Importance of Education, work experience and professional network in the completion of your work: Again grade on a scale. E.g. Not important - to - Very Important.

- **Work analysis in a Knowledge Context**
  - Allocate your work time across a number of work process:

No	Work Process	%
1	I read and reply to emails	_ _ %
2	I process my own electronic files	_ _ %
3	I review written papers	_ _ %
4	……..	_ _ %
	Total Must agree to 100%	100%

The aim of the above question is to identify how employee completing the audit is spending their working day.

  - Which of the organisation department do you communicate with mostly:

A table similar to the above table could be used listing the various organisation departments instead of the work processes above. You could then have a scale to capture the level of communication: Rarely - Sometimes - Always.

The purpose of this question is to try and identify the knowledge sharing and communication that occurs between departments.

- How often do you encounter the following knowledge problems in your day to day activities:

No	Knowledge problem	Rarely	Sometimes	Always
1	You are not sure **what** to do when asked to provide a service or complete a task	1	2	3
2	You are not sure **how** to do something (e.g. what is best practice)	1	2	3
3	You are not sure **who** to collaborate with or get help from	1	2	3
4	You are not sure **where** to find relevant information	1	2	3

  The above question is obviously trying to assess the individual in terms of any knowledge gaps that may exist, which are proving a hindrance to them completing their day to day activities.

- In which of the following areas would you like to improve your skills and abilities:
  A table similar to the last question could be used listing the various skills used in the employees daily activities. A scale to capture the level of desired up-skilling could then be applied: Not at all - Improve a little - Very much.

- **Knowledge & Information sources**
  - To what extent are the following knowledge resource of use in your daily work:

No	Knowledge resources	Rarely	Sometimes	Always
1	Printed documents	1	2	3
2	Electronic files on my PC	1	2	3
3	Other colleagues electronic files	1	2	3
4	Company internal files	1	2	3
5	Internet electronic files	1	2	3

  - How often do you participate in the following social interactions at work:

No	Social Interaction	Rarely	Sometimes	Always
1	Internal, formal and planned meetings (with colleagues)	1	2	3
2	Internal, informal meetings (e.g. coffee or lunch)	1	2	3
3	External personal contacts (e.g. friends)	1	2	3
4	External contacts (e.g. customers)	1	2	3
5	Business events (e.g. exhibitions)	1	2	3

- To what extent are the following methods of communication beneficial to your organisation whether you are involved or not:

No	Communications	Rarely	Sometimes	Always
1	Internal, formal and planned meetings (with colleagues)	1	2	3
2	Internal, informal meetings (e.g. coffee or lunch)	1	2	3
3	External personal contacts (e.g. friends)	1	2	3
4	External contacts (e.g. customers)	1	2	3
5	Business events (e.g. exhibitions)	1	2	3

- In your daily work, what is your preferred method of communication when looking to gain knowledge or information from other colleagues:

No	Communications	Rarely	Sometimes	Always
1	Verbally during meetings	1	2	3
2	Verbally over the phone	1	2	3
3	By using several documents or files	1	2	3
4	By using digital means	1	2	3

This question is looking at the communication methods in the organisation. It may also give valuable insight into the organisational culture, and how it is impacting the knowledge sharing process.

- **Company / Organisational Culture**
  - In your opinion, to what extent do the following statements apply to your organisation:

No	Statements	Not True	Somewhat true	Very True
1	The importance of human capital is recognised	1	2	3
2	Staff / Personnel are dedicated to the organisation	1	2	3
3	A philosophy of team work and co-operation exists	1	2	3
4	There are barriers and conflicts amongst the organisational units	1	2	3
5	There is confidence / trust amongst staff	1	2	3

  - To what extent do you agree with the following statements:

No	Statements	Do Not agree	Agree somewhat	Totally Agree
1	My personnel aims and ambitions fit well with my current work situation	1	2	3
2	I am satisfied with my job position in the organisation	1	2	3
3	I am satisfied with my salary	1	2	3
4	I feel secure in the organisation	1	2	3
5	I am satisfied with the work	1	2	3

	environment			
6	I am satisfied with the relationships I have with colleagues	1	2	3
7	I would like to be involved with other organisational initiatives	1	2	3

- To what extent do the following statements characterize you personally:

No	Statements	Do Not agree	Agree somewhat	Totally Agree
1	I am afraid to make a mistake or fail at my work	1	2	3
2	I seek to improve my work methodologies / practices every day	1	2	3
3	I consider sharing my knowledge with other colleagues as an advantage	1	2	3
4	I have a personal desire to learn more and gain new knowledge	1	2	3

- To what extent do the following statements characterize your work environment:

No	Statements	Do Not agree	Agree somewhat	Totally Agree
1	There is sufficient infrastructure and good meeting spaces at work to for formal or informal meetings	1	2	3
2	There is time for open and random discussions (water cooler chat)	1	2	3

- **Motives and Salaries**
  - In your opinion, which of the following factors should be taken into account in relation to salary levels and to what extent:

No	Salary level factors	Not Important	Important	Very Important
1	Seniority in the company/ organization	1	2	3
2	Job position in the company/ organization	1	2	3
3	Level of Experience (benefit of experience to other employees / the organization)	1	2	3
4	University degrees and qualifications	1	2	3
5	Achievement of pre-specified targets	1	2	3
6	Employee initiative	1	2	3
7	Development or improvement of an employee's capabilities	1	2	3
8	The organization's financial situation	1	2	3
9	Level of salaries in the same sector	1	2	3

- What kind of knowledge sharing incentives would be suitable for the company/ organization and to what extent:

No	Knowledge sharing incentives	Not Important	Important	Very Important
1	Financial incentives	1	2	3
2	Other kind of incentives	1	2	3

- **Knowledge Management in the Organisation**
  - If you were in charge of properly exploiting your organisation's knowledge capital, which of the following statements/actions would you pursue and to what extent:

No	Statements	Not at all	A little	Extensively
	Communication			
1	I would improve the infrastructure supporting communication (meeting rooms, IT, etc.)	1	2	3
2	I would improve the quality of communication (new ways of organising meetings and new work flow of meetings, etc.)	1	2	3
3	I would increase the frequency of organised communication (more frequent and planned meetings)	1	2	3
4	I would support informal and relaxed meetings amongst the personnel	1	2	3
	Information flow			
5	I would try to ensure that information flowed freely internally	1	2	3
6	I would try to effectively target and direct the internal flow of information	1	2	3
7	I would try to organise and classify information	1	2	3
8	I would improve the information flow coming from external sources	1	2	3
	Electronic files			
9	I would support access for all staff to electronic file (e.g. a corporate google)	1	2	3
10	I would develop a knowledge map including an extensive electronic curriculum vitae (CV) to support in the searching and locating of appropriate knowledge, skills, experience	1	2	3
	Change of culture			
11	I would try to change personnel's attitudes in order to exploit company / organisational knowledge	1	2	3
12	I would try to change top management's attitudes in order to exploit company / organisational knowledge	1	2	3

	People			
13	I would improve staffing / hiring methods	1	2	3
14	I would improve internal training	1	2	3
15	I would give emphasis to the transfer of experience from the most experienced staff to new staff via new methodologies	1	2	3
16	I would put emphasis on the exploitation of knowledge external to the company / organisation (external partners, external business contacts, etc.)	1	2	3
17	I would motivate personnel to share knowledge	1	2	3

- If there was a Knowledge Management policy in your company/organisation, which of the following possible problems would occur and how often:

No	Possible problems	Rarely	Usually	Always
1	Lack of time for the personnel to share their knowledge	1	2	3
2	Lack of willingness amongst personnel to spread crucial information, knowledge (fear of decentralizing / giving away knowledge)	1	2	3
3	Lack of willingness amongst personnel to change the way they work			
4	Lack of incentives given to employees by top management			
5	Lack of team-work and co-operative culture			
6	There are no objective and obvious reasons for knowledge sharing (what is the benefit of sharing knowledge?)			

According to Netcoach, "This is a key question in the Knowledge audit questionnaire. It is placed at the end of the questionnaire and seeks to identify (in the view of personnel) the most likely barriers that KM implementation would have in this specific company / organisation. It is useful for Knowledge audit teams because it can identify early-on, the possible problems which the KM team will be faced with."

Please note that all sample questions in each section are taken from a Netcoach knowledge audit template located on-line at the following link: *http://www.netcoach.eu.com/uploads/media/223b_Template_knowledge-auditing.pdf*

6.5 Conclusion

The key point to take from this chapter is that the knowledge audit implemented in each knowledge management initiative will be specific to that particular situation. Depending on what the organisation is looking to examine, will dictate the themes that the knowledge audit contains.

The desired themes to be examined will then define the sections that are contained in the audit. Section 5.4 then details sample questions taken from the Netcoach audit template, under each of these sections.

If the audit is designed to the required standard, it should provide an inventory of knowledge assets and the knowledge map showing their interaction and usage. The audit should also identify any gaps required to achieve the desired knowledge strategy or initiative that led to the instigation of the audit in the first place.

7 DEVELOPMENT OF THE KNOWLEDGE AUDIT

7.1 Introduction

In researching the design of the knowledge audit for this research, examples of other audits were reviewed. A generic template of an audit was located from a company called Netcoach, as well as examples in previously submitted dissertations for MSc. Computing (Information Knowledge Management). The audits associated with previously submitted dissertations were naturally very specific to those dissertation topics, which meant that certain types of questions contained in each knowledge audit were not applicable to this research.

The goal of this knowledge audit is to capture organisational details regarding structure and culture, and track the level of knowledge management associated with each organisation type identified. The results of the audit will provide evidence to explore many of the hypotheses on the impact of organisational culture and structures on knowledge management initiatives. In light of the goals of the knowledge audit, many of questions contained on the Netcoach template were highly relevant.

The nature of this research means that there is a focus on the structure of the individuals' organisation, and their organisational culture. As a result, the themes and sections in the audit that will be designed in this research will be heavily weighted in that direction. Generic sections which are applicable to all audits, in terms of demographics and the individuals existing knowledge base, are also included.

The knowledge audit went through several iterations, with reviews from various stakeholders. In all there were three major iterations that required re-work, and the fourth and final version with some small tweaking. The final version was then launched online via the site *surveygizmo.com*. Other social media, including LinkedIn was used to generate the required level of responses to ensure that a significant response rate to the audit was achieved.

7.2 Key Themes of Knowledge Audit

The key themes for this research are to examine knowledge generation, storage, sharing and usage processes. The research is seeking to examine any correlation between the responder's organisation culture and structure, with the prevalence and success of knowledge management initiatives in the organisation. To that end, the key themes are as follows:

- Knowledge processes
- Organisational culture and structure

The design of the audit took into account various other audit examples including audits that were submitted as part of dissertation documents similar to this thesis. These included papers such as "Using Game Theory to Explain Organisational Knowledge Sharing Behaviour" (Ní Cheilleachair C., 2011) and "A Framework for Knowledge Management in European Regional Development Funds Audit" (Laiyemo O., 2014). Due to the differing themes between these audits, fundamentally the Netcoach template drove significant amounts of the content in the final audit employed in this research.

7.3 Initial Draft

As mentioned in the introduction, audits for other dissertations were naturally specific to the research requirement of those dissertations. Giving truth to the fact that an organisation will have very specific needs for its knowledge audit design, based on the set of circumstances that it is wishing to examine.

On that basis, the best course of action involved leveraging off the knowledge audit template from Netcoach. With the themes of this research papers' audit identified, template sections contained in the full audit template were rationalised, to those that met the requirements of this research paper.

The sections of the knowledge audit are detailed below, and reflect the focus on organisational culture and structure themes, and of course on knowledge management related themes. Based on the fact that professional contacts were being asked to participate in this research, any questions regarding salary were excluded, since salary

related questions tend to be aimed at assessing a responder's motives, but as the focus of this research is on the organisational culture, this question is not necessary.

Initial Draft Sections

- Basic knowledge profile
- Work analysis in a knowledge context
- Knowledge and information sources
- Company / Organisational culture
- Knowledge management in the organisation
- Demographics

Sample questions for each of these sections are contained in chapter 6. The first draft of the knowledge audit contained a lot of the sample questions relevant to the sections contained.

The initial draft was developed by first creating questions for three of the sections, namely 'Demographics', 'Basic Knowledge profile' and 'Company / Organisational Culture'. This draft also included a section ' Motives and Salaries' that was subsequently removed from the audit for the reasons detailed above. The first audit also contained various additional questions that were generated, in addition to those that were adapted from the Netcoach audit template. These additional questions were predominantly under the 'Company / Organisational Culture' section, as this is where the focus of the audit is.

The initial review was to see whether the questions that I had included in the three sections with questions, were of the required standard. Feedback was obtained that was reflected in version two of the audit, involved the moving of the 'Demographic' section to the rear, and various thoughts on how technical 'Knowledge management' terms could be redrafted, to allow a non-knowledge management person to understand. An example of this would be 'intangible knowledge capital of employees' was removed, while 'Theoretical knowledge' was amended to 'Education'. The review of the first draft also involved re-wording of some of the questions again to ensure that a wider audience may find the audit more user-friendly.

7.4 Subsequent drafts

The **second draft** was a more complete draft. All sections had questions and the 'Motives and Salaries' section was removed. The 'Demographic' section was moved to the rear of the audit as advised after review of the first draft.

Review of the second draft involved the highlighting of typos, and suggested addition of 'Don't know' answer to a previous 'Yes/No' only answerable question. Another good suggestion from the supervisor was the addition of a free text section at the end of the audit. This section facilitated the responders to write any comments they had about the process or about items covered by the audit that they wanted to elaborate on.

Feedback obtained suggested that questions which required a ranking from say 'Totally disagree' to 'Strongly Agree' or 'Rarely' to 'Always' should be ordered in the same ranking direction. I.e. the Minimum rank should be on the left of the ranking scale, with a move to the right ensuring a move toward the maximum rank. Taking this point on board, ensured that all questions should have a similar feel to them, and ensure a consistent experience to the responder of the audit.

The review of the second draft also afforded a timed dummy run through the questions by the supervisor. This was a useful guide as to how long it would take someone to complete the audit, whom had not seen it before. The time taken was just short of twenty minutes, which was deemed an acceptable level, and not too onerous a task for responders.

7.5 Third Draft

The **third draft** further refined the previous draft, taking on board all the feedback from the second draft review process. Typos identified were corrected and the free text section was added to the rear of the audit. This version was provided to my supervisor and another third party form completion. Both responders were timed to ensure that the initial twenty minute completion time for version two was maintained. Similar times were noted and both myself and supervisor agreed that the audit was near ready for distribution.

7.6 Final Draft

The structure and questions of the final draft were near identical to that of draft three. Correction of a couple of typos in terms of spacing and spelling were completed, with the principle difference being that all the questions were indexed to allow for ease of reference once the audit was completed by multiple responders.

The final draft which was based in a Microsoft Word document, was then typed into an online survey website for wider distribution. Surveygizmo.com was the chosen provider, based on features provided, and the associated cost being reasonable. A copy of the final audit is included in Appendix A.

7.7 Conclusion

This chapter shows the journey of the knowledge audit used in the research for this thesis. Thankfully the number of iterations was not too onerous, with the level of redrafting kept to a minimum. This can be attributed to the fact that an industry standard knowledge audit template (Source: Netcoach) formed the basis of the knowledge audit applied.

The final knowledge audit focuses on the themes detailed above, and the related sections in the audit reflect these themes. The supervisors input and feedback proved invaluable in arriving at the final version of the audit. The audit was deployed as described above via *surveygizimo.com*, and due to the rigour applied in arriving at the final draft of the audit, there was no real negative feedback from those that partook in the research.

8 EVALUATION

8.1 Introduction

The focus of this research is to assess the impact of organisational cultures and structures on knowledge management processes and initiatives within those organisations. As such there are a number of key elements that are assessed in this evaluation. The first element is the impact of a flat versus hierarchical structure on knowledge management in the organisation. The second element is to look at organisations in the private sector versus those in the public sector, and discuss finding regarding knowledge management approaches. A third element involves looking at organisational culture and again assessing associated impacts on knowledge management processes within the organisation. Please note a full reporting of the answers to each question is presented in Appendix B.

8.2 Flat versus hierarchical organisation structures

In the 'Company and Organisational culture' section of the knowledge audit, respondents were asked "Do you consider your organisation a flat or hierarchical organisation?"

The answers to the question were approximately 2:1 in favour of hierarchical structures versus flat structures. These answers have been parsed to the results to the 'Knowledge management in the organisation' section. There are twenty-three questions in this section, to which the results have been divided between those that have answered 'Flat' and those that answered 'Hierarchical'. The results are shown graphically below, with an associated discussion.

The average age of organisations deemed to have a flat structure was 47 years. This is an interesting statistic, because it is generally accepted that most organisations begin as a flat structure, but as they age and their business grows the need for greater organisation drives them towards a more hierarchical structure. In the results from our knowledge audit, organisations, seem to have maintained their flat structure for many years. This would indicate a conscious decision to maintain the flat structure, for

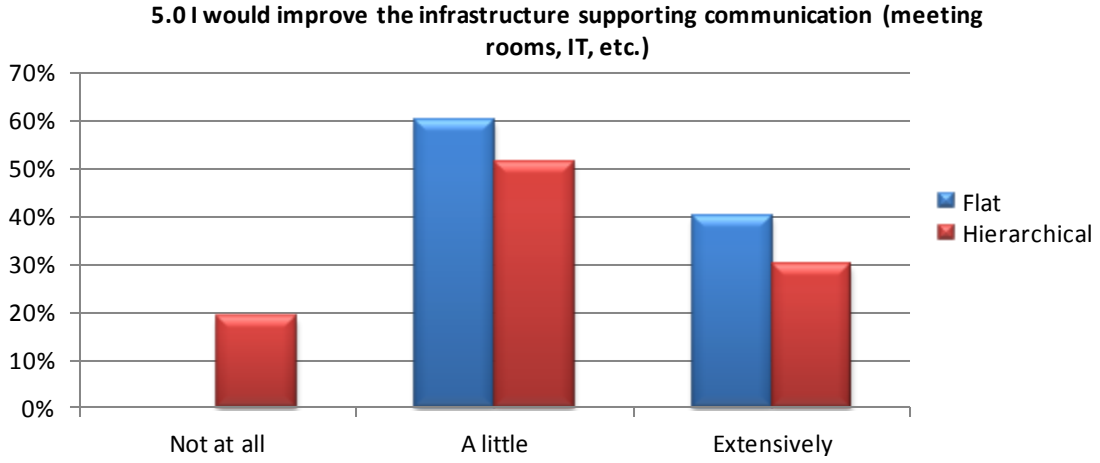
whatever reason. Knowledge management and associated processes should be easier to encourage in a flatter organisation.

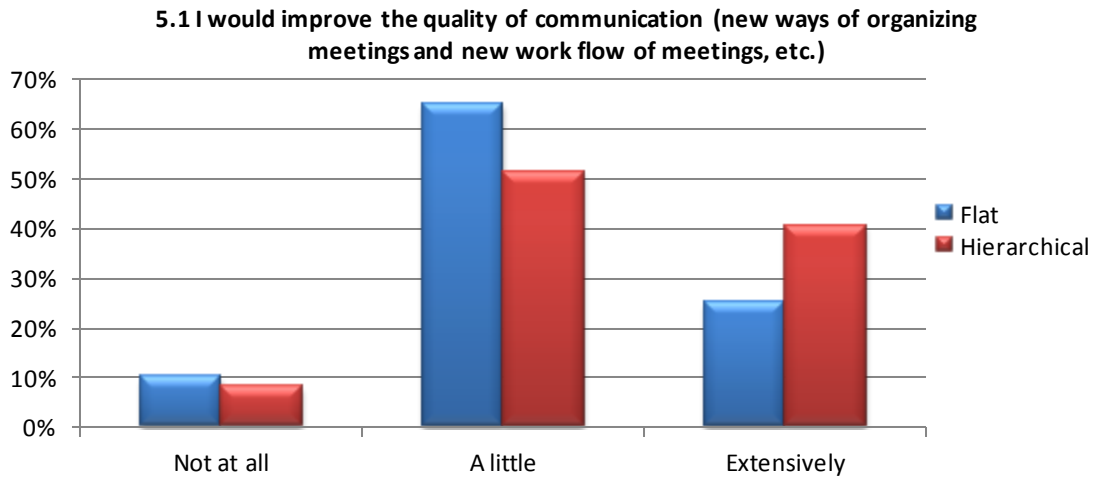
8.2.1 Results

The 'knowledge management in the organisation' section of the audit contained six sections, and the results of this evaluation will be presented using these six sections.

8.2.1.1 Communication

There are four questions in this section. Each question has two sets of responses, one from those who indicated that their organisations had a flat structure, and the other from those that indicated a hierarchical structure.





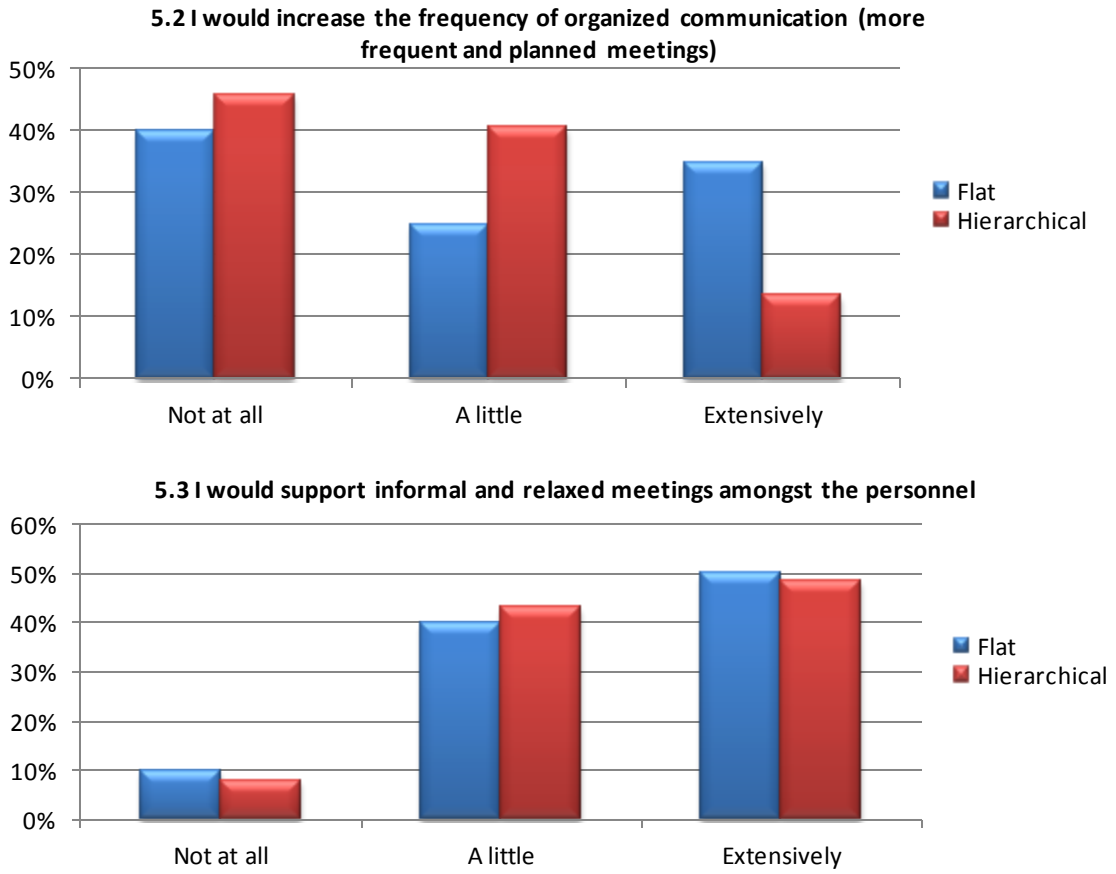


Figure 8.1 - Flat versus Hierarchical impact on KM communication.

The above provides some insight into the differences between flat and hierarchical organisations in terms of their communication practices, and thereby their knowledge sharing processes.

On review of the graphs it can be seen that there appears to be a greater call in the flat organisation for improved infrastructure (question 5.0) and increased frequency of organised communication (question 5.2). This would be consistent with perceived wisdom, that a flat organisation lacks the structure and control associated with a hierarchical equivalent. From a knowledge management perspective, Nonaka (1994) discusses the need for an element of controlled chaos to engender knowledge creation. This would fit better with a flat organisation, where there would be less control structures in place.

Question 5.1 on the quality of communication, shows that there is a greater desire amongst hierarchical organisation based respondents to improve communication, with

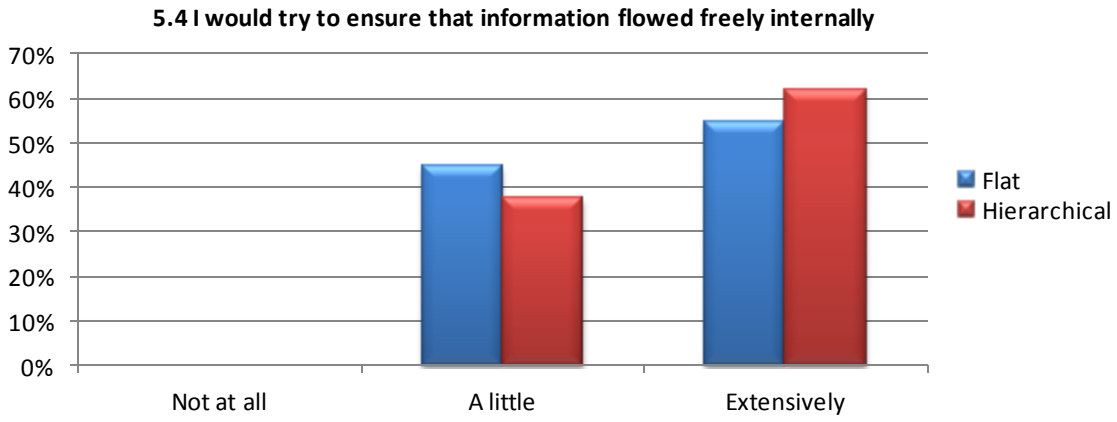
41% of them saying they would do so extensively, compared to only 25% based in a flat organisation. This would again back-up arguments that hierarchical organisations are more bureaucratic, and therefore restrict the level and quality of communication.

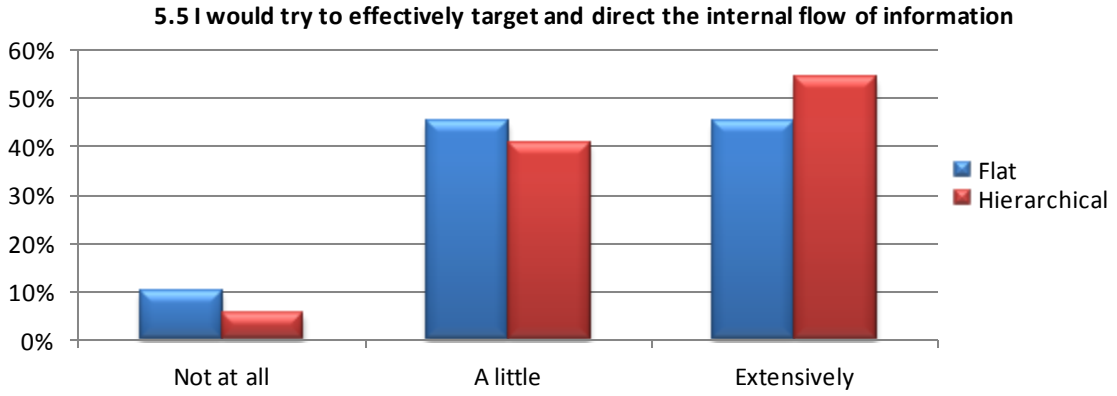
Interestingly the question around informal meetings, a good means of sharing tacit knowledge has very similar responses from both hierarchical and flat organisation based responses, indicating a perceived benefit in these types of communications irrespective of the organisational structure present

8.2.1.2 Information flow

The second section cover in the 'knowledge management in the organisation' section of the knowledge audit is concerned with information flows within the organisation. As with the first section the results are parsed between those received from respondent who deemed their organisation to be flat versus those that deemed theirs to be hierarchical.

The results to the four questions in this section are presented graphically below.





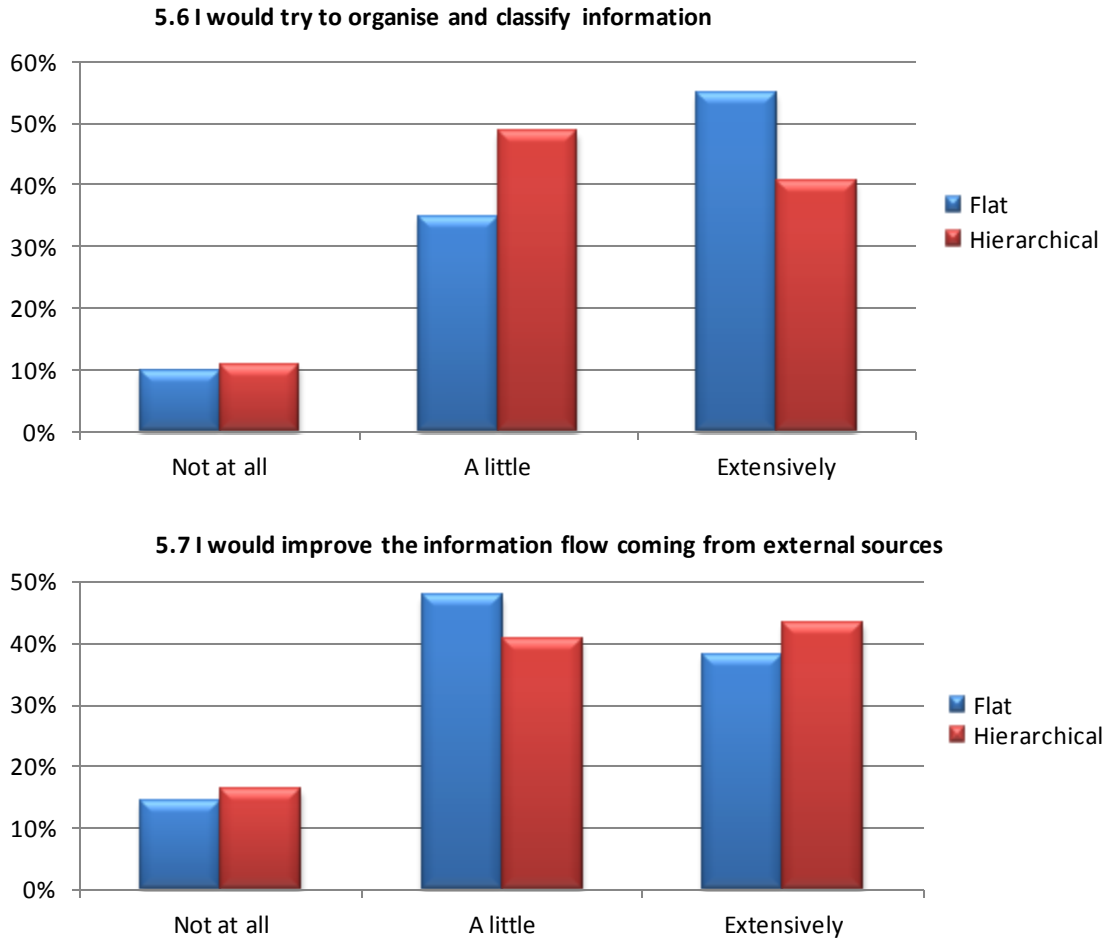


Figure 8.2 - Flat versus Hierarchical impact on KM - information flows.

The differentiation in responses between flat and hierarchical is consistent here with those identified in the first section of the audit. The hierarchical responses are more forthright in terms of requiring extensive changes to the flow of information (questions 5.4 and 5.7) and also how this flow is targeted (question 5.5). The only question where the flat organisation has a higher response rate in the 'extensively' category is where increased organisation is questioned.

Findings again indicate that the information flow in a hierarchical organisation flow less freely and sometimes need to be targeted better than is found with the flat organisation structure. This is in line with accepted findings with regard to a more bureaucratic structure of culture and structure as evidenced by (Wallach, 1993). Also the greater desire in the flat organisation responses to 'extensively' organise and classify information (question 5.6) shows the potential lack of organisation in these flatter structures when compared to their hierarchical equivalents.

8.2.1.3 Electronic files

Two questions in this section for comparison between flat and hierarchical structure responses.

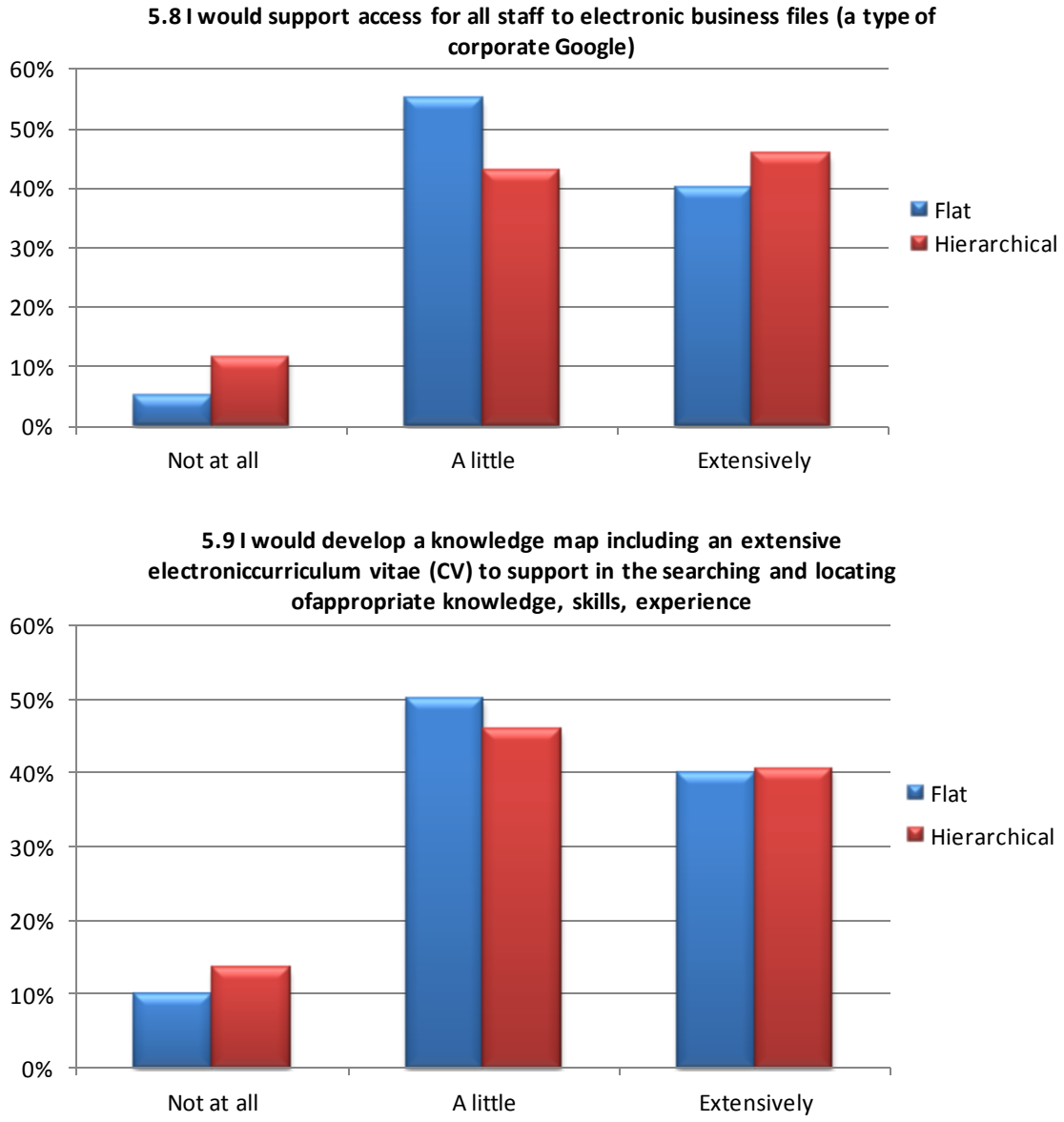


Figure 8.3 - Flat versus Hierarchical impact on KM - electronic files.

The above shows a marginally higher response in the hierarchical organisation to 'extensively' giving access to electronic business files, at 46% compared to 40% for a flat organisation. This may indicate the greater control that is exerted in a hierarchical environment, thereby potentially causing access restriction to knowledge resources and inhibiting their use when required.

With regard to the development of a knowledge map for the organisation, the hierarchical organisation is more negative on this suggestion, with 14% saying they would 'not at all' do this compared to 10% in the flat organisation. The flat organisation scores higher on taking 'a little' action on this front, which indicates that the controlled environment of the hierarchy may already be providing the structured access to knowledge resources that the individual requires.

8.2.1.4 Change of culture

This section looks at what cultural changes may be undertaken to improve the organisations approach to knowledge management.

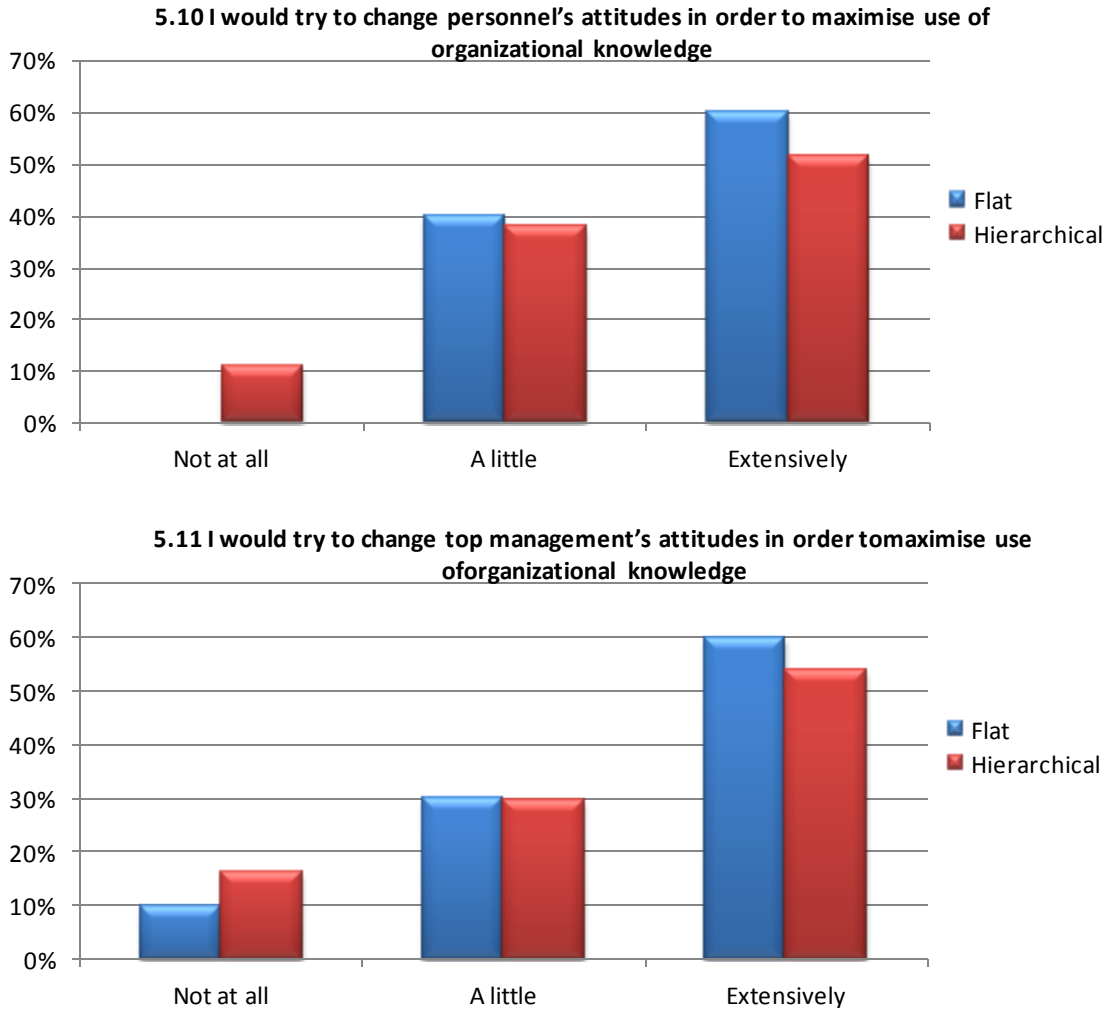


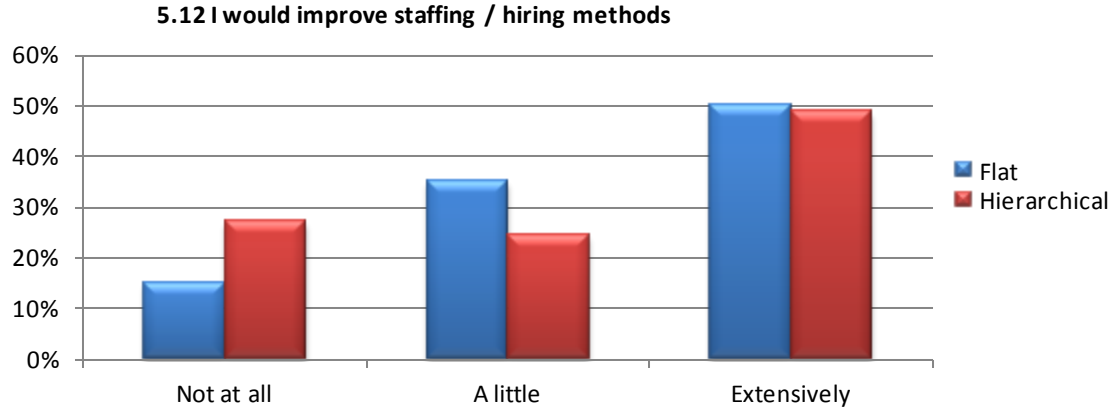
Figure 8.4 - Flat versus Hierarchical impact on KM - change of culture.

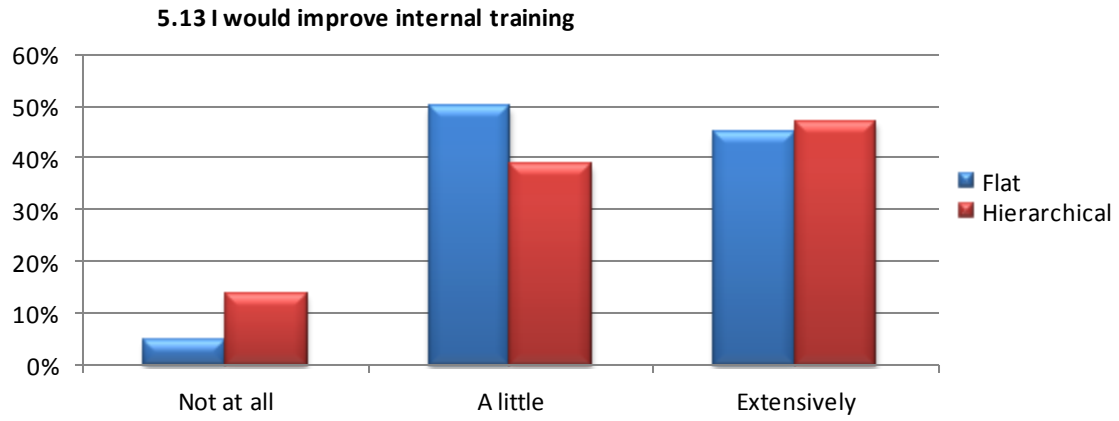
The answers to these culture related questions, in terms of organisational knowledge, indicate that more respondents in the flat organisations see a need for 'extensive' change. 60% compared to 51% in terms of extensive change of personnel attitudes, and

60% compared to 54% in terms of top management attitude change. This is interesting on the basis that a less bureaucratic organisation, i.e. a flat structured one, is often deemed to be better equipped in terms of culture and structure to maximise the organisational knowledge resources. Evidence attained here, would contradict that belief.

8.2.1.3 People

Assessing the role of people in terms of knowledge management within the organisation, these five questions again show the differences between flat and hierarchical structured organisations.





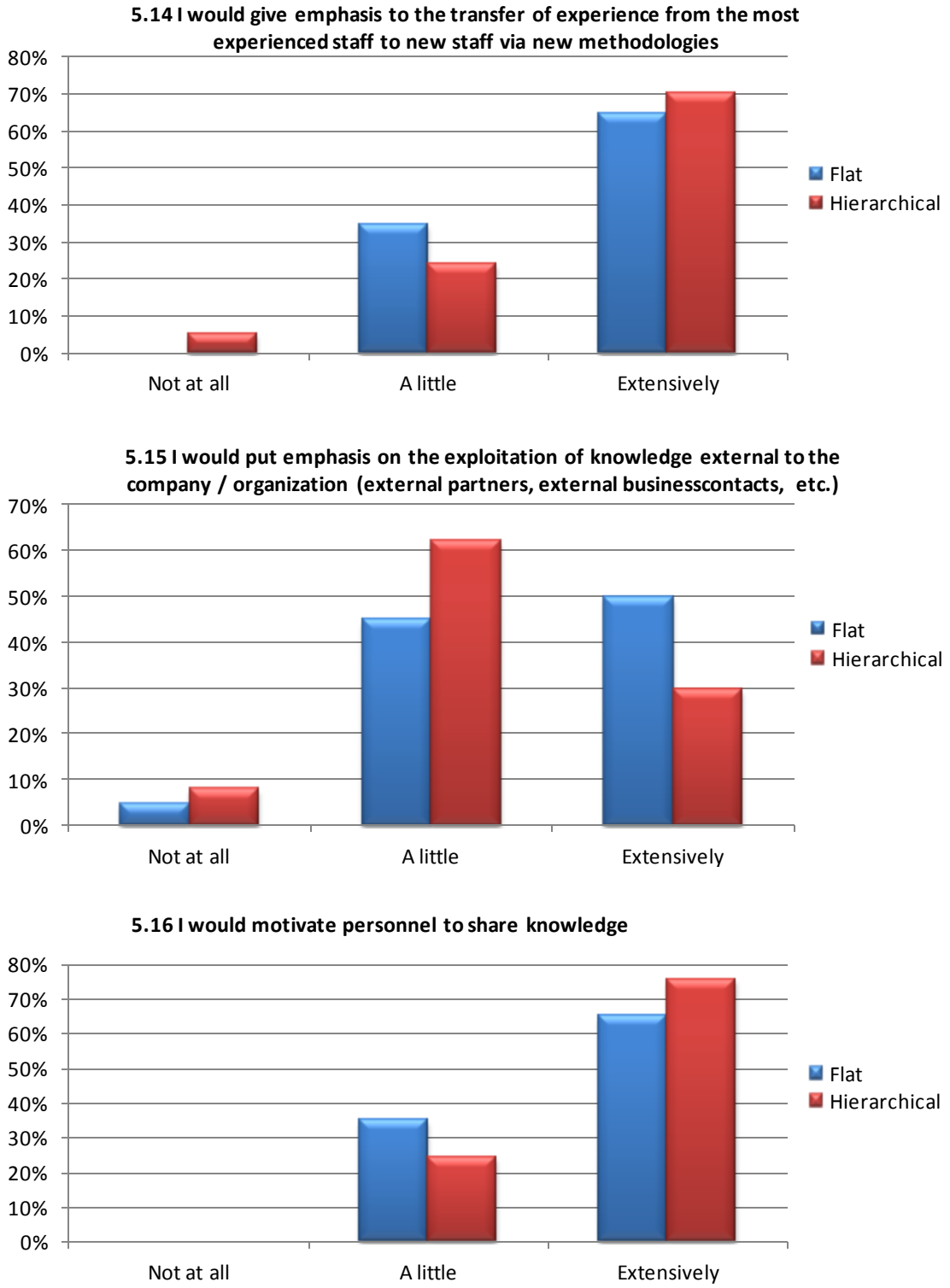


Figure 8.5 - Flat versus Hierarchical impact on KM - People.

In general quite similar trends identified in both flat and hierarchical organisations. The one notably difference seems to be in the exploitation of external knowledge

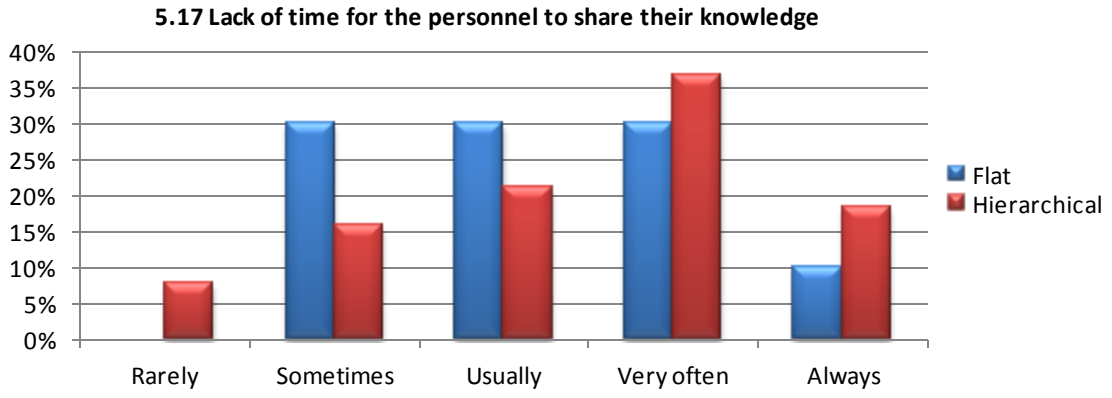
sources (question 5.15). 50% of respondents in a flat organisation stated they would do so 'extensively' compared to 30% from the hierarchical organisation.

Both organisation structures seem to have similar issues with regard to the improvement of hiring practices, and internal training. Interestingly 5% of hierarchical responses would 'not at all' give emphasis to the transfer of experience from the most experienced staff to new staff via new methodologies (question 5.14). This shows that some individuals in hierarchical organisations are not interested in transfer of knowledge and associated learning opportunities. However the balance of respondents in the hierarchical organisation would appear to be more strongly in favour of this, with 70% stating they would do so 'extensively' compared to 65% of their flat organisation equivalents.

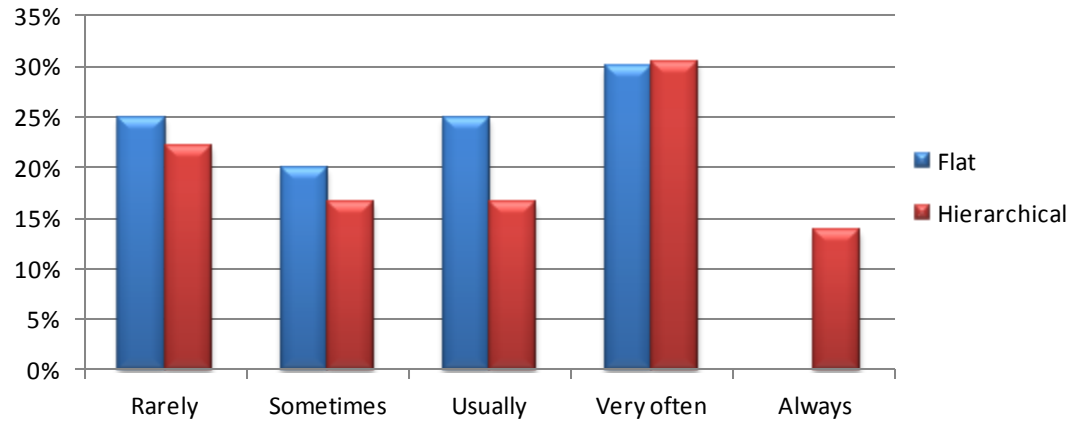
The last question looks at motivation, with more hierarchical organisations appearing to see a greater need to motivate staff to share knowledge. 76% of hierarchical organisation respondents said they would motivate 'extensively' compared to 65% of flat organisation respondents.

8.2.1.3 Knowledge management policy

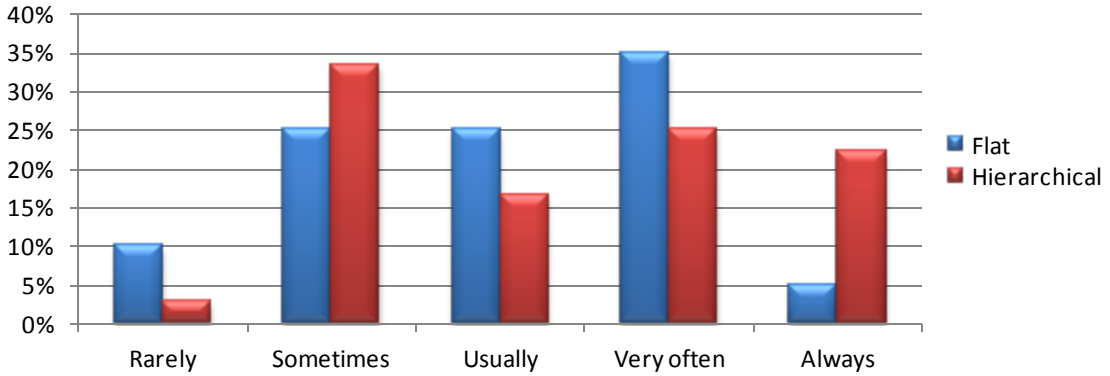
The last section assessed contains 6 questions for which responses are compared. Details of the comparison of responses are again shown graphically below.



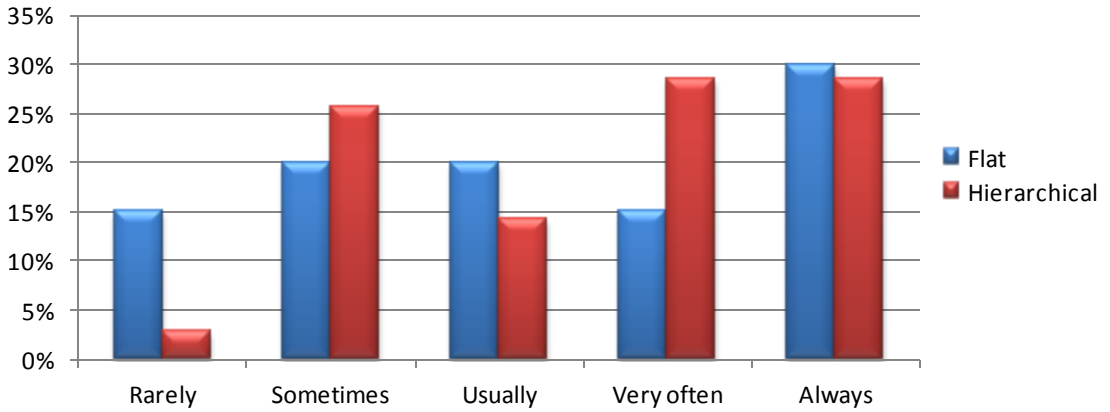
5.18 Lack of willingness amongst personnel to spread crucial information, knowledge (fear of decentralizing / giving away knowledge)



5.19 Lack of willingness amongst personnel to change the way they work



5.20 Lack of incentives given to employees by top management



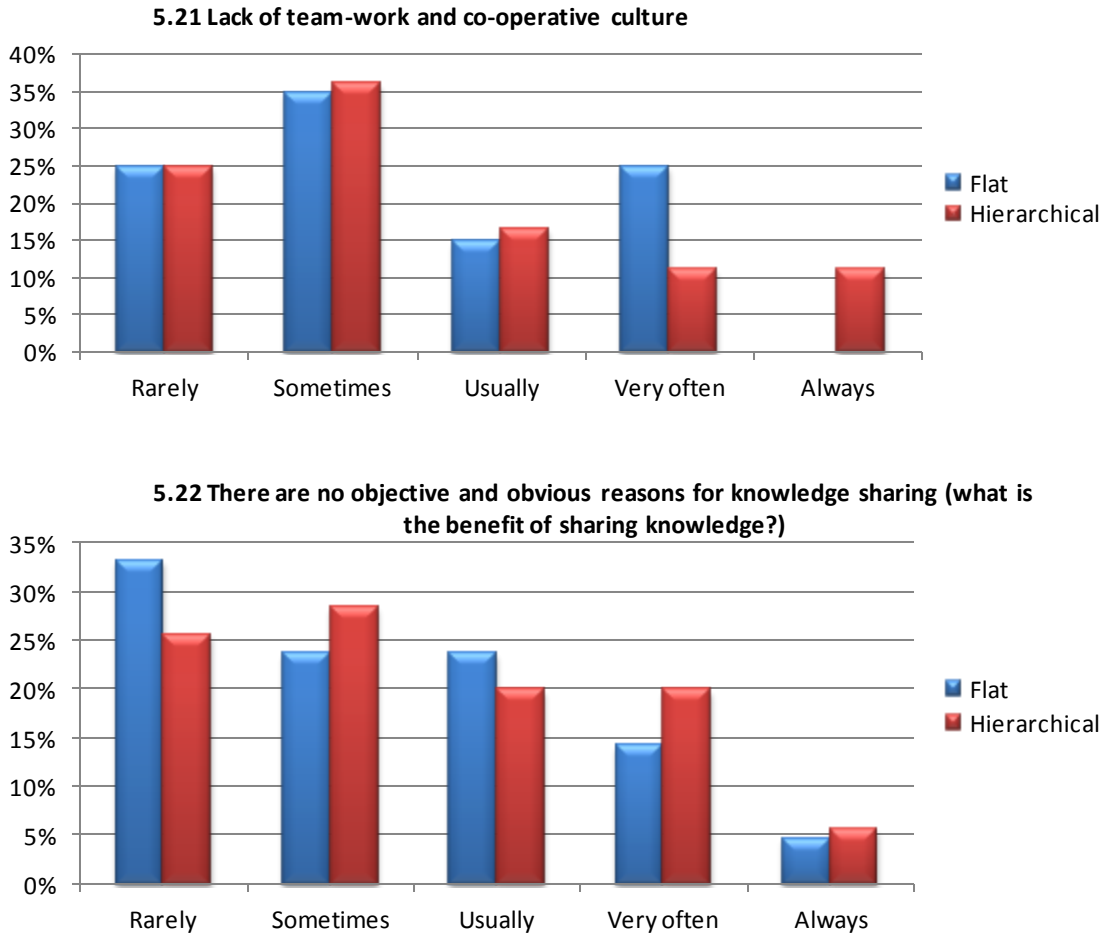


Figure 8.6 - Flat versus Hierarchical impact on KM - Policy.

The above shows a number of comparisons between a flat and a hierarchical organisation. The initial observation from the question 5.17 is that on the time to share knowledge measure, the flat organisation would fare better. A combined 55% of hierarchical responded that they 'very often' (37%) or 'always' (18%) lacked time to share knowledge. This compares to a combined 40% in the flat organisation.

The hierarchical respondents also fared less well on the willingness to share question (5.18). Only 30% of flat respondents indicated that they 'very often' experienced a lack of willingness to share knowledge amongst colleagues. The remaining 70% were in the neutral sphere, with 25% in the 'rarely' category. The hierarchical organisation in contrast have 31% stating the 'very often' experienced this, while a further 14% stated they 'always' experienced colleagues with a lack of willingness to share knowledge.

This may indicate that a better culture for knowledge sharing seems to exist in the flatter organisation as opposed to the hierarchical one.

Question 5.19 is also concerned with willpower, in terms of measuring a lack of willingness to change the way work is done. Again the flat organisation would appear to be better at adapting to change with a big gap in responses between the two organisation types in the 'always' category. Hierarchical based responses stated 22% of the time that the 'always' encountered a lack willingness to change, while the flat organisation based responses had an equivalent of 5%. This lack of willingness to adopt change can be seen as an inhibitor to new learning, and knowledge sharing.

In assessing a person's lack of willingness to share knowledge, a key point in their motivation or lack of, is how they are being incentivised. If it is not in their interest to share knowledge, then it may be reasonable to assume that they will not do so. The hierarchical organisation based responses appear to indicate a lack of incentives in their organisations as an inhibitor to the knowledge sharing process. 29% stated that 'very often there was a lack of incentive given to staff from top management, with a further 29% stating that this was 'always' the case. This compares to the flat organisation based responses of 15% and 30% respectively in those two categories. These results indicate that lack of incentives to share is an issue for both organisation types, but is more pronounced in the hierarchical organisation type.

A team-based environment is seen by many writers in the knowledge management domain as crucial to successful knowledge management initiatives. Evidence being Wenger's (2004) communities of practice approach to managing knowledge resources. Interestingly here despite a similar spread of both set of responses across the spectrum, it can be seen that the hierarchical based responses slightly favour those of the flat organisation based responses. 11% of the hierarchical responses in the 'always' category and another 11% in the 'very often' with regard a lack of team work and co-operative culture, give a combined 22% in the negative response side of the scale. This compares to the flat organisation based responses of 25% on the negative side, albeit with 0% in the 'always' category. This statistic gives lie to the fact that flat organisations foster better team based environments.

The final question parsed across the flat and hierarchical responses is concerned with whether there is actually a reason within the organisation to share knowledge. Respondents are asked whether there are 'no objective and obvious reasons for knowledge sharing'. In this metric the flat organisation again seem to prevail, with 33% of responses in the 'rarely' category. Compared to 26% in the same category for hierarchical responses, this is really where the gap between the two organisation type appears. Residual balance of responses on both sides appear reasonably evenly spread across the remaining categories available.

8.2.1.4 Key findings

Organisation and structure naturally seem to be the preserve of the hierarchical structure, with a couple of questions highlighting a desire in the flat organisation type to improve in certain areas with regards to organisation. This is understandable, and in line with accepted organisation management theory. Generally organisations become more hierarchical as they attempt to introduce structures to control various resources. There is no reason to assume that this approach would not be adopted by organisations seeking to manage their knowledge resources.

The flatter organisation seems better able to ensure the free flow of information and target it better than their hierarchical equivalent. This again would be consistent with organisation theory where a flatter organisation provides a nimbleness and flexibility as in theory all individuals are closer to knowledge resources than they may be in a hierarchical organisation, where knowledge resources may be kept within functional silos.

Surprisingly there were little differences in the organisational related questions, with both flat and hierarchical responses seeking change in colleague and top management attitudes on a similar scale. Another surprise was the team based question, where the flat structured organisation responses actually seemed to indicate that a lack of team work or cooperation was a greater inhibitor in their organisation than the equivalent responses from the hierarchical based population.

Despite some unexpected responses in general the trend appears to be that the flatter organisation produced responses that indicated that their organisation would be more

conducive to successful knowledge management initiatives, rather than those from a hierarchical organisation.

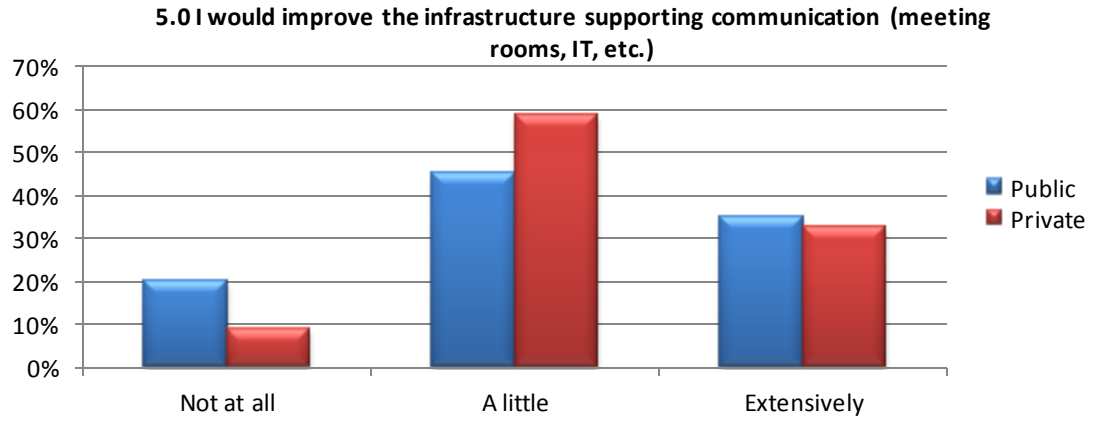
8.3 Private sector versus Public sector

Similar to the flat versus hierarchical analysis, the survey population were asked in the demographics section of the audit to indicate whether they worked in the public or private sector. The results to this question were again used to parse the results of the 'knowledge management in the organisation' section of the audit. The results will again be presented across the six sections within the 'knowledge management in the organisation' section and presented via graphical analysis with key points discussed.

The motivation for looking at the public versus private sector divide, was due to the often discussed differences in work practices and cultures between the two. The analysis views this through the prism of knowledge management, and evaluates whether either sector is more conducive or not to knowledge management initiatives.

8.3.1. Communication

There are four questions in this section. Each question has two sets of responses, one from those who indicated that they worked in the public sector and those that indicated they worked in the private sector.



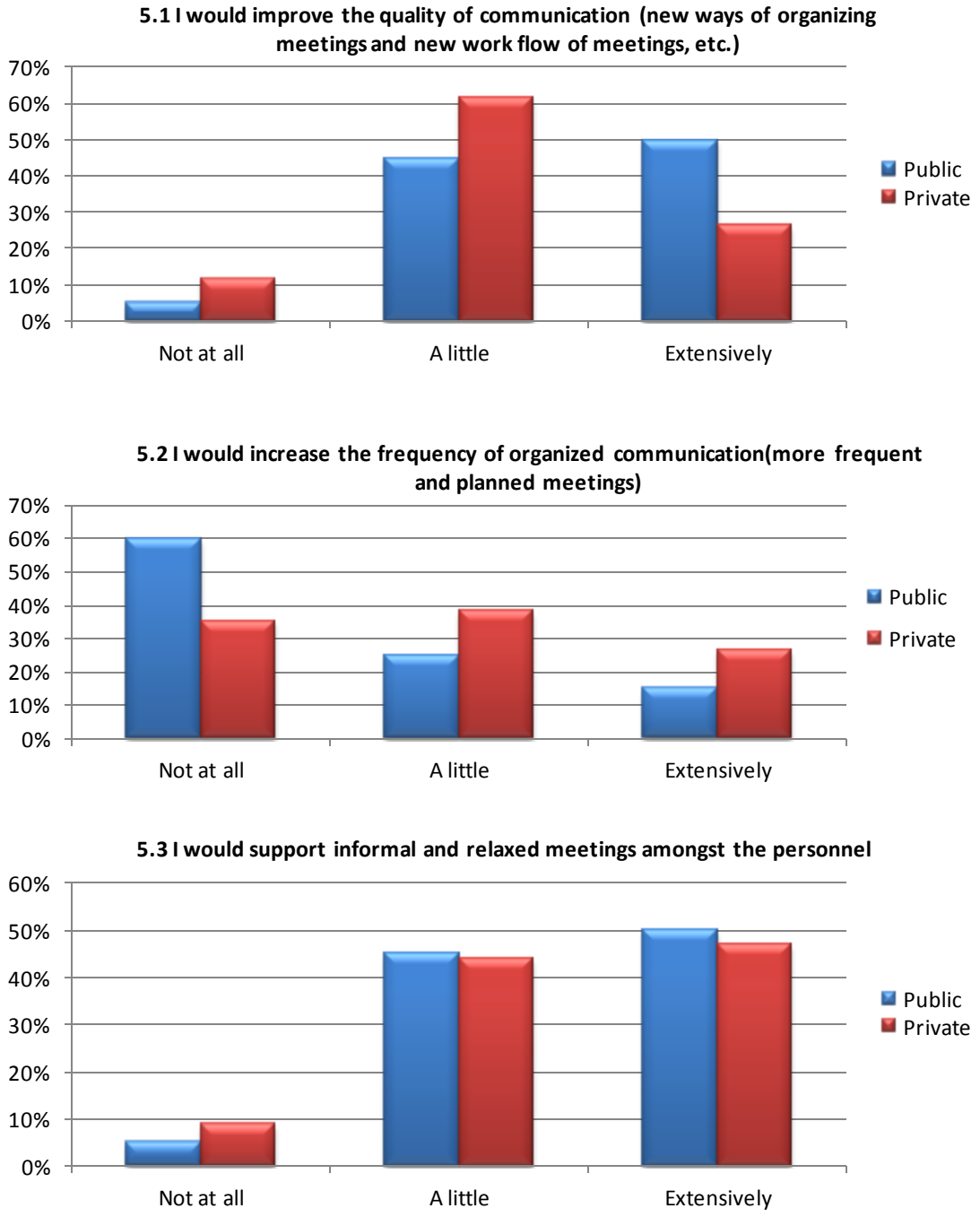


Figure 8.7 - Public versus Private assessment on KM communication.

The above analysis highlights a number of interesting points. It shows certain similarities between both public and private sectors, but also some quite marked differences.

In terms improving communication infrastructure, the private sector responded more positively to the requirement that action was required. 59% or private sector based respondents indicated a little action was required with a further 32% indicating action to improve infrastructure was 'extensively' required. This gives quite a large combined

91% of the private sector based survey population indicating that some level of improvement is required in their communication infrastructure. This is interesting as the generally accepted logic is that the private sector has better equipment than the public sector equivalent. The public sector is often viewed as being dated, and a little behind current technology in the equipment they are using. The public sector based responses are also strong in terms of taking action to improve communication infrastructure with a combined 80% saying they would do so 'a little' (45%) of 'extensively' (35%). So both sectors answered strongly for improvement, but the surveyed private sector in this incidence was stronger in terms of their requirement for action.

The quality of communication is measured in question 5.1 with again both sectors strongly indicating that improvement is required. A substantial 95% of public sector responses indicated that they would like improvement in quality of communications 'a little' (45%) or 'extensively' (50%). This compares to the private sector with a combined response rate of 88% indicating action is required. Private sector responses are between 'a little' and 'extensively' with 62% and 26% respectively. From these responses it can be seen that the public sector would appear to have a stronger requirement to improve communication quality, particular when half of the public sector survey population indicate it as 'extensively' being required.

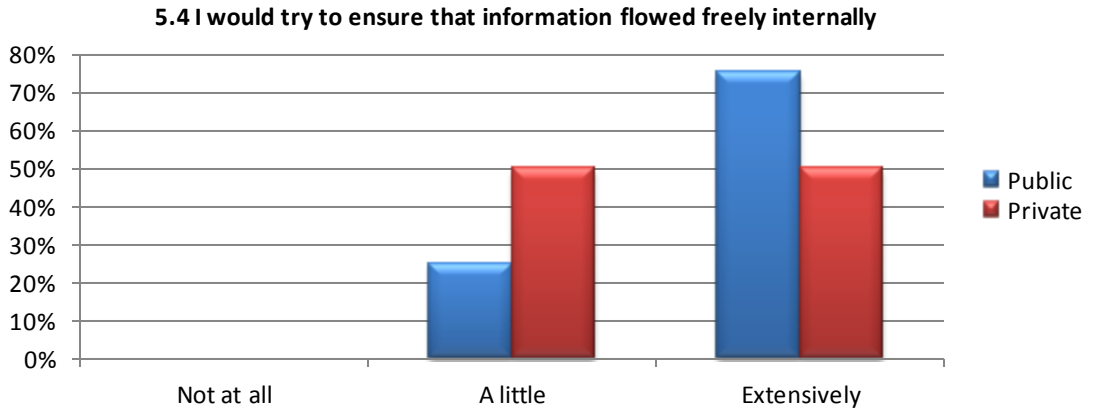
In the previous two questions there were similar trends in the distribution of both sectors answers, however when questioned on whether the frequency of organised communications should be increased, this similarity was not evident. There was a very strong response of 60% from the public sector based responses that increased frequency of organised meetings should 'not at all' happen. This strong 'not at all' response rate compares to the private sector response rate of 35%. In the private sector there is a reasonably even distribution of responses across all options. The strong 'not at all' response from the public sector indicates that there may already be an overload of organised meetings. Such a strong response rate might be seen as a reaction to this.

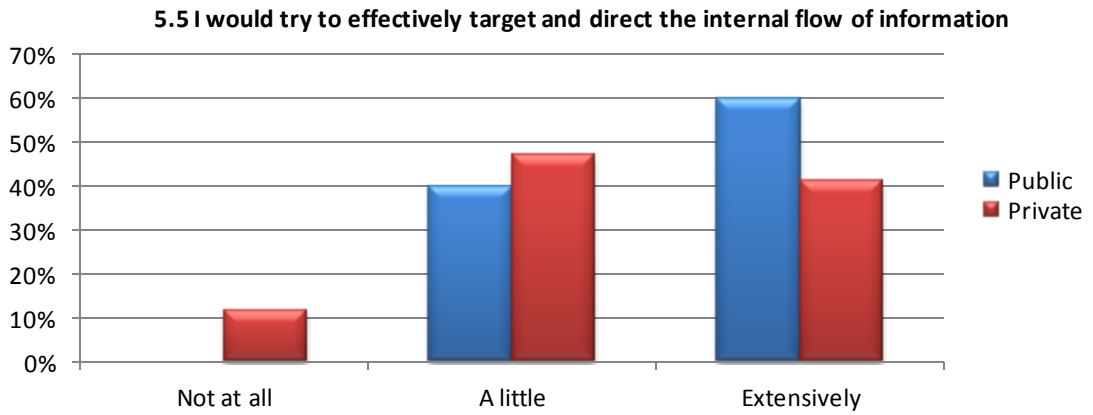
The final question in the communication section measures support for informal and relaxed meetings amongst the personnel. A very similar set of results here with both sector broadly in favour. The public sector with a combined 95% state they would

support this initiative 'a little' (45%) or 'extensively' (50%). This compares to the private sector stating they would support this initiative 'a little' (44%) or 'extensively' (47%) giving a combined result of 91%. It appears that irrespective of sector, informal meetings which are a good means of transferring tacit knowledge, would be a popular initiative to introduce.

8.3.2 Information flow

This section is concerned with the flow of information in the organisation. A good measure of how the organisations knowledge resources are being used and can identify where there is potential under utilisation. There are four questions in this section, with results again split between the public and private sector based respondents.





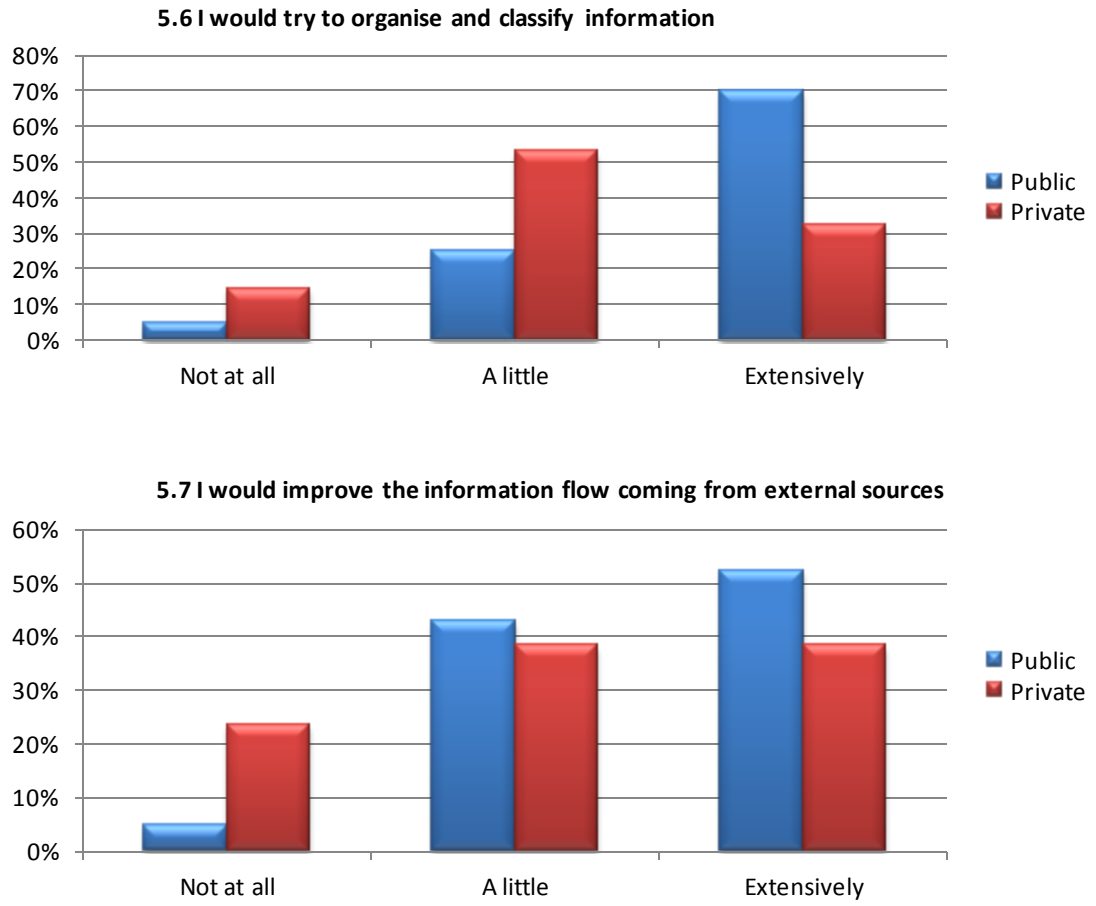


Figure 8.8 - Public versus Private assessment on KM - information flows.

There are some interesting results here, with the public sector being broadly more extreme in their responses than that of the equivalent private based responses. In all four questions the public sector has a higher response rates in the 'extensively' category, with some marked differences between them and their private sector equivalents.

There appears to be a need to increase the free flow of information in the public sector with 75% stating they would try to 'extensively' ensure this. 50% or private sector responses were in this category also, which is a significant proportion of the population, but still a long way behind the public sector response rate. This disparity in results between the two sectors is also seen in the responses to question 5.5 on targeting information. 60% of public sector responses indicated they would 'extensively' target and direct internal flows of information, compared to 40% in the

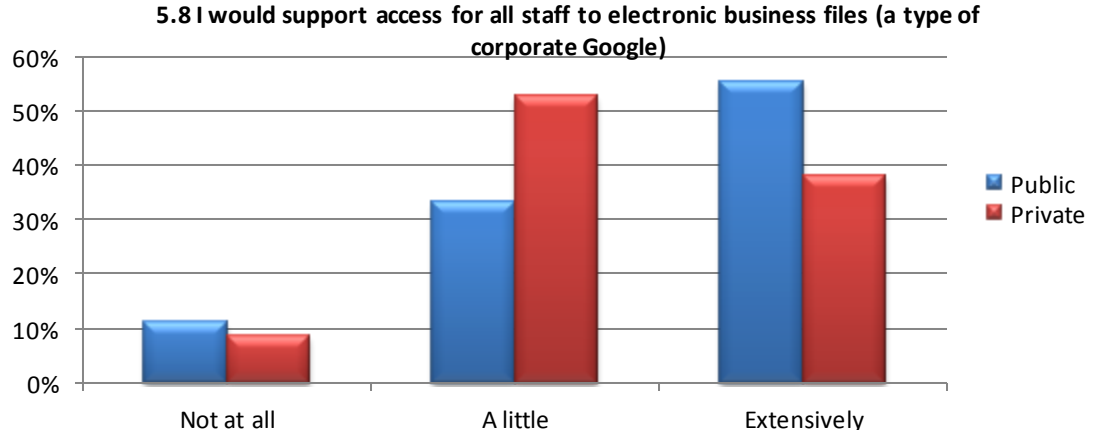
private sector. This again point to a substantial need in the public sector to improve in this area.

The question (5.6) on organising and classifying information also sees large disparity between the two sectors. Another strong 'extensively' response from the public sector with 70% compared to 32% in the private sector. This indicates a level of organisation is required to be introduced in the public sector, to gain parity with the private sector equivalent. This would appear to be in line with a perception of a lack of efficiency in the public sector.

The strong 'extensively' results from the public sector survey population, in the previous three 'information flow' questions continues with the last question in the section. This question is concerned with the flow of information from external resources. 52% of public sector based respondents would 'extensively' improve this flow, compared to 38% in the private sector. Another 43% of public sector responses would do 'a little' to improve the flow, compared to another 38% in this category for the private sector. This indicates strong desires in both sectors to see improvement but the sentiment is stronger in the public sector based the 'extensively' response rate.

8.3.3 Electronic files

Two questions in this section for comparison between public and private sector responses.



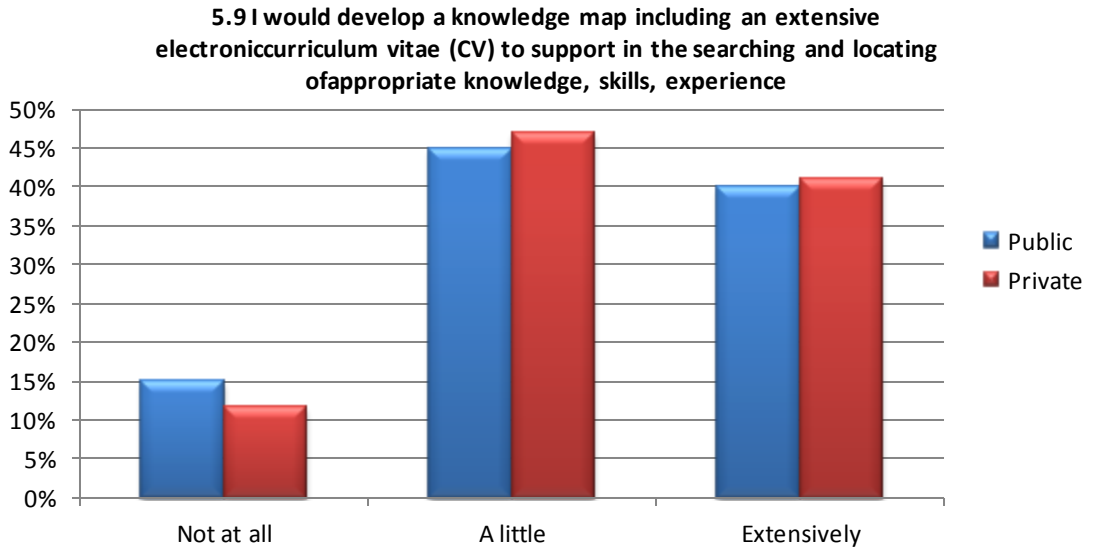


Figure 8.9 - Public versus Private assessment on KM - electronic files.

The disparities identified between the two sectors in the previous section of the audit, are not evidenced in this section. A similar trend is identified in both questions under this section, with a slit difference in question 5.8 in terms of the split between the action orientated responses 'a little' and extensively. However a combined 89% of public sector respondents would see value in access for all staff to electronic business files (question 5.8). The equivalent private sector figure is 91% is very similar with as mentioned the splits between 'a little' and 'extensively' indicating that perhaps the public sector feels more strongly about this.

8.3.4 Change of culture

This section seeks to assess any perceived changes that the respondents see as a requirement in order to maximise the use of organisational knowledge. When the public versus private sector debate occurs, it is the prevailing culture in each that is often seen as being very different.

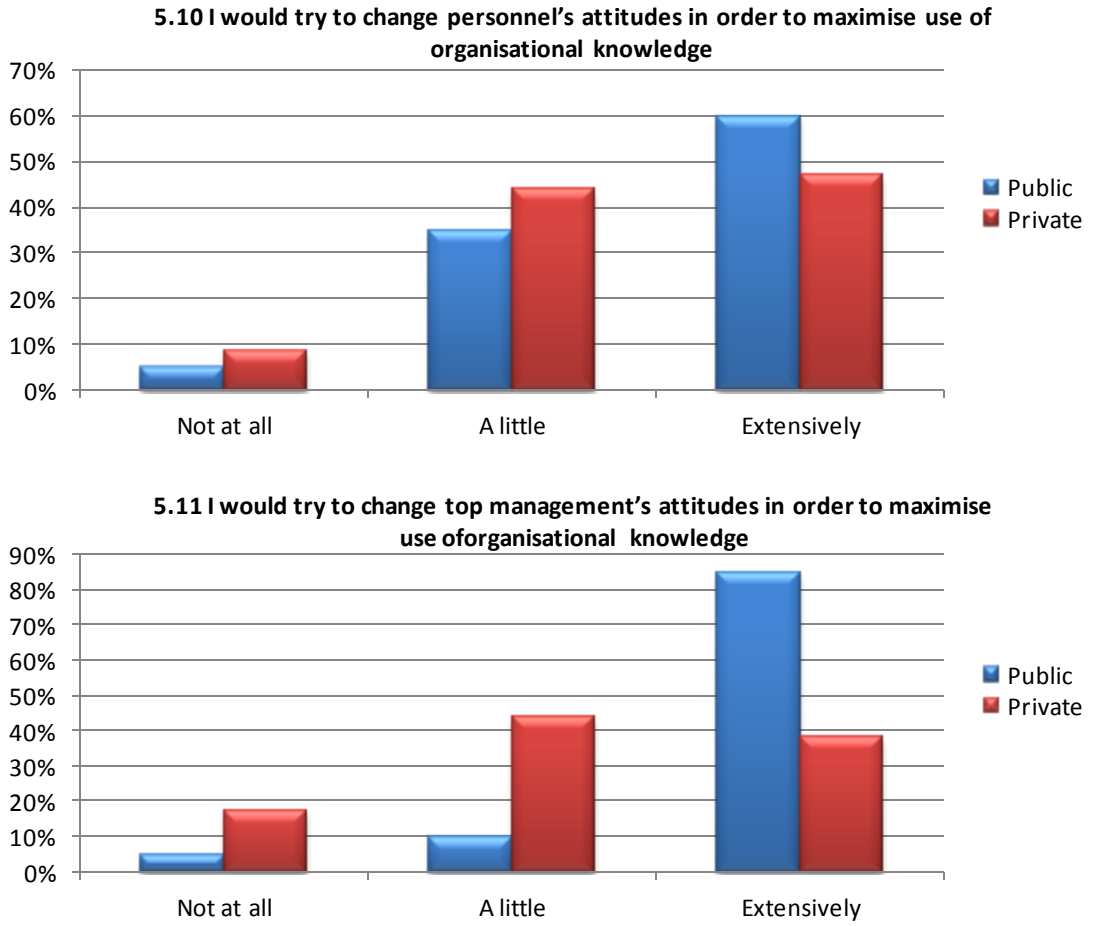


Figure 8.10 - Public versus Private assessment on KM - change of culture.

This section is possibly where the largest disparity between the two sectors may have been expected. In the second question (5.11) perhaps this is evident, but surprisingly less so in responses to the first question (5.10).

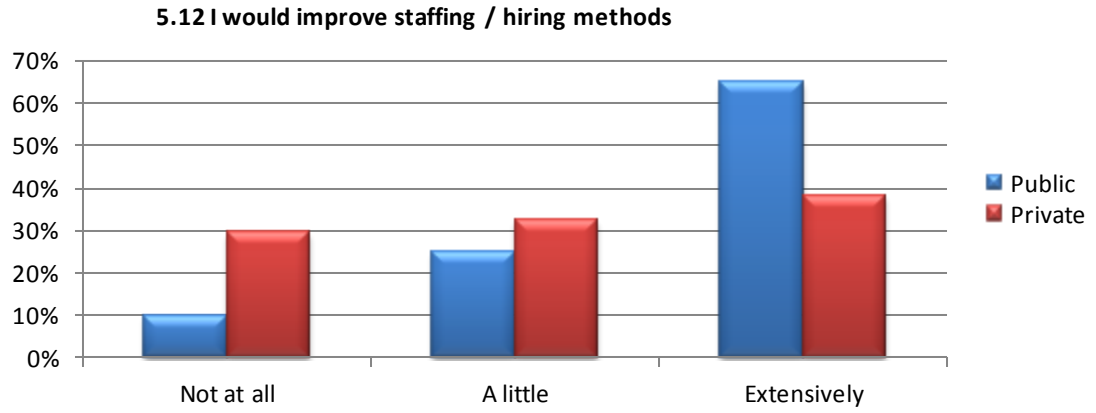
In both sectors there is a strong response rate to see change in personnel attitudes. A combined 95% of public sector responses stating they would like 'a little' (35%) or 'extensive' (60%) change. This compares to private sector equivalent results of 'a little' (44%) or 'extensive' (47%) giving a combined result of 91%. The split indicates yet again, that there is a stronger desire for change in the public sector, but overall the results are similar in terms of action required and change being needed.

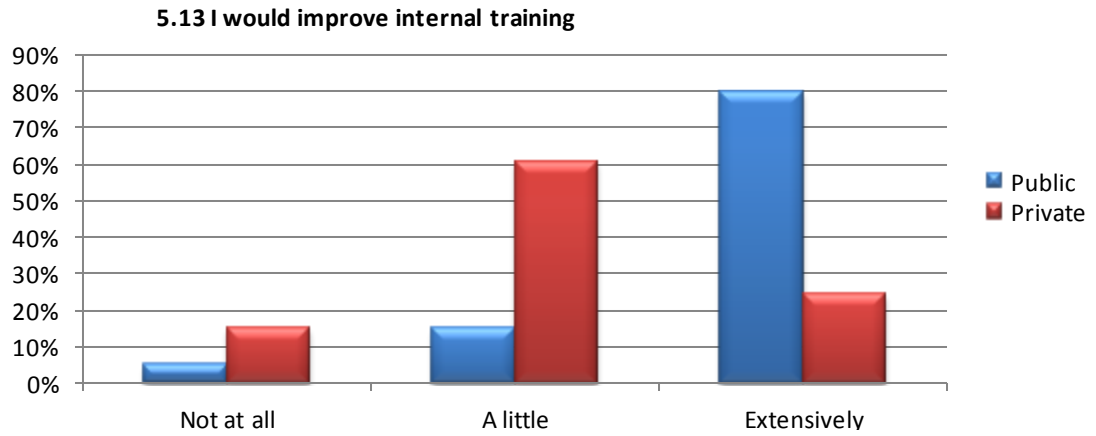
When a change in attitude in top management is assessed there is a large disparity between the two sectors. The public sector responses are very strong with 85% stating that 'extensive' change is required, compared 38% in the private sector.

It is interesting to view these results in terms of the prevailing attitude in both sectors. One could perceive the public sector view being that top management are the custodians of their organisations culture. Therefore they view top management as requiring to change, to ensure a knowledge friendly culture. This could be a symptom of a hierarchical structure that may be more prevalent in the public sector versus the private sector.

8.3.5 People

A section to assess the organisation's approach to people from a knowledge management perspective. As with the previous sections the results of the audit are parsed between those responses from the public and private sector based individuals.





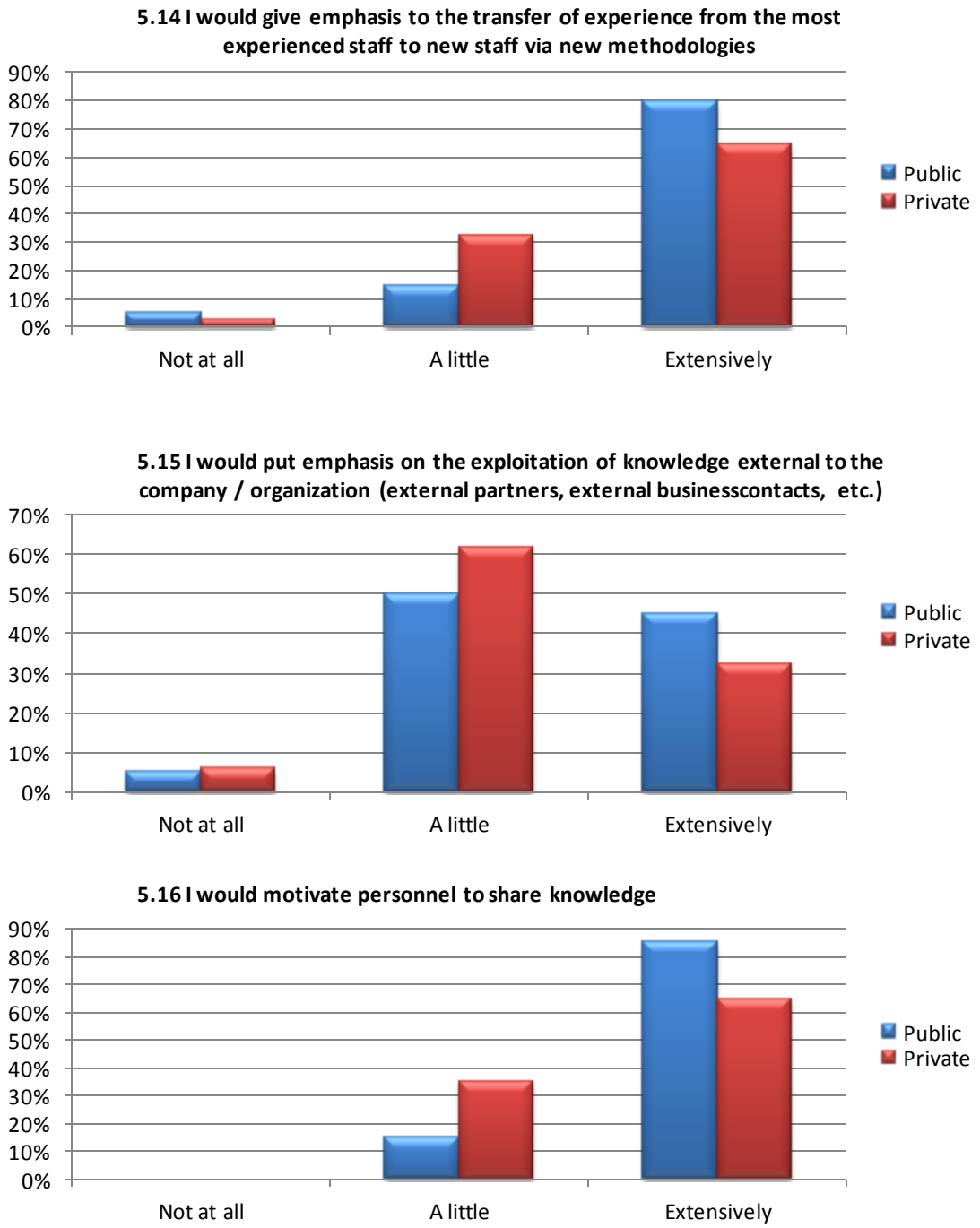


Figure 8.11 - Public versus Private assessment on KM - People.

As with the section on 'information flow' the public sector based responses are higher than their private sector equivalents in the 'extensively' category in all question in this section.

In the first two questions on hiring (5.12) and internal training (5.13) we see a large disparity in 'extensively' responses. With regard to hiring, the public sector responses

indicate that a combined 90% would seek to improve hiring methods, with 25% stating they would do so 'a little' and the remaining 65% stating 'extensively'. This compares to a combined private sector result of 71% with the split between the two categories being 33% ('a little') and 38% ('extensively'). Both sectors are indicating that action is required, but a significant gap in terms of the 'extensively' results at 27% is identified.

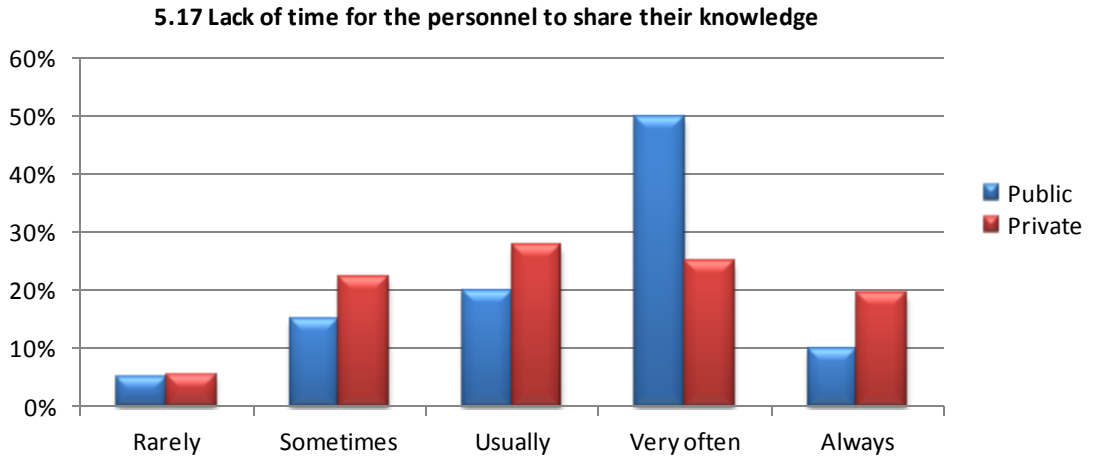
The disparity between the sectors continues with the training question results. A strong 80% of public sector respondents indicating they would 'extensively' improve internal training, compared to only 24% in the private sector. The bulk of responses in the private sector (61%) were in the neutral 'a little' category. These results would indicate that the public sector has a significant way to go to align its internal training models with those of the private sector.

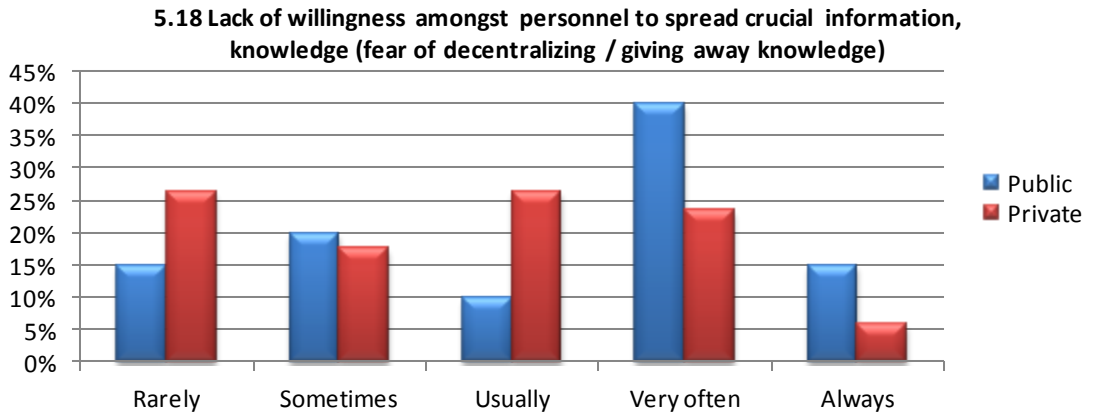
In question 5.14 the emphasis on transferring of experience from the most experienced staff to new staff is assessed. Both sectors would be strongly in favour of this emphasis, with 95% of public sector based responses stating they would do so 'a little' (15%) or 'extensively' (80%). The private sector results indicate a combined 97% in favour with the split being 'a little' (32%) or 'extensively' (65%).

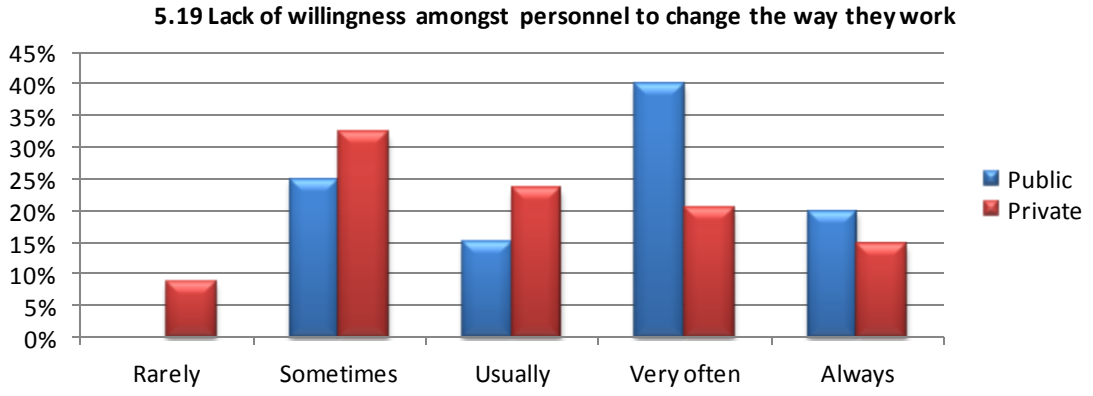
This trend of the combined action orientated results being similar between the sectors as in Question (5.14), is maintained for the remaining two questions in this section. Question (5.15) on emphasising the exploitation of external knowledge has a combined public sector response of 95% split 50% ('a little') and 45% ('extensively'). The private sector equivalent results are 94% split 62% ('a little') and 32% ('extensively'). Question (5.16) on motivating personnel to share knowledge has a combined public sector response of 100% split 15% ('a little') and 85% ('extensively'). The private sector equivalent results are also 100% split 35% ('a little') and 65% ('extensively'). These results are as mentioned showing similarity between the sectors, but in all incidences, the public sector would appear to feel stronger about the issues assessed, based on the 'extensively' category results being consistently higher than their private sector equivalents.

8.3.6 Knowledge management policy

The last section assessed contains 6 questions for which responses are compared. Details of the comparison of responses are again shown graphically below.







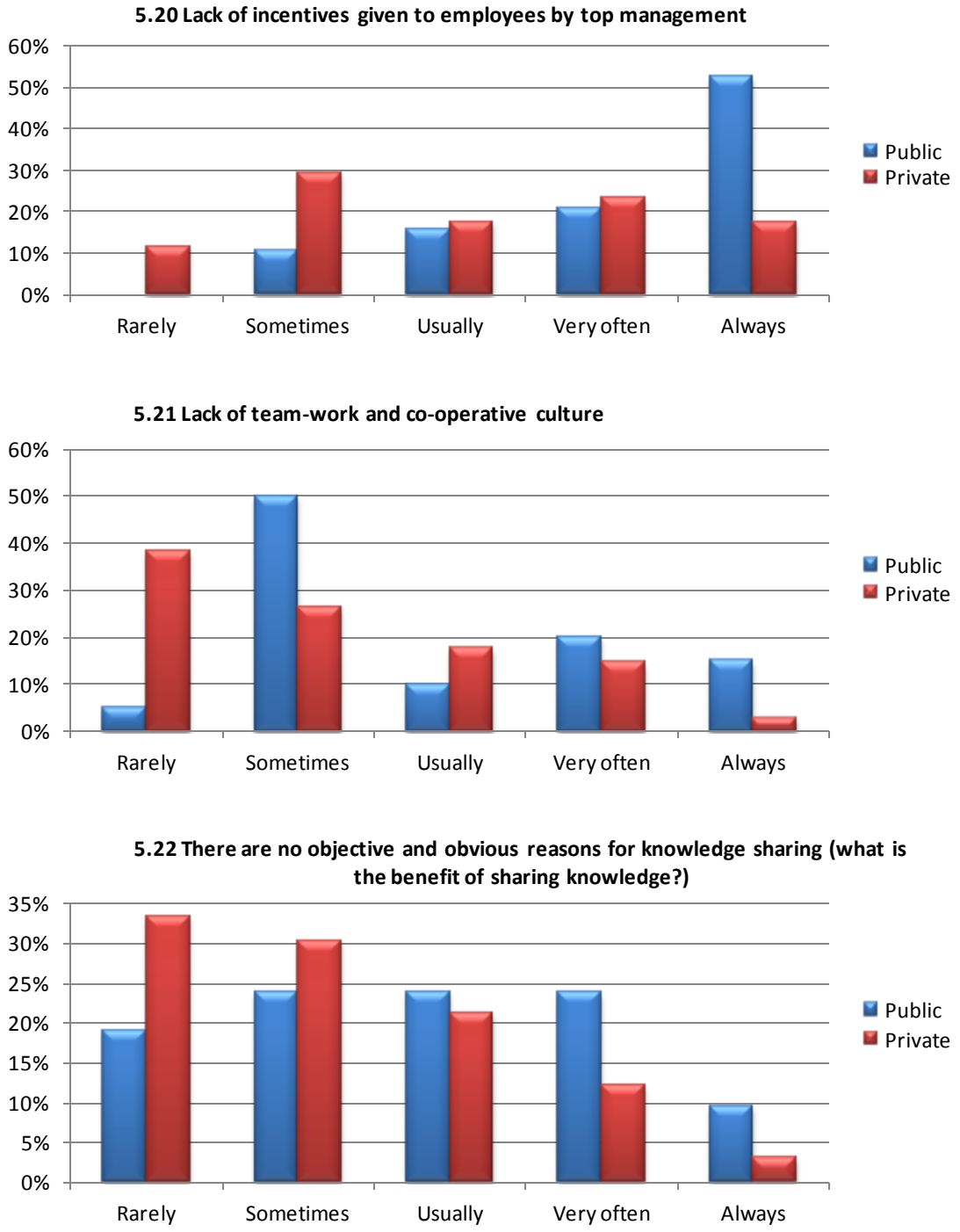


Figure 8.12 - Public versus Private assessment on KM - Policy.

The questions in this section seek to assess any potential hindrances to knowledge management initiatives. Broadly they look at time constraints and motivational aspects that may cause issues to knowledge processes.

The first Question (5.17) in the section addresses the lack of time for the personnel to share their knowledge. The stand out result here between the two sectors is at the 'very often' point of the results spectrum where 50% of public sector based responses agree indicate that this is the case. The private sector equivalent result is 25%, which indicates that the public sector, more often than their private sector counterparts, are stuck for time to engage in knowledge sharing. This would be contradictory to public versus private sector dialogues, where the perception is that the private sector achieves the same results with less resources, meaning greater time constraints in the private sector.

Question 5.18 looks at the willingness amongst personnel to spread crucial information or knowledge. The perceived loss of a competitive advantage over colleagues by sharing knowledge can sometimes inhibit the process of knowledge sharing. Again a strong response here from the public sector in the 'very often' category with 40% compared to an equivalent 24% in the private sector. A further 15% of public sector responses in the 'always' category giving a combined 55% on the negative side of the scale, indicates that this is an issue for the public sector. This would need to be addressed in order to facilitate a successful knowledge sharing process. The private sector has an additional 6% in the 'always' category, meaning that at a combined 30% on the negative side of the scale, indicating that this sector has an issue to address also.

The last question looks at the willingness to share, which question 5.19 looks at willingness to change work practices, which could be viewed as individual's willingness to accept new knowledge, or learn. As with the previous two questions, a large proportion of the public sector population responded 'very often' (40%) to this question compared to 21% by private sector based respondents. With a further 20% and 15% in the always category for public and private sectors respectively, this gives a combined 60% for public sector on the negative side of the scale and a combined comparative for the private sector of 36%. Both sectors would appear to have issues with individuals willingness to change, but this is more pronounced in the public sector based on results above.

The reasons why staff may be reluctant to change or share knowledge may be related to incentives. Question 5.20 assesses if this is the case, when asking about lack of

incentives given to employees. A large 53% of public sector based responses indicated that this is 'always' the case, compared to only 18% in the same category for the private sector. Adding the 21% and 24% in the 'very often' category for public and private sectors respectively, the combined results on the negative side of the scale are 74% for the public sector and 41% for the private.

The responses to Question 5.20 would appear to indicate that a lack of incentives in the public sector is likely to be the cause for strong negative orientated responses in the previous sharing and change related questions. Perhaps if public sector based individuals were better incentivised to share knowledge and accept changes in work practices, the results in Questions 5.18 and 5.19 would be more positive. Responses here are consistent with a highly structured public sector where changes to work practices will most likely have to be negotiated with third party employee representatives.

Question 5.21 examines the levels of team work in the organisation. Team work as we know from the literature review is a good basis for knowledge sharing and new learning. Here the public sector, unfortunately, are more on the negative side of the scale than the private sector. 20% of public sector based responses indicate 'very often' a lack of team-work and co-operative culture. Coupled with 15% indicating that this is 'always' the case leads to a combined 35% of public sector responses on the negative side of the scale. The comparable figures for the private sector are a combined 18% split between 'very often' (15%) and 'always' (3%). Again the public sector scores adversely when compared to the private sector on this metric.

The final question in this section is concerned with whether there is an objective and obvious reasons for knowledge sharing. Without a compelling reason to share, individuals are likely to do so. The trend in this question is similar to others in this section with the public sector scoring more negatively. 24% of public sector based responses indicate 'very often' there is no objective and obvious reasons for knowledge sharing. Coupled with 10% indicating that this is 'always' the case leads to a combined 34% of public sector responses on the negative side of the scale. The comparable figures for the private sector are a combined 15% split between 'very often' (12%) and

'always' (3%). Unfortunately for the public sector the trend identified in previous questions is maintained here also.

8.3.7 Key findings

The above analysis shows the differences between the public and private sectors through the prism of knowledge management. It highlights various issues that may need to be addressed by both sectors in order to facilitate successful knowledge management initiatives. The key findings from the analysis of both sectors would be as follows.

- The private sector based on the results of this audit would appear to have a stronger desire to improve its communication infrastructure. Indicating that perhaps it lags the public sector in terms of infrastructure. This is possible contrary to general perception of public versus private sector.
- Both sectors appear to require improvements in the quality of their communications, with the need in the public sector greater than that evidenced in the private sector.
- Public sector would be greatly against an increase in organised communications, while both sectors would agree that informal communications between colleagues would be a good initiative to promote.
- The flow and targeting of knowledge resources is a bigger issue for the public sector based on results. Possible linked to this would be a perceived stronger desire within the public sector to better organise knowledge resources.
- Both sectors have similar responses in looking to change colleague's attitudes to enable a more knowledge friendly culture. There is a strong desire for change to top management attitudes identified in the public sector that is not necessarily mirrored in the private sector.
- With regard to people and knowledge management, there is a noted difference in the strength of the responses between the sectors. The public sector responses are notably stronger for the majority of questions indicating potential extensive changes needed in hiring policy, internal training, knowledge sharing, knowledge resource use, and motivation of staff to share knowledge.
- Potential impediments to knowledge initiatives such as a lack of willingness to share knowledge, or learn, appear more prevalent in the public sector. These

impediments may be linked to the perceived lack of incentives for staff to adopt these behaviours.

8.4 Impacts of Organisational culture on knowledge management processes

The final part of the evaluation involves looking at the impact that the organisational culture has on knowledge management processes. The approach to this analysis was to create a sub-section within the survey population for those that answered questions indicating their organisations demonstrated a knowledge culture. This sub-section of respondents were then compared to the remaining survey population to highlight any differences between those whose organisation demonstrated a knowledge culture versus those that did not fit the chosen criteria.

Identification of the sub-section involved filtering the knowledge audit response data, for a number of positive responses to questions that highlighted knowledge culture. The chosen questions were selected based on demonstrating attributes associated with the building blocks for building knowledge management discussed in section 2.6 of this thesis. The chosen questions were as follows:

- 4.17 Does your organisation convene teams of specialists / subject matter experts to complete certain tasks?
- 4.18 When a project is closed, does your organisation share any project findings or lessons learnt during the project outside the project group?
- 4.19 Does your organisation support training and development needs of employees?
- 4.20 If Yes – Are employees expected to feedback on training and development courses?
- 4.21 Does your organisation promote independent research by employees?
- 4.27 Does your organisation have an internet site?

As can be seen from the question index, all questions are taken from section four of the knowledge audit 'Company / Organisational culture'. The available answers to these questions were as follows:

- Yes

- No
- Don't know

For a respondent to qualify for inclusion in the sub-section demonstrating a knowledge culture, they must have answered 'Yes' to all of the criteria questions selected above.

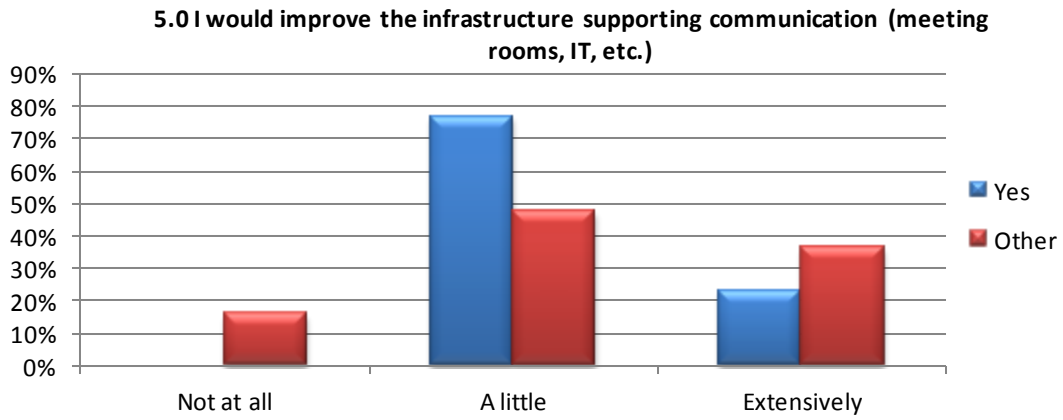
This criteria was applied to the knowledge audit data set, and 13 respondents fitted the criteria. It is these 13 responses that form the sub-section, and are compared to the residual survey population.

The 'knowledge management in the organisation' section is again the section chosen to review differences in approaches to knowledge management, between organisations deemed to demonstrate a knowledge culture versus those that don't based on the selection criteria above.

As with previous evaluations, the results are presented graphically for each section within the 'knowledge management in the organisation' knowledge audit section. Relevant points are then discussed as required. Responses for those in the sub-section will appear on the graphs under the legend '**Yes**', while residual population responses appear under '**Other**'.

8.4.1. Communication

There are four questions in this section. Each question has two sets of responses, one from those whose responses to the criteria questions above, indicated that their organisations possessed a knowledge culture, and the other from those whose responses to criteria questions indicated the opposite.



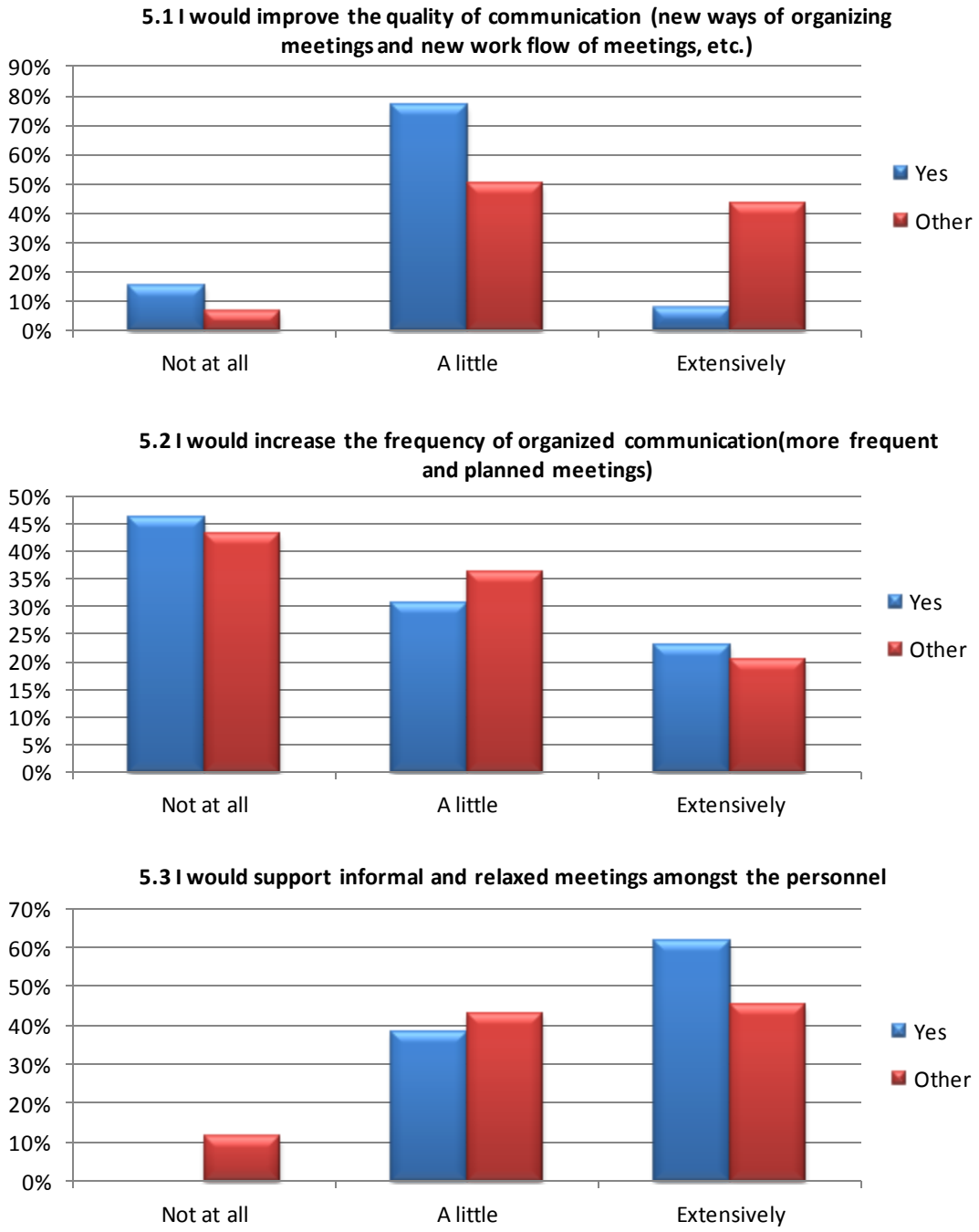


Figure 8.13 - Organisational culture impacts on KM communication.

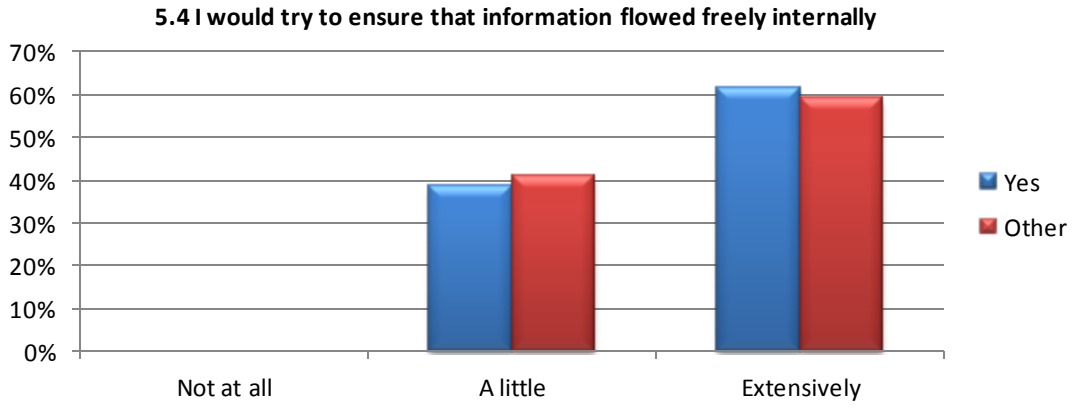
At the outset of this analysis it is probably fair to assume that the sub-section will fare better than the residual population from a knowledge management perspective. This is on the basis that the sub-section was selected based on their responses demonstrating a knowledge culture within their organisation. This is evident in the communication section of the audit.

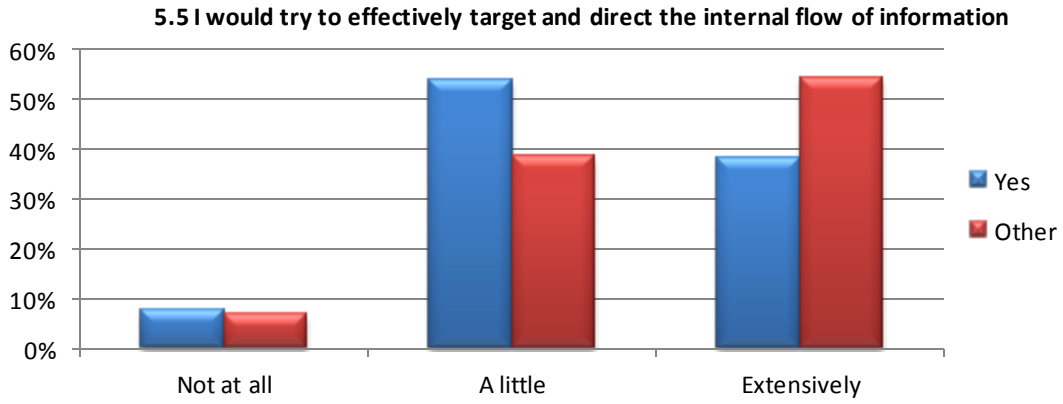
We can see from the first set of questions that the sub-section denoted by '**yes**' are more positive in terms of their organisations communication infrastructure, quality of communication and their openness to both increasing the frequency of organised communication and supporting informal meetings amongst personnel.

The question that highlights this the most is the question on the whether to improve the quality of communication in the organisation. Only 8% of respondents in the sub-section indicated a need to 'extensively' improve communication. This compares to 43% for the residual population.

8.4.2 Information flow

This section provides a good measure of how the organisations knowledge resources are being used and can identify where there is potential under utilisation. It is a reasonable assumption to assume our knowledge culture based sub-section should far better than the residual population in these questions.





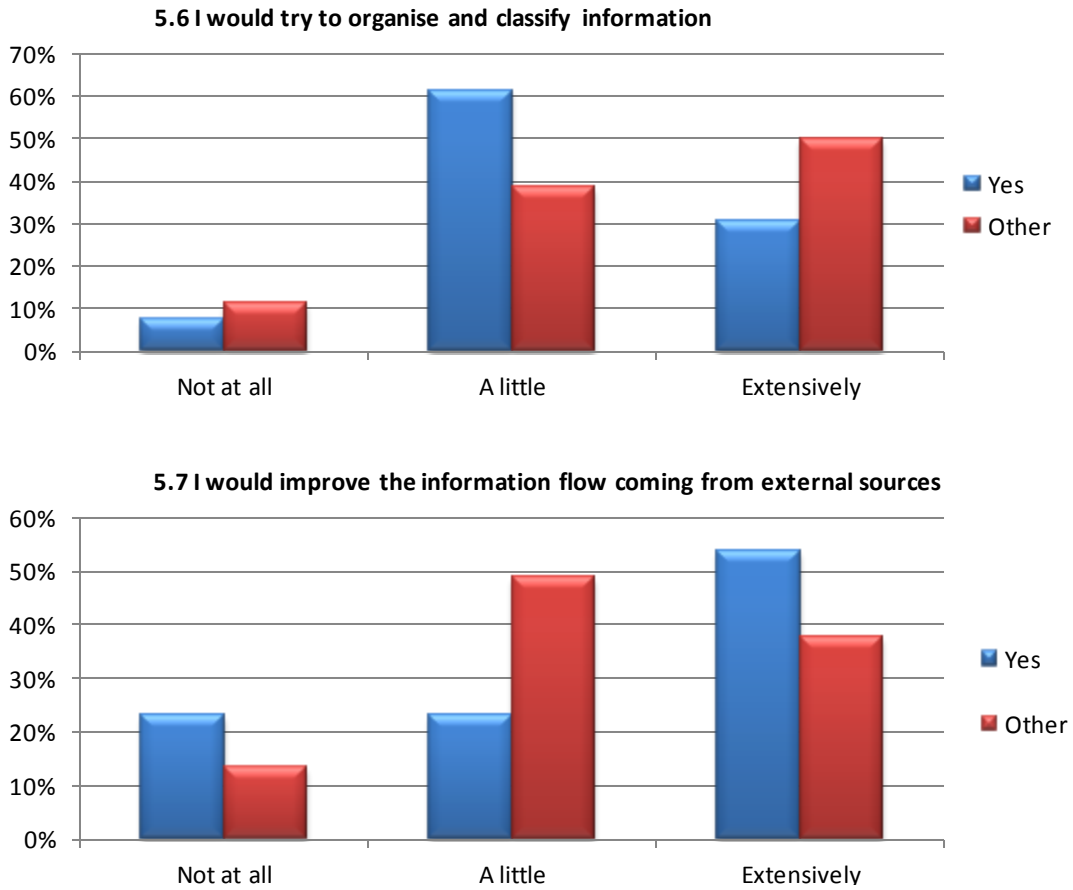


Figure 8.14 - Organisational culture impacts on KM - information flows.

Interestingly in certain responses results don't appear to compare as may have been expected. This means that the residual 'other' out performs the sub-section from a knowledge management perspective in some incidences.

Looking at the first Question (5.4) in this section the 'yes' responses are higher than there comparator in the 'extensively' category. This may indicate a greater need to get information flowing freely in their organisations. This is surprising, as organisations that demonstrate a knowledge culture would generally try to ensure that information is flowing freely. However our survey responses would appear to contradict that on this occasion.

Questions 5.5 and 5.6 are probably showing expected comparisons within their results, in that the 'other' responses are demonstrating a greater need by virtue of higher 'extensively' responses in both questions to improve knowledge resource organisation and targeting.

The responses to 5.7 are interesting also, in the same manner that 5.4 responses are. One could have expected that the responses from the 'other' section of the population would have demonstrated a greater need to improve information flows, be they external or internal. By virtue of the lower 'extensively' category responses from the 'other' population section, when compared to our selected sub-section ('yes'), this would appear not to be the case.

8.4.3 Electronic files

Two questions in this section for comparison between our knowledge culture based sub-section ('yes') and the residual survey population ('other').

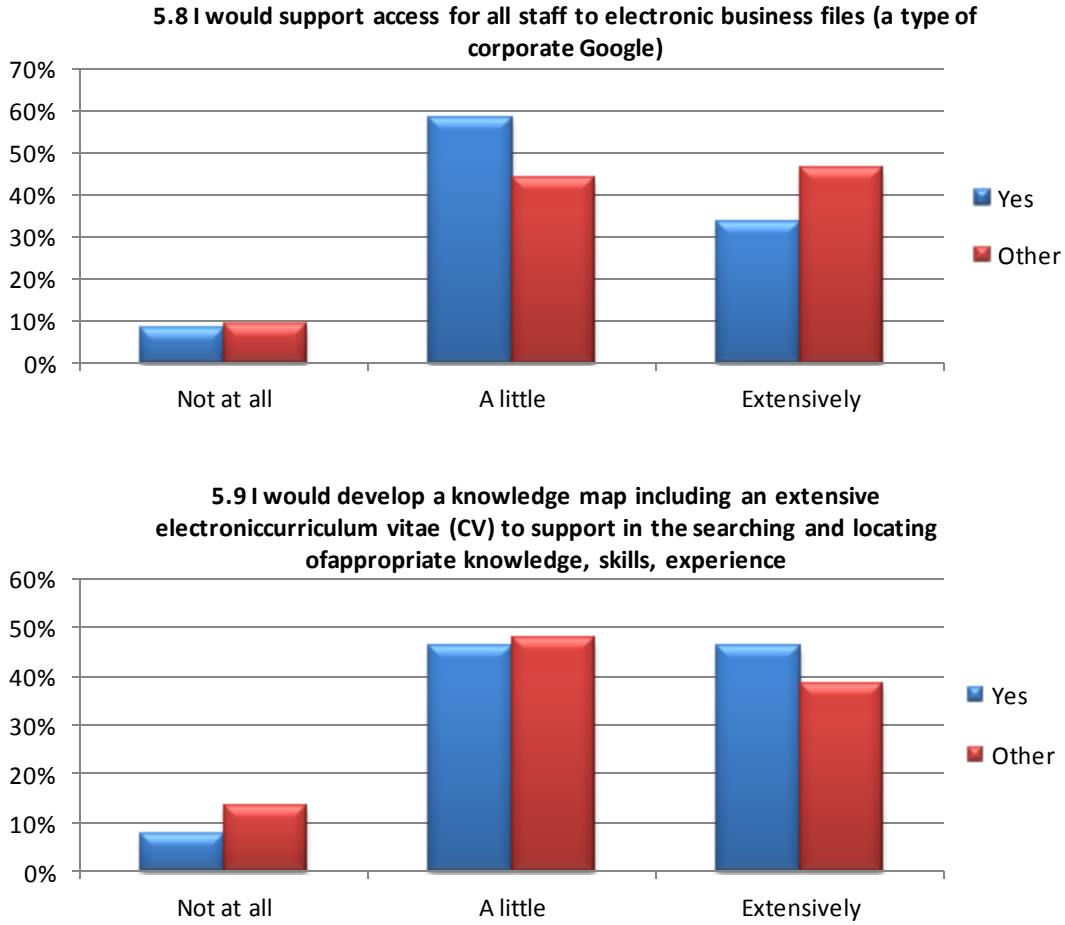


Figure 8.15 - Organisational culture impacts on KM - electronic files.

Results for Question 5.8 could be considered to be in line with expectations. The residual population ('other') have a greater requirement, demonstrated by a higher 'extensively' response rate, than the selected sub-section in their desire to support access to business files. The assumption here would be that the knowledge culture

organisations are already providing this access support, and therefore respondents are seeing it as a desire.

Question 5.9 is the opposite to Question 5.8. In an organisation demonstrating a knowledge culture, it may be a reasonable assumption that they are more likely to have a knowledge map, when compared to other organisations, not necessarily demonstrating a knowledge culture. Again using the response rate for the 'extensively' category, this assumption may be contradicted by our results.

8.4.4 Change of culture

This section seeks to assess any perceived cultural changes that the respondents see as a requirement in order to maximise the use of organisational knowledge.

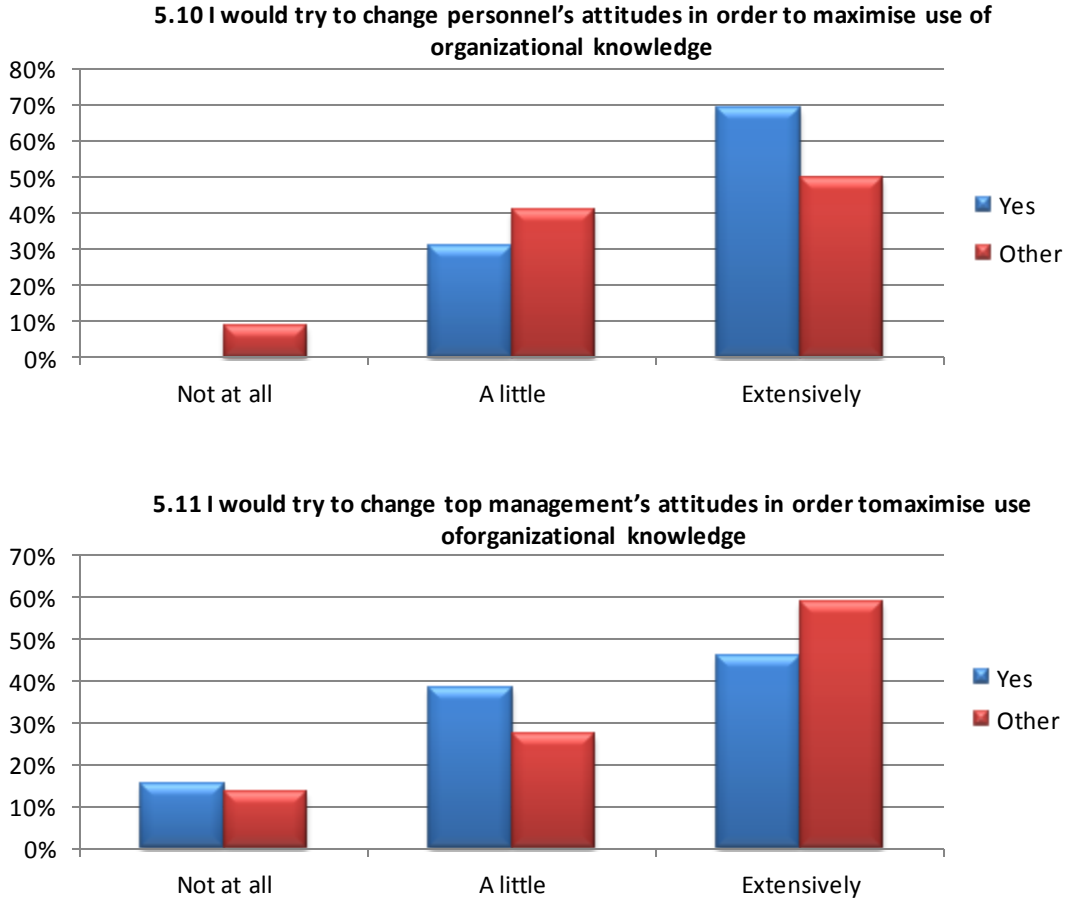


Figure 8.16 - Organisational culture impacts KM - change of culture.

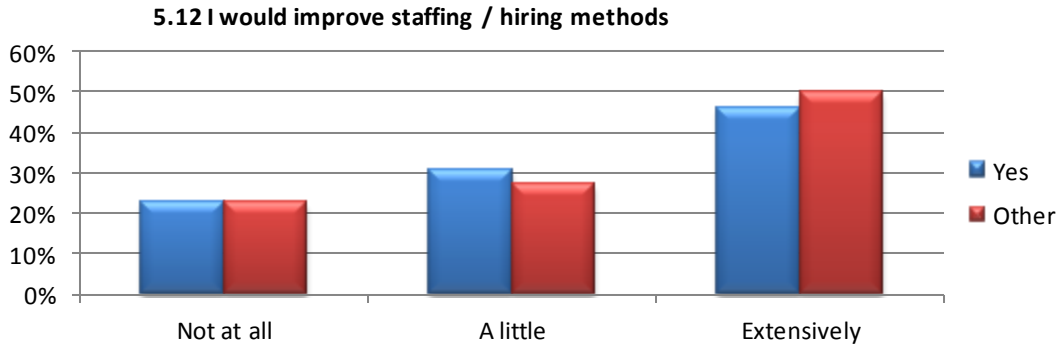
Despite the sub-section being selected on the basis that their responses to certain questions demonstrated the potential existence of a knowledge culture in their organisations, they are still responding quite strongly in their desire to see changes in

attitudes in their colleagues. The 69% response rate in the 'extensively' category for the sub-section ('yes') indicates the strength of this population to see cultural change. This compares to 50% of responses from the residual population ('other') in the same category.

Interestingly the sub-sections ('yes') response rate in the same category for an attitude change in top management is lower (46%), which may indicate that the knowledge culture may exist in the organisation, but is not necessarily being adhered to, in the respondents eyes, by all colleagues. The comparative figure from the residual population 'other' is 59% 'extensively' wanting to change top managements attitude.

8.4.5 People

A section to assess the organisations approach to people from a knowledge management perspective. The assumption here again would be that the sub-section based on a perceived demonstration of a knowledge culture should fare better from a knowledge management perspective than the residual population in their responses, to the following people related questions.



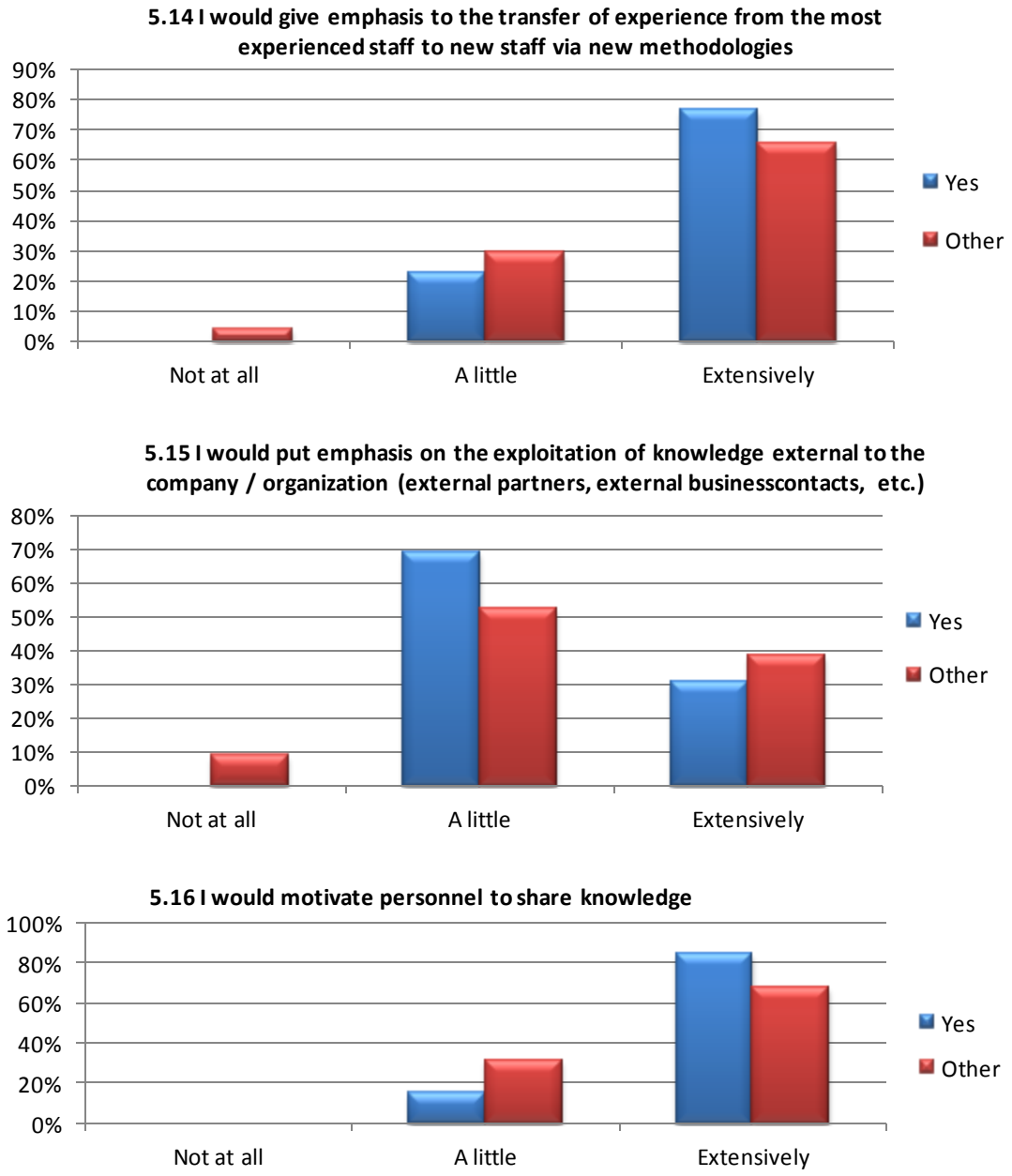


Figure 8.17 - Organisational culture impacts on KM - People.

The first question in this section on hiring has similar results for both of the two sub-sections of the population. The second question concerned with training shows the knowledge culture based sub-section showing less of a desire to see improvements. This may indicate that the organisations they work for have a solid internal training model, and the respondents don't have a strong desire as a result to see much change.

Interestingly for the knowledge culture based sub-section we see in question 5.14 a similar trend between both set of responses. The desire to give emphasis to the transfer of experience from the most experienced staff to new staff is actually higher in the

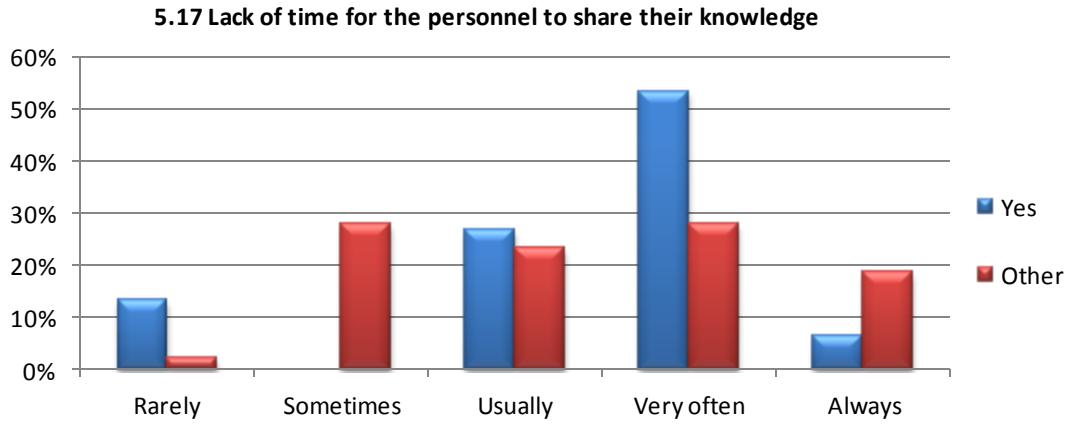
knowledge based culture sub-section than the residual population. The strong 'extensively' responses here may indicate a lack of this behaviour existing currently in their organisation.

The question about the exploitation of external knowledge resources shows the 'yes' sub class as having a lesser desire to do so than the residual population, with 69% of the 'yes' respondent only stating they would do so 'a little'. This may indicate that this is already being done to a desirable level in their organisations already. On this basis it compares favourably to the residual population from a knowledge perspective.

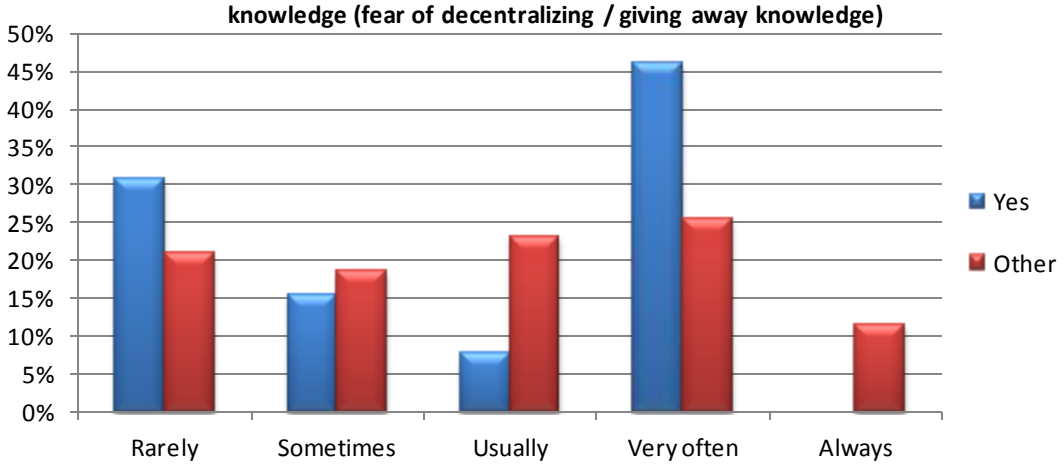
In the last Question (5.16) surprisingly the knowledge culture based sub-section of the population indicates a strong desire for motivation of personnel to share knowledge, with 85% responding they would do so 'extensively'. This is compared to the 'other' responses with 68% in the same category.

8.4.6 Knowledge management policy

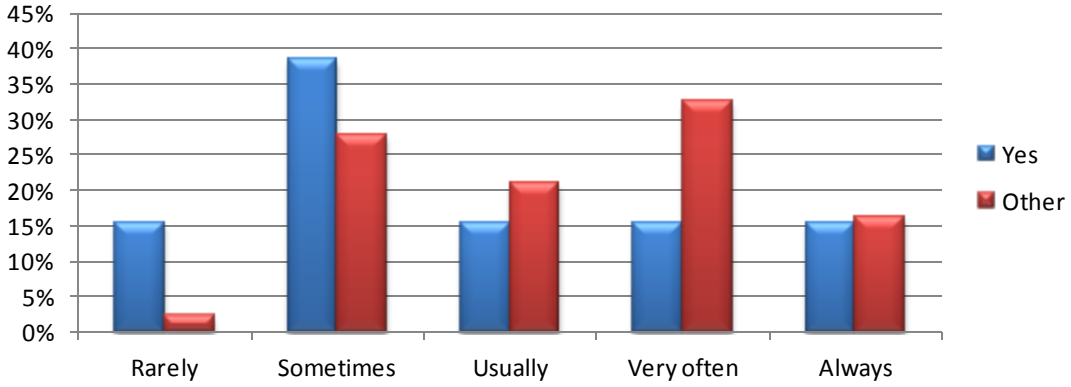
The last section assessed contains 6 questions for which responses are compared. This section provides detail on possible impediments to knowledge initiatives within the respondent's organisations. Details of the comparison of responses are again shown graphically below.



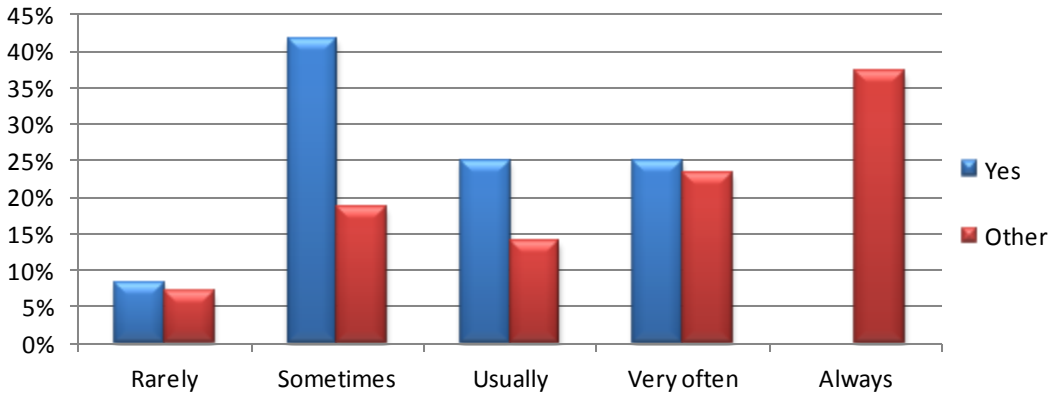
5.18 Lack of willingness amongst personnel to spread crucial information, knowledge (fear of decentralizing / giving away knowledge)



5.19 Lack of willingness amongst personnel to change the way they work



5.20 Lack of incentives given to employees by top management



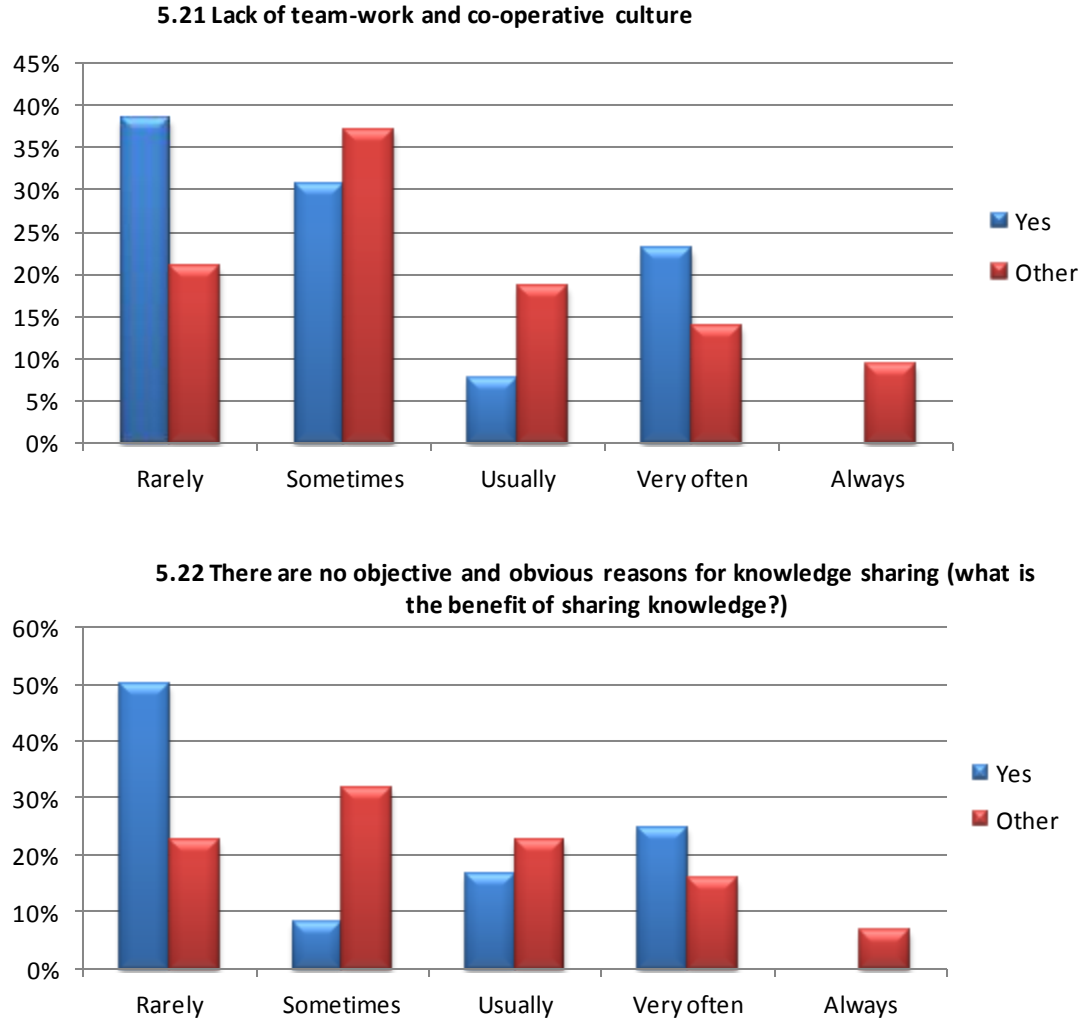


Figure 8.18 - Organisational culture impacts on KM - Policy.

Picking out the key points from across all the questions, the surprises are in the first two questions. The knowledge culture sub-section is more negative than the residual population in term of lack of time for the personnel to share their knowledge, with 53% of responses stating that this happened very often. This higher negativity is also seen in question 5.18, where a lack of willingness amongst personnel to spread crucial information / knowledge is seen 'very often' with 46% of responses in this category. These results in the first two questions compare poorly to the residual population.

In the remaining four questions in the section the knowledge culture sub-section are more favourable in the responses from a knowledge management perspective when compared to the 'other' responses. This is possibly what one would expect, based on population selection criteria, with the responses to the first two potentially being anomalies.

8.4.7 Key findings

The sub-section of the population identified based on answers to a select number of questions were deemed to evidence a knowledge culture in their organisation. In general this sub-section responded with more knowledge management favoured responses than the residual population. There are some exceptions to this, which indicates that inhibitors to knowledge management initiatives still exist even in organisations that demonstrate a knowledge culture.

8.5 Conclusion

This chapter has taken the results of the knowledge audit discussed in chapter 8 and evaluated in line with the research question of this dissertation. In particular the role of the organisations structure and culture have been evaluated with key findings identified.

Evaluation of an organisations structure and its impact on knowledge management is completed by the comparison of results to 'knowledge management in organisation' for those respondents that indicated they worked in a flat organisation, and those that indicated they worked in a hierarchical organisation.

Organisational culture and its impact on knowledge management within the organisation was assessed by two separate means. The first involved looking at results based on individuals working in the public sector versus individuals working in the private sector. The second involved the splitting the survey population into two sections. One section were deemed to work in organisations with a knowledge culture, based on responses to certain criteria questions. The residual population formed the second section.

The two sections were then compared to highlight different approaches to knowledge management and thereby demonstrate the impact of a knowledge culture on knowledge management within the organisation.

9 CONCLUSIONS & FUTURE WORK

9.1 Introduction

This chapter gives a synopsis of the entire dissertation, looking at each of the constituent parts of the research. This will include the literature review, the design and development of the knowledge audit and finally the results and evaluation. The chapter will also present some conclusions and recommendations for future work and research, which could build on the research undertaken for this thesis.

9.2 Research Overview

The research was carried out in line with the aims of the research question. The aim of the research being to assess the impacts of organisational culture and structure on the effectiveness of knowledge management initiatives within the organisation.

To complete this research an extensive literature review was undertaken in the areas of knowledge management and organisational theory. The knowledge management literature review covered what knowledge management entails, and detailed the recommendations by domain experts for organisations wishing to implement a knowledge management strategy or initiative. It also dealt with the potential motives that an organisation would have in undertaking a knowledge management implementation process. Key authors in the knowledge management domain were covered including Nonaka and Wenger, and their theories for use by organisations explored.

Within the knowledge management literature review there is a look at real-world case studies, covering their implementation of knowledge initiatives. There were three cases in particular which were chosen with regard to the research question in mind. The first two cases were chosen as they demonstrate two organisations that experienced very different outcomes in terms of their knowledge management initiatives. Siemens have experienced great success with their knowledge based initiatives, while in contrast 'HS' the Hong Kong based leather product producer was seen to have failed in their initiatives. The learning's from both case studies, both the factors that ensured success

in Siemens and those that lead to failure in HS's case are covered in Chapter 2. The third case reviewed was picked due to the fact that it was a public sector organisation, and the associated cultural implications that being a public sector organisation entails.

The organisational culture literature review covered firstly a definition of what culture is, with work by Deal and Kennedy defining what constitutes culture, extensively covered. The review then looked at the work of multiple authors with a view to identifying the various types of culture that have been witnessed in organisations. Authors included Schein, Hall and Hardy who linked both organisation culture and structure. The final part of the culture literature review covered the work of DeLong and Fahey where the links between organisation culture and knowledge management were discussed.

9.2.1 Key Knowledge Management Theory Points

The key points identified in the knowledge management literature review were as follows:

- Knowledge management is of strategic importance to organisations.
- Authors indicate that particular structures and cultures are important to the success of knowledge management initiatives
    - Nonaka introduces the concepts of 'Hypertext' organisation structure and 'middle up down' management process.
    - Nonaka introduces the spiral model of knowledge creation.
    - Wenger introduces the doughnut model for knowledge management.
    - Wenger introduces 'communities of practices' for knowledge management purposes
- Knowledge bottlenecks occur in knowledge acquisition and re-engineering processes, and are classified in the review into People, process and technology categories.
- Knowledge bottlenecks can alleviated by changes to organisational culture and structures.

One standout point that came from the literature review, and was evidenced in the review of the case studies, was the iterative and continuous nature of knowledge management. Nonaka's 'spiral' model (Fig. 1.2) and Wenger's 'doughnut' model (Fig.

1.3) indicate this nature, but still certain findings in the case study review show that organisations were surprised that knowledge management was not just a finite project, but indeed an ongoing continuum.

9.2.2 Key Organisational Culture Points

As mentioned above the literature review covered the definition of what organisational culture is. Simply it is the values and beliefs within the organisation, and impacts on how things are done within the organisation. As mentioned above various authors were covered in the pursuit of the various types of organisational culture in existence. Finally and perhaps most important to this research is the impacts that organisational culture has on an organisation knowledge management initiatives. DeLong and Fahey identified four ways in which culture impacts on knowledge management. These are as follows:

- Organisation culture will shape which knowledge is seen as important.
- Organisation culture mediate the relationship between different levels of knowledge. I.e. does the knowledge belong to the individual or the organisation.
- Organisation culture creates the context for social interaction, impacting on communication and knowledge sharing processes.
- Organisation culture shapes creation and adoption of new knowledge, meaning it directly impacts on potential knowledge acquisition bottlenecks.

9.2.3 Research Design

The key artefact in this research is the knowledge audit. There were various sources used in the design of the knowledge audit. Sources included knowledge audits associated with other dissertations, but the principle source was from a template published by a company called NetCoach. As this template was fundamentally aligned to the themes with which this research was covering, it provided a substantial percentage of the final audit questions published for this research.

Themes covered in the final audit published are as follows:

- Knowledge processes
- Organisational culture and structure

Based on the requirement of the research and the resulting themes above, the following sections are included in the final audit published:

- Basic knowledge profile
- Work analysis in a knowledge context
- Knowledge and information sources
- Company / Organisational culture
- Knowledge management in the organisation
- Demographics

Once the sections of the audit were identified, the template went through four iterations before the final template was arrived at. Briefly the 1st draft was incomplete in terms of questions, but included section headings. The second draft was complete, and removed a section on 'Motives and Salaries' which was initially included but not so in the final draft. The draft corrected typos identified in draft 2 and added a free text section at the end to allow for unstructured feedback from respondents. The fourth and final draft corrected further typos and formatting identified in the review of draft 3 and also saw the indexation of questions to facilitate evaluation of responses once received.

9.2.4 Research Deployment and Results

Once the final draft of the knowledge audit was agreed, the deployment method was decided upon. The chosen method was to use the website surveygizimo.com. This meant that the final audit which had been developed in Microsoft Word now was built online using surveygizimo.com. This produced a URL or link which could be distributed to potential respondents for completion of the audit.

The targeted respondents were professional contacts that this researcher had built up over many years work experience. This contact list is maintained using LinkedIn, meaning that relevant contact details were available. In all 50 LinkedIn contacts of the researcher were contacted, with a very positive uptake. Other deployment methods included the dissertation supervisor sharing via his social media accounts, direct mailing by the researcher to colleagues in his current employer, and direct mailing by the researcher's wife to colleagues in her organisation. All potential respondents received an electronic link to the knowledge audit which they could open directly to complete.

The number of responses received was very encouraging, and compares favourably to similar research undertakings of this nature. In total 59 responses were received. with 54 deemed 'complete' and the remaining 5 deemed 'partial' complete. Of the 5 'partial' completes only 1 is deemed unusable, as no questions were completed.

The deployment via surveygizimo.com was positive in terms of the capturing of results. The website allowed a consolidated set of results to be downloaded from the website into a .csv file. The contents of this .csv file were then opened and stored in an Excel spreadsheet for ongoing evaluation. All results received are covered in chapter 8 of the dissertation.

9.2.5 Results Evaluation

In order to satisfy the research question, the results were evaluated through three distinct lenses. Each lens was concerned with a certain aspect of the research question. As a reminder the research is seeking to assess the impact of organisational culture or organisational structure on knowledge management initiatives in the organisation.

Lens one involves as assessment of organisational structure and its impact on knowledge management in the organisation. To complete the evaluation, the question in the 'Company and Organisational culture' section of the knowledge audit, where respondents were asked "Do you consider your organisation a flat or hierarchical organisation?" was used to parse the results of the entire 'Knowledge management in the organisation' section of the audit.

There are twenty-three questions in the 'Knowledge management in the organisation' section, to which the results have been divided between those that have answered 'Flat' and those that answered 'Hierarchical' to the structure question. Generally accepted theory would be that Knowledge management and associated processes should be easier to encourage in a flatter organisation than a hierarchical equivalent. Key findings of the evaluation are detailed in the following table.

Flat Vs. Hierarchical organisation structure - Key Findings
• Flat structured organisations exhibit a greater desire to increase control and structure than their hierarchical equivalents. • Hierarchical organisations exhibit a greater desire to increase quality of communications than their flat-structured equivalents. • Information flows more freely in a flat structured organisation compared to its hierarchical equivalent. • Information is targeted better in a flat structured organisation compared to its hierarchical equivalent. • Team work is more prevalent in hierarchical structured organisation that a flat structured equivalent. • Irrespective of organisation structure, organisational culture can still be problematic for effective knowledge management activities (knowledge creation, knowledge sharing, knowledge usage). • Flat structured organisations are more conducive to knowledge management activities (knowledge creation, knowledge sharing, knowledge usage) than the hierarchical equivalent.

Table 9.1 Flat versus Hierarchical - Key Findings

Lens two is similar to lens one, in that a single question from the 'demographics' section of the audit this time, asked respondents to indicate whether they worked in the 'public' or 'private' sector organisation. Results were again used to parse the results of the 'knowledge management in the organisation' section of the audit. The motivation for looking at the public versus private sector divide, was due to potential differences in work practices and cultures between the two and thereby provide an assessment of organisational cultural differences and their impact on knowledge management in the organisation.

Private sector Vs. Public sector - Key Findings
• The private sector has a stronger desire to improve its communication infrastructure. • Public sector has greater requirement to improvement the quality of communication than the private sector. • Public sector would be greatly against an increase in organised communications when compared to private sector equivalent. • Both sectors believe informal communications between colleagues, is a good initiative to promote. • The requirement to increase flow and better target knowledge resources is a bigger issue in the public sector than the private sector. • There is a stronger desire within the public sector to better organise knowledge resources than in the private sector. • Both sectors have strong desire to change colleagues' attitudes to enable a more knowledge friendly culture. • There is a strong desire for change to top management attitudes, to enable a more knowledge friendly culture, in the public sector that is not mirrored in the private sector. • The public sector requires extensive change in hiring policy, internal training, knowledge sharing, knowledge resource use, and motivation of staff to share knowledge. • Potential impediments to knowledge initiatives such as a lack of willingness to share knowledge, or learn, are more prevalent in the public sector. • Impediments in the public sector are linked to the perceived lack of incentives for staff to adopt these behaviours.

Table 9.2 Private sector Vs. Public sector - Key Findings

Lens three identifies a sub section of the knowledge audit population that demonstrated tangible characteristics associated with a knowledge-based culture in their organisations. Six questions from the 'Company / Organisational culture' were chosen based on demonstrating attributes associated with the building blocks for building knowledge management discussed in section 2.6 of this thesis. For a respondent to qualify for inclusion in the sub section demonstrating a knowledge

culture, they must have answered 'Yes' to all of the selected criteria questions. These criteria were applied to the knowledge audit data set, and 13 respondents fitted the criteria.

The 'knowledge management in the organisation' section is again the section chosen to review differences in approaches to knowledge management, between organisations deemed to demonstrate a knowledge culture versus those that don't based on the selection criteria above.

Knowledge culture Vs. Non knowledge culture organisations - Key Findings
• Organisations demonstrating a knowledge culture are more responsive to knowledge management initiatives than organisations without a knowledge-based culture. • Knowledge inhibitors or bottlenecks exist in all organisations irrespective of whether they demonstrate a knowledge culture or not.

Table 9.3 Knowledge culture Vs. Non knowledge culture - Key Findings

The key findings identified in each of the lenses can be further summarised as follows:

- The structure of the organisation is not necessarily a key determinant in whether an organisation is successful in knowledge management initiatives. Flat structured organisations are more conducive to certain knowledge processes, but this does not mean a hierarchical organisation will not be successful in its knowledge management endeavours.
- There is a cultural difference between public sector organisations and private sector equivalents indicate that a less knowledge friendly culture exists in public sector organisations. This can stem from a very structured environment with little or no incentives to promote knowledge process activities.
- An organisation demonstrating a knowledge culture is, perhaps understandably, more open to knowledge processes than an organisation lacking a knowledge culture. However knowledge bottlenecks occur in all organisations irrespective of whether they possess a knowledge culture or not.

9.3 Recommendations

Organisations looking to implement knowledge strategies or processes and initiatives should consult the existing literature in the domain. From the literature review and research associated with this thesis, the following recommendations have been identified:

- Seek to use the methodologies for managing knowledge process covered in the literature.
- Methodologies can be adapted to suit the individual circumstances of the organisation, as evidenced by Siemens AG.
- A significant effort should be put into building a knowledge culture.
- Knowledge culture can be affected by a reward system, be it monetary or non-monetary which rewards the desired behaviours.
- Knowledge management is an ongoing process that needs to be built into ongoing business as usual processes.
- Knowledge management is iterative and incremental in nature; it is not a big bang solution. Time needs to be allowed to let the processes grow organically and deliver the strategic goals that are desired.
- Top management should facilitate the process by cultivating an environment and infrastructure favourable to knowledge management. However top management may need to sit back and allow middle level management run with the process to ensure its effective implementation, provided they have delivered an environment conducive to knowledge processes.

9.4 Future Work & Research

The research carried out for this thesis was done so on a non commercial basis. 59 responses is a very satisfactory level of response. The response rate more than satisfies the requirements of this research, but a much broader sample would be more conducive to further evaluation of the impacts of organisational culture and structure on knowledge management.

If the targeted audience of this research is widened in future research projects, it would facilitate a broader spectrum of industry sectors and organisation types. The reliance of this researcher on his immediate professional contact base, may have introduced a certain level of bias towards responses from the Financial and IT sectors.

A key element of this research was to look at the impact of organisational structure, and its impact on knowledge management. The research focused on two distinct organisation structure types, being the flat and hierarchical structure types. Future research should look to broaden this, to assess the impacts on knowledge management of alternative organisation structures such as Matrix, Functional or Geographic structures.

As mentioned above future work could also look to broaden the industry sectors predominantly associated with this work. This does not only include industry sectors in terms of Financial or IT, but to broaden the analysis beyond the public versus private sector debate. Organisation types such as not-for-profit or non-government-organisations (NGO's) could also be introduced to give wider potential to the analysis.

The research results contain data on gender and age of responders. This is two further areas that could be used to assess attitudes to knowledge management and processes. Gender and age were not concerns of this research question, but certainly the data set compiled would facilitate this analysis in the future.

A final suggestion would be to analyse results across geography. This would be interesting to assess within large multinationals. Potentially interesting research would be to asses similar departments in the same organisation working in different jurisdictions. In theory they should have the same corporate culture, but regional influences could be assessed to see if they influence knowledge processes.

9.5 Conclusion

To conclude the research, all findings detailed in this chapter were compiled in one template which can be viewed in Appendix C. This template was then supplied to two people independent of the research. The aim being to capture third party assessment on whether they agree or disagree with the research finding. These people shall be referred to as M1 and F1 for the remainder of this conclusion.

This thesis does not discuss all the responses received in this third party review, but will detail where there are interesting comments or disagreement on the findings received through the third party review. We start with M1 feedback and work our down through the lenses.

M1 feedback

Lens 1 Finding: Flat structured organisations exhibit a greater desire to increase control and structure than their hierarchical equivalents.
M1 Comment: "*Doesn't seem to make sense, Flat structures should prefer less controls.*"
Researcher Comment: This can be looked at from another viewpoint, where a flat structured organisation may be on a growth path that requires the introduction of more control.

Lens 1 Finding: Information is targeted better in a flat structured organisation compared to its hierarchical equivalent.
M1 Comment: "*Targeted information is more likely in a hierarchical organisation.*"
Researcher Comment: Potential agreement with M1 on this point as flat structured organisations generally exhibit less control than hierarchical equivalent. As targeting information is a form of control the research finding is interesting.

Lens 1 Finding: Team work is more prevalent in hierarchical structured organisation than a flat structured equivalent.
M1 Comment: "*Flat organisations have better cooperation.*"
Researcher Comment: Can be looked at from another perspective, where hierarchical organisations are forced to engage in team work to complete large tasks across multiple functions. An individual in a flat structure might be more expected to complete tasks on their own.

Lens 2 Finding: Public sector would be greatly against an increase in organised communications when compared to private sector equivalent.
M1 Comment: "*Not my personal experience.*"

Researcher Comment: Interesting point, as researcher would be of the opinion of an overload of organised meetings in their public sector experience.

Lens 2 Finding: The public sector requires extensive change in hiring policy, internal training, knowledge sharing, knowledge resource use, and motivation of staff to share knowledge.

M1 Comment: "*Definitely not, the public sector does tremendous knowledge sharing.*"

Researcher Comment: Would have to agree somewhat with M1 here. Evidenced in the third case study in the literature review, was public sector commitment to knowledge processes above and beyond commercial rationale. Private sector would not show same commitment in the absence of commercial rationale. Alternatively though the private sector would be assumed to more agile in terms of required culture change to foster knowledge processes.

Researcher Final Comment: It is interesting to note that M1 was in full agreement with the three 'Overall summary findings' of the research. This leads the researcher to believe that the general findings of the research are consistent with expected results, despite some potential anomalies in certain responses. The size of the survey population must be taken into account, and a larger population would most likely negate any anomalies due to sheer weight of numbers.

F1 feedback

The feedback from F1 was more in agreement with the research findings than that received from M1. In fact there was only one question that F1 was not in agreement on. This was the following:

Lens 2 Finding: The private sector has a stronger desire to improve its communication infrastructure.

F1 Comment: "*OK – cant agree or disagree, have only worked in public sector.*"

Researcher Comment: For obvious reason F1 did not feel in a position to opine on the finding.

Overall Summary Finding: There is a cultural difference between public sector organisations and private sector equivalents, that indicates a less knowledge friendly culture exists in public sector organisations. This can stem from a very structured environment with little or no incentives to promote knowledge process activities.

F1 Comment: "*Some of it may have to do with finances available to facilitate knowledge friendly culture, also perceived lack of incentives you've already mentioned*"

Researcher Comment: F1 is rationalising the finding in line with what the researcher would agree with. Additional funding above and beyond business as usual expenses may very well not be available in the public sector. Reward schemes in the public sector are generally very structured. This structured approach may not be conducive to rewarding knowledge sharing or indeed any required change in culture in order to foster knowledge processes.

Researcher Final Comment: Again as with M1, it is interesting to note that F1 was in full agreement with the three 'Overall summary findings' of the research.

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APPENDIX A - FINAL DRAFT AUDIT

- **Basic Knowledge Profile**

Level of Academic Education	Please Circle	Did you organisation fund your study? - Please Circle
Leaving Certificate	Yes / No	Yes / No
Third Level Certificate	Yes / No	Yes / No
Diploma / Ordinary Degree	Yes / No	Yes / No
Degree	Yes / No	Yes / No
Post Graduate Diploma	Yes / No	Yes / No
Masters	Yes / No	Yes / No
Ph.D	Yes / No	Yes / No
Professional Qualification	Yes / No	Yes / No

1.0 What percentage of your working day is spent on computer for work related tasks?	___%
1.1 What is your principle IT device? e.g. PC, Mobile/Smart Phone, Tablet.	
1.2 Do you enjoy the use of technology in your role?	Yes / No
1.3 Does your job require professional accreditation as a minimum entry requirement? e.g. professional accounting qualification/medical qualification.	Yes / No
1.4 Does your organisation financially support Continuous Professional Development (CPD)?	Yes / No
1.5 Does your organisation financially support Continuous Professional Development (CPD) associated with your professional accreditation?	Yes / No
1.6 If YES – What is the professional body awarding accreditation?	

Please rate your skills in relation to the following	Poor		Average		Competent
Basic Computer skills	1	2	3	4	5
Word	1	2	3	4	5
Excel	1	2	3	4	5
Power-Point	1	2	3	4	5
Outlook / Other Email	1	2	3	4	5
Windows / OSI	1	2	3	4	5
Databases	1	2	3	4	5
Operating Systems e.g. Windows, MAC	1	2	3	4	5
Please enter other systems used in your organisation and rate your skills for each.					
..	1	2	3	4	5
..	1	2	3	4	5
..	1	2	3	4	5
..	1	2	3	4	5
..	1	2	3	4	5

Educational Knowledge	Not at all		Average		Very Much
1.7 To what extent is your education useful at work?	1	2	3	4	5
1.8 To what extent do you believe that this knowledge would be useful for the work of other colleagues?	1	2	3	4	5
Professional Experience					
1.9 To what extent is your previous work experience useful at work today?	1	2	3	4	5
1.10 To what extent do you believe that other colleagues at work could benefit from this experience?	1	2	3	4	5
Personal professional contacts					
1.11 To what extent is your personal business network **within the organisation** useful at work?	1	2	3	4	5
1.12 To what extent is your personal business network **outside the organisation** useful at work?	1	2	3	4	5
1.13 To what extent do you believe that your personal network **within the organisation,** would possibly be useful for other work colleagues?	1	2	3	4	5
1.14 To what extent do you believe that your personal network **outside the organisation,** would possibly be useful for other work colleagues?	1	2	3	4	5

- **Work analysis in a Knowledge Context**

	Never	Rarely	Sometimes	Very Often	Always
2.0 My role in my organisation changes	1	2	3	4	5
2.1 In my absence others can take over my role	1	2	3	4	5
2.2 In one of my colleagues' absences I can take over their role	1	2	3	4	5
2.3 I contribute new ideas to my Organisation	1	2	3	4	5
2.4 These ideas are considered by my organisation	1	2	3	4	5
2.5 These ideas are used by my Organisation	1	2	3	4	5
2.6 I find that, although I have the information to help an employee, I do not have the time	1	2	3	4	5
2.7 I represent my area of expertise on cross-functional groups	1	2	3	4	5
2.8 I keep my ideas and insights to myself	1	2	3	4	5
2.9 Others present my ideas and insights as their own	1	2	3	4	5
2.10 I get full recognition for my ideas and insights	1	2	3	4	5
2.11 I know the solution to a problem in my organisation but keep the solution to myself	1	2	3	4	5
2.12 My colleagues keep their ideas and insights to themselves	1	2	3	4	5
2.13 I pass off colleagues' ideas and insights as my own	1	2	3	4	5
2.14 I believe I am kept up-to-date on news and initiatives in my organisation	1	2	3	4	5
2.15 I feel "left out of the loop" at work	1	2	3	4	5
2.16 If a colleague needs information or assistance from me, I have the time to help them	1	2	3	4	5
2.17 Although I intend to help another employee, I do not always help them	1	2	3	4	5
2.18 My organisation is continually introducing new technology to help me with my role	1	2	3	4	5
2.19 My organisation is continually introducing new technology which is a hindrance to me with my role	1	2	3	4	5
2.20 I find that new technology helps me share my ideas and information with other employees	1	2	3	4	5

- **Knowledge & Information Sources**

To what extent are the following resources of use in your daily work	Not Useful		Some-what useful		Very Useful
3.0 Printed documents (books, manuals, etc)	1	2	3	4	5
3.1 Electronic files on my PC	1	2	3	4	5
3.2 Other colleagues' electronic files	1	2	3	4	5
3.3 Company internal files	1	2	3	4	5
3.4 Internet electronic files	1	2	3	4	5
How often do you participate in the following social interactions at work?	Rarely	Sometimes	Usually	Very often	Always
3.5 Internal, formal and planned meetings (with colleagues)	1	2	3	4	5
3.6 Internal, informal chats (coffee &lunch breaks, 10 minutes discussions, etc.)	1	2	3	4	5
3.7 External personal contacts (friends, etc.)	1	2	3	4	5
3.8 External contacts (customer/partner visits, etc.)	1	2	3	4	5
3.9 Business events (exhibitions, info days, etc.)	1	2	3	4	5
To what extent are the following methods of communication beneficial to your organization whether you are involved or not?	Not Useful		Some-what useful		Very Useful
3.10 Internal, formal and planned meetings (with colleagues)	1	2	3	4	5
3.11 Internal, informal chats (coffee &lunch breaks, 10 minutes discussions, etc.)	1	2	3	4	5
3.12 External personal contacts (friends, etc.)	1	2	3	4	5
3.13 External contacts (customer/partner visits, etc.)	1	2	3	4	5
3.14 Business events (exhibitions, info days, etc.)	1	2	3	4	5
In your day-to-day work, what is your preferred method of communication when trying to gain knowledge, information from other colleagues?	Rarely	Sometimes	Usually	Very often	Always
3.15 Verbally, during meetings	1	2	3	4	5
3.16 Verbally, on the phone	1	2	3	4	5
3.17 By using several documents/ files	1	2	3	4	5
3.18 By using digital means (e-mail, etc.)	1	2	3	4	5

- **Company / Organisational Culture**

In your opinion, to what extent do the following statements apply to your organization / company?	Not true		Somewhat True		Very True
4.0 The importance of the staff is recognized	1	2	3	4	5
4.1 Staff / Personnel are dedicated to the organization	1	2	3	4	5
4.2 A philosophy of team-working and co-operation exists in the organization	1	2	3	4	5
4.3 There are barriers and conflicts amongst the company / organization units	1	2	3	4	5
4.4 There is confidence / trust amongst staff	1	2	3	4	5

To what extent do you agree with the following statements?	Do not agree		Agree somewhat		Totally Agree
4.5 My personal aims and ambitions fit well with my current work situation	1	2	3	4	5
4.6 I am satisfied with my job position in the organization	1	2	3	4	5
4.7I am satisfied with my salary/ payment	1	2	3	4	5
4.8 I feel secure in this organization	1	2	3	4	5
4.9 I am satisfied with the working environment	1	2	3	4	5
4.10 I am satisfied with the relationship I have with my Colleagues	1	2	3	4	5
4.11 I am satisfied with the relationship I have with my Manager	1	2	3	4	5
4.12 I would like to be involved with other activities within my organization	1	2	3	4	5

Definition: "A flat organization is an organization that has an organizational structure with few or no levels of middle management between staff and executives. A hierarchical organisation would be the opposite."

Do you consider your organisation a flat or hierarchical organisation? (Please tick)

Flat	Hierarchical

To what extent the following statements characterize you personally?	Do not agree		Agree somewhat		Totally Agree
4.13 I am afraid to make a mistake or fail at my work	1	2	3	4	5
4.14 I seek to improve my work methodologies / practices every day	1	2	3	4	5
4.15 I consider sharing my knowledge with other colleagues as an advantage	1	2	3	4	5
4.16 I have a personal desire to learn more and gain new Knowledge	1	2	3	4	5

	Please Circle
4.17 Does your organisation convene teams of specialists / subject matter experts to complete certain tasks? e.g. Cross functional project groups?	Yes / No / Don't Know
4.18 When a project is closed, does your organisation share any project findings or lessons learnt during the project **outside** the project group?	Yes / No / Don't Know
4.19 Does your organisation support training and development needs of employees?	Yes / No / Don't Know
4.20 If Yes – Are employees expected to feedback on training and development courses?	Yes / No / Don't Know
4.21 Does your organisation promote **independent research** by employees? e.g. reading about topics somewhat related to my job	Yes / No / Don't Know
4.22 Does this research have to be job relevant / or relevant to the wider organisations purpose?	Yes / No / Don't Know
4.23 Does your organisation support work shadowing of employees?	Yes / No / Don't Know
4.24 If Yes – Does work shadowing happen across departments? e.g. Finance employee shadowing IT employee.	Yes / No / Don't Know
4.25 Does your organisation have a Facebook page?	Yes / No / Don't Know
4.26 Does your organisation have a twitter feed?	Yes / No / Don't Know
4.27 Does your organisation have an **internet** site?	Yes / No / Don't Know
4.28 Does your organisation have an **intranet** site?	Yes / No / Don't Know
4.29 Do you use the intranet site to complete tasks associated with your role?	Yes / No / Don't Know
4.30 Does your organisation have a centralised LinkedIn account?	Yes / No / Don't Know

	Do not agree		Agree somewhat		Totally Agree
4.31 There are processes that could be shortened?	1	2	3	4	5
4.32 There is a specific process that you could improve?	1	2	3	4	5
4.33 My organisation is innovative	1	2	3	4	5
4.34 Urgent issues are effectively communicated	1	2	3	4	5

- **Knowledge Management in the Organisation**

If you were in charge of properly exploiting your organization's knowledge capital, which of the following statements/actions would you pursue and to what extent?			
Communication	Not at all	A little	Extensively
5.0 I would improve the infrastructure supporting communication (meeting rooms, IT, etc.)	1	2	3
5.1 I would improve the quality of communication (new ways of organising meetings and new work flow of meetings, etc.)	1	2	3
5.2 I would increase the frequency of organized communication(more frequent and planned meetings)	1	2	3
5.3 I would support informal and relaxed meetings amongst the personnel	1	2	3
Information flow			
5.4 I would try to ensure that information flowed freely internally	1	2	3
5.5 I would try to effectively target and direct the internal flow of information	1	2	3
5.6 I would try to organise and classify information	1	2	3
5.7 I would improve the information flow coming from external sources	1	2	3
Electronic files			
5.8 I would support access for all staff to electronic business files (a type of corporate Google)	1	2	3
5.9 I would develop a knowledge map including an extensive electronic curriculum vitae (CV) to support in the searching and locating of appropriate knowledge, skills, experience	1	2	3
Change of culture			
5.10 I would try to change personnel's attitudes in order to maximise use of organizational knowledge	1	2	3
5.11 I would try to change top management's attitudes in order to maximise use of organizational knowledge	1	2	3
People			
5.12 I would improve staffing / hiring methods	1	2	3
5.13 I would improve internal training	1	2	3
5.14 I would give emphasis to the transfer of experience from the most experienced staff to new staff via new methodologies	1	2	3
5.15 I would put emphasis on the exploitation of knowledge external to the company / organization (external partners, external business contacts, etc.)	1	2	3
5.16 I would motivate personnel to share knowledge	1	2	3

If there was a Knowledge Management policy in your company/organization, which of the following possible problems would occur and how often?	Rarely	Sometimes	Usually	Very often	Always
5.17 Lack of time for the personnel to share their knowledge	1	2	3	4	5
5.18 Lack of willingness amongst personnel to spread crucial information, knowledge (fear of decentralizing / giving away knowledge)	1	2	3	4	5
5.19 Lack of willingness amongst personnel to change the way they work	1	2	3	4	5
5.20 Lack of incentives given to employees by top management	1	2	3	4	5
5.21 Lack of team-work and co-operative culture	1	2	3	4	5
5.22 There are no objective and obvious reasons for knowledge sharing (what is the benefit of sharing knowledge?)	1	2	3	4	5

- **Demographic data**

1. Job position: Staff, Middle management, Top management, etc.

2. Industry Sector:

   e.g. Information Technology, Professional Services, Admin and Support, Education, Human Health, Financial Services, Bio Technology

3. Circle as appropriate:

Public Sector	Private Sector

4. Department / Function
   e.g. Finance Department, IT Department, Human Resources etc.

5. Age:

20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+

6. Sex (please circle):

Female	Male

7. Number of years working for the current enterprise/organization:

8. Total no. of years of working experience:

9. If you know, please specify how many years your organisation is in existence:

10. If you know, please specify how many years your department is in existence:

11. What is the main function of your organisation?

12. How many people work in your organisation?

13. How many people work in your department?

14. How many levels are there in your organisation from front line staff to top management?

If you have any other observations that you would like to make about the survey, or indeed elaborate on anything specific, please feel free to comment below:

I would like to thank you for your participation in the survey. Your time and effort is greatly appreciated.

APPENDIX B – AUDIT STATISTICS

B.1 Introduction

A key part of this research is the design and implementation of a knowledge audit. The audit as stated earlier is trying to assess the impact of an organisations shape and culture on the effectiveness of knowledge management processes and initiatives in that organisation.

The knowledge audit was distributed electronically using the on-line survey service 'surveygizimo.com'. The link to this survey was distributed using academic, professional and personal connections.

There were a total of 59 responses, of those responses, 54 are deemed 'complete' with the remaining 5 deemed as 'partial' complete. Of the 5 'partial' completes there is only 1 that was deemed unusable, as there is no questions completed. The remaining 4 'partial' responses are of use for the questions that they did actually complete.

It should be noted that not everybody answered all questions. This will be evident as the results are discussed, but it means certain questions have more responses than others. The level of responses for each question will be included in the discussion around the responses received for that question.

B.2 Results

The audit was designed to include a number of sections. This is covered in 'Development of Knowledge Audit' chapter six, but to re-iterate included sections were as follows:

- Basic knowledge profile
- Work analysis in a knowledge context
- Knowledge and information sources
- Company / Organisational culture
- Knowledge management in the organisation
- Demographics

These sections form the structure of how the results are discussed and displayed in this chapter.

B.2.1 Basic Knowledge profile

This section in the audit is assessing the level of knowledge that the respondents already have. It looks at education, work experience, and professional contacts amongst others. Questions also look to assess whether these educational, work experience and network resources of the individual are deemed useful to their wider organisation. The audit also assessed the level of usage that the survey population derives from IT and endeavours to garner a self-rating of the respondents' competency in the usage of this IT.

The results for the various questions included in the audit under this section are now detailed.

B.2.1.1 Level of Academic Education

	Level of Academic Education					Did your organisation fund your study?				
	Yes	No	Not Applicable	Blank	Total Responses	Yes	No	Not Applicable	Blank	Total Responses
Secondary School (Leaving/A-Level) Certificate	47	2	-	10	59	-	27	13	19	59
Third Level Certificate	29	14	4	12	59	-	21	15	23	59
Diploma / Ordinary Degree	18	19	7	15	59	3	15	16	25	59
Degree	47	6	1	5	59	1	31	8	19	59
Post Graduate Diploma	23	20	5	11	59	9	15	13	22	59
Masters	23	20	4	12	59	5	18	13	23	59
Ph.D	3	28	6	22	59	2	9	17	31	59
Professional Qualification	27	12	3	17	59	16	11	6	26	59

Table B.1 - Results of Level of Academic Education

The above is the table of responses received for questions assessing the level of academic achievement by those completing the audit. Points of note on the data above are as follows:

- 80% of the survey population have a degree
- 39% have achieved a Post Graduate diploma
- 39% have achieved a Masters
- 46% have achieved a Professional Qualification
- 5% have achieved a Ph.D

The above statistics indicate that the survey population is well educated. As we progress through the audit results it will be interesting to evaluate their approaches to knowledge management.

The above table also shows the level of support that that the organisations provided to the survey population in achieving their academic qualifications. Graphically this is seen in the following chart.

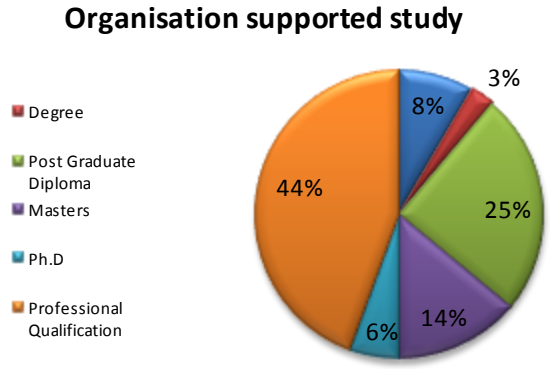


Figure B.1 - Organisation supported study

Figure B.1 shows all 'Yes' answers to the 'Did your organisation fund your study' question. It indicates which qualifications that organisations are more likely to support. Perhaps unsurprisingly a professional qualification is the most widely supported at 44%, with a post graduate diploma second at 25%. This could indicate a link between the job specification, and the requirement for a professional qualification.

B.2.1.2 What percentage of your working day is spent on computer for work related tasks?

There were 58 respondents to this question, used to assess individuals' technology usage in their day-to-day duties. People tended to answer to nearest 10%, e.g. 10% or 80%. The responses were bucketed on this basis into 10% brackets as represented on the following graph.

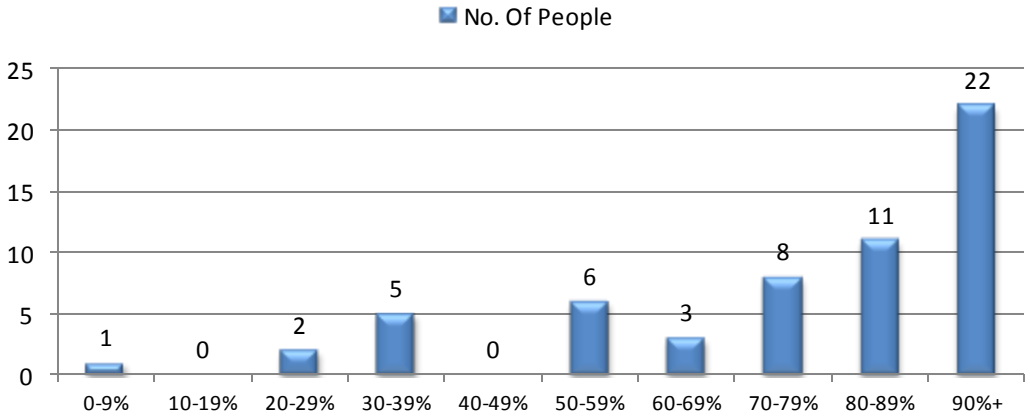


Figure B.2 - % of work day spent on computer

This Figure shows that the survey population is heavily dependent on technology in their jobs, with 44 people using a computer for 60% or more of their working day. This equates to 76% of all respondents to this question.

B.2.1.3 What is your principle IT device?

This is a follow-on question to the last, which explores what type of computing device is being used in the work environment.

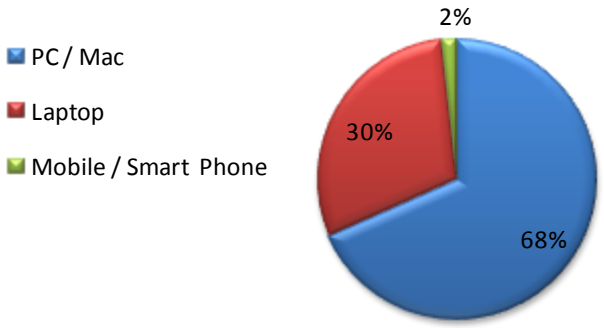
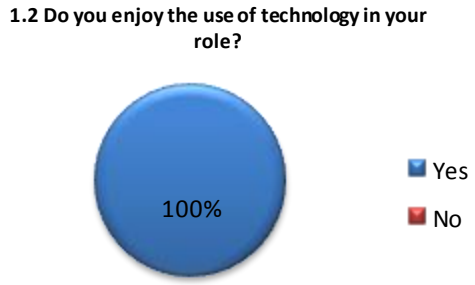


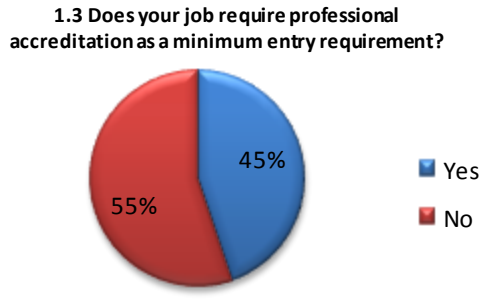
Figure B.2 - % of work day spent on computer

There were a total of 57 responses to this question. Answers came with various descriptions for the same thing. For example, Desktop and PC were assumed to mean the same thing. Interestingly despite advances in mobile technology only one on the respondents stated a mobile or smart phone as their principle IT device. This person is a salesperson based on the road. It shows that there is still a significant reliance among the survey population on the more traditional IT solutions of laptop or desktop PC's.

B.2.1.4 Yes or No questions

There are four questions in this section which required a "Yes" or "No" answer when completing. These are summarised on the following Pie charts.





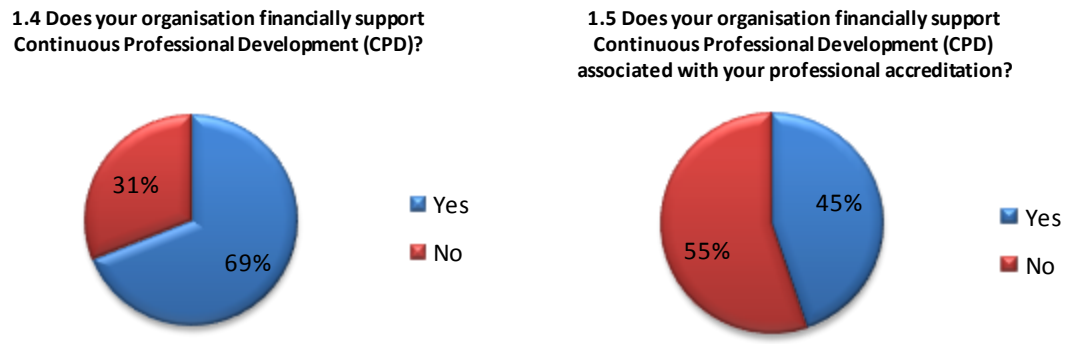


Figure B.3 - Yes or No questions

There were 58 respondents to all four of the above 'Yes' or 'No' questions. There was unanimity with regard to people enjoying the use of technology in their roles.

45% of respondents require a professional qualification as a minimum entry for their role. This is matched exactly by the 45% of people who receive financial support for Continuous Professional Development (CPD) associated with their professional qualification or accreditation. This indicates that where a requirement to have a professional qualification exists to get a particular role in an organisation, in all cases that organisation would appear to support ongoing CPD associated with the required qualification.

Further to supporting the CPD associated with a required professional qualification, 69% of respondents organisations support wider CPD requirements, indicating that organisation offer CPD opportunities above and beyond those required for the professional qualifications that may be required. This also informs us that roles that do **not** have a professional qualification as an entry requirement also support CPD.

B.2.1.5 What is the professional body awarding accreditation?

This question was a follow on question to question 1.3 above. If the response to 1.3 was 'Yes' I asked what was the professional qualification required as minimum entry. Based on responses the qualifications were classified into their relevant sectors and represented them on the following Pie chart.

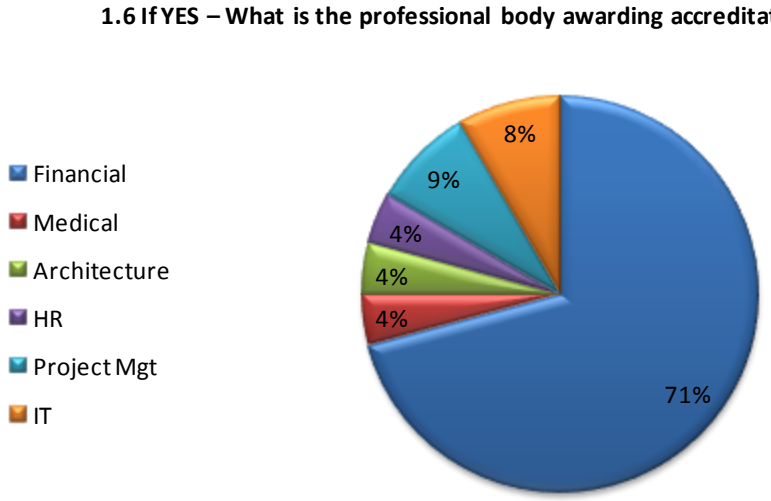


Figure B.4 - What is the professional body awarding accreditation?

B.2.1.6 Please rate your skills in relation to the following.

The knowledge audit requested the respondents to rate their skills with regard to various standard business software and systems. There was also free text sections where individuals could add additional specific systems used in their roles within their organisations.

Please rate your skills in relation to the following	Basic Computer skills	Word	Excel	Power-Point	Outlook / Other Email	Windows / OSI	Databases	Operating Systems	Other Systems
Poor	-	-	-	-	-	1	5	3	-
Poor-Average	-	1	3	2	-	2	6	4	-
Average	4	4	7	8	4	9	11	7	3
Average-Competent	4	7	11	15	14	16	16	15	11
Competent	50	46	37	33	40	29	21	28	30
Total Responses	**58**	**58**	**58**	**58**	**58**	**57**	**59**	**57**	**44**

Table B.2 - Results of Skill rating for various IT systems.

The results above show all responses for each system detailed, and indicate that the survey population is generally competent with most of the Microsoft office suite. Key highlights from the responses are:

- 86% of the survey population rate their 'Basic Computer skills' as competent.
- Databases had a competent score of 36%
- The average competent score across all listed system categories is 62%

These results indicate a reasonably high level of computer literacy in the population. This would back-up the results seen from the populations' usage of IT in their working day.

B.2.1.7 Educational knowledge, Professional experience and Personal professional contacts

Educational Knowledge

The following questions are assessing the importance to the survey population of their education in the completion of their roles within their organisations.

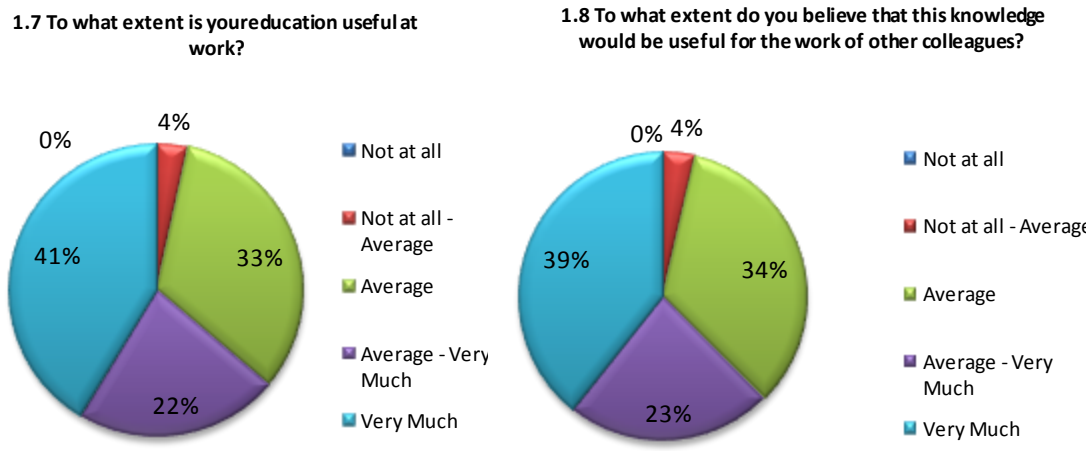


Figure B.5 - Educational knowledge usefulness

The second question is looking to assess the value that could be derived from knowledge sharing between individuals. 63% of the survey population rate their education as above average in terms of usefulness, and 62% rate is it similarly in terms of usefulness to their colleagues. This insinuates that if educational knowledge can be transferred within these organisations, there would be a benefit to the organisation in terms of increasing the knowledge base for all employees. This benefit would be realised where the organisation can elicit the educational knowledge deemed useful by employees, for usage in the wider organisation.

Professional Experience

Similar to the last pair, these two questions are assessing usefulness of professional experience garnered throughout the respondents career, and secondly the perceived usefulness that this experience may be to colleagues.

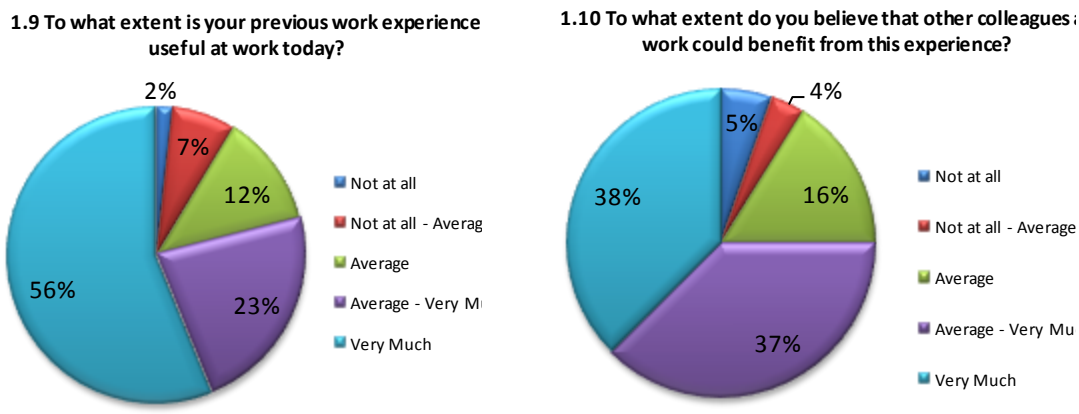


Figure B.6 -Professional Experience usefulness

From the results above it can be seen that 79% deem their previous work experience to be above average in terms of usefulness in their current organisation. A similar percentage of 75% deem that their own work experience would be above average in terms of usefulness to their current colleagues. Interestingly the despite both measure being similar, the split between the above average categories is different. 56% say their work experience is 'very much' a useful knowledge base in their current role, with this only converting to 38% as 'very much' being useful to other colleagues.

This level of usefulness in previous work experience provides a large opportunity for the respondents' organisation. If the employing organisations could elicit this knowledge, it could benefit of the current employer and responder colleagues, based on the responses above.

Personal and Professional contacts

The next set of questions are assessing the level of usefulness of the respondents contact in the completion of the work. There are two principle contact types identified in these questions.

- Personal business network **within** the organisation
- Personal business network **outside** the organisation

As with the educational knowledge and professional experience questions, the usefulness of contacts to the individual responder and the perceived usefulness of those contacts to colleagues will be assessed.

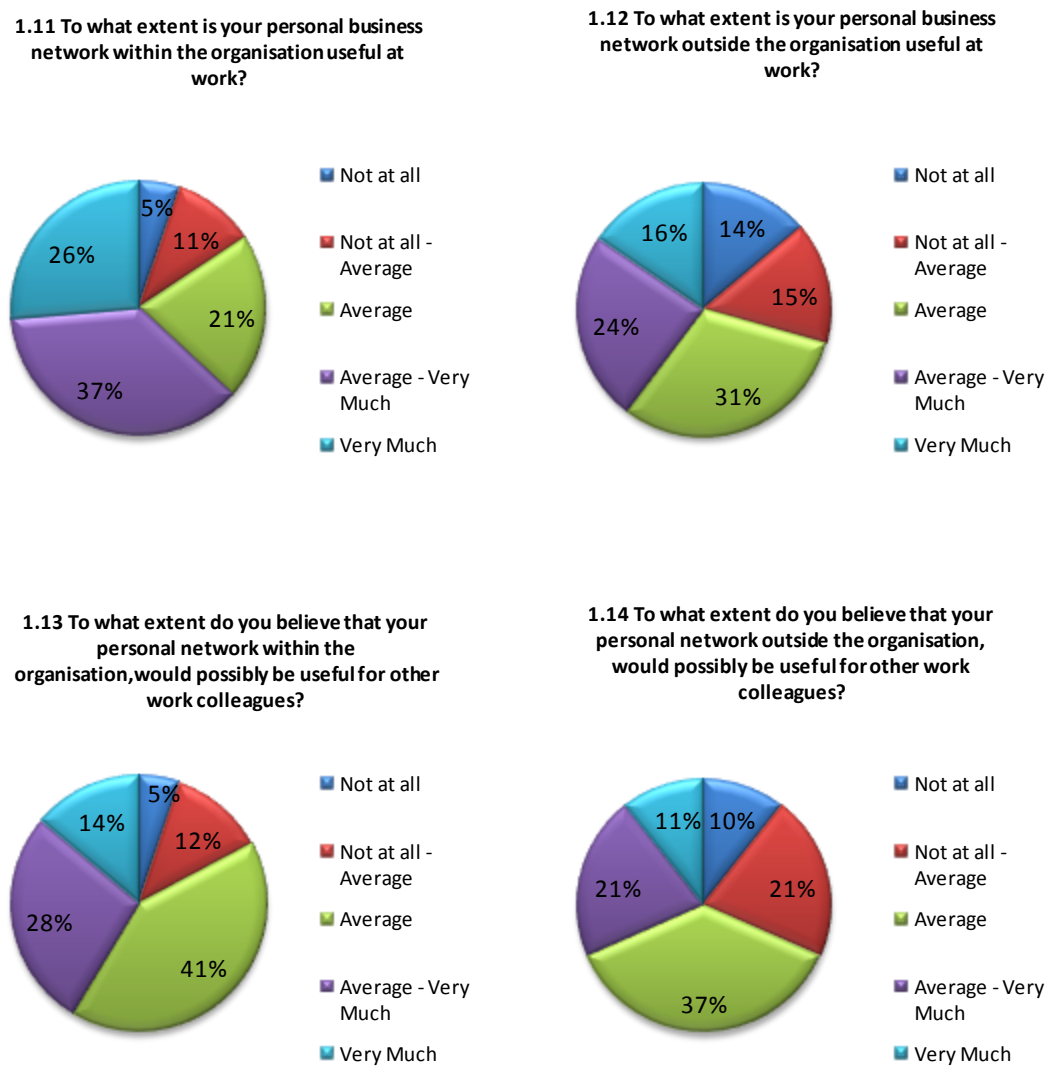


Figure B.7 - Personal Professional contacts usefulness

The above Figure for question 1.11 shows the survey population place significance on the usefulness of their business network within the organisation. With 37% rating it 'Average-Very Much' and a further 26% rating it 'Very Much', gives a total above average rating of 63%. When asked in question 1.13 how the same network would be useful to colleagues, the rates for both categories is 28% and 14% respectively, giving a total above average rating of 42%. This indicates that respondents value their internal business network for the own use, but to a lesser extent for the use by their colleagues.

Question 1.12 asks the same question as 1.11, except it is concerned with the personal business network **outside** the organisation. Results here are less significant than the internal network with the two combined above average ratings reaching 40%. Again as

with the internal network question, the conversion rate of the individual usefulness to a wider colleague usefulness of this network is less than 1:1 as the total above average ratings for external personal business network usefulness to colleagues is 32%.

B.2.2 Work analysis in a Knowledge Context

As the section indicates, these questions probe the respondents, to assess their current role and behaviours from a knowledge perspective. In total there are 21 questions in this section, with 56 responses to each question.

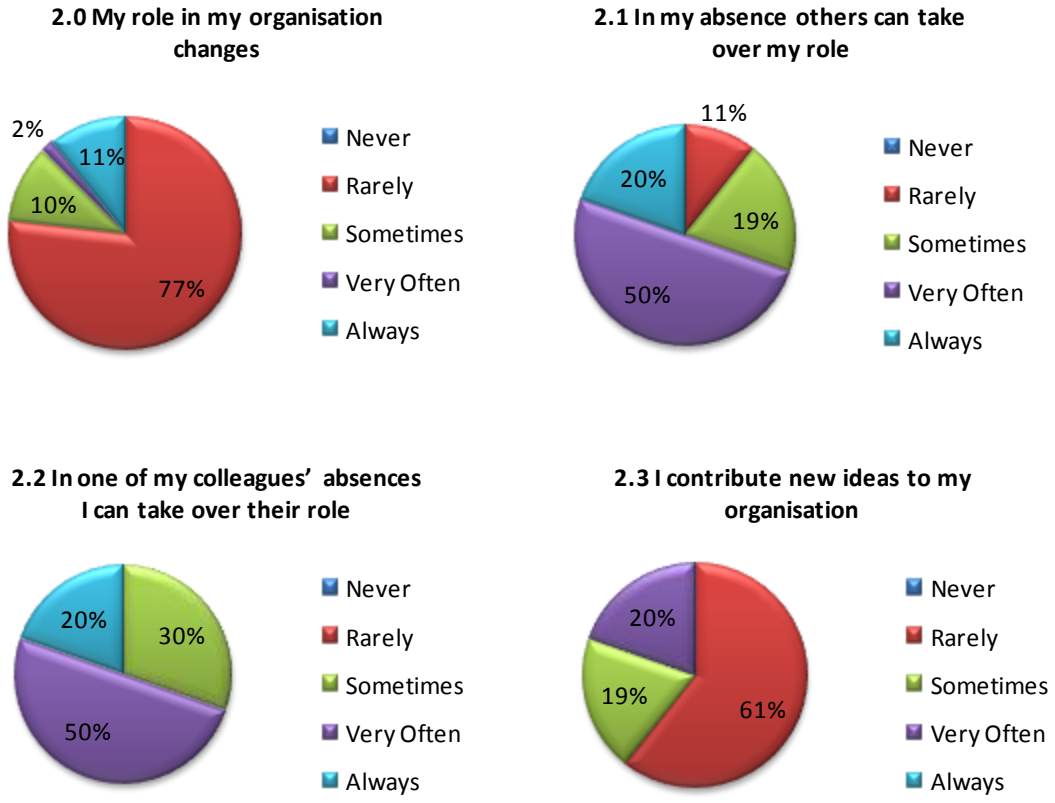


Figure B.8 - Work analysis in a knowledge context.

Purely for presentation purposes the questions have been grouped into sets of four, with the last question sitting on its own.

Question: 2.0 - Is telling us that the vast amount (77%) of the population surveyed are currently in reasonably static roles. This could be seen as a hindrance to knowledge management as dynamism and indeed chaos according to Nonaka is a requirement for new knowledge creation.

Question: 2.1 - A combined 70% state that their roles can be covered 'very often' or 'always' by someone else in the organisation. From a knowledge management perspective, this indicates that there is sufficient knowledge shared among employees to facilitate this cover. This is a strong mitigation of 'key person' risk on behalf of the organisations employing these people.

Question: 2.2 - Similar to question 2.1, the exact same results are seen for people being able to cover a colleagues role in their absence. Again this is good knowledge sharing from the organisations perspective.

Question: 2.3 - 61% of people responded that they rarely contribute ideas to their organisation. This would hint at barriers to knowledge sharing, which is not evidenced in the earlier questions.

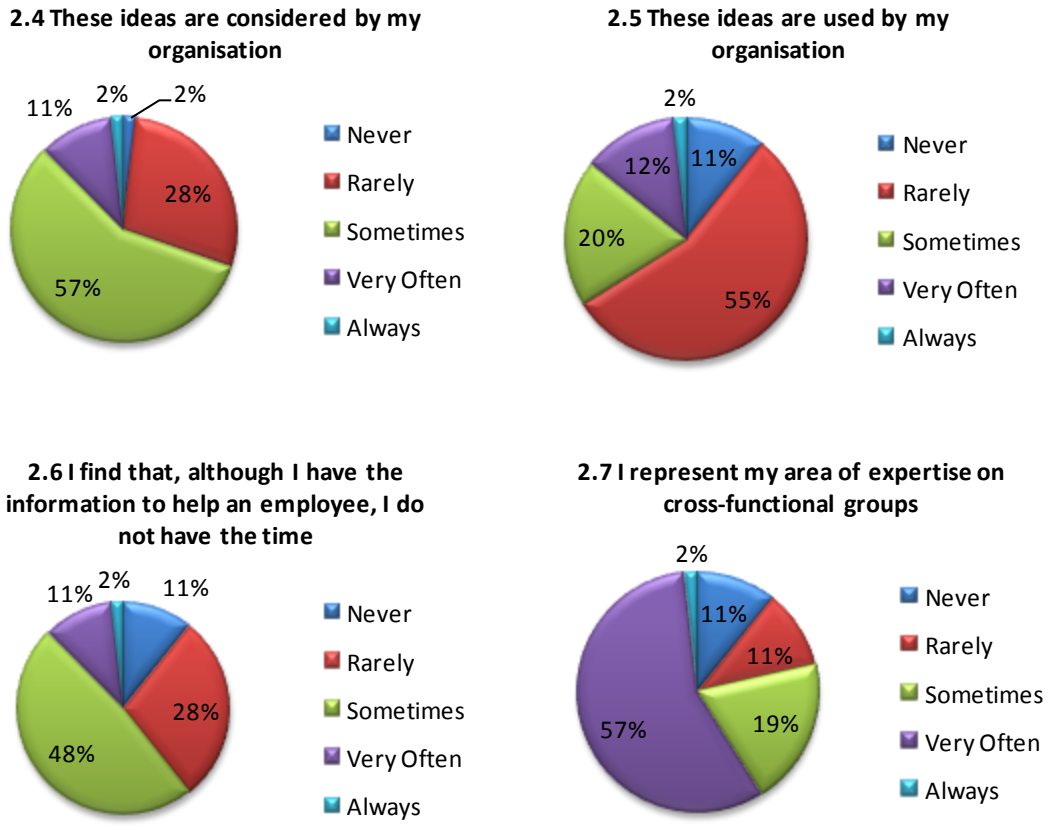


Figure B.9 - Work analysis in a knowledge context.

Question: 2.4 - A follow on question from 2.3 which identified that 20% of respondents share ideas with their organisation 'Very Often', and a further 19% 'Sometimes'. Of this total of 39% that do actually share ideas, 57% of these indicated

that these ideas are 'sometimes' considered by the organisation, while 11% stated 'very often' considered, and 2% indicated that their shared ideas are 'always' considered by the organisation. Based on the results, the more a person feels their ideas are accepted by the organisation, seems to be linked to their seniority. The more senior people are, the more they see their ideas being considered.

Question: 2.5 - Measures the conversion rate of shared ideas into actions or uses of these ideas by the organisation. Some 55% say the ideas are 'rarely' used, while a combined 14% say these ideas are 'very often' (12%) or 'always' (2%) used by the organisation. This reflects how the shared knowledge is being used. It is not a guarantee that shared knowledge should be used, as perhaps there is some quality filter assessing whether shared ideas are fit for purpose.

Question: 2.6 - Looks to assess the survey population in terms of their ability to knowledge share. It assesses the organisations capability to facilitate knowledge sharing by their employees. 28% state that they 'rarely' do **not** have the time to share knowledge that would help an employee, and a further 11% state they are 'never' stuck for time to do the same. This leaves a combined 61% that **are** affected by time constraints in terms of assisting a colleague with their knowledge. This would be worrying from an organisational perspective, as it indicates that the knowledge to solve a particular problem, or improve a process is within the organisation, but is not in the correct place to effect the potential improvement.

Question: 2.7 - Measures the level of cross-functional interactions within the respondents organisation. Only 22% state that they 'never' (11%) or 'rarely' (11%) represent their area at cross-functional meetings. This indicates that the remaining 78% are involved in these cross-functional interactions, with 57% stating that they are 'very often' involved. This provides a learning, or knowledge-sharing, opportunities for those organisations where these cross-functional interactions are occurring.

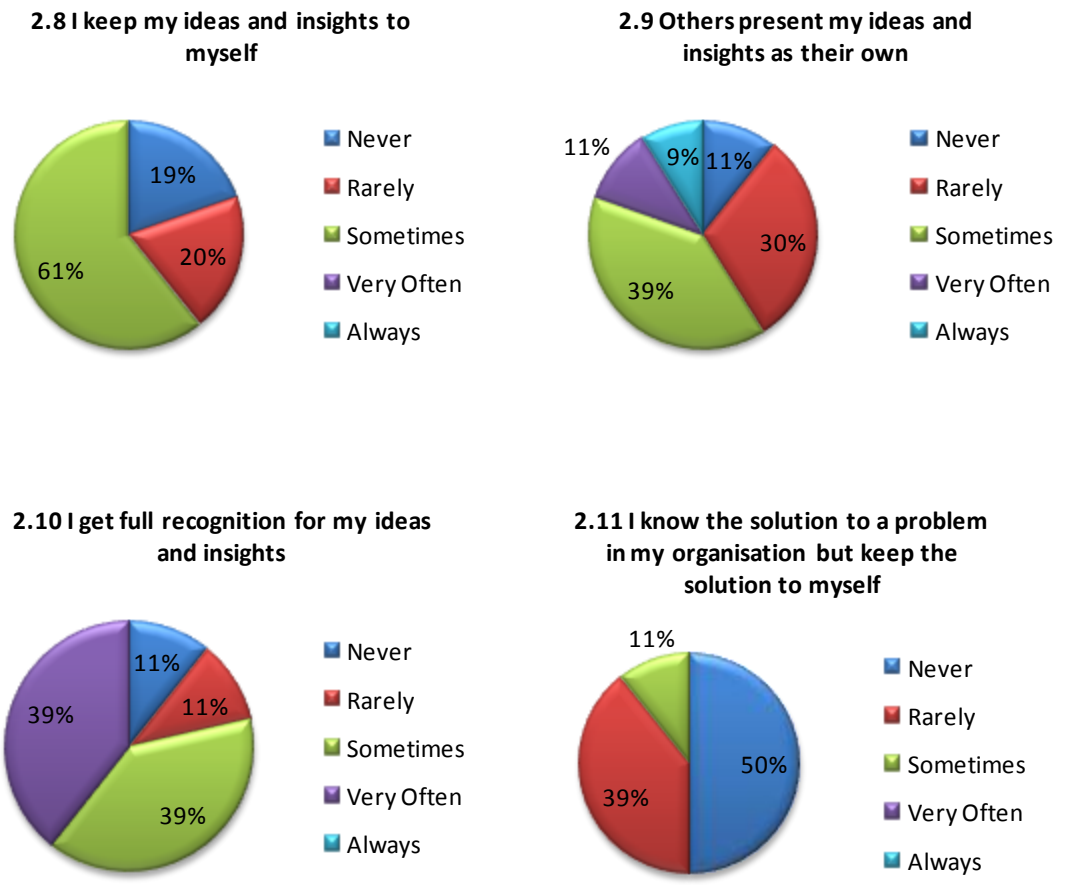


Figure B.10 - Work analysis in a knowledge context.

Question: 2.8 - This is a similar question to 2.3, asked in the opposite direction. It is interesting to assess the correlation between the two sets of responses. 61% of the responses to question 2.3, stated that they 'rarely' contributed new ideas to their organisation. For question 2.8 we see exactly 61% responding that they sometimes keep their ideas to themselves. This gives a strong correlation between the two questions, which both sets of responses appearing to be consistent.

Question: 2.9 - Assessing the level of shared ideas that are then seen as being portrayed as original ideas by the person or organisation they were shared with. This type of behaviour would be seen as detrimental to the knowledge sharing process. 39% of people have 'sometimes' experienced this, with a further 20% stating that it happened 'very often' (11%) or 'always' (9%).

Question: 2.10 - A key part of knowledge sharing is the aspect of motivating the individual to share. This motivation can be encouraged by recognition of knowledge sharing. Recognition can take the form of monetary reward, or a simple mention to a wider audience highlighting the sharing behaviour. The results to question 2.10 on that basis are encouraging from a knowledge sharing perspective. A combined 68% responded as having being 'sometimes' (39%) or 'very often' (39%) recognised for their insights and ideas.

Question: 2.11 - A straight question assessing people's attitude to knowledge sharing. Thankfully from a knowledge management perspective, only 11% of the survey population responded that they 'sometimes' hold back information that they know could be helpful in resolving an organisational issue. The remaining 89% of respondents to this question stated that they 'rarely' (39%) did this, while an encouraging 50% stated they 'never' withhold information that can aid a solution to an organisational issue.

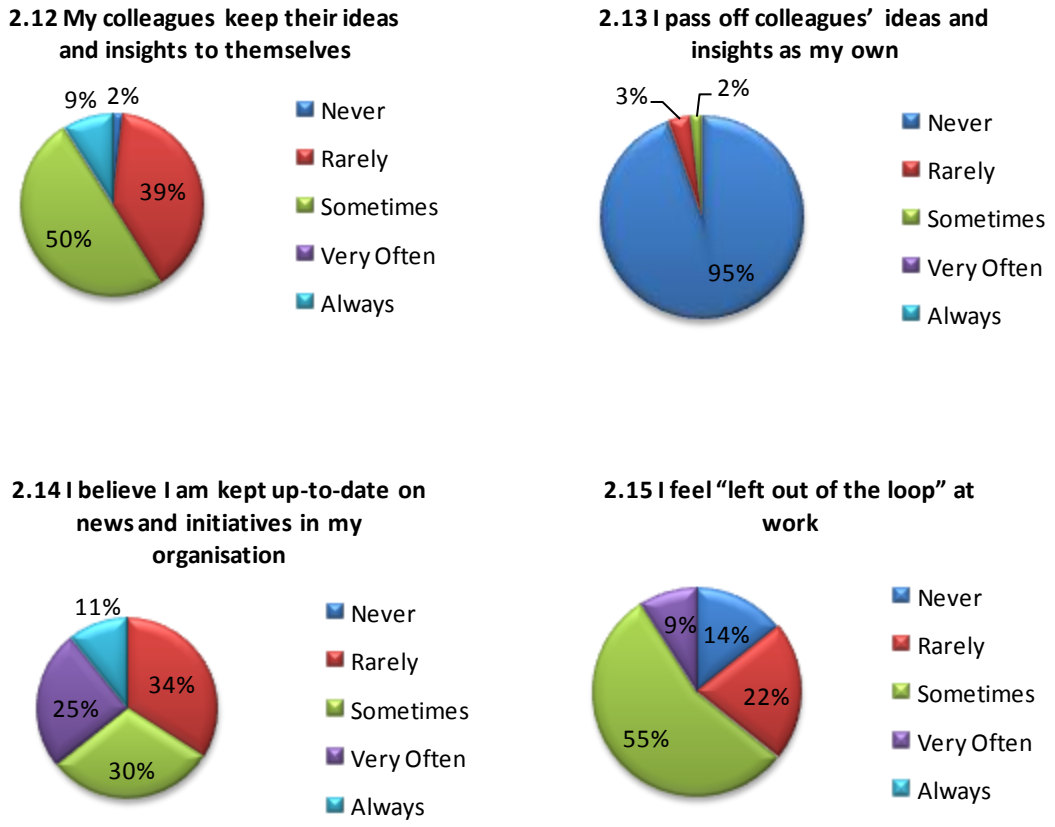


Figure B.11 - Work analysis in a knowledge context.

Question: 2.12 - After the introspective questions on an individual's own attitude to sharing, this question now looks for them to assess their colleagues' attitude. There is a likelihood that people will have a more positive view of their own attitude, compared to viewpoints on their colleagues. The responses to this question show that 50% of respondents colleagues are deemed to 'sometimes' keep their ideas to themselves, with a further 9% stating that their colleagues ' always' keep their ideas to themselves. Interestingly and contrary to my initial assertion, 50% 'sometimes' response to this question compares favourably to the 61% of 'sometimes' in question 2.8 assessing their own attitude to knowledge sharing.

Question: 2.13 - In keeping with the assertion that individuals may look more positively on their own attitudes and behaviours to those of their colleagues, some 95% stated that they 'never' pass off their colleagues ideas as their own. This can be compared to question 2.9 where respondents indicated that only 11% of the time their shared ideas and insights are 'never' presented by others as their own. There is a definite contrast in the results here.

Question: 2.14 - A question to ascertain the overall level of organisational knowledge sharing. It provides insight into how aligned the respondents feel with the direction and strategy of the organisations they work for. A positive in this question is that there was no response of 'never' to whether an individual felt they were kept up-to-date on news and initiatives in their organisation. A combined 66% felt that they were 'sometimes' (30%), 'very often' (25%) or 'always' (11%) kept up-to-date on organisational news and initiatives.

Question: 2.15 - A similar question to the last, in terms of identifying how connected the responder feels to their organisation or colleagues. 55% of the survey population admit to 'sometimes' being out of the loop, with a further 9% stating that 'very often' they are out of the loop. Answers to this question could be more focused on the individuals' immediate surrounds, as opposed to the wider organisation.

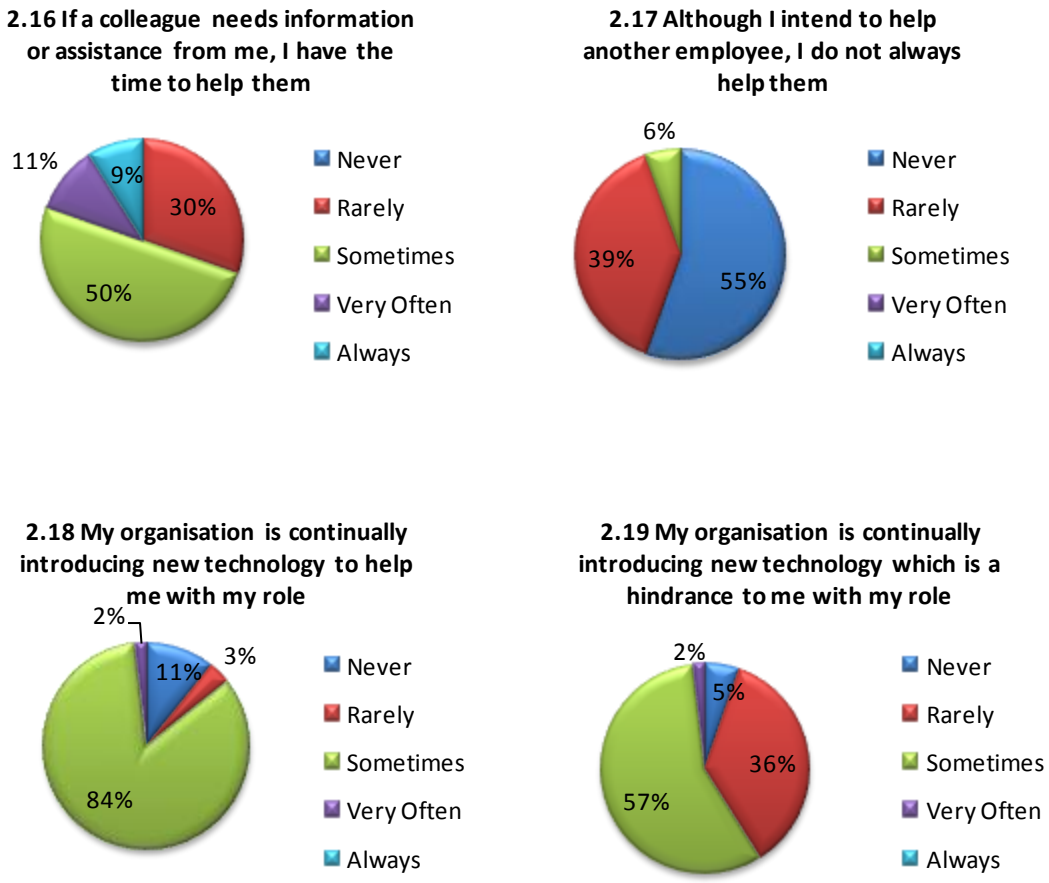


Figure B.12 - Work analysis in a knowledge context.

Question: 2.16 - This question is assessing the ability of the responder in terms of time constraint, to assist a colleague in solving an issue, or addressing an organisational problem. 30% stated that they 'rarely' have time to help a colleague. The remaining 70% state that they 'sometimes' (50%) have time, 'very often' (11%) or 'always' (9%) have time to assist a colleague.

Question: 2.17 - This question steps away from a time constraint and asks a direct question as to whether the survey population actually, despite best intentions, still don't help a colleague. 55% of responses stated that this 'never' happens, with a further 39% stating that it 'rarely' occurs. The residual 6% of responses to this question admitted that it 'sometimes' occurs.

Question: 2.18 - 84% responded that their organisation is continually introducing new technology to aid them with their role. This shows organisations investing in

technology that fits the requirements of the users. From a knowledge management perspective, this would indicate that user needs are being accurately captured, and the resulting systems are fit for purpose.

Question: 2.19 - This is the exact opposite question to the last. This time assessing the level of technology that is introduced that actually hinders the role of the responder. Strangely in light of the positive responses from the previous question, 57% of the survey population stated that their organisation 'sometimes' introduced new technology which was a hindrance to them with their role. One would have to question why an organisation is introducing systems that are hindering existing performance.

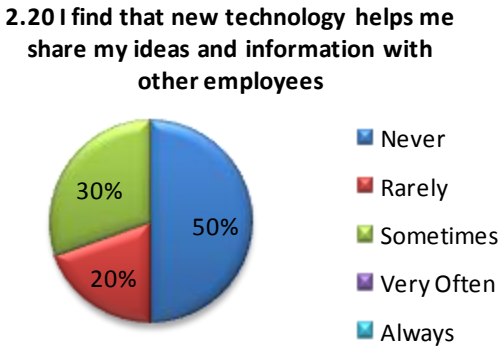


Figure B.13 - Work analysis in a knowledge context.

Question: 2.20 - The final question in this section, develops on the previous two questions, to assess the impact of new technologies on the ability of the individual to knowledge share. This in theory should work both ways, with the individual able to share their ideas, but also consume the ideas of other colleagues. 50% of responses indicated that the new technology 'never' assists with this sharing of ideas, with a further 20% stating that this is 'rarely' the case. This indicates that new technologies being introduced are not necessarily focussed on knowledge management initiatives.

B.2.3 Knowledge and Information sources

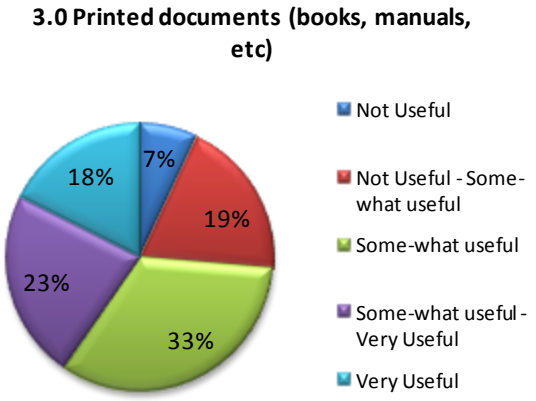
This section of the audit is assessing where the survey population sources its information and knowledge in their organisations. There are four main questions here, with a list of options under each question. Responses to all questions in this section ranged from 55 to 58. The three main questions are as follows:

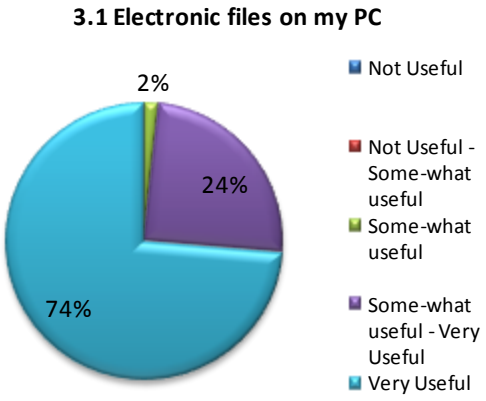
- ***To what extent are the following resources of use in your daily work?***
  This question is looking to assess the explicit sources of knowledge within the organisation. There are a number of possible sources listed as options in the question, with people asked to rate each option on a scale from Not-Useful to Some-what-useful through to Very-Useful. The results of each options 'Very-Useful' totals are then used to rank each option against each other.

- ***How often do you participate in the following social interactions at work?***
- ***To what extent are the following methods of communication beneficial to your organisation whether you are involved or not?***
  The second and third questions have the same options detailed under each. They are looking to assess the levels of social interaction experienced by the survey population in their organisation. This form of interaction provides a useful means of transferring tacit as well as explicit knowledge. Again the 'Very Useful' or 'Always' in question two, results on the scale will be used to rank all options against each other.

- ***In your day-to-day work, what is your preferred method of communication when trying to gain knowledge, information from other colleagues?***
  Further investigation of the preferred methods of communication by the survey population.

B.2.3.1 To what extent are the following resources of use in your daily work?





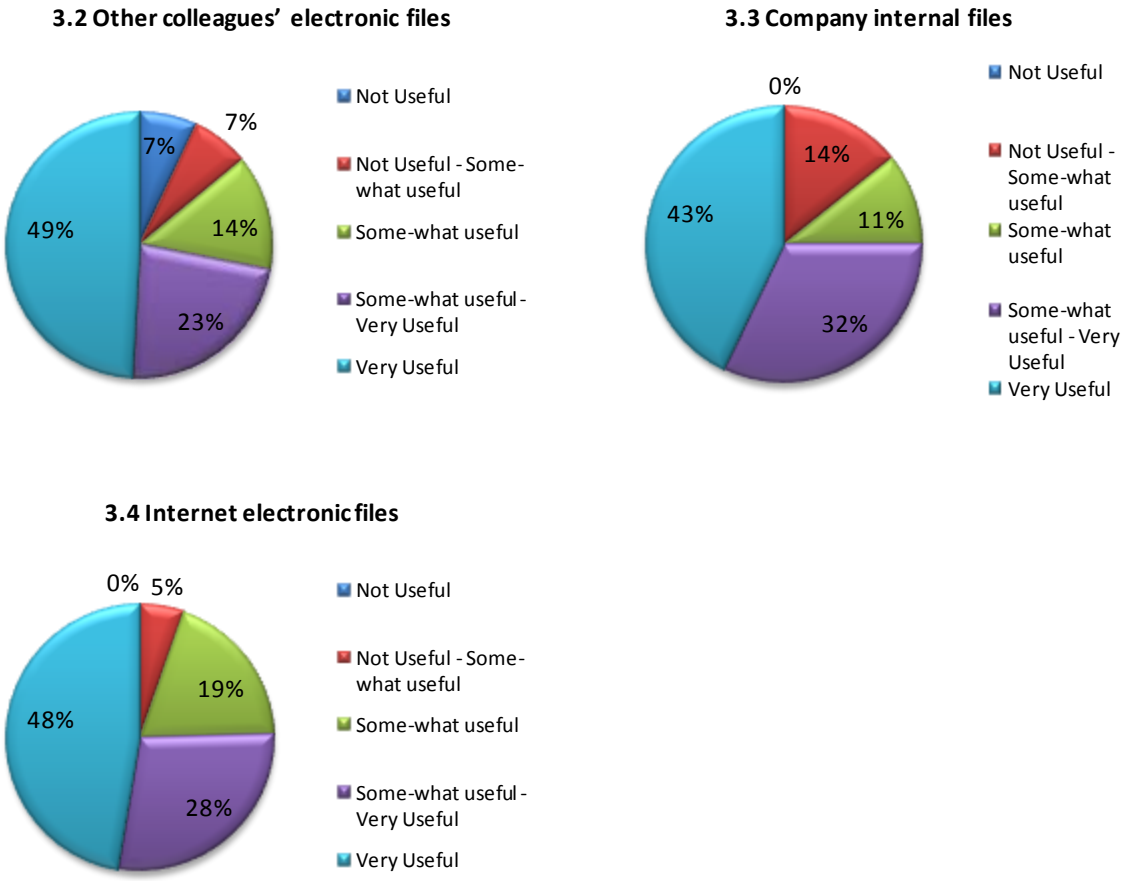


Figure B.14 - Explicit knowledge resources.

There is a Figure for each of the resources listed as an option under the question. Option 3.1 'Electronic files on individuals PC' is by far the most popular resource for the survey populations. 74% indicated that these electronic files are 'very useful'. Interestingly printed sources of information such as books, or documents are at the other end of the scale with only 18% of respondent citing them as 'very useful'.

As mentioned above, using the 'very useful' scores as a means of ranking the 5 resources we arrive at the following list, ordered at most useful resource at the top all the way to least useful resource at the bottom.

1. Electronic files on my PC - Very Useful - 74%
2. Other colleagues' electronic files - Very Useful - 49%
3. Internet electronic files - Very Useful - 48%
4. Company internal files - Very Useful - 43%
5. Printed documents (books, manuals, etc) - Very Useful - 18%

Close examination of the top 3 ranked sources shows that they are all electronic in nature, and is probably consistent with the high level of IT usage and literacy identified within the survey population in section one of the knowledge audit.

B.2.3.2 How often do you participate in the following social interactions at work?

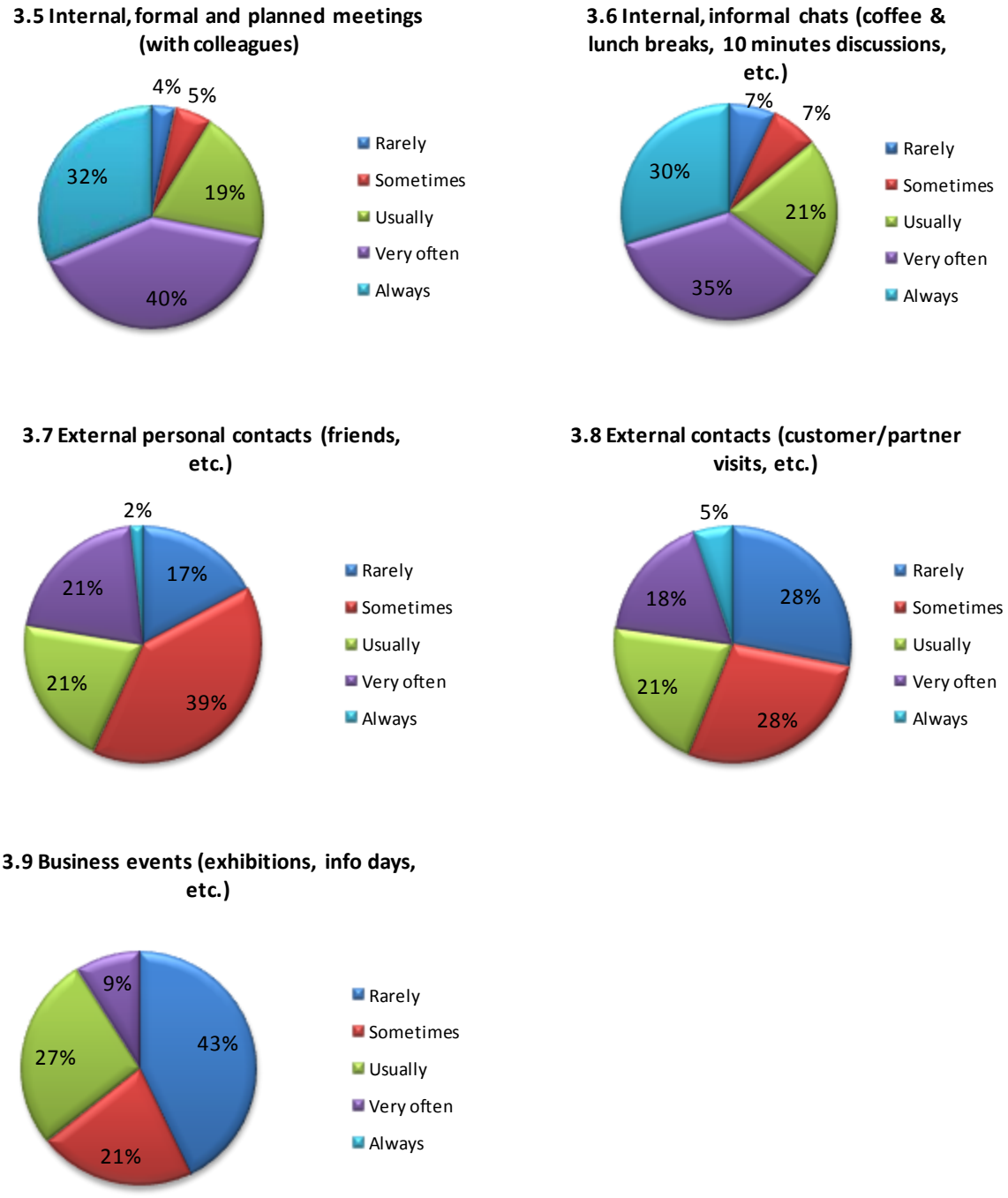


Figure B.15 - Social interactions.

As can be seen from the graphs above, the options supplied for social interactions were:

- Internal, formal and planned meetings (with colleagues)
- Internal, informal chats (coffee &lunch breaks, 10 minutes discussions, etc.)
- External personal contacts (friends, etc.)
- External contacts (customer/partner visits, etc.)
- Business events (exhibitions, info days, etc.)

From the graphs one can see that 'Internal, formal and planned meetings (with colleagues)' got the highest number of responses on the scale in the 'Always' category at 32%. This was closely followed on 30% by 'Internal, informal chats (coffee & lunch breaks, 10 minutes discussions, etc.). The full ranking of the options based on the supplied options is as follows:

1. Internal, formal and planned meetings (with colleagues) - Always - 32%
2. Internal, informal chats (coffee &lunch breaks, 10 minutes discussions, etc.) - Always - 30%
3. External contacts (customer/partner visits, etc.) - Always - 5%
4. External personal contacts (friends, etc.) - Always - 2%
5. Business events (exhibitions, info days, etc.) - Always - 0%

From the above it is obvious that the survey population, favour both formal and informal internal social interactions above all else. This results achieved in this question will be dependent on the role types of the respondents. As we have seen in earlier sections, the high level of traditional IT usage in roles, namely desktop PCs and laptops indicate that the majority of respondents in the survey would be office based. A different audience, who may be more customer focussed, may produce different results which bring to the fore the likes of business exhibitions which didn't really feature in my results.

B.2.3.3 To what extent are the following methods of communication beneficial to your organisation whether you are involved or not?

The options provided under this question were identical to those supplied for the last question. This question provided an opportunity for respondents to step away and evaluate the same options in terms of organisational value, as opposed to just assessing their levels of participation, which was assessed in the last question. Results are as follows:

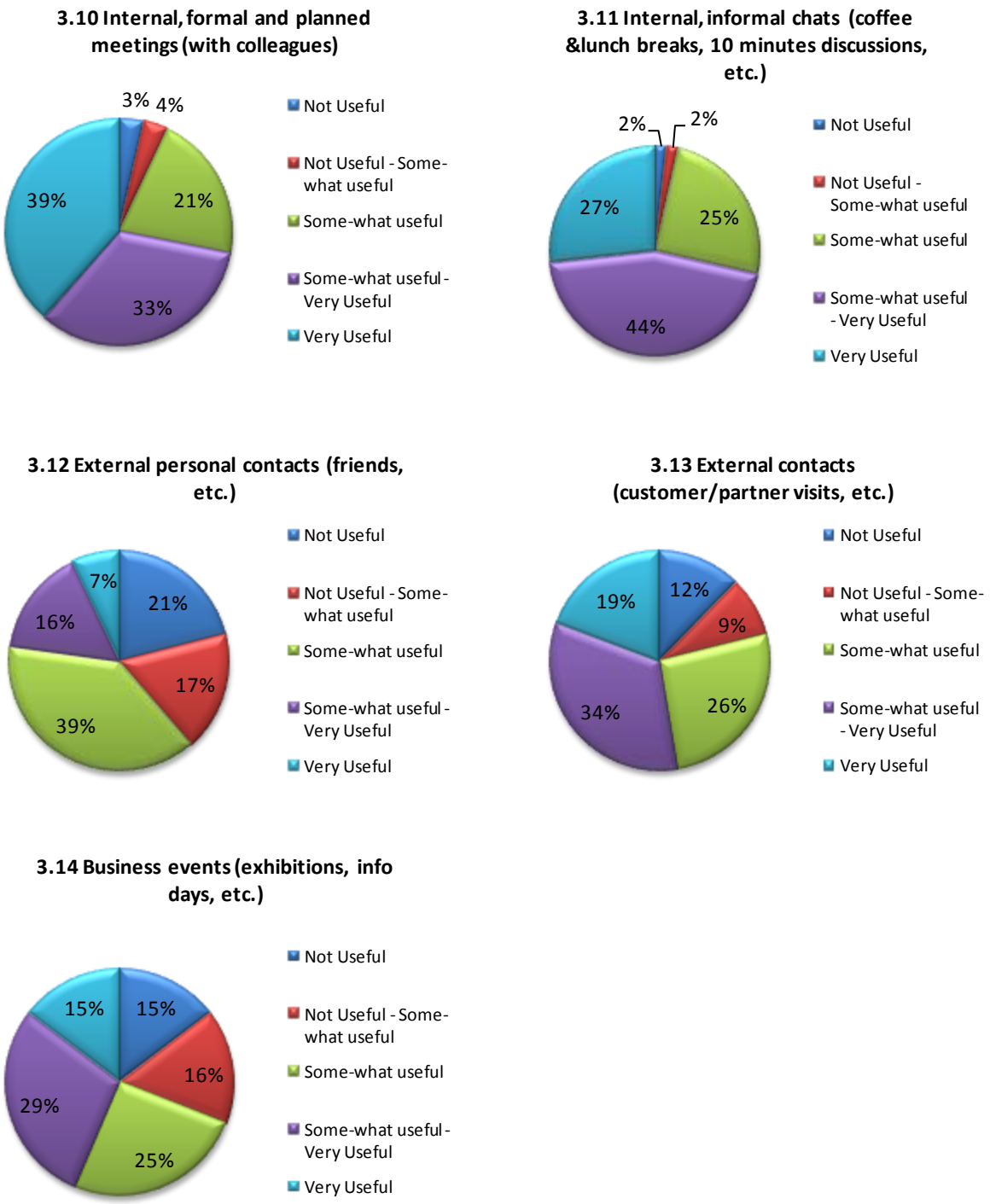


Figure B.16 - Communication methods.

The results for this question with the same options as the last question provide some insight. Again using the top rank on the scale, in this instance 'Very-Useful' the results of all five options can be ranked in order of highest to lowest in terms of percentage responses received. The ranking on this basis is as follows:

1. Internal, formal and planned meetings (with colleagues) - Very Useful - 39%
2. Internal, informal chats (coffee and lunch breaks, 10 minutes discussions, etc.) - Very Useful - 27%
3. External contacts (customer/partner visits, etc.) - Very Useful - 19%
4. Business events (exhibitions, info days, etc.) - Very Useful - 15%
5. External personal contacts (friends, etc.) - Very Useful - 7%

From the organisations perspective the top two from this ranking match the top two from the last questions ranking. This means that the social interactions that the survey population are most involved with are also the social interactions that they deem most important to the organisation. This indicates that in terms of value add, the respondents to the survey are partaking in the most relevant social interactions for their organisation.

B.2.3.4 In your day-to-day work, what is your preferred method of communication when trying to gain knowledge, information from other colleagues?

Again as with the previous questions, a set number of options were provided for the respondents to rank on a five step scale from 'rarely' through to 'always'.

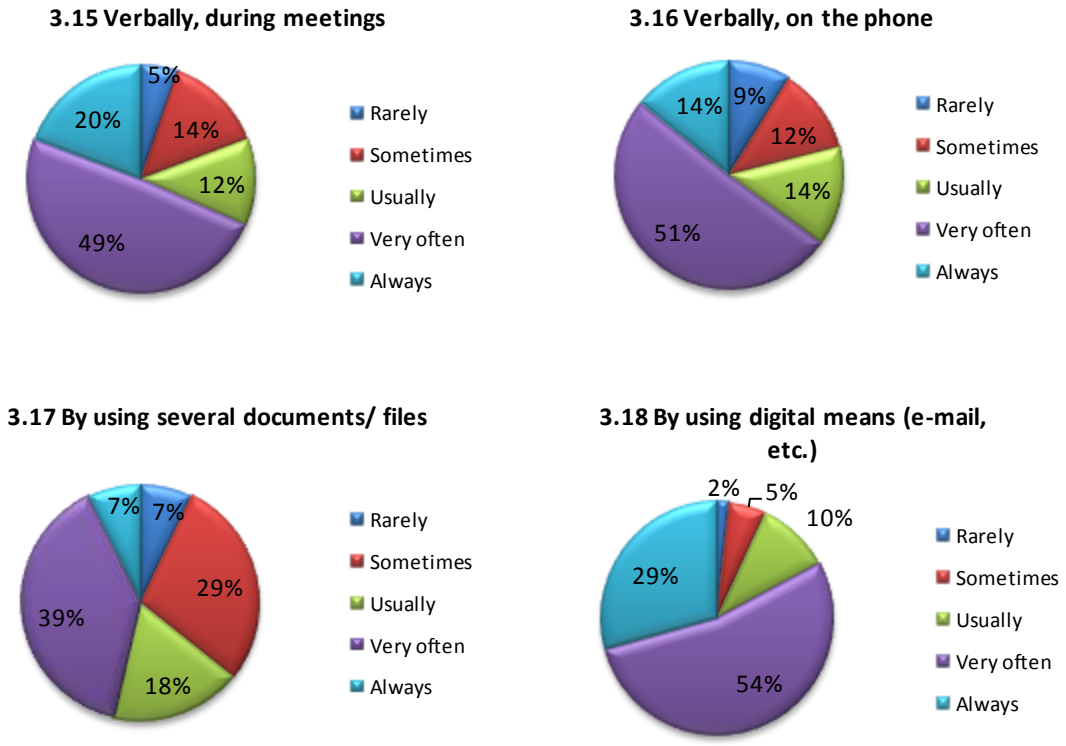


Figure B.17 - Preferred Communication methods.

So far we have evaluated what social interactions individuals take part in, and then evaluated them in terms of perceived value to the organisation. This question then asks the preferred method of communication of the individual when looking for information from colleagues. If we again take the maximum on the scale 'Always' and use the score for each option as a means of ranking them against each other. The results are as follows:

1. By using digital means (e-mail, etc.) - Always - 29%
2. Verbally, during meetings - Always - 20%
3. Verbally, on the phone - Always - 14%
4. By using several documents/ files - Always - 7%

Again we see the electronic versions of communication coming out on top, with paper based communication methods coming last. This is consistent with other metrics that have identified a substantial reliance on IT in the working day of the survey population.

B.2.4 Company and Organisational culture

This section of the audit is trying to assess various cultural elements within the organisations for which the survey population works for. In chapter seven the impact of culture on an organisation knowledge management initiatives and processes is discussed at length.

The questions in this section by virtue of assessing various behaviours are looking to identify if organisations where individuals are employed, are demonstrating the required values and beliefs to foster knowledge management. In effect assessing whether a knowledge culture exists in these organisations.

B.2.4.1 In your opinion, to what extent do the following statements apply to your organization / company?

There are five aspects examined under this question. The value that the organisation place on the staff and the staff's dedication to the organisation is assessed in the first two questions. While the other three questions address items including whether a philosophy of team-work exists, whether there are barriers to communication, and what level of trust the staff have between each other.

These are all cultural aspects of the organisation that can impact on the knowledge processes within the organisation. The results of the knowledge audit are again displayed via Pie charts, with some additional analysis included where deemed appropriate. There were 57 respondents to each of these questions.

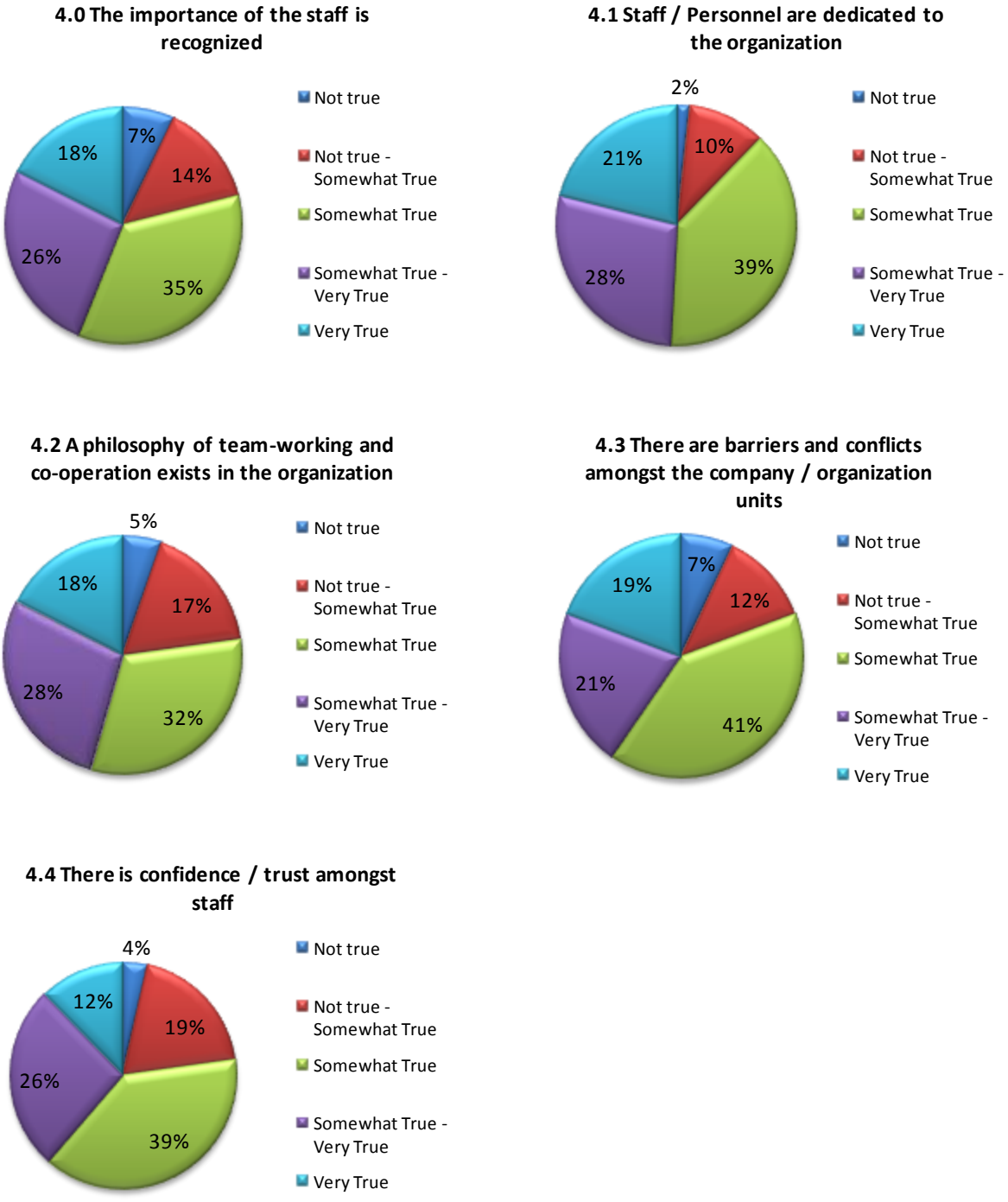


Figure B.18 - Cultural element assessment.

Question: 4.0 - This question is a straight forward question trying to assess whether the survey population feel valued by their organisations. This question could be prone to

bias, depending on the individual's current status in their role. However with number of respondents to the question, hopefully the level of bias will be minimal. 35% stated that it is 'somewhat true' that they are valued by their organisations. A further 28% are more positive than that at 'somewhat true-very true', while 18% state that it is 'very true'. This only leaves a combined 21% which are more negative about the question.

Question: 4.1 - This question is a flip of the last question, asking how committed to the organisation are the individuals. Similar results here as the last question, if not a little more positive. 12% are in the negative categories here, with 39% at 'somewhat true' and a further 49% in the two more positive categories. The correlation between the first two questions is interesting. It highlights that individuals are more positive about their commitments to their organisations that they are about their organisations commitment to them.

Question: 4.2 - This question is interesting from a knowledge management perspective, as team working, or project team environments are espoused in knowledge management as a good means of knowledge sharing and engendering learning. Positive responses in this question will hint that organisations are creating potential learning opportunities for their employees. As can be seen from the Pie chart 78% of the population were answered 'somewhat true' or in the more positive categories. This would be encouraging from a knowledge management perspective.

Question: 4.3 - From a knowledge management perspective this question is looking to assess any impediments that might exist to knowledge processes by virtue of break down in social interactions between organisational departments. Answers here of a positive nature are highlighting where conflict exists. In contrast to the positive outcomes in the last question, responses here indicate that the survey populations organisations may have some conflict issues to overcome, with 41% stating the assertion is 'somewhat true' while a further 21% and 19% are in the 'somewhat true-very true' and 'very true' categories respectively.

Question: 4.4 - This question is assessing the relationships that the survey population have with their colleagues. High levels of trust would be seen as conducive to a knowledge sharing environment, where employees will share ideas and insights and

not worry about those ideas being hijacked by others. Results for this question are positive 39% stating the assertion is 'somewhat true', 26% 'somewhat true-very true' and 12% 'very true' respectively.

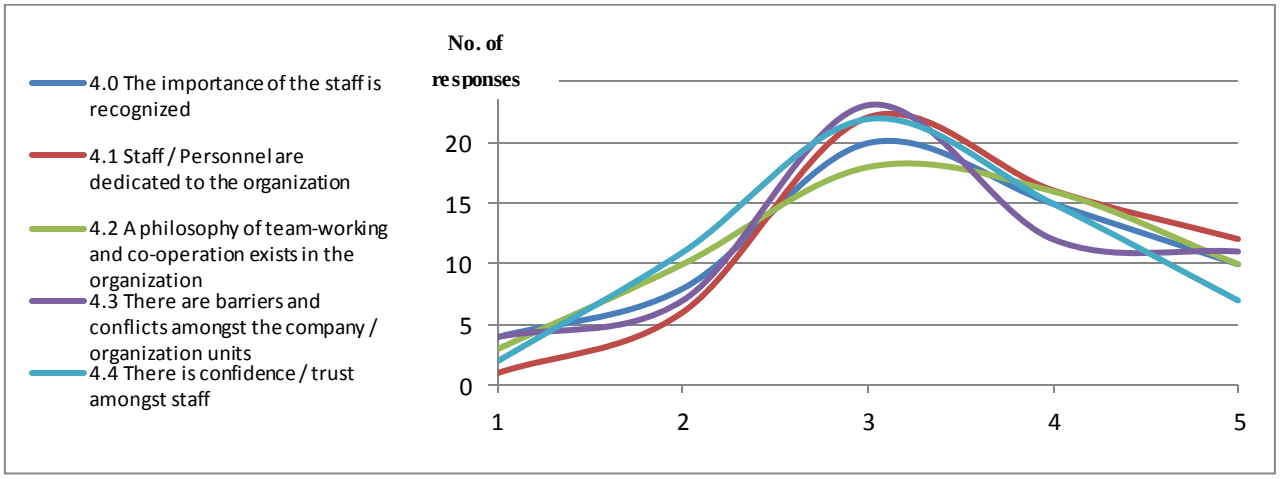


Figure B.19 - Bell curves for questions 4.0 to 4.4.

To conclude on this set of questions, a scatter Figure (B.19) of the questions was produced. It's interesting to see that for all questions there is a definite bell curve associated with the responses. The values on the x-axis of 1 to 5 represent the scale associated with the questions i.e. 1 = 'Not True' and 5 = 'Very True'. It can be seen from the Figure that for all questions the majority of answers centre on the 'somewhat true' category (No. 3).

B.2.4.2 To what extent do you agree with the following statements?

These questions are more sentiment analysis, assessing various satisfaction levels within the survey population. There are 8 questions in this section with the average number of responses being 57.

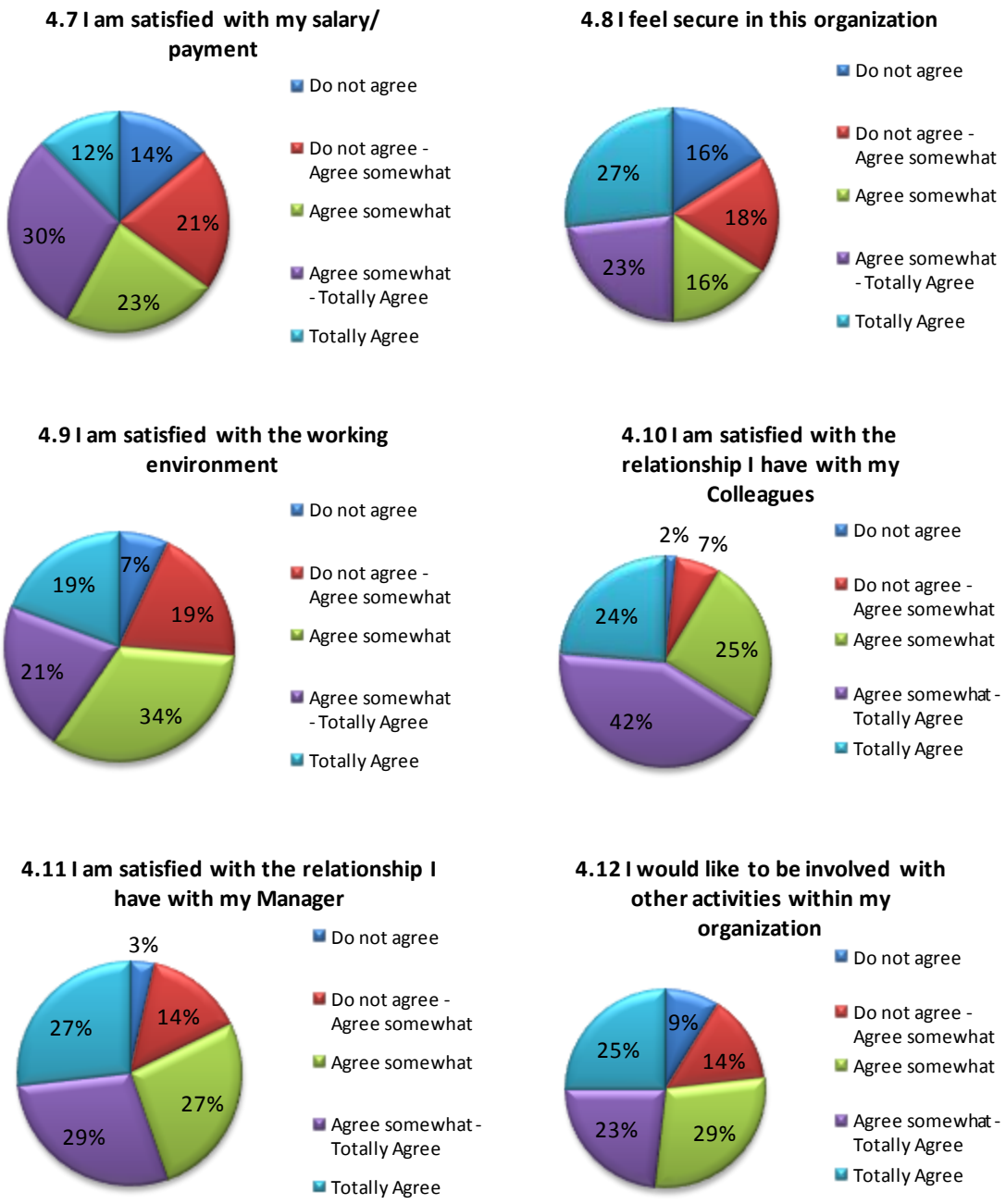


Figure B.20 - Agreement statements.

Question: 4.5 - A key aspect for success in knowledge management according to Schein is ensuring that there is alignment in all the existing cultures within the organisation. This means that the individuals working within the organisation should be demonstrating behaviours that are consistent with the organisations culture, and therefore hopefully consistent with the organisations strategic goals. This question is looking to assess the levels at which the respondent feels their personal aims and ambitions fit well with their current work situation. Where there is alignment between personal and organisational aims, means that the person is likely to be working in a

manner consistent with the organisations culture. Only 28% answered this question negatively, which indicates that perhaps a change is required either by them or the organisation.

34% 'Agree somewhat' that their personal aims and ambitions fit well with their current work situation, with a further 26% and 12% responding as 'agree somewhat - totally agree' and 'totally agree' respectively. This means that 72% are in the neutral to positive side of the spectrum for this question.

Question: 4.6 - Another sentiment assessing question, to account for the fact that an individual may be happy with the organisational culture, but just not quite happy with their current role in the organisation. Again answers for this question favour the neutral to positive side of the scale, with 33% agreeing somewhat, and 28% and 14% responding as 'agree somewhat - totally agree' and 'totally agree' respectively. The residual 25% are on the negative side of the scale.

Question: 4.7 - Remuneration can sometimes be a contentious issue for organisations. It can impact on a person's level of satisfaction with the organisation, and can be effective in ensuring that the desired behaviours are exhibited by employees. In other words remuneration can be used as a motivational to reward the desired behaviours. There was quite a strong response to this question at 'agree somewhat - totally agree' with nearly one third or 30% of the survey population answering at this level. A further 12% 'totally agree' that they are satisfied with their salary and 23% 'agree somewhat'. Responses are at 65% for neutral or more positive on this question.

Question: 4.8 - This question is assessing the survey populations view of their own security within the organisation, or indeed the security of the organisation as a whole. Sentiment around a person's short to medium term future is likely to affect the way in which that person approaches their work. Exactly 50% are on the positive side of the scale with 16% neutral at 'agree somewhat'. This leaves a combined 34% on the negative side of the scale.

Question: 4.9 - Frederick Herzberg in his book, "*The motivation to work*" identified a number of 'hygiene factors' that impacted a person's motivation in the work context.

One of these was the persons work environment, and this is what this question is looking to assess. It could be argued that the work environment can be de-motivational if not comfortable, but provides little any additional motivation to an already motivated person, even if it is the most comfortable environment imaginable. 26% were negative in their responses to this question, while 34% were neutral and a combined 40% were positive in their responses. Therefore a quarter of the survey population could be seen by their organisations as being adversely impacted by the current working environments.

Question: 4.10 - A relationship assessing question, where people are surveyed on their attitudes to their colleagues. Again this could be taken as a measure of how willing individuals are willing to share their knowledge with colleagues. A very positive response set is seen to this question, with only 9% on the negative side of the scale meaning 91% are neutral or positive. Of this 91%, 42% 'agree somewhat - totally agree' with a further 24% in total agreement that they are satisfied with their colleague relations.

Question: 4.11 - Another relationship assessment, but this time we look at the survey populations relationship with their managers. Understandably perhaps, the results here are slightly more negative than seen in the colleague relationship question. Here a combined 17% are on the negative side of the scale, with 27% neutral at 'agree somewhat' and 29% and 27% on the positive side of the scale at 'agree somewhat - totally agree' and 'totally agree' respectively. This gives a combined 83% of population at neutral or more positive on the scale.

Question: 4.12 - This question from a knowledge management perspective is looking to assess the survey population in terms of their openness to partaking in learning or knowledge sharing or generation opportunities across their wider organisations. A positive disposition to looking outside ones normal brief indicates a certain willing to learn new knowledge. 23% are negative on this question, with 29% neutral and 48% on the positive side of the scale with 23% and 25% at 'agree somewhat - totally agree' and 'totally agree' respectively.

As with the last section of questions, a scatter Figure was produced for these answers. Again we can see that there is a bell curve in existence for nearly all of the questions on the Figure below.

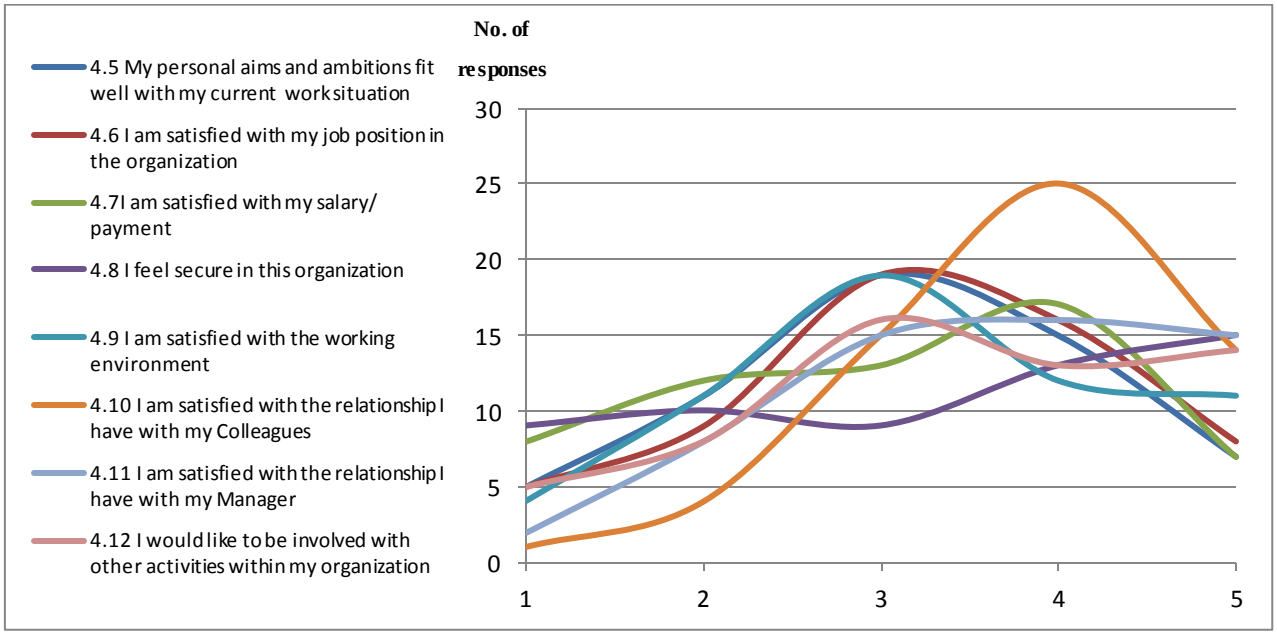


Figure B.21 - Bell curves for questions 4.5 to 4.12.

As with previous scatter Figure the scale on the x-axis of 1 to 5 represents the scale associated with the questions i.e. 1 = 'Do Not Agree' and 5 = 'Totally Agree'. For the majority of the answers the middle of the curve sit on the neutral answer of number 3 or 'agree somewhat' on the question scale. There are a couple of exceptions, in particular question 4.10 where the sentiment associated with colleague relationships sit on the positive side of the scale at number 4. Other exceptions are question 4.7 and 4.8 which don't exhibit a bell curve at all.

B.2.4.3 Do you consider your organisation a flat or hierarchical organisation?

The link between an organisations structure and its culture is drawn by Charles Handy and is discussed in the Organisational Culture chapter. In this research, rather than trying to interpret the organisational structure from the survey population responses, that a direct question about their perception of their organisations structure would provide useful insight. It also provides a means to assess each of the respondents' answers in terms of their perspective on the shape of their organisation.

There were 57 responses to this direct question, and results are summarised on the Pie chart below.

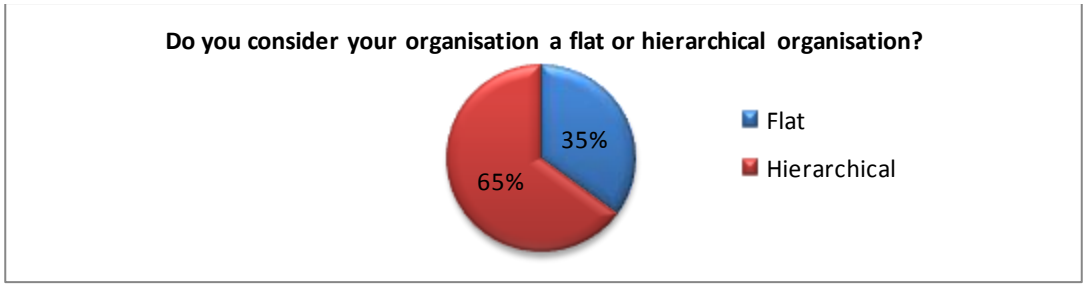


Figure B.22 - Flat v Hierarchy assessment.

As can be seen from the Figure nearly two thirds of respondents believe they work in a hierarchical organisation. While the remaining one third obviously stated they worked in a flat structured organisation, which was defined in the survey as follows: "*A flat organisation is an organisation that has an organizational structure with few or no levels of middle management between staff and executives. A hierarchical organisation would be the opposite*."

B.2.4.4 To what extent the following statements characterize you personally?

In this section of the audit there is another four questions trying to assess the behaviours of the survey population, and thereby assess a prevailing culture in their organisations. For example, an individual operating in a situation where fear can enter their mind could be argued to be operating in a low risk or highly controlled environment. Such controlled environments per 'Nonaka' would not be conducive to knowledge creation, where a constant dynamism and controlled chaos is espoused as an effective means of fostering knowledge creation.

There were 57 respondents to all four questions in this section, and the results of the questions are detailed on the Pie charts below.

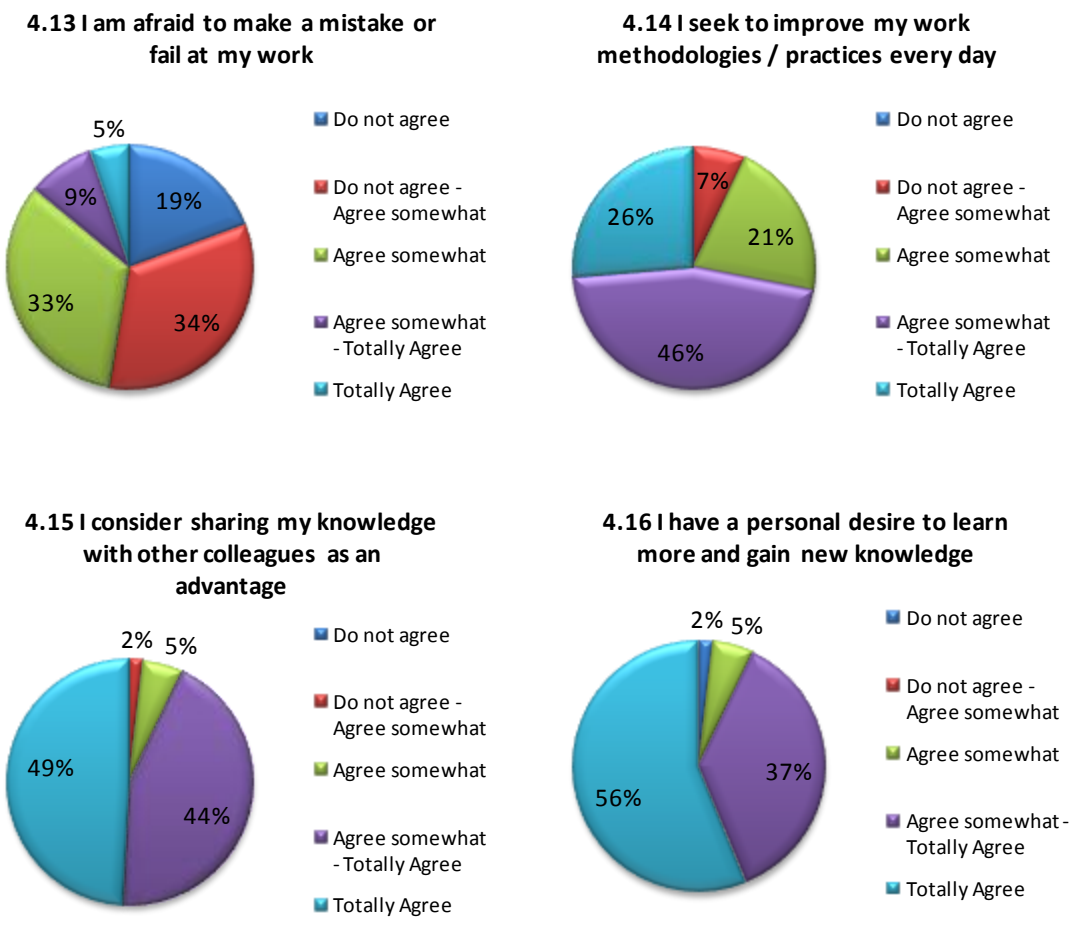


Figure B.23 - Cultural behaviours.

Question: 4.13 - As mentioned above, an environment where fear is experienced is not conducive to knowledge creation. Therefore we are looking for answers on the negative side of the scale, such as 'Do not agree'. Results are good in that regard, with 34% in the 'do not agree to agree somewhat' sector and a further 19% in the 'do not agree' sector. This gives a total of 53% in the favoured negative side of the scale. With 33% in the neutral position of 'agree somewhat', results to this question are reasonably favourable from a knowledge management perspective.

Question: 4.14 - This question and the following two questions are assessing the survey populations disposition to knowledge initiatives. Question 4.14 is looking to see if a person is seeking process improvements on an ongoing basis. This behaviour demonstrates a desire for constant improvement which indicates a desire for constant learning. The desired responses are on the positive side of the scale, and actual responses are in that direction. 46% responded in the 'agree somewhat - totally agree' section, with a further 26% in the 'totally agree' section. With 21% in the 'agree

somewhat' section, this gives a total of 93% in the neutral to positive sections of the scale.

Question: 4.15 - Very strong results to this question from a knowledge management perspective, in assessing whether the respondents see value in knowledge sharing. 44% 'agree somewhat - totally agree' with a further 49% who 'totally agree'. Combine this with the 5% who 'agree somewhat', you have all bar 2% who are very positive on the advantages of sharing their knowledge.

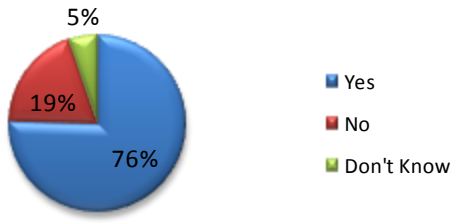
Question: 4.16 - This question also has positive answers from the knowledge management viewpoint. 37% 'agree somewhat - totally agree' with a further 56% who 'totally agree' giving a combined 93% who are positive in their desire to learn more and gain new knowledge.

B.2.4.5 Yes or No questions assessing organisational knowledge culture

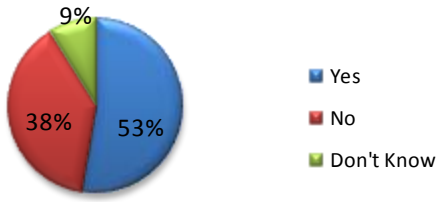
This section of the knowledge audit has a series of 'yes' or 'no' questions, with a default 'don't know' for use where applicable. These questions are seeking to probe organisational behaviour in a knowledge management perspective. Answers are deliberately of a binary type as the audit is seeking to gain hard evidence of the existence within the organisation of knowledge management artefacts.

There are 14 questions in total, with an average response to each question of 56. The only outlier to this average being question 4.24 where only 47 responses were received. As with the majority of all previous questions, responses are presented graphically using Pie charts.

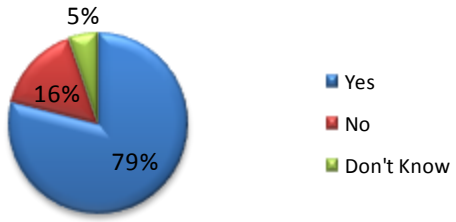
4.17 Does your organisation convene teams of specialists / subject matter experts to complete certain tasks?



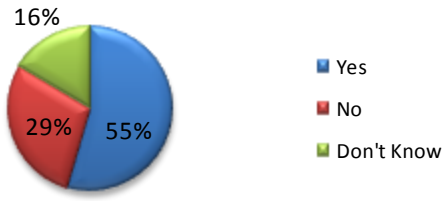
4.18 When a project is closed, does your organisation share any project findings or lessons learnt during the project outside the project group?



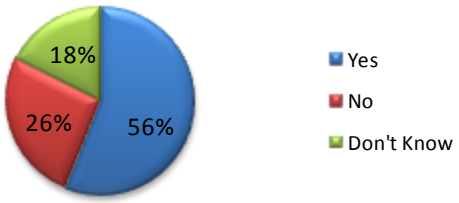
4.19 Does your organisation support training and development needs of employees?



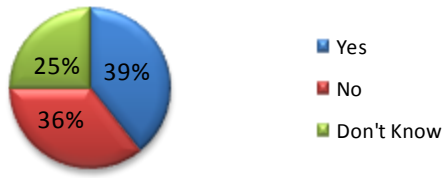
4.20 If Yes – Are employees expected to feedback on training and development courses?



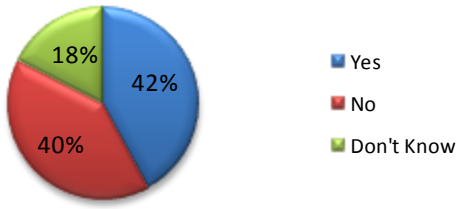
4.21 Does your organisation promote independent research by employees?



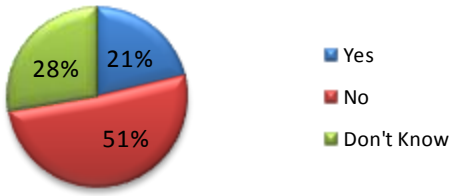
4.22 Does this research have to be job relevant / or relevant to the wider organisations purpose?



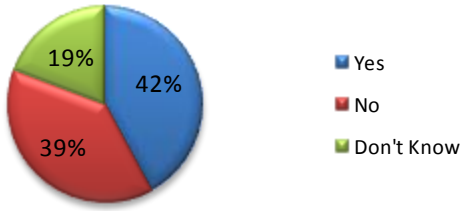
4.23 Does your organisation support work shadowing of employees?



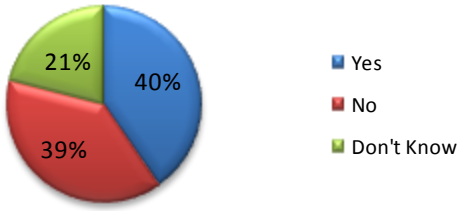
4.24 If Yes – Does work shadowing happen across departments?



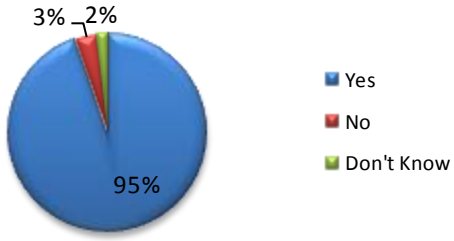
4.25 Does your organisation have a Facebook page?



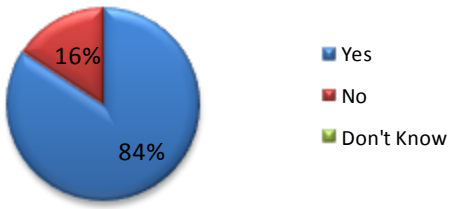
4.26 Does your organisation have a twitter feed?



4.27 Does your organisation have an internet site?



4.28 Does your organisation have an intranet site?



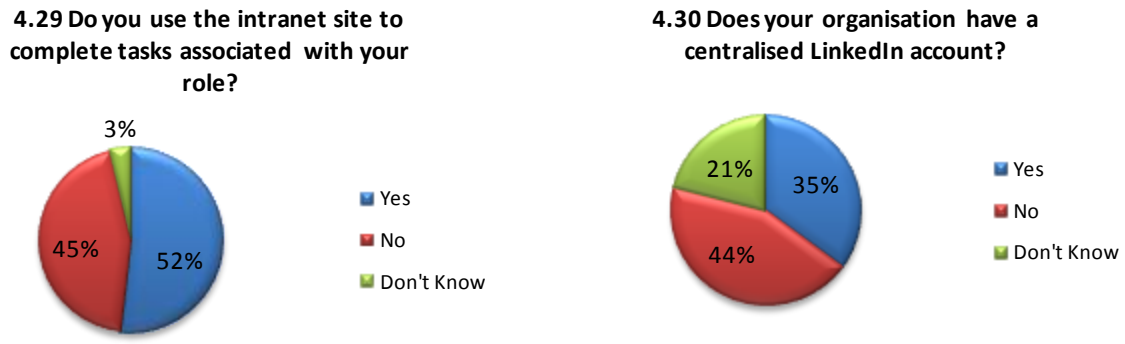


Figure B.24 - Yes/No Knowledge Culture behaviours.

Question: 4.17 - This question is looking to see if people with certain knowledge are focused on a particular problem or task. This type of approach can facilitate knowledge transfer from the subject matter expert to the other individuals in the convened team. A positive amount of the survey population at 76% state their organisations partake in this kind of practice.

Question: 4.18 - This questions assesses the strategic approach to knowledge management in organisation. Quite often when project teams are convened, a certain level of knowledge is created and held within the project team in order to get the project over the line. If there is no sharing of this new knowledge outside of the project team, once the project is finished and the team disbanded, this knowledge can be lost, if not proactively shared with others outside the team. Slightly more that have our responses stated that their organisations shared the new knowledge outside of the team. This indicates that there is significant room for improvement within certain organisations to ensure newly created knowledge is not immediately being lost.

Question: 4.19 - This question focuses on the organisations attitude to creating new knowledge within its employees. Again a positive outcome from the survey population with 79% of their organisations supporting their training and development needs.

Question: 4.20 - Training and development is a great opportunity for the individual to learn new knowledge, and improve their work practices as a result. However a key risk for the organisation is the loss of this new knowledge though staff turnover. Organisations can take a strategic approach by requesting that new individuals sent on

training courses present details of new knowledge learnt to a wider colleague group, in an event to try and share some of the new knowledge garnered. Only slightly more than half of the survey population at 55% answered positively to this question.

Question: 4.21 - 56% answered this question positively, which may indicate that their organisations believe that new knowledge, irrespective of whether the domain is related to the persons role, is worthwhile. This potentially shows a broad approach to new knowledge creation by these organisations, and presumably means they assume that new knowledge may be useful even if as mentioned it does not pertain to the person's role.

Question: 4.22 - A similar question to the last where the idea of non-role related research support is further investigated. With 39% only responding positively to this more specific question, it indicates that the independent research referred to in the last question, will more likely be related to the role of the individual.

Question: 4.23 - Only 42% answered positively here. Work shadowing is seen as good method for knowledge sharing and aids the reduction of key person risk. When the "don't knows" are excluded the results are nearly 50:50.

Question: 4.24 - 51% state that where work shadowing occurs, it does not occur across different functions. Therefore respondents will only shadow within their own function. This narrows the domains to one of the knowledge that will be shared.

Question: 4.25 - This question is looking to assess the means by which the organisation shares knowledge or information. The use of modern social media solutions such as Facebook, provide a broad audience for those organisations wishing to share knowledge or information on a wide scale. Use of a specific tool like Facebook, may very well depend on the sector within which the organisation operates. 42% stated their organisations had a Facebook page.

Question: 4.26 - Similar question to the last, but this time asking about the use of an organisational Twitter account. In what looks like a popularity test of social mediums, only 40% stated their organisations had a Twitter account, ranking it behind Facebook.

Question: 4.27 - Standard issue for most organisations, 95% of respondents stated that their organisations had an internet site.

Question: 4.28 - This question focused on an intranet site for the organisation. I would have been of the opinion that generally if you have invested in an internet site, you most likely have an internal intranet version also. However only 84% said yes to their organisations having an intranet compared to the 95% positive in the last question.

Question: 4.29 – This question queries the relevance of the intranet to the tasks associated with the respondents role. Only 52% answered 'yes' that they use it to aid task completion. This may indicate that relevant knowledge resources are not on the site for other respondents and perhaps the content of the corporate intranet sites needs review.

Question: 4.30 - A direct question about the presence of a corporate LinkedIn account. A LinkedIn can help build a good for internal network and prove a useful tool for locating internal knowledge resources in the organisation. The presence of this type of account could indicate a strong knowledge culture, or desire for same. Only 35% of respondents stated their organisation had a LinkedIn account.

B.2.4.6 Do you agree with the following statements?

The final section in the Organisational Culture section contains four questions looking to derive some information on the current status of knowledge management in organisations. They provide a quick snapshot assessment of items that might hint at this status.

There are 57 responses to three of the four questions, with the second question having 56 responses.

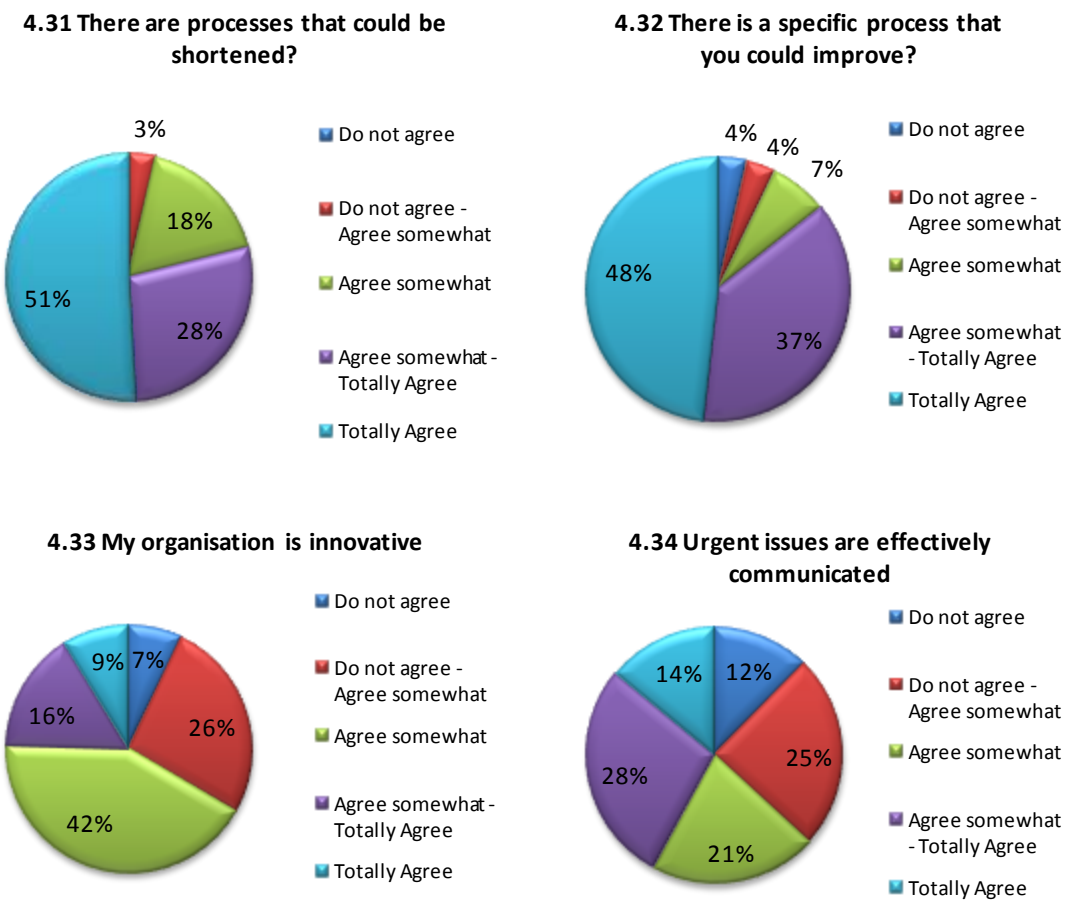


Figure B.25 - Organisational Cultural elements.

Question: 4.31 - A direct question asking whether there are processes that can be shortened. The implication here is that the respondent has identified issues, where they have a solution, but their knowledge is not being applied to the issue. From an organisational perspective this means that the knowledge resource to build efficiency exists but is not being utilised appropriately. A strong positive response to this question, with 51% in total agreement, and a further 28% answering 'agree somewhat - totally agree', indicating that those organisations need to review their utilisation of the existing knowledge base.

Question: 4.32 - An even more focused question than the previous with again very strong positive responses. 48% responded 'total agree' with a further 37% stating 'agree somewhat - totally agree'. This is again highlighting lost efficiency from the organisations perspective, due to lack of appropriate use of their knowledge capital.

Question: 4.33 - This question is assessing the organisation in term of innovation which would indicate their approach to new knowledge creation. Responses here are fairly neutral with 42% stating they 'agree somewhat' with the balance of the scale being tipped in favour of the negative side. A combined 33% on the negative side of the scale versus a combined 25% on the positive side.

Question: 4.34 - A question to assess organisation communication. In particular in addressing how the organisation communicates a serious issue that needs addressing. This is interesting from a knowledge management perspective, because it assess the ability of the organisation to target knowledge resources in a problem scenario. Reponses here are reasonably positive, with 14% in total agreement, and a further 28% answering 'agree somewhat - totally agree'. Combined with a neutral 21% who 'agree somewhat' and the balance is in favour of positive responses to this question.

B.2.5 Knowledge management in the Organisation

This is the fifth and penultimate section of the knowledge audit, and is focusing on the level of knowledge management in the survey population's organisations. There are two principle questions here. The first of these has five areas of focus, and the average number of response to each question in the section is 57. The second section has an average response rate of 56.

The five areas of focus in the first question, concerned with organisational use of knowledge capital, are as follows;

- Communication
- Information flow
- Electronic files
- Change of culture
- People

B.2.5.1 If you were in charge of properly exploiting your organization's knowledge capital, which of the following statements/actions would you pursue and to what extent?

- **Communication**

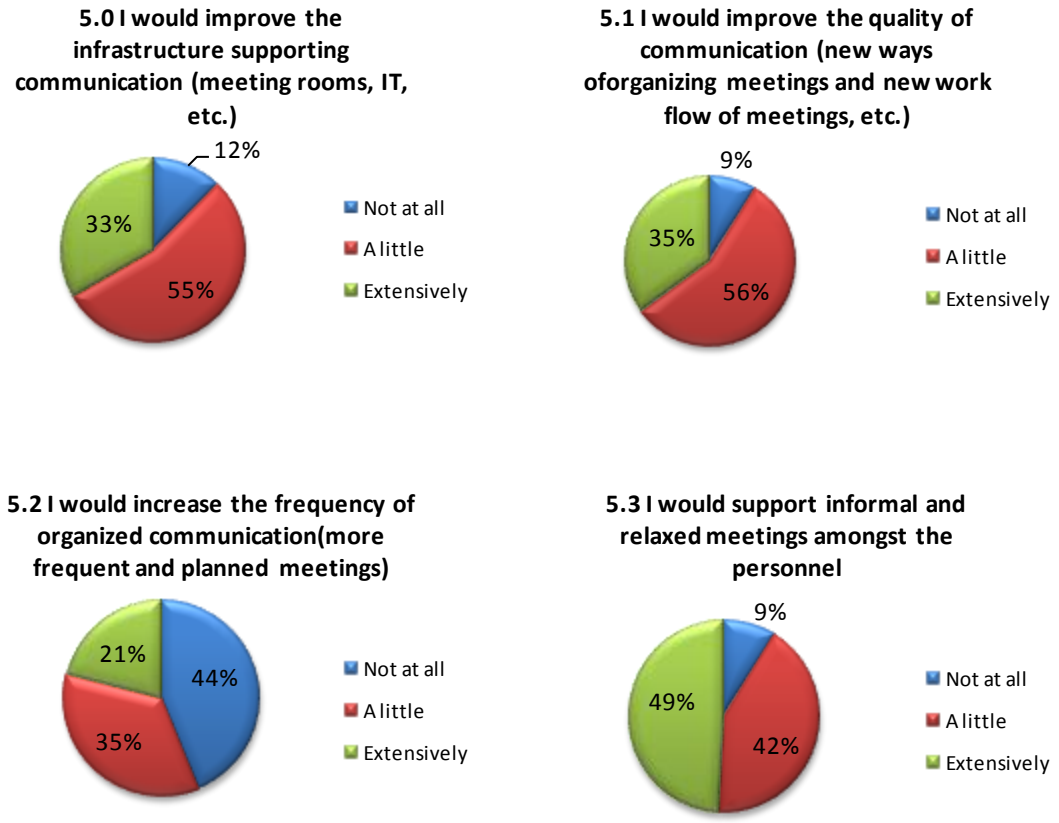


Figure B.26 - Knowledge management - communication.

Question: 5.0 - This question is assessing whether the survey population think their organisations require improvement in their communication infrastructure. Results here are reasonably neutral with 55% agreeing that their organisations require 'a little' improvement. One third of the population (33%) stated extensive improvement was required.

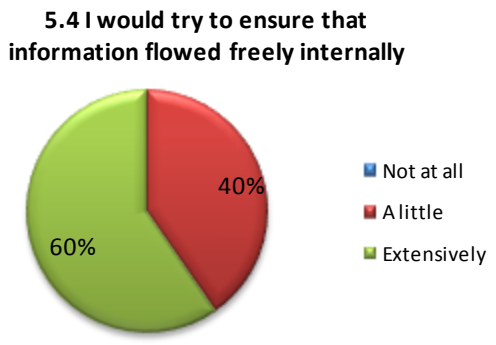
Question: 5.1 - This question is concerned with communication processes rather than the actual infrastructure. Similar results to the last question, with 56% stating 'a little' improvement was required, and 35% stating extensive improvement was required.

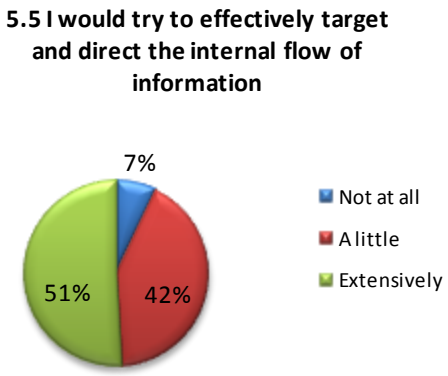
Question: 5.2 - This question is assessing the frequency of communications. People are reasonably happy with the frequency of their communications, with 44% stating they would not increase frequency, and a further 35% stating organised communications should be increased 'a little'. The residual 21% differ, and state that frequency should be increased 'extensively'.

Question: 5.3 - Assessing informal communication types, in particular the support for informal and relaxed meetings. This is known in knowledge management to be a good means of transferring tacit knowledge. A strong positive response to this question, with 49% stating they would 'extensively' support this form of communication, and another 42% stating they would support this 'a little'.

- **Information flow**

This section is about knowledge and information flow, and trying to assess where if any bottlenecks exist in the transmission of this knowledge.





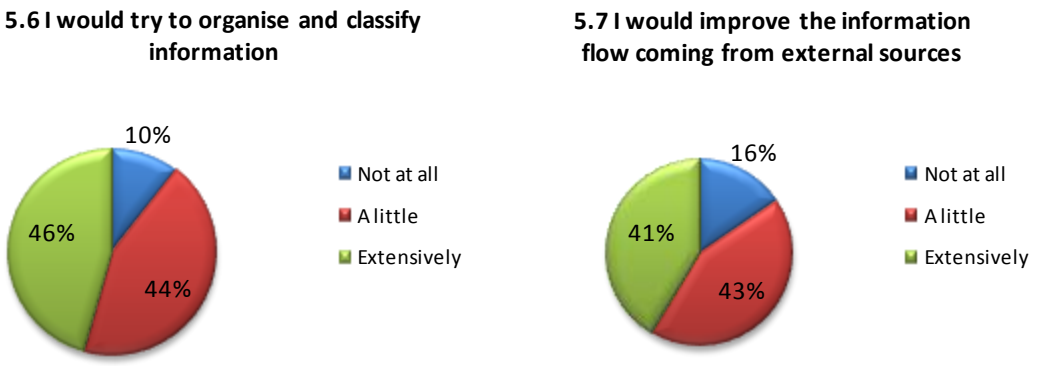


Figure B.27 - Knowledge management - Information flow.

Question: 5.4 - A very positive response to this question with 60% stating they would 'extensively' try to ensure that information flowed freely internally. This could be interpreted as a negative for those respondents' organisations, where perhaps there are impediments to the flow of internal information, which is why they extensively agree with the question.

Question: 5.5 - This question is concerned with ensuring that the right knowledge is available in the areas where it is needed. 51% responded 'extensively' to this question, with a further 42% responded 'a little'. Again as with the last question this could indicate that there is a need for this to happen in those respondents organisations. Such a positive response could be an indicator that perhaps internal knowledge or information is not being targeted or directed to where it needs to be used. This means the organisations existing knowledge base may not be currently used as effectively and efficiently as it possibly could be.

Question: 5.6 - 46% said they would 'extensively' try to organise and classify information. A further 44% said they would do so 'a little'. This combined 90% indicating that they would affect change in the organisation or classification of their organisations' information indicates that there are issues with how it is currently done.

Question: 5.7 - Similar to question 5.4 except concerned with external information or knowledge sources. 41% responded 'extensively' to this question, with a further 43%

responded 'a little', which again indicates that action may be required to improve flow of information from external sources. 16% said they would do nothing at all.

- **Electronic files**

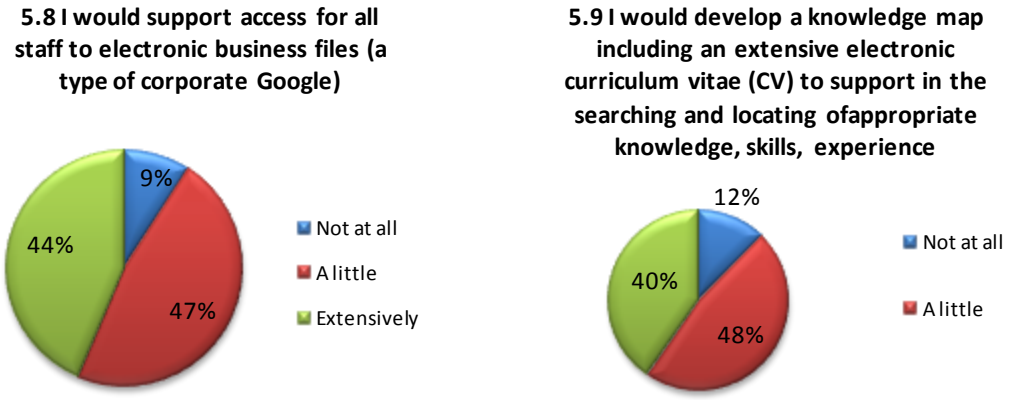


Figure B.28 - Knowledge management - Electronic files.

In the 'knowledge and information sources' section (B.2.3.1) of the audit, we identified that peoples own electronic files and those of their colleagues were the most useful explicit knowledge sources. This section looks at what could be possible done to improve access to those resources, so as to further share the knowledge they contain.

Question: 5.8 - Another strong positive response to this question, with 44% 'extensively' supporting a form of corporate Google to aid access to electronic business files. 47% responded 'a little' giving a combined 91% that would support action in this initiative.

Question: 5.9 - The question can be linked with the question on the existence of a corporate LinkedIn account (Q 4.30) where individuals with particular knowledge can be more easily located within the organisation. Another positive response to this question with 40% they would 'extensively' develop a knowledge map to aid searching of knowledge, skills and experience. A further 48% answered 'a little' to this question also.

- **Change of culture**

This section of the audit asks the survey population whether they would change attitudes of either their colleagues, or indeed senior management in order to maximize their organisations knowledge resources. As we are discussing attitude change we are really concerned with the prevailing culture of the organisation, and whether it needs changing from a knowledge management perspective.

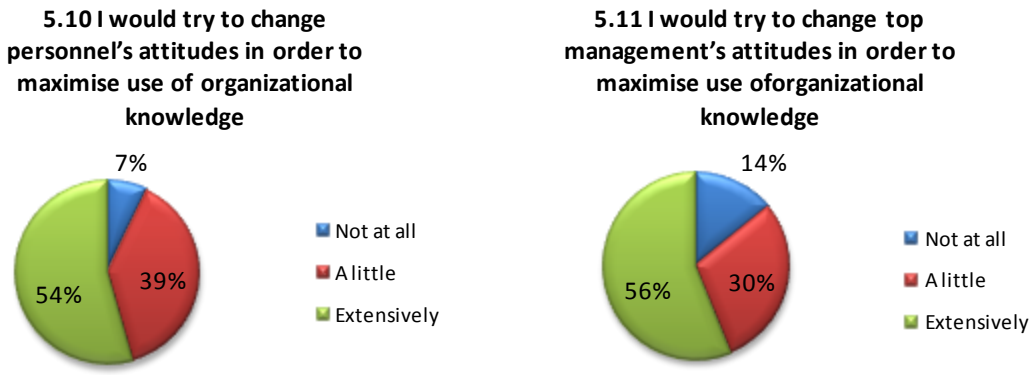


Figure B.29 - Knowledge management - culture change.

Question: 5.10 - This question is concerned with whether the staff of the organisations of our survey population needs to change attitude, to ensure knowledge resources are used to their maximum potential. 54% stated they would 'extensively' change attitudes of colleagues, and a further 39% indicated they would change them 'a little'. These positive responses show to changing attitudes, indicate a potential need within the associated organisations for organisational cultural change from a knowledge management perspective.

Question: 5.11 - Similar question to the last, but this time concerned with the attitude of senior management. A desired change here would be a worry for organisations from a knowledge management perspective, as senior management should be the embodiment of the organisational culture. If there is a change required here, one could query the existence of a knowledge culture. Responses here are strong on the need for change, with 56% stating they would 'extensively' change attitudes of colleagues, and a further 30% indicating they would change them 'a little'.

- **People**

This section looks at the people side of knowledge management in terms of encouraging a knowledge sharing and a learning environment. Recruitment is a key concern for organisations seeking a knowledge based culture. The recruitment process must ensure that people hired are aligned to this knowledge culture. It is also concerned with the existing work force, and ensuring that they are motivated to abide by the values and behaviours associated with the knowledge culture.

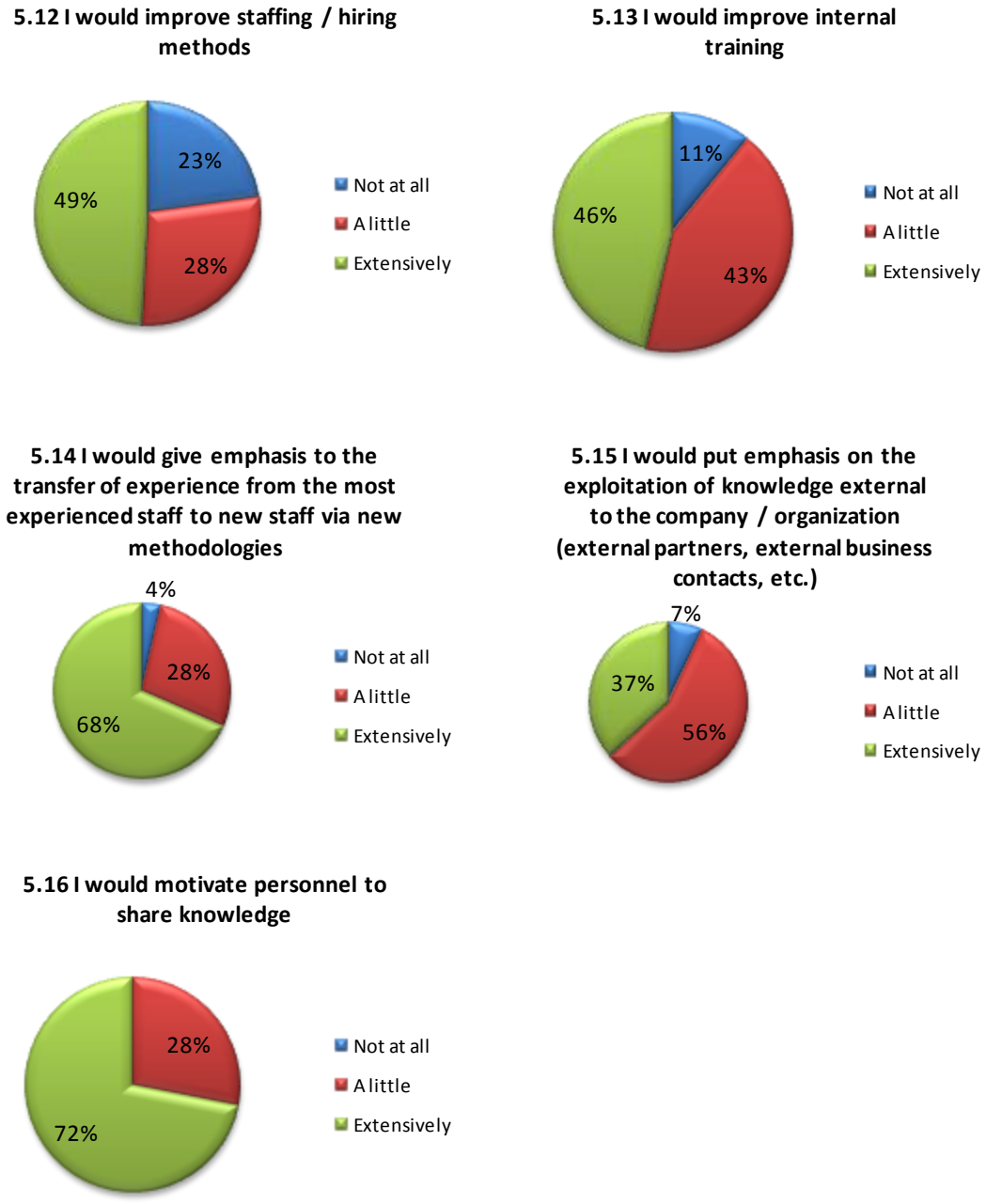


Figure B.30 - Knowledge management - People.

Question: 5.12 - Interestingly nearly half of the survey population at 49% responded that they would 'extensively' improve the recruitment process. A further 28% stated they would do so 'a little'. This give a combined 77% indicating a required change of some level in their organisations recruitment practices.

Question: 5.13 - Similar percentage 46% stated they would improve internal training 'extensively' and a further 43% 'a little', giving a combined 89% wishing to see change. This indicates that new knowledge creation may be lacking in a majority of organisations for whom our survey population work for.

Question: 5.14 - This question can be linked to the last question, where internal training could be viewed as a means of transferring senior level or long serving employee knowledge to others of less experience or seniority. A very strong positive response here, with 68% 'extensively' agreeing with the assertion.

Question: 5.15 - This question assesses the perceived need to exploit further, an organisations external knowledge sources. 56% responded 'a little' to this emphasis being placed on external knowledge with slightly more than a third at 37% stating they would do so 'extensively'.

Question: 5.16 - The final question is concerned with motivating employees to share knowledge. Motivation can take the form of remuneration based on the demonstration of desired behaviours, or non-monetary forms of recognition. A very strong responses at 72% 'extensively' stating they would motivate knowledge sharing. This may indicate that this form of motivation may not be currently happening on a widespread basis in the organisations of the survey population.

B.2.5.2 If there was a Knowledge Management policy in your company/organisation, which of the following possible problems would occur and how often?

This is the second and final sub section in this part of the knowledge audit, regarding knowledge management in the organisation.

This section has one overall question listed in the header above. Under this question there are six items that respondents are asked to be ranked on a scale from 'rarely' through to 'always'. The purpose of the questions in this section is to try and assess any problems, or knowledge bottlenecks that might be occurring in the organisations that the survey population work for.

The average number of responses to these questions is 56, with 55 responses for question 5.20 and 58 responses for 5.17. All other questions had the average number of 56 responses. Again all responses are represented graphically on Pie charts which are shown below.

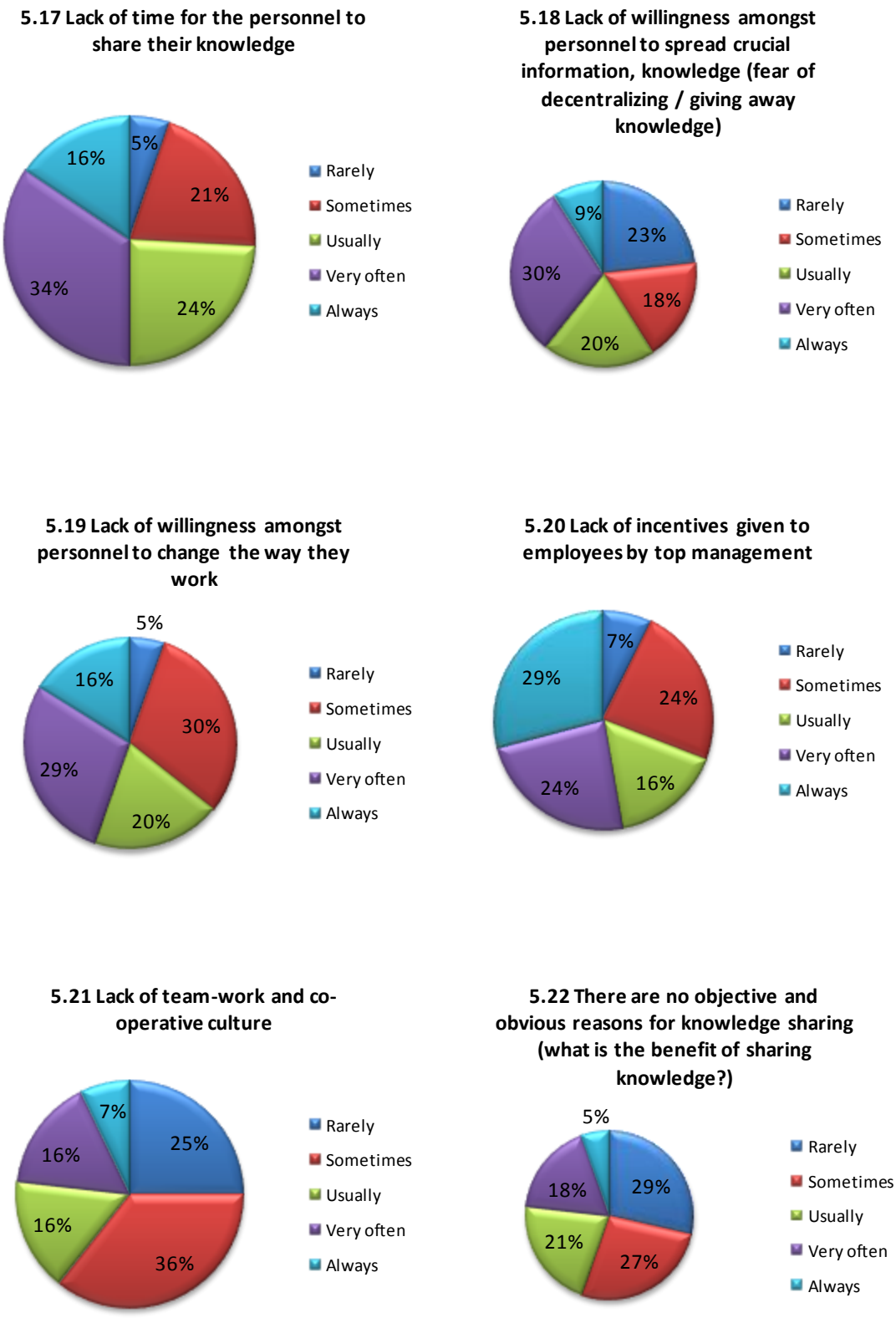


Figure B.31 - Knowledge management in organisations.

Question: 5.17 - Assessing the time constraint knowledge bottleneck, affecting knowledge sharing. Over a third at 34% state this happens 'very often' and another 16% state 'always'. Combine this 50% with the 24% who responded 'sometimes' to time being an issue preventing knowledge sharing, and this is a very significant 74% of the survey population experiencing issues when endeavouring to share their knowledge.

Question: 5.18 - This question is getting to the key of motivation within the personnel to actually share knowledge. Individuals can view their knowledge as a key competitive advantage in the work place, and may be reluctant to cede such an advantage. 30% stated this lack of willingness to share occurred 'very often'. 20% stated it was 'usually' the case and 9% stated it 'always' happened.

Question: 5.19 - Even is knowledge is shared or created, there can be a reluctance to accept it if it leads to change in generally accepted practices. This question assesses reluctance to change, with 16% stating that there is 'always' a lack of willingness amongst personnel to change the way they work. A further 29% state 'very often' and 20% state 'usually' to the same question, giving a combined 65% for those seeing a lack of willingness to change.

Question: 5.20 - This question is assessing the level of incentives given by top management to foster a knowledge environment or culture. The question is worded to measure the lack of incentives, and 29% state this is 'always' the case, and a further 24% state 'very often' there is a lack of incentive. With the 16% at 'usually' the case, this gives a combined 69% in the negative spectrum on the scale when it comes to incentivising of knowledge behaviours.

Question: 5.21 - Team work and project type environments were highlighted by Nonaka, and indeed Wenger in communities of practice, as being central to good knowledge management. This question assesses the team culture in the survey populations' organisations. A combined 39% stated that they 'usually' (16%), 'very often' (16%) or 'always' (7%) experienced a lack in team culture. This means the majority of the population do experience it at some stage, if not all the time.

Question: 5.22 - This question is querying the level of motivation or rationale for a knowledge sharing process. 29% state that there is 'rarely' no objective and obvious reasons for knowledge sharing, and a further 27% state only 'sometimes' this is the case. At a combined 56% this indicated that slightly more than half of the time, there is actually a good reason to engage in knowledge sharing.

B.2.6 Demographic data

The final part of the audit is concerned with capturing some specific information about the respondent. The demographic may provide some insight about the person, and indicate why they have answered various questions in a particular way.

Detail includes the individuals own detail in terms of age, number of year work experience, and others. It also includes some detail about the organisation that the respondent works for. This includes organisation sector information, the department the respondent works and other details.

B.2.6.1 Job position

The suggested options on the audit were 'Staff', 'Middle management', or 'Top management'. In practice respondents had their own individual way of describing their position. The responses were then mapped into the three suggested option based on the description supplied by the respondent. There were a total of 55 responses to this question and the results are detailed in the following Pie chart.

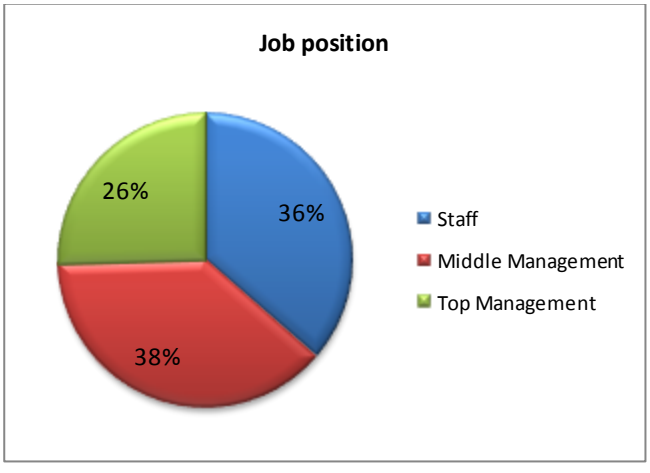


Figure B.32 - Job position**.**

Results are evenly split with a slight majority in the middle management category with 38% of respondents. The next biggest category of respondent is 'staff' with 36% leaving the residual 26% as 'top management'.

B.2.6.2 Industry Sector

As with the first question, responses of a similar or same industry sector came with different descriptions from different respondents. An example would be say banking, and financial services. Where there was an obvious link in sector they were grouped together under one umbrella description. There were 55 responses to this question and results are detailed on the following chart:

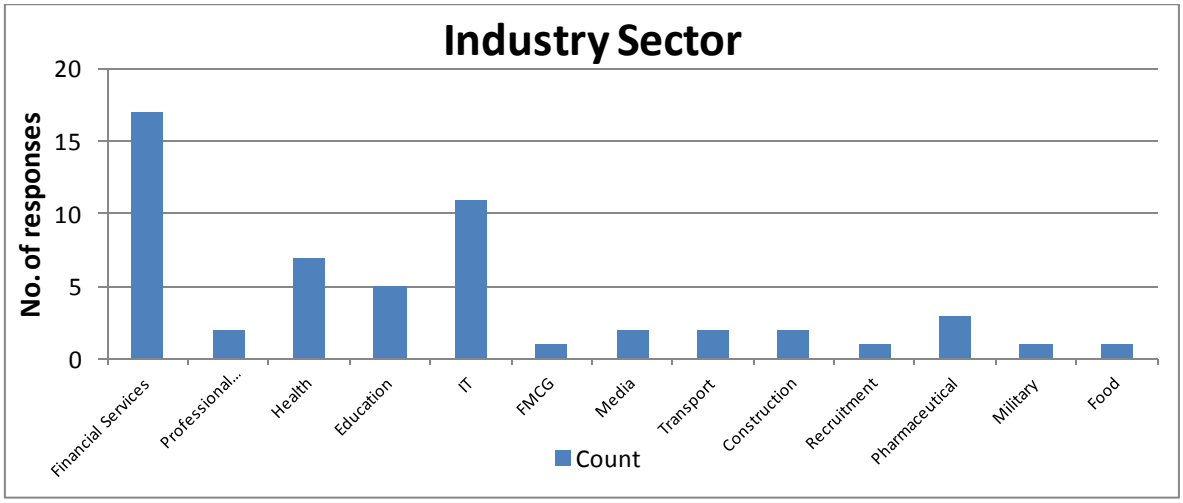


Figure B.33 - Industry sector responses.

Because of the professional background of the primary investigator of this research, it can be seen that there is heavy weightings in favour of the 'financial services' and 'IT' sectors. They are the two sectors with the most responses, and together account for 51% of the survey population.

B.2.6.3 Department or Function

As with the previous two questions, mapping of different descriptions for similar function types to one general function description was developed to consolidate the responses. There were 55 responses to this question also, and results are as follows:

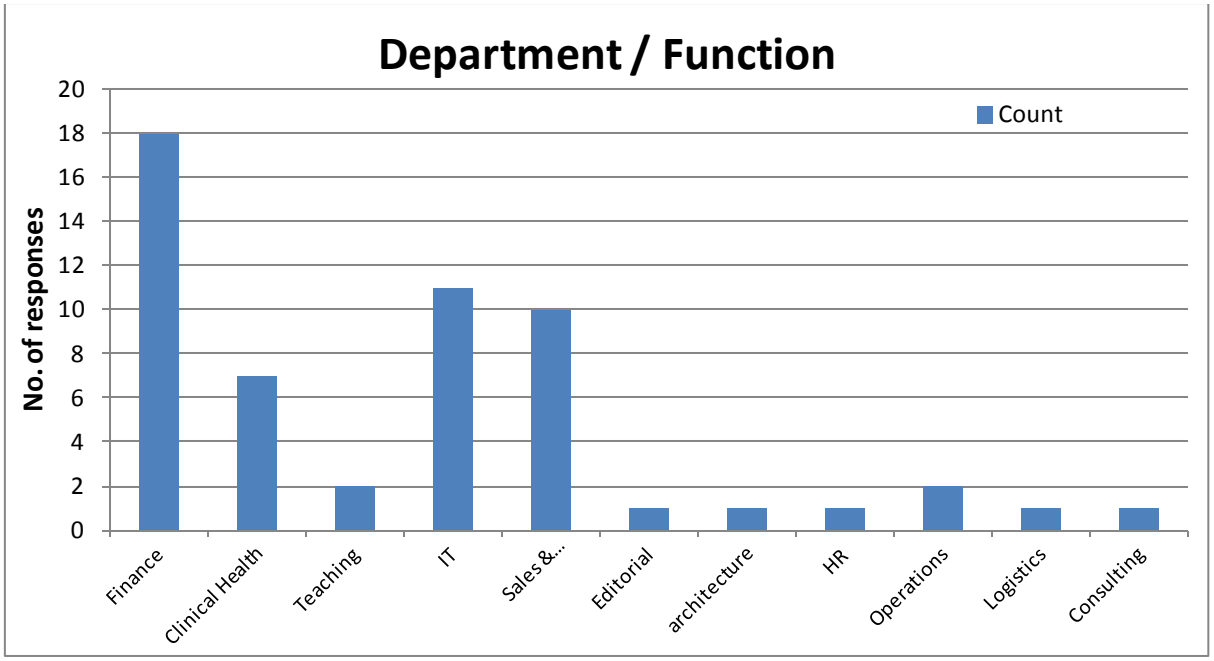


Figure B.34 - Department / Function responses.

Again my own professional network is coming to the fore, with Finance and IT functions being the most amongst the survey population. This time a combined 53% of all responses were in these two functions.

B.2.6.4 Age

This question was a straightforward question with 55 responses. Responses were categorised into discrete 5 year buckets, starting at 20-24 years and working their way up to 60+. Results are then displayed on the following Figure using these categories.

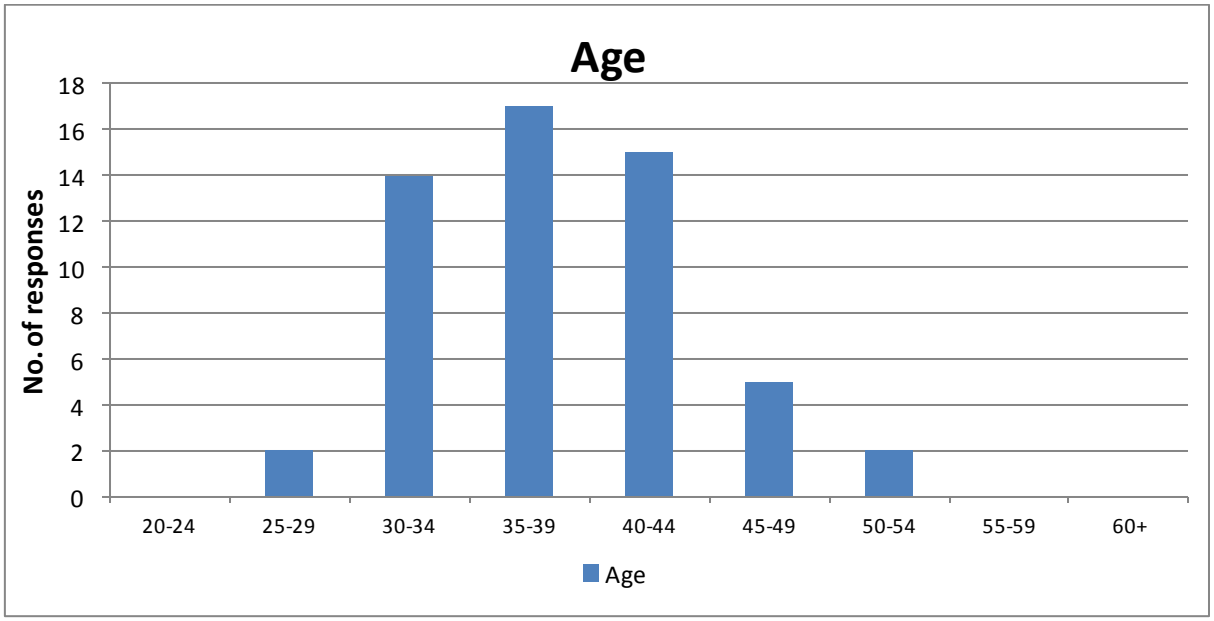


Figure B.35 - Age responses.

The figures for the number of respondents in these three discrete ranges are 25% (30-34), 31% (35-39), and 27% (40-44) giving a combined 83% of the survey population in these three ranges.

B.2.6.5 Public versus private sector

There is always interesting debate around the organisational culture associated with the public sector versus the private sector. The public sector is often seen as very hierarchical and resistant to change, with highly regimented work practices. The opposite is generally thought of the private sector where it assumed it is more dynamic so as to react to various changes in market conditions or competitive forces.

Due to the nature of the debate, it was important to research which sector the organisations of the survey population sat in. 54 responses to this question, with nearly two-thirds working in the private sector as can be evidenced on the Figure below.

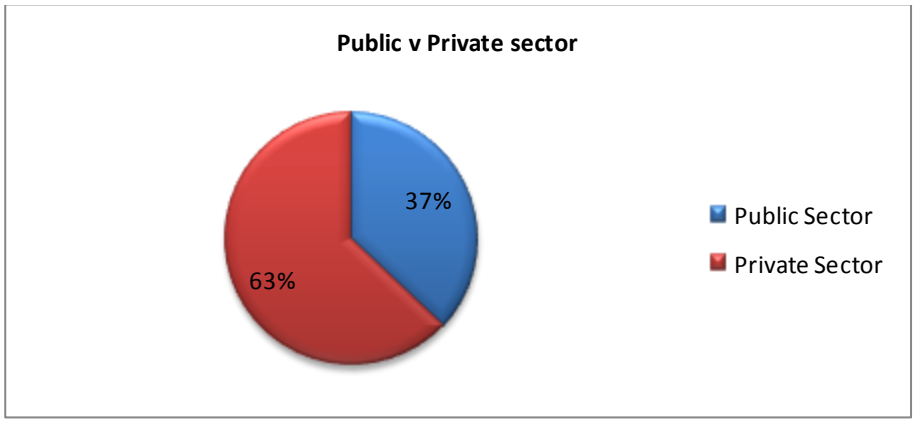


Figure B.36 - Public versus Private response split.

B.2.6.6 Gender

55 responses to this question with the split between male and female in the survey population as follows:

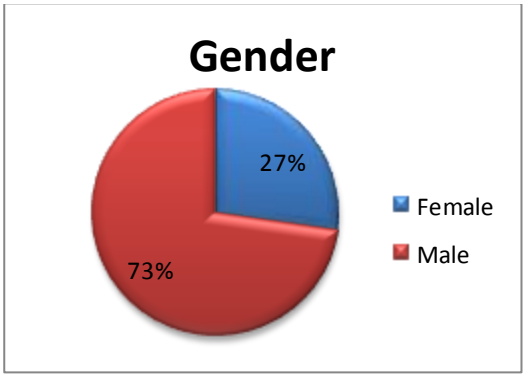


Figure B.37 - Gender response split.

B.2.6.7 Number of years working for the current enterprise or organisation

This question used discrete ranges to bucket responses into presentable results. There were 55 responses to this question with results as follows:

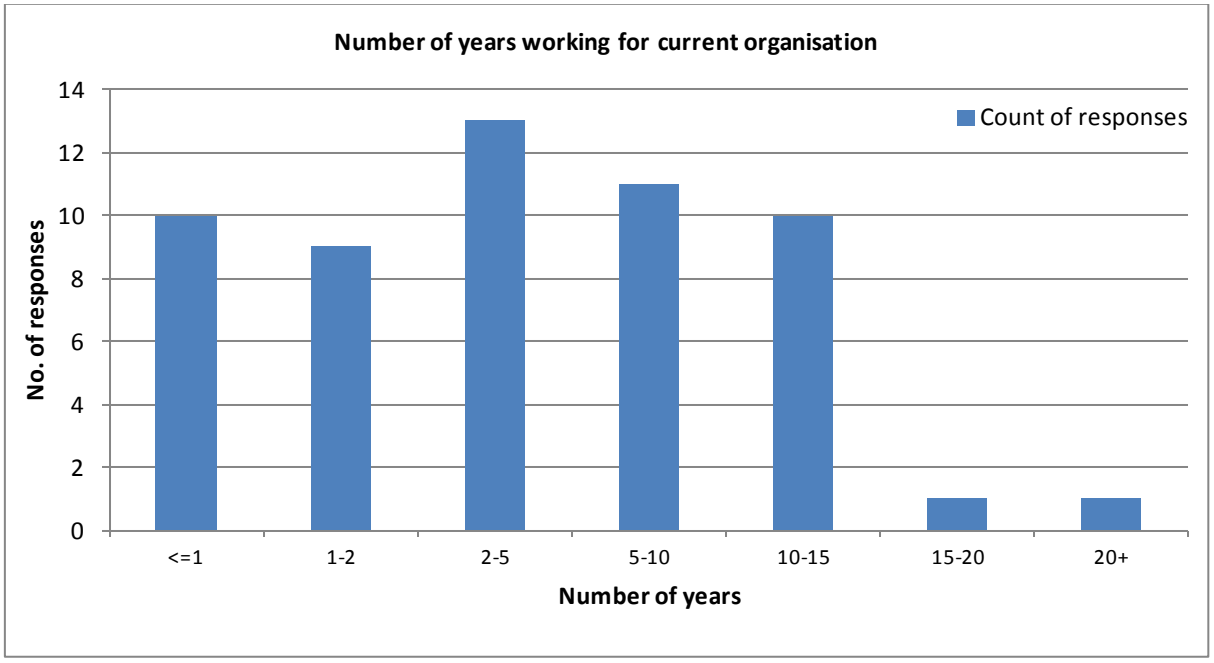


Figure B.38 - Current organisation service.

There were 55 responses, with an average length of service with current organisation of 6 years. The maximum length of service was 22 years, and shortest was 6 months.

B.2.6.8 Total no. of years of working experience

A similar question to the last, except we look at the person's entire working career, instead of just their current employment. Again 55 responses here with results as follows:

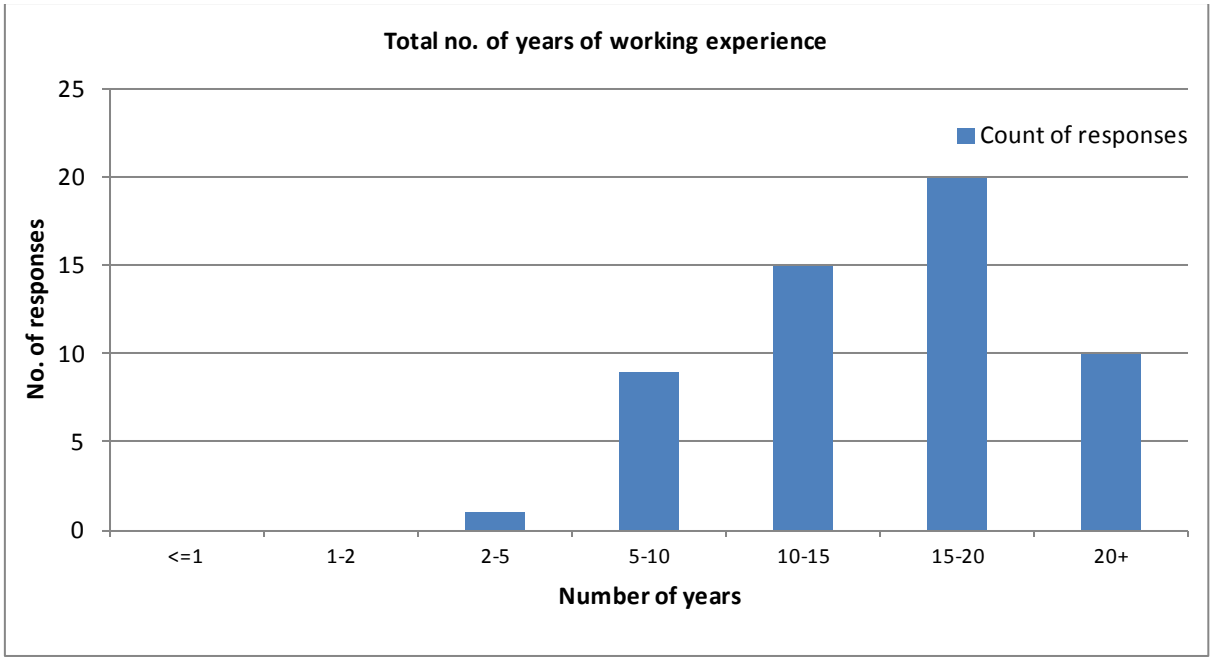


Figure B.39 - Total career service.

Average length of career is 16 years with a maximum of 30 years, and a minimum of 4 years.

B.3 Conclusions

This chapter details all the responses to the knowledge audit dispersed via surveygizimo.com. Results are presented graphically with a commentary on each questions results also included.

Chapter 9 evaluates these responses in line with the papers research question. Response levels for the survey are very favourable when compared to similar research, and will provide meaningful data to analyse

APPENDIX C - INDEPENDENT REVIEW OF FINDINGS

The following template was sent to two people independent of the research for agreement or otherwise of the research findings. They were also afforded the opportunity to comment on any of the findings if they wished. Feedback received is discussed in chapter 9 conclusion.

EXPLORING THE IMPACT OF ORGANISATIONAL CULTURE ON KNOWLEDGE MANAGEMENT

The research was carried out with the aims of assessing the impacts of organisational culture and structure on the effectiveness of knowledge management initiatives within the organisation.

Knowledge Management means organisations undertake to manage their knowledge resources in a strategic manner to ensure maximum competitive advantage. Knowledge can be *explicit* e.g. in a written form or saved in file, or knowledge can be *tacit* e.g., that it exists in the minds of employees.

Based on the different types of knowledge one can see that knowledge management entails more than just technology. The organisation must ensure that the right structures and culture are in place to support these knowledge processes.

The responses from a survey were evaluated through three distinct lenses. Each lens was concerned with a certain aspect of the research question.

Lens one involves an assessment of organisational structure and its impact on knowledge management in the organisation. Key findings of the evaluation are detailed in the following table.

Flat Vs. Hierarchical organisation structure - Key Findings	Agree Y / N	Comments
• Flat structured organisations exhibit a greater desire to increase control and structure than their hierarchical equivalents.		
• Hierarchical organisations exhibit a greater desire to increase quality of communications than their flat structured equivalents.		
• Information flows more freely in a flat structured organisation compared to its hierarchical equivalent.		
• Information is targeted better in a flat structured organisation compared to its hierarchical equivalent.		
• Team work is more prevalent in hierarchical structured organisation that a flat structured equivalent.		
• Irrespective of organisation structure, organisational culture can still be problematic for effective knowledge management activities (knowledge creation, knowledge sharing, knowledge usage).		
• Flat structured organisations are more conducive to knowledge management activities (knowledge creation, knowledge sharing, knowledge usage) than the hierarchical equivalent.		

Lens two involves an assessment of organisational culture. In particular the potential differences in work practices and cultures between public and private sector organisations. Key findings of the evaluation are detailed in the following table.

Private sector Vs. Public sector - Key Findings	Agree Y / N	Comments
• The private sector has a stronger desire to improve its communication infrastructure.		
• Public sector has greater requirement to improvement the quality of communication than the private sector.		
• Public sector would be greatly against an increase in organised communications when compared to private sector equivalent.		
• Both sectors believe informal communications between colleagues, is a good initiative to promote.		
• The requirement to increase flow and better target knowledge resources is a bigger issue in the public sector than the private sector.		
• There is a stronger desire within the public sector to better organise knowledge resources than in the private sector.		
• Both sectors have strong desire to change colleagues attitudes to enable a more knowledge friendly culture.		
• There is a strong desire for change to top management attitudes, to enable a more knowledge friendly culture, in the public sector that is not mirrored in the private sector.		
• The public sector requires extensive change in hiring policy, internal training, knowledge sharing, knowledge resource use, and motivation of staff to share knowledge.		
• Potential impediments to knowledge initiatives such as a lack of willingness to share knowledge or learn, are more prevalent in the public sector.		
• Impediments in the public sector are linked to the perceived lack of incentives for staff to adopt these behaviours.		

Lens three involves an assessment of organisations with a knowledge based culture versus those that don't exhibit a knowledge based culture. Key findings of the evaluation are detailed in the following table.

Knowledge culture Vs. Non knowledge culture organisations - Key Findings	Agree Y / N	Comments
• Organisations demonstrating a knowledge culture are more responsive to knowledge management initiatives than organisations without a knowledge based culture.		
• Knowledge inhibitors or bottlenecks exist in all organisations irrespective of whether they demonstrate a knowledge culture or not.		

The key findings identified in each of the lenses can be further summarised as follows:

Overall summary findings	Agree Y / N	Comments
• The structure of the organisation is not necessarily a key determinant in whether an organisation is successful in knowledge management initiatives. Flat structured organisations are more conducive to certain knowledge processes, but this does not mean a hierarchical organisation will not be successful in its knowledge management endeavours.		
• There is a cultural difference between public sector organisations and private sector equivalents, that indicates a less knowledge friendly culture exists in public sector organisations. This can stem from a very structured environment with little or no incentives to promote knowledge process activities.		
• An organisation demonstrating a knowledge culture is, perhaps understandably, more open to knowledge processes than an organisation lacking a knowledge culture. However knowledge bottlenecks occur in all organisations irrespective of whether they possess a knowledge culture or not.		