Integrated Business Research Report

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Factors that impede the transfer of tacit knowledge within and between projects

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

November 2006

Abstract

The purpose of the report is to look at some of the factors that impede the transfer of tacit knowledge within and between projects.

The research involved the collection of quantitative data through non-probability purposive sampling. The data based on survey questionnaires obtained from the largest retail financial institution in South Africa, namely Absa Bank; was analysed using various descriptive statistical techniques.

The report provides evidence that the lack of recognition of the value of tacit knowledge transfer; the lack of recognised, deliberate processes; the lack of a designated role, responsible for facilitating the transfer of tacit knowledge and the lack of rewards are core factors, the absence of which makes tacit knowledge transfer less likely to be successful within and between projects. The findings also show that trust and a collaborative culture are support factors. Further research would benefit from a broader number of factors and a broader base of companies and industries explored.

The research offers the recommendation of placing emphasis and effort on core factors rather than support factors. This understanding could inform decision making and increase the success rate of the transfer of tacit knowledge within and between projects. The research provides a graphical representation of the factors that impede the transfer of tacit knowledge within and between projects. Future research recommendations are made that can benefit this research.

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master in Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

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November 2006

Acknowledgements

To Almighty God, the glory and the honour!

The success of this study is in large measure due to:

- Dr Peter Tobin, supervisor of this study, for his utmost honesty, patience, frankness and mostly the valuable input and suggestions made.
- My father, Ismail Roshan and mother Zuleikha Roshan, for their love and prayer.
- My wife, Nancy, for her patience and for many hours of dedication with our children, to not let them feel the absence of their father.
- Taki Tumazos and Anne Daffey for their unwavering support, motivation and thoughts.
- The participants without whom this study would not be possible.
- The Gibs information centre for their tremendous support.

Table of Contents

List of Figures

List of Tables

1. Introduction to the research problem

1.1. Introduction

The importance of managing knowledge for competitive advantage has received much attention in recent years. Drucker (1995) argues that in the new economy, knowledge is not just another resource alongside the traditional factors of production – labor, capital, and land – but the only meaningful resource. Drucker's view is echoed and supported by many leading researchers, who conclude that the inherent dynamism of today's competitive environment has led to the acceptance of the pre-eminence of knowledge as a key strategic resource that permits firms to achieve sustainable competitive advantage (Dixon, 2000; Nonaka and Takeuchi, 1995; Szulanski, 1996).

However, only recently has focus been directed towards managing knowledge in project environments. Yet, research points to project environments and project organisations as the breeding ground of learning, containing fertile knowledge and experiences for the blossoming of future innovation. Project based organisations ought to benefit from the inherently innovative nature of project tasks. Since projects characteristically involve the development of new products and new processes, there are obvious opportunities for novel ideas to emerge and for cross functional learning to occur, thereby enhancing the organisations innovative capacity and potential (Kasvi, Vartiainen and Hailikari, 2003; Senge, 1990).

Thus although projects environments offer the context and are suitable for learning and the transfer of knowledge, this very often does not occur. Disterer (2002) emphasises that most companies are investing heavily in project work yet nothing in evaluating and learning from it. Firms learn most from projects but cannot pass on their experiences.

This leads to the question as to why this is so. Nonaka and Takeuchi (1995) argue that a more important kind of knowledge, tacit knowledge is often overlooked, but is the critical component and if harnessed and transferred is an important source of companies' competitiveness. Published results indicate a strong focus on managing explicit knowledge within projects (Bresnan, Edelman, Newell, Scarbrough and Swan, 2003 and Schindler and Eppler, 2003); whilst the dissemination of tacit knowledge seems to be at a strong disadvantage in project environments (Pretorius and Steyn, 2005). Thus it appears that in project work context, the significance of tacit knowledge has not yet been sufficiently understood and therefore not fully leveraged (Foos, Schum and Rothenberg, 2006).

Hence this research aims at an understanding of the factors that impede the transfer of tacit knowledge within and between projects and forms the key research question.

1.2. Evidence of the problem

The literature reveals that in the last six years there has been interest in the understanding of knowledge transfer within project environments. Spiegler (2003) notes that exploration into the specific knowledge that is being retained and transferred reveals that the focus is on explicit knowledge (formal models, rules and procedures) and not on tacit knowledge (experiences, insights and lessons learnt). Schindler and Eppler (2003) confirm from their research that there is a lack of retention of project experiences.

Koskinen, Pihlanto and Vanharanta (2003) strongly support that a great deal of the know-how required for projects is tied to knowledge that is not written in documents but realised through the expertise and understanding of project personnel. This knowledge is not taken into consideration, as a whole. The surfacing and extracting of mishaps, mistakes, successes and potential pitfalls are not systematically observed and recorded. Failure to transfer this knowledge leads to impaired project performance. In a recent survey Foos *et al* (2006) indicate that whilst project managers may feel that they have tacit knowledge transfer in hand, they have not managed to transfer the knowledge needed. This is an indication that project tacit knowledge is elusive and motivates an understanding of the factors that impede tacit knowledge transfer within and between projects.

Evidence of the problem is also noted from a South African study. The findings of the study by Pretorius and Steyn (2005) conducted in a specific project environment confirm that the focus of knowledge management is on the capturing and dissemination of information using Information Technology systems. The accumulated experience of project members should be shared but is not. Further evidence is provided by English (2005), again conducted within a specific project environment and confirms that implicit knowledge transfer is very limited. This begs the question – what are the factors that impede the transfer of tacit knowledge within and between projects?

1.3. Motivation for the research

Companies such as Siemens, British Petroleum (BP) and Chevron highlight incredible cost and time benefits from transferring knowledge within and between projects (Davenport and Probst, 2002; Dixon, 2000; Milton, 2005).

A few concrete examples highlight the drive for this research. Dixon (2000) draws attention to Chevron and BP. Chevron reduced its cost on capital projects by $ 816 million. Henry Gonzales, a project manager from Chevron highlights that there were two other projects similar to his. The other projects made several of the same mistakes Henry's project made, only three months earlier. If he learned from the projects mistakes it would have saved him up to $80 000 and three months (Dixon, 2000). Another example is that of British Petroleum's Venezuela project that cut their cost by almost half from $70 million to $40 million by tapping into the tacit knowledge learnt from the project

executed in Columbia (Milton, 2005). These examples highlight that there are companies that have successfully tapped into their tacit reserves and are clearly reaping the benefits. What then impedes the transfer of tacit knowledge within and between projects for other companies?

The motivation of the research is based on the researcher's first hand experience and observations within two South African financial institutions project management environments. In both environments the experience has been that each project is approached and managed without tapping into the past experiences of project team members. Valuable insights, lessons learned, mistakes, successes are not shared and very often projects re-invent the wheel and waste resources. It is also observed that project team members do not willingly offer their experiences, heuristics[1] and insight unless certain factors are in place. This research aims at exploring those factors. The importance of understanding these factors will assist in understanding on which factors emphasis should be placed.

1.4. Research objective

The research problem highlights that many companies still prefer to focus on transferring explicit knowledge within and between projects, rather than tapping into the valuable tacit knowledge. Evidence from the literature supports the

[1] 'Heuristics' refers to the rules of thumb, guidelines working models, and educated guesses which people use to solve problems.

difficulty companies have in successfully transferring tacit knowledge within and between projects.

The research objective is thus to understand the factors that impede the transfer of tacit knowledge within and between projects.

1.5. Relevance of the study in South Africa

Very limited research exists in the South African context that explores the factors that impede the transfer of tacit knowledge within and between projects. This research study aims at contributing towards filling that gap.

Further, research indicates that knowledge intensive industries (example financial institutions) are still battling with the transfer of tacit knowledge within and between projects. The focus is still on transferring explicit knowledge. If South African companies are to attempt competing in the global arena, tapping into this valuable, important and most meaningful resource must occur.

1.6. Structure of the report

Chapter 2 of the report provides a review of the relevant literature and debates around three main sections that inform the research.

Chapter 3 provides the research propositions for this research with a focus on six specific factors explored in this research.

Chapter 4 presents the research approach, research design and a defence of the research method.

Chapter 5 present s the research results, whilst chapter 6 presents the analysis of the results.

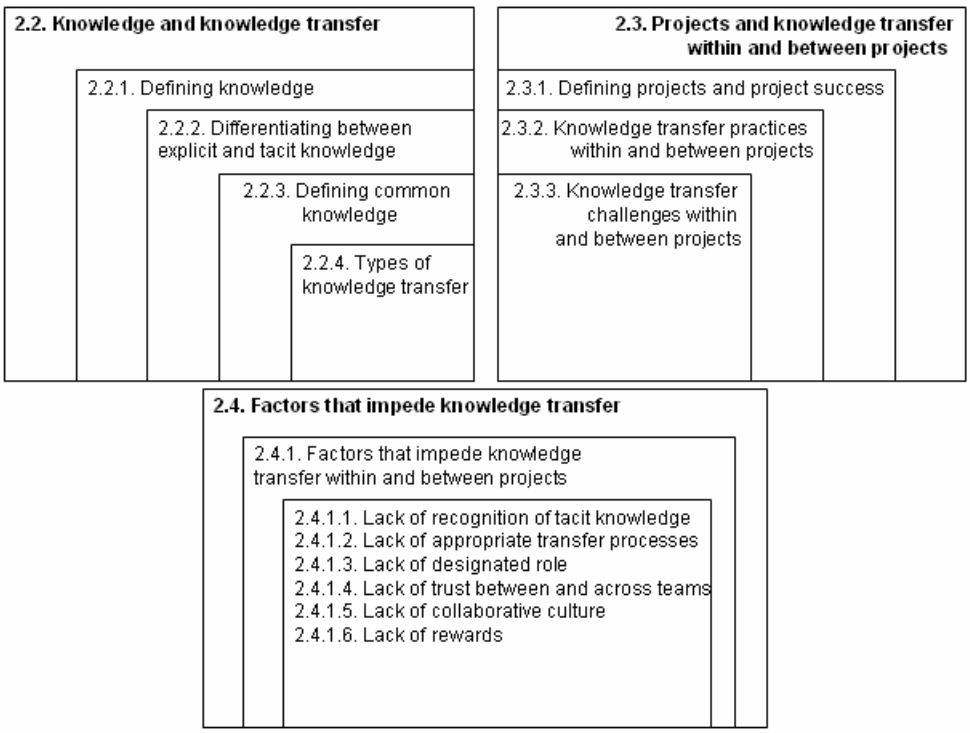
Chapter 7 presents the conclusions drawn from the research with a focus on the main findings and recommendations for Absa, the institution within which the research was conducted. Finally there are recommendations for future research.

2. Theory and literature review

2.1. Introduction

A graphical representation of the mental model used to structure the literature review is highlighted below. The purpose of the representation is to emphasise and clarify the approach used in reviewing the literature. The review presents an argument within the current, relevant academic literature for the support of the research. The aim of the literature review is to shed light on the research topic. Thus the literature cascades from a broad level presentation of the debates on knowledge to ultimately a focus on the factors that impede the transfer of knowledge within and between projects.

Figure 1: Graphical representation of structure of literature review



The literature is divided into three main sections. The first section reviews the epistemology of knowledge from as early on as Plato's rationalistic view, cited by Nonaka and Takeuchi (1995), to the attempt to synthesise the scientific and humanistic views by Drucker (1995). A definition of knowledge is presented based on the philosophical positioning of knowledge, with knowledge then being related to and differentiated from data and information. The clear differentiation as used in this research between explicit and tacit knowledge is then expressed, with a build up of the concepts to the definition of common knowledge, within which individual and organisational knowledge transfer is explored. Building on the transfer of common knowledge, constructs such as serial and far knowledge transfer are explored to clarify the type of transfer represented in this research.

The second section deals with projects and an exploration of the definition of project success. This is important as the literature points to a disconnect between the measurements of success for projects and the goals of knowledge transfer. The literature is further reviewed to highlight the knowledge transfer practices within and between projects and the challenges that further add to the difficulty to transfer tacit knowledge within and between projects.

Finally in the last section, from a build up of the previous section, the literature is reviewed to highlight factors that impede knowledge transfer. More specifically the literature is reviewed to determine the factors that impede the transfer of tacit knowledge within and between projects.

2.2. Knowledge and knowledge transfer

2.2.1. Defining knowledge

Nonaka and Takeuchi (1995) present a comprehensive and detailed account of the philosophical debates from Plato's rationalistic perspective which posits that the physical world is a mere shadow of the perfect world of ideas; to Aristotle's empiricist view that stressed the importance of observation, experience and the clear verification of individual sensory perception. This debate has continued for centuries leading to the continuous attempt to synthesise the scientific (an attempt to formalise workers experiences and skills into objective scientific knowledge) and humanistic (human factors play a significant role in raising productivity through the continuous improvement of practical knowledge held by the workers) views of knowledge. As noted above, discussing and debating knowledge *per se* is not new, it has been an issue in philosophy for centuries (Dougherty, 1999). Thus creating an accurate definition of knowledge has challenged many researchers (Bhatt, 2000). The attempt to synthesise the two views has added to the challenge.

As a result of this attempt there has been a tremendous interest in knowledge from theories of organisational learning (Argyris and Schon, 1978); resource based approaches to strategic management (Prahalad and Hamel, 1990); to a confluence of conjectures about knowledge society (Drucker, 1995). The importance of the above different philosophical debates for this research is to note the support for the blended, amalgamated Japanese view that both the

application of the mind and the interaction with the world to gain experience is important facets when defining knowledge. The purpose of this report was not to resolve debates but to position this adopted view of knowledge, from a philosophical perspective.

From the above positioning the definition of knowledge is taken from Davenport and Prusak (1998, p. 5), as “a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information”. In a sense, knowledge is “meaning” made by the mind (Marakas, 1999, p. 264). Knowledge is fundamentally about people (Dougherty, 1999). Milton (2005, p. 1) clarifies that “knowledge is something only humans can possess”. It is a personal possession and originates and is applied in the knower’s mind.

Modern research, literature and debate focus on knowledge as being the resource that would enable differentiation and competitive advantage. In the process of identifying this knowledge authors clarify that knowledge is different from data and information. Misch (2003) cites Huseman and Goodman (1999) who note that data constitutes objective facts, whilst information constitutes data endowed with relevance and purpose. Knowledge on the other hand constitutes information laden with experience, truth, judgment and values. Thus there is the suggestion of a hierarchical progression from data to knowledge. Bhatt (2000) indicates that data are raw facts and when being organised they become information. He further clarifies that knowledge is meaningful

information. Bhatt (2001) contradicts the notion of hierarchical progression. He also debates that only from a user's perspective can one distinguish between data, information and knowledge. He indicates that there is a recursive relation between data, information and knowledge rather than a simple hierarchical progression from data to knowledge. Other authors choose to differentiate knowledge from understanding, wisdom and foresight (Major and Cordey-Hayes, 2000; Rumizen, 2002). In this research the emphasis is that knowledge has something that data and information lack and those extra ingredients are the experience, intuition and heuristics. Further depending on the context and situation there is recursive relation between data, information and knowledge. In the next section knowledge is further broken down into tacit and explicit dimensions.

2.2.2. Differentiating between explicit and tacit knowledge

Polanyi (1967) defined tacit knowledge as the knowledge that cannot be verbalised, is intuitive and unarticulated. It is knowledge that resides in the intuitive realm. Polanyi (1967, p. 4) captures this notion with the phrase "we know more than we can tell". The distinction between tacit and explicit knowledge is the key for understanding organisational knowledge (Nonaka and Takeuchi, 1995). They describe that tacit knowledge is personal, context-specific and therefore hard to formalise and communicate. Explicit or codified knowledge on the other hand, refers to knowledge that is transmittable in formal, systematic language. Bhatt's (2001) definition supports the above and

differentiates between the two types of knowledge by referring to background (tacit and sticky) and foreground (easy to capture and codify) knowledge. Kreiner (2002) also supporting the definition by Nonaka and Takeuchi (1995) explains that tacit knowledge is therefore the antithesis of explicit knowledge, in that it is not easily codified and transferred by more conventional mechanisms such as documents, blue-prints and procedures.

The challenge though in understanding and defining tacit knowledge is thrown open when Mooradian (2005) concludes that the concept of tacit knowledge as it appears in the literature is vague and ambiguous. He suggests that many authors do not always adhere to the robust definition described by Polanyi (1967) and Nonaka and Takeuchi (1995); where tacit knowledge is different in kind from explicit knowledge but includes and consists in a much weaker distinction that amounts to contrasting what is in “people’s heads” with what is made explicit through public pronouncement or documentation (Mooradian, 2005, p. 2).

Many discussions and articles slide between the two meanings and deliberately allow room for both. Cavusgil, Tamer, Calantone and Zhao (2003) note, that it is impossible to find absolute tacit or absolute explicit knowledge. The distinction between explicit and tacit knowledge should not be viewed as a dichotomy but as a spectrum with two knowledge types as the poles at either end. Thus knowledge types can be viewed as a continuum that ranges from explicit to tacit. The higher the degree of tacitness, the harder it is to be transferred

(Snider and Nissen, 2003). Mooradian (2005) further analyses that there are a few concepts that flesh out the tacit/explicit distinction. They are specifiability, reversibility and logical gaps. An act of knowing is specifiable when the steps or processes that lead up to it can be identified. It is reversible when these steps or processes can be formulated as instructions that one could follow to repeat the process. The idea of the logical gap is a break in such a reversibility specification that prevents getting to the solution of a problem by following the steps. Mooradian (2005) posits that it is tacit knowledge that plays the role of filling the gap.

In this research there is recognition that it has also been widely acknowledged and agreed that the main challenge of companies transfer practices are to protect and maximise the value derived from tacit knowledge (Riege, 2005). Thus in the original usage, tacit knowledge means knowledge held instinctively, in the unconscious mind and in the muscle memory, which cannot be transferred in words alone. In the literature the definitions have become blurred from the original definitions with tacit knowledge referring to implicit, mental models and experiences that cannot easily be codified (transformed into documents) but can be made explicit through transfer (Spiegler, 2003). In this research the focus is on tacit knowledge which is synonymous with experiences, heuristics and insights. Now that tacit knowledge has been differentiated from explicit knowledge and defined, the concept of common knowledge found in the literature will be clarified.

2.2.3. Defining common knowledge

In order to define common knowledge which derived from an extension of Nonaka and Takeuchi's (1995) work on explicit and tacit knowledge, other forms of knowledge found in the literature are reviewed, such as individual and organisational knowledge. Bhatt (2002) notes, that many previous researchers such as Simon (1976) and Weick (1978) believe that organisations did not have learning capabilities. Goh (2002) re-emphasises that that view has changed and the concept of a learning organisation is well articulated in the literature by Senge (1990) and Garvin (1993). Beeby and Booth (2000) built on this and emphasise that an organisation consists of multiple layers of knowledge. Sun and Scott (2005) support this and highlight that knowledge can be held by individuals, teams, or the organisation.

Individual knowledge is knowledge that resides in an individual's mind (Yahya and Goh 2002). Individual knowledge is necessary to developing the organisational knowledge base; however organisational knowledge is not the sum of individual knowledge. Organisational knowledge is knowledge that is formed through interactions between technologies, techniques and people (Bhatt, 2001). Bhatt (2002) argues that individual knowledge and organisational knowledge are distinct yet interdependent. Relating this back to the previous section, organisational knowledge can be classified into explicit and tacit knowledge.

In this research the focus will be on organisational knowledge specifically the knowledge that employees learn from doing the organisations tasks. Dixon (2000) called this knowledge common knowledge to differentiate it from book knowledge or from lists of databases of customer information. She further clarifies through examples of common knowledge such as, how to reduce capital costs on projects and how to introduce new drugs into the market. Milton (2005, p. 3) supports the definition of common knowledge and describes it as a collective ownership of knowledge by networks of people. It is knowledge that "everybody knows". Milton (2005, p. 3) further emphasises that these examples start with "how to" because common knowledge is "know how" rather than "know what" of school learning. This very specifity is what gives the knowledge gained from experience its potential to provide an organisation with a competitive edge.

In the next section knowledge transfer is explored with the transfer of common knowledge expanded through the constructs created by Dixon (2000) namely serial and far transfer.

2.2.4. Types of knowledge transfer

Knowledge transfer in an organisation can be defined as the process by which an organisational unit is affected by the experience of another (Argote and Ingram, 2000). Major and Cordey-Hayes (2002) contrast this with individual knowledge transfer and see a transfer of knowledge as a conveyance of

knowledge from one place, person, ownership to another. It involves two or more parties and there has to be a source and a destination. Thus knowledge transfer in an organisation occurs at various levels, between individuals, from individuals to teams, between teams and from teams to the organisation (Karlsen and Gottschalk, 2004). The focus within this research is on knowledge transfer within and between teams.

The literature is reviewed to determine the different perspectives on knowledge transfer. The aim is to emphasise the types of team tacit knowledge transfer. Below the work of Nonaka and Takeuchi (1995), Spender (1996) and Dixon (2000) is analysed.

Organisational knowledge is knowledge transferred by individuals and is highlighted by four different modes of knowledge conversion (Nonaka and Takeuchi, 1995). From Nonaka and Takeuchi's SECI model, the socialisation mode begins with sharing skills and experiences through observations and imitations, creating tacit knowledge from tacit knowledge. The externalisation mode uses analogies, metaphors, models and concepts through books and manuals thereby converting tacit knowledge into explicit knowledge. The combination mode transfers existing explicit knowledge by analysing and re-organising information. Internalisation refers to a hands on approach using actual experience and is the transfer of explicit to tacit knowledge.

Spender (1996) built on the work of Nonaka and Takeuchi (1995) and added the dimension of individual and social knowledge to tacit and explicit

knowledge. Spender (1996) called the first type of knowledge individual explicit knowledge (conscious knowledge) which is storable and retrievable from personal records and memory. The second type is individual tacit knowledge (automatic knowledge) which is based on people's theoretical and practical knowledge. The third is an organisations social explicit knowledge (objectified knowledge) which is primarily based on stored information in databases. The fourth type is social tacit knowledge (collective knowledge) which represents knowledge embedded in social practices and culture. In this research focus will be given to the transfer of collective knowledge.

Dixon (2000) identified five different ways of transferring common knowledge effectively and categorised them as serial transfer, near transfer, far transfer, strategic transfer and expert transfer. This built on the objectified and collective concepts by Spender (1996). In this research the focus will be on serial transfer and far transfer. Serial transfer takes place when a team repeats the same action in a different setting, for example, in the next project phase or in another project. The repeated work and knowledge gained from each action occur in a serial approach. This process transfers the unique knowledge contributed from each project team member so that this knowledge can be integrated and understood by the whole team. Far transfer takes place when team performs the same task as another team by applying knowledge from that team. This knowledge is transferred through social activity as tacit knowledge.

The above section highlights that the focus of this research is on the transfer of tacit knowledge within and between teams. More specifically the teams of interest are project teams. Thus projects and the transfer of knowledge within and between projects are explored in the next section.

2.3. Projects and knowledge transfer within and between projects

2.3.1. Defining projects and project success

Ayas (1996) notes that in response to increasing environmental pressures and uncertainty, many companies have adopted project management as their answer to maintaining competitive advantage. This view is supported by some authors who indicate that more and more companies are choosing project work as flexible and reliable structures for the development and production of their goods and services (Christensen and Bang, 2003; Leseure and Brookes, 2004; and Schindler and Eppler, 2003).

Nicholas (2001) describes a project as a temporary activity, performed by a multi-disciplinary team, working towards a single definable goal. Karlsen and Gottschalk (2004) note a more succinct definition in defining a project as, a complex effort to achieve a single specific objective within a schedule and a budget target. A project typically cuts across organisation lines, is unique and is usually not repetitive.

The above definitions lead us to exploring the measurement of success in projects. Baccarini (1999) found that a review of the project management literature provided no consistent interpretation of the term project success. Tukel and Rom (2001) note the following definition of project success:

Project success is stated in terms of meeting three objectives (1) completed on time; (2) completed within budget; (3) completed at the desired level of quality. Tukel and Rom (2001) note that the quality of a project was commonly defined as meeting technical specifications.

The observation from the literature is that the traditional definitions of success involve cost, time and quality. The project has to be completed within the schedule and the financial budget and technical requirements have to be fulfilled (Karlsen and Gottschalk, 2004). Thus project managers work to fulfill the scope requirements of their projects and focus on execution, timing and budgetary compliance (Foos *et al*, 2006).

The above highlights that traditional project management is the process of planning, organising, directing and controlling company resources for a short term objective established for a specific goal. Steyn, Basson, Carruthers, du Plessis, Prozesky-Kuschke, Kruger, Van Eck and Visser (2004) deepen the argument that the focus of project processes are project time management, project cost management, project quality management and project risk management. Foos *et al* (2006) note, that project knowledge management is traditionally not a part of the process.

Thus there is a little motivation for project managers or the project team to focus their attention on knowledge transfer and its benefits. They have been given the task of executing a deliverable with a well defined schedule and budget and this is the centre of attention (Foos *et al*, 2006).

The next section provides further evidence of the practices within and between projects and emphasises the focus on explicit knowledge transfer.

2.3.2 Knowledge transfer practices within and between projects

Project documentation (project folders, project plans, schedules, cost summaries, progress reports) address the needs of various people such as project members, project management, project steering committees and supervisors (Disterer, 2002). However as Schindler and Eppler (2003) argue the relevant project documentation – such as feasibility and technical reports that has to be produced to meet minimal standards is often superficial; merely capturing standardised business figures or the description of project results. They are not meant to transfer knowledge within and between project teams.

Disterer (2002), Kasvi *et al* (2003) and Schindler and Eppler (2003) continue to argue that the focus is not on transferring tacit knowledge i.e. not on learning from experiences, failures, mistakes, valuable new insights, yet project environments provide an ideal platform for learning and the transfer of this tacit

knowledge to other projects. The knowledge transfer process and practices are not aimed for future projects and future project members i.e. the aim is not to feed experiences and lessons learnt to next generation and new product /service development initiatives to prevent re-inventing of the wheel. Koskinen *et al* (2003) emphasise that the significance of tacit knowledge has not yet been sufficiently understood.

Recent research though continues to point to a strong emphasis and focus on the capturing and transfer of explicit knowledge via a codification (focus on codifying knowledge, storing it in a database where it can be accessed and used by anyone in the company) rather than a personalisation (focus on the transfer through direct person – to – person contacts) strategy (Carrillo, Robinson, Al-Ghassani and Anumba, 2004; Pretorius and Steyn, 2005). The PMBOK guide (Project Management Institute, 2004) emphasises the distribution and retrieval of information. Information systems used to support project collaboration and re-use of experiences are still mostly restricted to document sharing (Kasvi *et al*, 2003). Kasvi *et al* (2003) cautions that if a Project Memory System [2] captures only documents, the contexts and processes are lost. It is meta-knowledge that is lost.

Foos *et al* (2006) add a new dimension to the debate by observing that project managers and project teams are not interested in the long term ramifications of tacit knowledge transfer. They have been given the task of executing

[2] Project Memory describes project ‘s history that can be brought to bear on the present and Project Memory System describes the means by which the Project Memory is realised

deliverables within a well-defined budget and cost structure. Further this short term view does not include ensuring the transfer of knowledge for future benefit, especially that of tacit knowledge. They call this the knowledge disconnect between senior management and project management.

Thus clearly, the focus of knowledge transfer within and between projects is on explicit knowledge, through lodging and storing of requirements documents, technical specifications, business cases, project plans and schedules; rather than the focus on the transfer of experiences, mistakes, mishaps and successes. This valuable tacit knowledge is not transferred and Foos *et al* (2006) argue that is counter what project managers and teams are contracted to do. However these are not the only challenges that contribute to the lack of focus of tacit knowledge transfer within and between projects. The next section sheds light on further contributing factors.

2.3.3. Knowledge transfer challenges within and between project environment

Further challenges are noted within and between projects in the literature. These challenges fuel the bias towards explicit knowledge transfer. Disterer (2002) notes that the demand by other projects, forces resources to exit projects as soon as tasks are completed. Primarily though, projects differ from one another. They have unique deliverables and tasks (Bresnan *et al*, 2003). Projects also have a finite nature (Bresnan *et al*, 2003; Purvis and McCray

2003). The discontinuities in personnel, materials and information created make it difficult to develop steady routines that maximise knowledge flow; there is not enough time to develop trust between members (Koskinen *et al*, 2003). To add to the challenge project members are from different functional areas and come from a variety of disciplines which implies a wide knowledge base and differing languages related to specific disciplines (Kasvi *et al*, 2003; Carrillo *et al*, 2004).

Pretorius and Steyn (2005) add to the debate by noting that project team members change and situations change. Milton (2005) further highlights that due to the lack of process, knowledge transfer is not built into the tasks and therefore there is a lack of time and budget.

A further challenge is the lack of responsibility and process to transfer experiences, mishaps, lessons learnt, insights within the project team, and across the project team (Foos *et al*, 2006, Kasvi *et al*, 2003; Pretorius and Steyn, 2005). Further as Foos *et al* (2006) stress, there is a disconnect between short term goals to deliver projects within time and budget and the long term goal to retain project experiences, intricate knowledge of how issues and risks were resolved and heuristics which form precious input for project teams in following phases or for future project teams. Leseure and Brookes (2004) conclude that the key challenge for projects is the managing of tacit knowledge

transfer and more specifically the intangible kernel knowledge[3] rather than ephemeral knowledge[4].

The challenges highlighted above are not comprehensive but stresses the many challenges that the project manager and project teams can face. It can therefore be seen that whilst many companies recognise the importance and value of projects, not many companies are successfully extracting the valuable experiences that are learnt during the projects. The centre of attention is still explicit knowledge and the valuable tacit knowledge is not tapped and transferred within and between projects. The above sections draw attention to the traditional focus and practices with regards to knowledge transfer within and between projects. Further, the added challenges due to the nature of projects make it even more difficult for tacit knowledge transfer to occur within and between projects. The next section reviews the factors that impede the transfer of tacit knowledge, more specifically within and between projects.

2.4. Factors that impede knowledge transfer

Many recent research studies have focused on identifying the factors that impede knowledge transfer. There are also various approaches and nomenclatures used by some of the researches like Szulanski (1996), Goh (2002), Sun and Scott (2005) and Riege (2005). Some focus on individual barriers, others on organisational barriers and technological barriers.

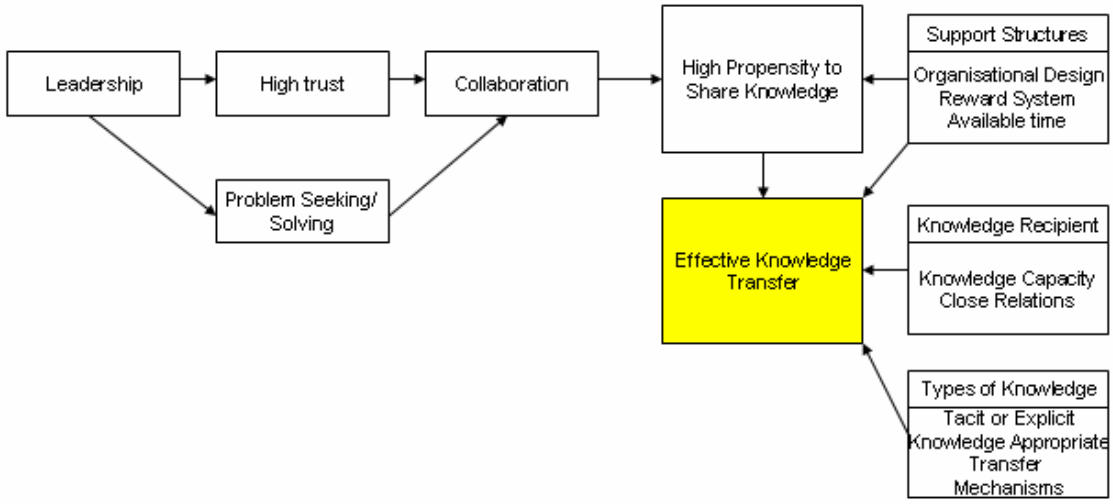
[3] knowledge that can be used by other project teams and allows project teams to repeatedly perform in the long term
[4] specific knowledge to a project that has no guarantee of being used by other project teams

Szulanski (1996) focused on individual factors between recipient and source and found results contrary to conventional wisdom that blames motivational factors. He argues that factors such as interdivisional jealousy, lack on incentives, lack of buy-in, resistance to change, lack of commitment and turf protection are not the factors that impede the transfer of knowledge. His study however shows that the major barriers to be three constructs namely: the recipient's lack of absorptive capacity (the recipients ability to assimilate and apply new knowledge, causal ambiguity (when the precise reasons for success or failure in replicating a capability in a new setting cannot be determined) and an arduous relationship between source and recipient. Causal ambiguity is of interest as it points to the notion of irreducible uncertainty noted in section 2.2.2. by (Mooradian, 2005), describing the indefinable portion of knowledge embodied in highly tacit knowledge. Thus indirectly there is recognition by Szulanski (1996) of the value of tacit knowledge.

Goh (2002) focused on the socio-cultural factors due to the importance and strong influence of human factors in the transfer of knowledge. Goh (2002) proposed the following model which flows between individual and organisational factors:

Figure 2: Factors influencing effective knowledge transfer

(Source: Goh, 2002)



In the Goh (2002) model there is recognition for both motivational factors such as reward, collaboration and problem solving culture; as well as factors highlighted by Szulanski such as close relations, high trust and knowledge capacity. Importantly, Goh (2002) highlights, that the type of knowledge i.e. tacit or explicit as well as the appropriate transfer mechanism is important. This factor is supported by Dixon (2000) and Milton (2005).

Other authors like Sun and Scott (2005) and Riege (2005) identify a wide range of factors separating them into individual to team, team to organisation and vice

versa and highlight more than three-dozen knowledge sharing barriers. Other authors such as Levin and Cross (2004), Lucas (2005) and Lucas and Ogilvie (2006) concentrate on a few factors such as rewards, culture and trust. All the above research findings also do not differentiate between explicit and tacit knowledge.

Thus the literature is well populated with factors that impede knowledge transfer. These factors are categorised either as individual factors or organisational factors. From the literature reviewed, what lacks is the classification of factors by type of knowledge i.e. a comprehensive list of factors that impede tacit knowledge transfer and explicit knowledge transfer and more specifically factors that apply within and between projects. Thus the next section explores some of the factors found in the literature review.

2.4.1. Factors that impede the transfer of tacit knowledge within and between projects

From the literature reviewed the factors impeding tacit knowledge transfer within and between projects is sparse. There a few notable works to be found for example, Dixon (2000), Koskinen *et al* (2003), Milton (2005) and Foos *et al* (2006). This research paper thus aims to identify factors that impede tacit knowledge transfer within and between projects. Motivation for this focus has been provided in Section 1.3. To re-emphasise, the perception that tacit

knowledge is a source of wealth and competitive advantage stimulates interest in knowledge transfer within and between projects. The aim of which is to develop project competencies, project performance, utilise lessons learnt to prevent re-work and repetition of errors in the same or another project by transferring valuable experiences, heuristics and insights.

After review of the literature the following six factors were identified as factors to explore that may impede the transfer of tacit knowledge within and between projects:

2.4.2. Lack of the recognition of tacit knowledge

The assertion is that the first factor that may impede the transfer of tacit knowledge is the lack of recognition of tacit knowledge and its value. Dixon (2000) and Milton (2005) indicate that companies that successfully transfer tacit knowledge, such as, British Petroleum, Betchel, Chevron and Lockheed Martin understand the importance of tacit knowledge and therefore intentionally and deliberately invest in tapping into this valuable resource.

Foos *et al* (2006) clearly highlight the issue as they record that in their findings there was some uncertainty regarding what tacit knowledge transfer was and how firms should manage it. Further they confirm from the data that very few managers differentiate between technology transfer and tacit knowledge transfer. Riege (2005) supports that one key barrier is the low awareness and realisation of the value of possessed knowledge.

2.4.3. Lack of appropriate transfer processes

Kasvi *et al* (2003) and Schindler and Eppler (2006) highlight the importance and necessity of managing tacit knowledge transfer as part of a project's process. It must not be an activity that happens haphazardly at the end of a project or something that happens without a systematically planned process. Kasvi *et al* (2003) demonstrate this by introducing the process of the Project Learning model that relies on the systematic repetition of project workshops that update two dynamically evolving project documents: The Project Plan and the Team Contract. The plan is seen as a repository of hard information including project definition, activities and results. The Team Contract captures knowledge like experiences and capitalisation of lessons learned.

Dixon (2000) stresses the importance of finding the appropriate transfer process for successfully transferring common knowledge in project the project environment. Serial and far transfer of tacit knowledge requires a specifically designed process. Concrete examples such as After Action Reviews (AAR), Betchel's Lessons Learnt, and BP's Peer Assist drive the point that a systematic process within the project environment is critical. To stress the importance of process BP adopted the Learning Before, Learning During and Learning After model, once again bringing process to the fore (Milton , 2005). Further Dixon (2000) guides, that the process must have a name, as naming the process gives members a way of referencing it. It goes beyond project members asking

for help, to participating in a sanctioned activity. It legitimates the activity and removes it from the category of favors. Once the tapping into tacit knowledge is a part of a projects process, challenges highlighted, such as, departure of project members at the end of a project before lessons learnt can be captured become null. Time to reflect, explore learning's, debrief, tap on the experience from past learning becomes planned for and available (Milton, 2005).

2.4.4. Lack of a responsible, designated role

Bresnan *et al* (2003), Kasvi *et al* (2003), Pretorius and Steyn (2005) and Schindler and Eppler (2003) support the assigning of the responsibility to managing the transfer of knowledge to a specific person. Pretorius and Steyn (2005) defend that within a project the natural point of responsibility seems to be the project manager. They further suggest that there should be a responsible person between projects.

The key role should include simulating the transfer of tacit knowledge through social interaction. Bresnan *et al* (2003) cautions that the designated person should focus on long term development needs rather than regress to short term business concerns and success depends on interpersonal and social aspects. Bresnan *et al* (2003) further emphasise that the role needs to be one of leadership wherein the person is proactive and persuasive. Goh (2002) supports that as role models; through their visible actions leaders can encourage willingness in other employees to emulate them.

2.4.5. Lack of trust between team members and across team members

At the core, trust is the willingness of one party to be vulnerable to the actions of another party, and it is a function of access to information either through direct or indirect interactions (Mayer, Davis and Schoorman, 1995). Lucas (2005) sums up that there are four relevant and important aspects of trust. First, there is some willingness to be vulnerable and element of uncertainty. Second, the person who is trusted must perform as is expected. Third, the notion of trust involves the trusting parties' perception that the trustee is motivated to behave as expected. Fourth, trust requires that some shared interest exits.

Goh (2002) supports that high trust is imperative and is evidenced by widespread sharing. Trust has an indirect effect on the accessibility and efficient transfer of tacit knowledge (Koskinen *et al*, 2003). Levin and Cross (2004) emphasise that their findings that trust was especially important for the receipt of tacit knowledge. Lucas (2005) strongly supports from his findings that trust between provider and recipient affect knowledge transfer. Riege (2005) notes that it is impossible to discuss knowledge transfer without mentioning the word trust.

Thus from the above another of the factors that may impede tacit knowledge transfer within and between projects is the lack of trust.

2.4.6. Lack of collaborative culture

Culture is a system of shared values and assumptions and is critical to any organisational activity. It dominates how organisations function, how employees interact and how decisions are made. Culture represents a core set of values governing the attitudes employees adopt toward change and their approaches to the introduction of something new (Lucas and Ogilvie, 2006). For culture to contribute to the knowledge transfer process, it must have a strong set of core values and norms that encourage the sharing of information and active participation of employees in the process (Goh, 2002; Hult, Ketchen and Slater, 2004). Several researchers provide evidence that culture affects knowledge transfer. Lucas and Ogilvie (2006) cite Chase (1998), who highlights that in a study of 500 companies, found that the existing organisational culture hindered the successful execution of knowledge transfer strategies.

However culture is a broad concept that has many dimensions. Goh (2002) argues that one dimension that is critical to knowledge transfer is collaboration. It requires the willingness of a group or individual to work with others and transfer knowledge to their mutual benefit. Collaborative cultures are often created by supportive management. According to Koskinen *et al* (2003) proximity factors are critical for creating such cultures. Individuals are more likely to interact with others when the physical characteristics of settings encourage them to do so.

Dixon (2000) however challenges the myth that exchange of knowledge happens only in organisations that have a non-competitive or collaborative culture. She notes that it is the other way around. If people begin sharing ideas about issues they see as really important, the sharing itself creates a learning culture. However there is strong evidence from other authors including Goh (2002), Albino, Garavelli and Gorgoglione (2004) and Riege (2005) that tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of collaborative culture.

2.4.7. Lack of appropriate rewards

Goh (2002) and Riege (2005) both state that rewards are an important motivational aspect that encourages the transfer of knowledge. Goh (2002) stresses, that the reward system must not purely be focused on financial results. Rewards should be broadly based on other criteria such as co-operation and teamwork.

Porter (1985, p. 353) states that “the mere hope that one business unit might learn from another is frequently a hope unrealised”. Szulanski (1996) supports and notes that when incentives are absent it becomes more difficult to affect successful knowledge transfer (Szulanski, 1996). However Lucas and Ogilvie (2006) weaken the arguments for rewards. His study found no support for the role of incentives.

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2.5. Summary

The purpose of the literature review is to build a foundation on three sections namely: knowledge and knowledge transfer, projects and knowledge transfer within and between projects and finally factors that impede knowledge transfer. The literature provides support for the research problem.

Thus in summary, the definition of knowledge used in this research is that of the amalgamated view by the Japanese that encompasses both the scientific and humanistic views on knowledge. The focus is on tacit knowledge, the more valuable knowledge; the knowledge that enables competitive advantage (Nonaka and Takeuchi, 1995). Tacit knowledge is also found to be the more difficult knowledge to transfer and that which projects have most struggled to tap into. Further Dixon (2000) defined common knowledge to which the transfer of serial and far knowledge is of most importance due to its tacit nature to the research.

The literature further highlights that the focus of project management primarily and traditionally focuses on cost, time, quality and risk management and the transfer of knowledge is most certainly not high up the agenda. Some researchers (Disterer, 2002; Kasvi *et al,* 2003 and Foos *et al*, 2006) bring to light a disconnect between project management goals and the goals of knowledge transfer. Further challenges such as the uniqueness of projects, discontinuous teams, and insufficient time to build trust with project members

from various parts of the organisation heighten the difficulty of transferring knowledge within and between projects.

The last section draws attention on factors that impede knowledge transfer. The literature highlights that many recent research studies have focused on identifying the factors that impede knowledge transfer with researchers choosing various approaches and nomenclatures to represent the factors. Some literature separates factors into individual, organisational and technological factors whilst others focus on a few specific factors. There is a gap in the literature reviewed, with regards to separating factors clearly in terms of tacit and explicit knowledge. None of the literature reviewed provides a ranking for the factors, which is another gap in the literature. From the literature reviewed, none of the literature attempts to classify factors in terms of which are most important and which are least. Further there is sparse literature on factors impeding tacit knowledge transfer within and between projects.

The literature also points to the growing importance of projects and more importantly the tacit knowledge gained through experiences, mishaps and successes which are not transferred within the project and between projects. Companies invest in projects yet invest little or nothing in extracting the lessons learnt and experiences; the tacit knowledge that can provide them with the advantage of not re-inventing the wheel, saving cost and time (Disterer, 2002; Pretorius and Steyn, 2005). Thus there is support in the literature for the

research and from the literature reviewed six factors are highlighted for exploration.

The next chapter presents the research propositions for this research in line with the findings from the literature review.

3. Research propositions

The research propositions have been formulated to address the research problem and have been guided by the literature. Essentially the main question is: what are the factors that impede the transfer of tacit knowledge within and between projects?

3.1. Research proposition 1

Tacit knowledge transfer is likely to be less successful if there is a lack of recognition of the value of tacit knowledge within and between projects.

3.2. Research proposition 2

Tacit knowledge transfer within and between projects is likely to be less successful if there is the lack of a recognised, deliberate process facilitating the transfer of tacit knowledge.

3.3. Research proposition 3

Tacit knowledge transfer within and between projects is likely to be less successful if there is no responsible, designated role dedicated to driving tacit knowledge transfer.

3.4. Research proposition 4

Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of trust between projects members

3.5. Research proposition 5

Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of collaborative culture

3.6. Research proposition 6

Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of rewards

3.7. Summary

This chapter explains the various propositions to be tested for this research study. In summary, six propositions have been postulated and have been guided by the literature in anticipation for what the answers should be. Specifically the proposition is that tacit knowledge transfer is less likely to be successful within and between project teams, if there is a lack of the following factors:

- Recognition of the value of tacit knowledge
- Recognised, deliberate processes to facilitate tacit knowledge transfer
- Responsible, designated role to facilitate tacit knowledge transfer

- Trust
- Collaborative culture
- Rewards

The next chapter presents the research methodology that was used to find answers to the research propositions. It provides details of the methodology used, the sample size, the units of analysis, the research instrument used, how the data was collected and finally how the data was analysed.

4. Research methodology

4.1. Introduction

This chapter presents the research approach, design and methods used to address the research problem as outlined in section 1.1 and 1.2. It was shown that within the terms as cited by Tobin (2006) defined by Hussey and Hussey (1997), this research project analysed and explained (the purpose of the research), through quantitative methods (the process of the research) using deductive logic based on existing theories, the factors that impede the transfer of tacit knowledge within and between projects (the logic of the research) and the outcome was one of applied research (applying the research to a particular organisation). This was in line with the overall research problem as identified in Chapter 1.

There are three main sections to this chapter. These are the research approaches (4.2) and research design (4.3) and research limitations of the research (4.4). Each dealt in turn with a brief explanation of the overall research paradigm presented and the reason for the selection of the particular paradigm for this research project.

4.2. Research approach

The first choice in terms of approach for this study was that between scientific knowledge as opposed to non-scientific knowledge. Welman and Kruger (2005) explain that the sources of non-scientific knowledge is knowledge accepted on the authority of some source or so called expert; knowledge accepted from the opinions of peers; knowledge accepted from traditions (carried over from one generation to the next; knowledge accepted from debating (arguing in a seemingly logical manner or finally knowledge from accidental observation.

In contrast scientific knowledge has three core features. These are systematic observation which differs from accidental and selective observation; control which highlights that alternative explanation for the obtained results should be eliminated systematically; and replication i.e. comparable results should be obtainable by other researchers (Welman and Kruger, 2005). Thus to maintain the quality of the research, the approach was to use only scientific knowledge.

Further Tobin (2006) notes that research can have elements which are based upon a non-empirical approach, an empirical approach, or a combination of the two. For the empirical approach, there are three primary dimensions (which do not necessarily represent a simple either/or choice) which can be evaluated for use:

- Qualitative/quantitative
- Deductive/inductive
- Subjective/objective

4.2.1. Empirical/non-empirical research

Non-empirical research

Page and Meyer (2000) and Welman and Kruger (2005) stress, that prospective researchers should acquaint themselves with previous research. The benefit would be that researchers would become aware of inconsistencies and gaps that may justify further research. Thus one of the considerations for this research was to consider the pre-existing body of knowledge. Tobin (2006) notes that some research depends entirely upon this research method (more generally known as searching and reviewing the literature).

Empirical research

Welman and Kruger (2005, p. 11), support that in the process of scientific investigation of problems; the collection of data is a fundamental part of the process. This understanding of the importance of gathering empirical data by observation or experience is also identified by Easterby-Smith, Thorpe and Lowe (1991) cited by Tobin (2006).

This research uses both the empirical and non-empirical approaches. The literature review informed the empirical research activities.

4.2.2. Quantitative/Qualitative

The third choice in the approach to the research was the choice between quantitative and qualitative approach. Page and Meyer (2000, p. 17) differentiate between quantitative and qualitative approaches in that the quantitative approach "places greater value upon information that can be numerically manipulated in a meaningful way and this is the traditional scientific approach". On the other hand the qualitative approach can be conceptualised as a focus on words and feelings – the quality of an event or experience. As a general rule of thumb, the more people orientated the research, the more qualitative the approach. Tobin (2000) cites Myers (1997) that examples of quantitative methods now well accepted in the social sciences include survey methods.

As the purpose of this research was to establish the factors that impede the transfer of tacit knowledge within and between projects through the testing of known issues rather than uncovering new issues through finely nuanced, detailed information (typical of qualitative research), a quantitative approach was deemed to be a better fit. Further motivation for a quantitative approach was the input from recent research evidencing that many companies have not understood tacit knowledge (Foos *et al*, 2006). Thus engaging with smaller scale of people that are free to answer questions as they please, typical in qualitative research, with the aim to obtain depth and uncover new issues was not an appropriate approach.

4.2.3. Deductive/Inductive

Another choice was that between deductive and inductive approach. This choice is discussed by some authors (Hussey and Hussey (1997) cited by Tobin (2006) and Welman and Kruger (2005).

Welman and Kruger (2005, p. 23) explain that to infer deductively means, “to begin with one or more statement(s) that are accepted as true and that may be used to conclude one logical true statement (from the broad and general to the specific). Deduction means testing theory and has mainly to do with quantitative research.”

Welman and Kruger (2005, p. 29) note that the inductive approach means, “to begin with an individual case or cases and then proceed to a general theory (in order to generalise to all cases based on conclusions reached from observing one or more cases). Induction has to do with building theory and the collection of qualitative data”.

In this study a deductive approach has been used in line with the quantitative approach.

4.2.4. Subjective/Objective

Tobin (2006) notes that another significant choice which exists in the research paradigm was the extent to which the researcher was, subjective (involved in or

has an influence on the research outcome) or objective (distanced from or independent) in the execution of the fieldwork (empirical work).

Welman and Kruger (2005, p. 7) explain that, “by objective we mean that people other than the researcher should agree on what is being observed, such as the score that the observation should register on a measuring instrument”. Maintaining objectivity was in line with the natural scientific method known as logical positivism, which is in line with the quantitative approach.

In this research an objective approach was adopted in line with the research aims and the quantitative approach.

4.3. Research design

The purpose of this section was to indicate what type of study was undertaken in order to address the research problem.

4.3.1. Experimental/Non-experimental

Keeping in line with the quantitative approach, the first research design alternative was that between experimental and non-experimental design. Welman and Kruger (2005) indicate that all types of experimental research have one thing in common, namely intervention. Participants are exposed to something to which they otherwise would not have been subjected. Another distinguishing feature is that of the random assignment of the units of analysis

to the group. In contrast with non-experimental research neither random assignment nor any planned intervention takes place.

The research design selected which fit best with the budget and time constraints were that of non-experimental research.

4.3.2. Research design alternatives

Page and Meyer (2000) and Welman and Kruger (2005) note that the research design alternatives are many. In quantitative research these include alternatives such as the creation of an experiment (a planned intervention) ; survey designs (this type of research deals with the examination of relationships that occur between two or more variables without any planned intervention); correlational design (a single group of units of analysis is obtained and each individual is measured on two or more variables); longitudinal design (same group is examined at different time intervals) and predictive design (has a time dimension but different variables are measured at different points in time). Other alternatives cited by Tobin (2006) are action research (where the research takes more of the form of a field experiment); modelling (where particular models are developed as the focus of the research activity); operational research (which looks at activities and seeks to understand their relationship, often with particular emphasis on operational efficiency).

The type of research design selected was that of a survey design in line with the quantitative and non-experimental research approach.

4.3.3. Population, sampling and units of analysis

The environment chosen to test the propositions was Absa Bank, a South African financial services provider. A more detailed profile of Absa is provided in Appendix Two. There were a few reasons for the choice namely: a majority of project initiatives are intensively driven through Absa's Business Change Enablement environment (BCE); Absa spends on average more than R 600 million per year on Retail Banking projects alone (see Appendix Two). This is an indication of the importance of projects. Further, BCE represents a knowledge intensive environment; and due to time and budget constraints Absa provided ease of access.

The target population for this study comprised of people involved in projects within Absa. A population can be described as an assemblage of all units of analysis a researcher may want to draw conclusions about (Welman and Kruger, 2005). The units of analysis will thus be people i.e. project team members.

Non-probability, purposive sampling was used. A purposive sample is obtained where researchers use their experience to deliberately obtain units of analysis in such a manner that the sample they obtained may be regarded as being representative of the population (Welman and Kruger, 2005). The sample comprised the project members identified from thirty projects selected.

Identification of these members was determined with the assistance of Group Business Change Enablement.

4.3.4. Data Collection

In order to answer the research propositions, a questionnaire (refer to Appendix One for the questionnaire) was developed and e-mailed to the project members of the thirty projects from across Absa. The list of projects was provided with the assistance of Group BCE.

According to Kerlinger and Lee (2000) survey research is useful in studying the relative incidence, distribution and interrelations of sociological and psychological variables. Thus survey research suited the type of research proposed for this study. The questionnaire was developed by utilising the knowledge sharing effectiveness inventory developed by Liebowitz and Megbolugbe (2003) and a questionnaire developed by English (2005). The literature and theory provided a base to re-frame the questions to produce more appropriate questions for the purpose of this research. The table below highlights the various sections and the authors whose contributions assisted in the re-framing of some of the questions.

Table 1: Constructs explored within questionnaire

Factor	Author
Deliberate, recognised processes	Dixon (2000); Kasvi *et al* (2003); Schindler and Eppler (2003); Milton (2005)
Designated role	Kasvi *et al* (2003); Schindler and Eppler (2003); Bresnan *et al* (2003); Pretorius and Steyn (2005)
Trust	Goh (2002), Koskinen *et al* (2003); Levin and Cross (2004); Lucas (2005); Riege (2005)
Collaborative culture	Goh (2002); Hult, Ketchen and Slater, (2004); Lucas and Ogilvie (2006); Albino, Garavelli and Gorgoglione (2004)
Rewards	Goh (2002); Riege (2005); Lucas and Ogilvie (2006)

Further the survey questionnaire was also chosen due to the advantage of cost and ease of application (Welman and Kruger, 2005). It was also noted that the researcher's lack of control over the completion of the questionnaires could have resulted in not only poorly completed questionnaires, but also a poor response rate (Welman and Kruger, 2005). For this reason, an incentive to members was provided for members that responded.

The questionnaire was pre-tested with five project members from the Group Payment Systems project environment in Absa. None of these members represented members from the list of thirty projects. Only spelling errors were pointed out which were incorporated into the final version. The questionnaire was sent out by e-mail to the respective project members with a timeframe of two weeks to complete the questionnaire. A follow up reminder was sent five days before due date.

4.3.4.1. Structure of the questionnaire

The questionnaire was structured to include sufficient Likert scale questions for the purposes of data analysis.

The first section of the questionnaire determined the demographics of the respondents. The respondents were required to provide information on which area they represent, how long they have been involved in Absa projects and their level in the organisation. The area they represented was important, to determine how representative the sample was. The length of time on projects was important to again determine the representivity and to understand if the number of years of experience could have influenced the results.

The second section comprised of Likert scale questions that covered the complete spectrum of the required data. Each question was subsequently

classified into the relevant category of information that related specifically to the research propositions.

The third section of the questionnaire required respondents to rank five options in order of importance to the questions posed. The intent of the questions was to obtain respondents ranking of the factors identified that impede tacit knowledge transfer and to match this against the findings from the data in section two of the questionnaire.

4.3.5. Data analysis

The data was analysed using univariate statistical analysis (Welman and Kruger, 2005). The statements in the second section of the questionnaire were structured in a manner to assist in easily grouping them into the representative constructs to enable the testing of the propositions. The clustered groupings of results around the respective questions were then analysed. Descriptive statistics such as means and standard deviations were analysed. Further, presentation of the data was in the form of histograms and trend lines. Patterns and frequencies were portrayed in tables.

To assess the extent of tacit knowledge transfer within and between projects in Absa, seven questions were selected to form a set, as presented in Section 5.4.1.2. in Table 13. A subscale score of frequency count and percentage of total responses was then created for this set of questions. This was done by recording the frequency count for each option (strongly disagree to strongly

agree) and for each question in the set. The highest frequency count recorded across the options was then highlighted. This score was then analysed in terms of the option it resided in, against the construct represented by the set of questions. The highest and second highest response percentage was also highlighted.

4.3.5.1. Data analysis - first research proposition

More specifically the first research proposition was tested using the same method for assessment developed by Liebowitz and Megbolugbe (2003) in their knowledge sharing effectiveness inventory. The method was thus used to analyse and assess the extent of the value placed on tacit knowledge transfer within and between projects in Absa's project environment.

4.3.5.2. Explanation of calculation

Of the thirty questions, twenty five of the questions were specifically chosen from the questionnaire to determine the extent of recognition of tacit knowledge transfer in Absa. The questions are listed in Section 5.4.1.1 and in table 10. The calculation was conducted for each question where, strongly agree equals 4 points, agree was 2 points, neither agree nor disagree was 0 points, disagree received -2 points and strongly disagree -4 points. By default of design only one option could be selected per question thus eliminating possible respondent errors. Further the polarity was reversed for questions asked in the negative. Three such questions were reversed. The maximum score that could be

obtained was 100 i.e. if one answered strongly agree to each question. The following scale was used to determine if the organisation rates an A, B, C, D or F in terms of tacit knowledge transfer.

Table 2: Explanation of ratings

Organisation rating	Explanation
A	76-100 points (minimum was 13 questions marked strongly agree and 12 questions agree)
B	50-75 points (minimum was 25 questions marked agree)
C	0-49 points (minimum was 25 questions marked neutral)
D	-50 to -1 point (minimum was 25 questions marked disagree)
F	-100 to -50 points (minimum was 25 questions marked strongly disagree)

The explanation has been adopted from Liebowitz and Megbolugbe (2003) and amended to relate back to the categories tested within the questionnaire.

If an organisation rates as an A overall, it has done well very well in recognising the value of tacit knowledge transfer by shaping its organisational structure, culture, leadership, rewards and recognition, processes to facilitate the transfer and it's support in the layout of its physical environment and from management.

If the rating is a B, it means the organisation is doing well. From the results of the different areas of the questionnaire, namely, processes to facilitate transfer,

organisational structure, collaborative culture, and rewards; the specific areas for improvement can be pin pointed.

If the rating is a C, even though there is some recognition of the value of tacit knowledge, there still needs to be a lot more focus on maps, processes, pathways for locating and transferring knowledge. A knowledge transfer strategy needs to be created.

If the rating is a D or and F, respectively, it implies that the organisation does not recognise the value of tacit knowledge transfer. Further, the fit between culture, the processes, the organisation structure, rewards and recognition are not aligned to facilitate tacit knowledge transfer. The organisation should check the obstacles to knowledge transfer by examining the output from the questionnaire.

4.3.5.3. Data analysis - second research proposition to sixth research proposition

The measurement questions in the second section of the questionnaire were categorised according to which of the five propositions (proposition two to six) described in Chapter 3 they applied to, creating a subscale score for each research proposition. The scoring involved adding up the results of each question that supported the particular research proposition. Thus again a subscale score of frequency count and percentage of total responses was then

created for this each set of questions related to a proposition. This was done by recording the frequency count for each option (strongly disagree to strongly agree) and for each question in the set. The highest frequency count recorded across the options was then highlighted. This score was then analysed in terms of the option it resided in, against the construct represented by the set of questions. The highest and second highest response percentages were also highlighted.

4.4. Limitations of the Research

- The research and findings was only limited to Absa, as the research was conducted in this environment.
- Using purposive sampling may incur the limitation of not being able to generalise the findings to the entire population.
- Only selected independent variables were chosen based on the literature review. Many other variables may represent moderating or intervening variables. The investigation around these variables was limited from the scope of this research.

4.5. Summary

This chapter has presented the various options for the field research and the logic for the methods and approaches applied.

In summary, the overall methodology was one of a positivist philosophy. It combined both the empirical and non-empirical, was quantitative rather than

qualitative, deductive rather than inductive and objective rather than subjective. The research design was scientific, non-experimental rather than experimental and employed the survey design method. The questionnaire was built and based on the literature review and was applied in a specific organisation namely, Absa. The sampling method was that of non-probability, purposive sampling due to the nature of the research and in line with the research aims. Finally, the data analysis employed univariate statistical analysis with research proposition one being analysed using the assessment developed by Liebowitz and Megbolugbe (2003). Propositions two to six primarily utilised the measurement questions in Section 2 of the questionnaire which were categorised according to the research propositions, for which a subscale score for each proposition was built.

The next chapter presents the research results.

5. Results

5.1. Introduction

This chapter describes the results of the analyses in order to furnish answers to the six research propositions that underpin this study. The first research proposition was tested using the same method for assessment developed by Liebowitz and Megbolugbe (2003) in their knowledge sharing effectiveness inventory. The method was thus used to analyse and assess the extent of the value placed on tacit knowledge transfer within and between projects in Absa. The second to sixth research propositions were then analysed using univariate statistical method. More specifically frequency counts with the applicable clustered questions from the questionnaire, in order to conduct the assessment. The third section of questionnaire was used to support the results.

The chapter is structured into three main sections. The first section presents the sample description and a description of the responses received from the thirty projects approached in Absa (5.2). The next section presents the raw results of each section from the survey questionnaire. These are the demographic details of the respondents, the survey results of section two and section three of the questionnaire (5.3). The last section (5.4) presents the results for each proposition.

5.2. Sample description

A total of 124 questionnaires were sent via email to project participants from Absa. Initially, the intent was to approach only ten projects. However on consultation with Devorah Barnes from Absa Group Business Change Enablement, Head of Enterprise Project Office, it was decided to increase the number of project managers approached to thirty to enable a wider sample selection, which would also increase the probability of receiving responses and ensure a broader representation. The project participants were identified by the project managers from the thirty projects (as described in Table 3) in the Business Change Enablement environment in Absa. A period of two weeks was provided for the completion and return of the questionnaires of which a total of 87 was received, providing a response rate of 70.2%. Two responses were received after the analysis had started and the responses were not used.

Table 3: List of projects

No	Project Name	Area
1	ABC Project	**Group Finance**
2	Absa Analytical Factory	**Information Management**
3	Absa Cash Deposit Units	**Group Admin**
4	Absa Enterprise Messaging	**Group Implementation**
5	ACMB Misys	**Absa Capital**
6	Agri Redesign	**Business Bank**
7	AML Tool Phase 2	**Enterprise Wide Risk**
8	Application Credit Scoring	**Group Credit**
9	ATM Cash Acceptor Devices	**Retail Delivery**
10	Auto Valuation Web Enablement	**Absa Ream**
11	Automated Workflow	**Absa Home Loans**
12	Business Integrator	**Electronic Retail Delivery**
13	Card Management Re-write	**Group Payment Systems**
14	Customer Care	**Across business units**
15	Enterprise Legacy Renewal	**Group IT**
16	Deservers Package Redesign	**Retail Banking Services**
17	Enterprise Process Modeling Tool	**Support & Maintenance**
18	Finstar	**Vehicle Finance (AVAF)**
19	Credit Debtor Profiling	**Group Credit**
20	Group Schemes	**Retail Sales Enablement**
21	Micro-lending Programme	**Flexi Banking Services**
22	National Credit Act	**Group BCE**
23	POS Re-write	**Absa Card**
24	Platinum Portfolio	**Private Bank**
25	AIC Workflow	**Absa Insurance**
26	Eskom Prepaid Electricity	**Retail Delivery**
27	Investor Services Merva Migration	**Absa Corporate**
28	Identity Management	**Group IT**
29	Enterprise Contact Manager	**Group Admin**
30	Economic Research	**Retail Delivery**

Projects were selected from a range of different areas as illustrated in Table 1 above to provide wide and diverse responses across Absa. This was to eliminate bias and ensure a more representative sample.

5.3. Raw results of survey questionnaire

5.3.1. Results of section 1 - demographics of respondents

5.3.1.1. Level in the organisation

The level in the organisation was deemed important to explore as the vast majority of project members should be from the P level, specialists from various areas in middle management. This was to eliminate any debate around an incorrect sample representation.

Table 4: Level in the organisation

Level	Frequency
No response	1
C	2
P	71
M	10
E	3

One respondent did not populate the level in the organisation field. The majority of the respondents were on P level namely 83%. C levels are administrators, P-levels are specialists from middle management, M levels are senior managers and E levels are executive (general managers). The results highlight that 2% of the respondents were on C level; 3% were on E level and 11% were on M level.

5.3.1.2. Years of experience

The number of years of experience working in projects within Absa was seen as important as it could be debated that responses were biased based on how new project members are to the organisation or how old they are to the organisation. Thus again, to analyse the results more scientifically, the number of years of experience was included.

Table 5: Years of experience in projects

Years of experience	Frequency
1-2	23
3-5	21
6-10	23
>10	20

The years of experience between candidates were evenly spread between 1-2 years (27%); 3-5 years (24%); 6-10 years (26%) and greater than 10 years (23%), which provided a representative distribution across the range of years of experience working on projects in Absa within the sample.

5.3.1.3. Area of expertise within the project environment in Absa

The area of expertise was deemed important as, if the sample did not comprise the various areas involved in projects, it may have been debated that results where not representative of all areas and that the results were biased. The table

below highlights the representation from the four key areas involved in projects within Absa.

Briefly, the BCE environment is responsible for the project management, compilation of the business cases and taking accountability for the change. The business environment is representative of the internal customer. They therefore are involved in driving the requirements, providing funding support and marketing of the project. The Information Technology (IT) environment is responsible for the technical development, testing and technical implementation of the system. The System Maintenance and Support (SMS) environment is responsible for the business analysis, providing of the business rules, development of the processes and procedures and testing from a user perspective.

Table 6: Area of expertise

Area of expertise	Frequency
BCE	32
Business	18
IT	18
SMS	19

The majority of respondents were from the Business Change Enablement environment (36%). The respondents were evenly spread from the other key environments that participate in projects namely, the Business area (21%), the Information Technology area (21%), and the Service Maintenance and Support areas (22%).

5.3.2. Results of section 2 and section 3

The raw results of the questionnaire have been reported in two sections (5.3.2.1) and (5.3.2.2):

- Section (5.3.2.1) presents the results of the Likert scale questions from section 2 of the questionnaire, the frequency counts are presented in Table 7 for each order of agreement or disagreement per question i.e. for each question the number of times strongly disagree was chosen was counted and listed as a frequency count. Further the mean and standard deviation for each of the questions in from section 2 of the questionnaire is presented in Table 8. The mean and standard deviation results are calculated based on a rating from 1 to 5, representing the Likert scale range from strongly agree to strongly disagree. For questions phrased negatively, the scores were reversed to provide consistency.

- Section (5.3.2.2) presents the results for the ranked order questions from Section 3 of the questionnaire, the data is represented in Table 9 as the total scoring per answer per option i.e. for each question the total of all the rankings per option was summed and listed e.g. for question 29, the option lack of centralised support – all the rankings by respondents for this option were summed and a total presented.

5.3.1.1. Raw results of section 2 (questionnaire)

The highest summed frequency count is shaded in grey.

Table 7: Frequency count per question

No.	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	In our projects part of our process is inviting other similar past projects so as to learn from their experiences	3	38	11	32	3
2	Success, failure and war stories are systematically collected and used in our projects	3	48	8	25	3
3	We are expected to share our learning's from key deliverables during and after the project	3	18	5	54	7
4	There are lessons learnt and best practice repositories available	15	35	11	24	2
5	There is formal time and budget set aside for us to share our mishaps, mistakes, insights and experiences	20	51	8	7	1
6	There are communities of practice where we can exchange views and ideas	10	38	12	26	1
7	Within our project environment a designated person is responsible for transferring knowledge between projects	12	47	13	14	1
8	I get appropriate lessons learnt sent to me where I can benefit	16	55	8	8	0
9	Individualised learning is usually transformed into organisational learning through documenting this knowledge into the organisations knowledge repository	11	48	16	12	0
10	I am often frustrated in projects knowing full well that some other project member has tackled a similar problem before but do not have means of accessing them	2	24	19	34	8

No.	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
11	Past insights are often sought from me so as to not 're-invent the wheel' on project deliverables	1	20	16	46	4
12	I feel comfortable approaching project colleagues for help with my work even if I have not worked with them before	1	8	5	57	16
13	I would be comfortable talking about my mistakes in my project team in order to help others learn from my experiences	2	7	0	48	30
14	I would be comfortable talking about my mistakes with other project teams in order to help others learn from my experiences	7	9	0	50	21
15	I can share my crazy ideas and deep feelings around project issues with our team; they are non-judgmental	4	16	16	44	7
16	I can freely disagree with my project team; we are equally committed to uncovering the truth and the best solution	3	13	9	50	12
17	My project team and I always have time for long term problem solving	10	33	20	21	3
18	I find that project individuals who share their experiences and learning's receive additional rewards and compensation beyond the standard reward system	22	34	26	3	2
19	My supervisor gives me special recognition for sharing my practical know-how with other project team members	11	27	26	20	3
20	I find that there is no personal benefit in sharing my insights with other project team members	12	32	22	15	6
21	I am promoted and rewarded based on my ability to share my knowledge with others	12	39	28	7	1

No.	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
22	I believe that rewards on a project should be for delivering my tasks on time and within budget and not for sharing my expertise and insights	3	36	22	21	5
23	There is strong support from management for sharing of knowledge across teams	6	27	17	34	3
24	I find it necessary to know the right people and be part of a social network in order to tap into the experiences of others	8	11	42	26	0
25	I don't like to share my expert knowledge with my colleagues because that would mean that somebody else would end up with my job	36	45	4	1	1
26	There is value in discussing problems and mistakes as a project team during and after the project	0	0	2	42	43
27	I am hesitant to ask a colleague for help on a project work matter because I don't want the person to know that I don't know how to solve it myself	30	50	4	2	1
28	The office layout is conducive to speaking with my colleagues and meeting people	8	9	14	49	7

Table 8: Mean and standard deviation per question

No.	Question	Mean	Standard deviation
1	In our projects part of our process is inviting other similar past projects so as to learn from their experiences	2.93	1.04
2	Success, failure and war stories are systematically collected and used in our projects	2.74	1.03
3	We are expected to share our learning's from key deliverables during and after the project	3.51	1.02
4	There are lessons learnt and best practice repositories available	2.57	1.14
5	There is formal time and budget set aside for us to share our mishaps, mistakes, insights and experiences	2.06	0.87
6	There are communities of practice where we can exchange views and ideas	2.66	1.07
7	Within our project environment a designated person is responsible for transferring knowledge between projects	2.37	0.95
8	I get appropriate lessons learnt sent to me where I can benefit	2.09	0.80
9	Individualised learning is usually transformed into organisational learning through documenting this knowledge into the organisations knowledge repository	2.33	0.87
10	I am often frustrated in projects knowing full well that some other project member has tackled a similar problem before but do not have means of accessing them	2.75	1.04

No.	Question	Mean	Standard deviation
11	Past insights are often sought from me so as to not 're-invent the wheel' on project deliverables	3.37	0.93
12	I feel comfortable approaching project colleagues for help with my work even if I have not worked with them before	3.91	0.84
13	I would be comfortable talking about my mistakes in my project team in order to help others learn from my experiences	4.22	0.69
14	I would be comfortable talking about my mistakes with other project teams in order to help others learn from my experiences	3.98	0.82
15	I can share my crazy ideas and deep feelings around project issues with our team; they are non-judgmental	3.39	1.03
16	I can freely disagree with my project team; we are equally committed to uncovering the truth and the best solution	3.63	1.01
17	My project team and I always have time for long term problem solving	2.70	1.07
18	I find that project individuals who share their experiences and learning's receive additional rewards and compensation beyond the standard reward system	2.18	0.93
19	My supervisor gives me special recognition for sharing my practical know-how with other project team members	2.74	1.06
20	I find that there is no personal benefit in sharing my insights with other project team members	3.33	1.13
21	I am promoted and rewarded based on my ability to share my knowledge with others	2.36	0.90

No.	Question	Mean	Standard deviation
22	I believe that rewards on a project should be for delivering my tasks on time and within budget and not for sharing my expertise and insights	3.13	1.01
23	There is strong support from management for sharing of knowledge across teams	3.01	1.06
24	I find it necessary to know the right people and be part of a social network in order to tap into the experiences of others	3.99	0.90
25	I don't like to share my expert knowledge with my colleagues because that would mean that somebody else would end up with my job	4.31	0.72
26	There is value in discussing problems and mistakes as a project team during and after the project	4.47	0.55
27	I am hesitant to ask a colleague for help on a project work matter because I don't want the person to know that I don't know how to solve it myself	4.22	0.74
28	The office layout is conducive to speaking with my colleagues and meeting people	3.44	1.09

5.3.1.2. Raw results of section 3 (questionnaire)

The data in Table 9 shows the total score for each of the response options below. Respondents ranked each of the questions from five (their perceived most important option) down to one (their least important option). The sum of the total rankings for each of the response option is highlighted. The top three responses are ranked 1, 2 and 3 respectively for clarity at a glance.

Three of the respondents also allocated the same number to more than one of the options. The instructions requested a ranking of each question but may not have been worded clearly, indicating that the rankings needed an exclusive rating with no two options obtaining the same number. Thus this could have resulted in the three incorrectly populated responses. In the pilot test none of the respondents had an issue interpreting these questions. For consistency the three responses were left out and thus the sample size for section three reduced to 84 respondents.

Table 9: Raw questionnaire results – section 3

29	What do you see as the most significant challenges to sharing past experiences and insights within projects and between projects	Lack of centralised co-ordination	No incentives/ rewards	Lack of processes	No trust	Culture
	Total Score	353	200	277	171	260
	Ranked importance	**1**	4	**2**	5	**3**
30	How would you rate the potential benefits of a pre-project knowledge sharing workshop where experienced employees sit with a new project team to discuss issues relevant to the new project?	No benefit	Saves time	Reduce risks of making errors	Sharing knowledge builds trust	Creation of better ideas
	Total Score	92	219	329	254	366
	Ranked importance	5	4	**2**	**3**	**1**

Table 9 highlights that for Question 29; the lack of centralised co-ordination was ranked as the most important option, followed by lack of processes and culture as the most significant challenges.

Similarly for question 30, creation of better ideas was ranked as the most important option, followed by reducing the risk of making errors and finally the building of trust. The option ‘no benefit’ resulted in being the least relevant option.

5.4. Survey results by research proposition category

Section 5.4 provides data that assisted in answering the research propositions.

5.4.1. Results for research proposition one

The results for the propositions are presented in two sections. The first section (5.4.1.1) highlights the twenty five selected questions and the results from the assessment explained in section 4.3.5. The second section (5.4.2.2) provides the results for the extent of tacit knowledge transfer.

5.4.1.1. Assessment for the value of tacit knowledge transfer

The twenty five questions used for the assessment are listed in Table 10. It also shows the questions for which the polarity was reversed.

Table 10: Questions selected for assessment

Questions for assessment of research proposition one	Polarity
1. In our projects part of our process is inviting other similar past projects so as to learn from their experiences	+
2. Success, failure and war stories are systematically collected and used in our projects	+
3. We are expected to share our learning from key deliverables during and after the project	+
4. There are lessons learnt and best practice repositories available	+
5. There is formal time and budget set aside for us to share our mishaps, mistakes, insights and experiences	+
6. There are communities of practice where we can exchange views and ideas	+
7. Within our project environment a designated person is responsible for transferring knowledge between projects	+
8. I get appropriate lessons learnt sent to me where I can benefit	+
9. Individualised learning is usually transformed into organisational learning through documenting this knowledge into the organisations knowledge repository	+
10. I am often frustrated in projects knowing full well that some other project member has tackled a similar problem before but do not have means of accessing them	-
11. Past insights are often sought from me so as to not 're-invent the wheel' on project deliverables	+
12. I feel comfortable approaching project colleagues for help with my work even if I have not worked with them before	+
13. I would be comfortable talking about my mistakes in my project team in order to help others learn from my experiences	+
14. I would be comfortable talking about my mistakes with other project teams in order to help others learn from my experiences	+
15. I can share my crazy ideas and deep feelings around project issues with our team; they are non-judgemental	+
16. I can freely disagree with my project team; we are equally committed to uncovering the truth and the best solution	+
17. My project team and I always have time for long term problem solving	+
18. I find that project individuals who share their experiences and learning's receive additional rewards and compensation beyond the standard reward system	+
19. My supervisor gives me special recognition for sharing my practical know-how with other project team members	+
20. I find that there is no personal benefit in sharing my insights with other project team members	-
21. I am promoted and rewarded based on my ability to share my knowledge with others	+
22. I believe that rewards on a project should be for delivering my tasks on time and within budget and not for sharing my expertise and insights	-
23. There is strong support from management for sharing of knowledge across teams	+
24. There is value in discussing problems and mistakes as a project team during and after the project	+
25. The office layout is conducive to speaking with my colleagues and meeting people	+

The assessment conducted on the twenty five questions above (calculation explained in Section 4.3.5.2) produced an average of 1.74 for all the scores. The recognition of the value of tacit knowledge transfer within the project environment in Absa comes out to a very low C. Further 78% of the scores were between the ranges -25 and +25 and 98% were between -50 and +50.

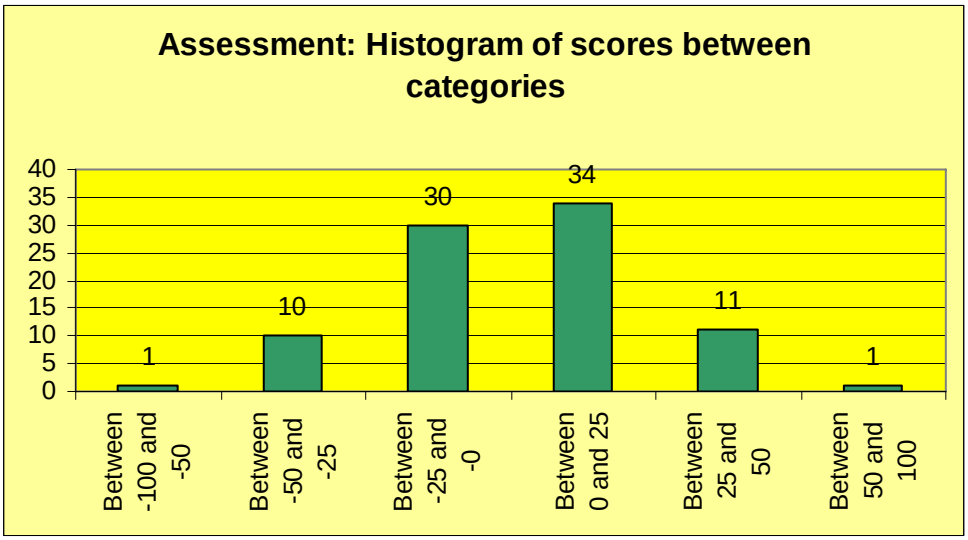
Table 11: Results of scores for proposition 1

Scores	Between -100 and -50	Between -50 and -25	Between -25 and 0	Between 0 and 25	Between 25 and 50	Between 50 and 100
Scores	1	10	30	34	11	1

Table 12: Results of scores for proposition 1

Scores	Average	Rating
Scores	1.74	**Very low C**

Figure 3: Distribution of scores



5.4.1.2. Extent of tacit knowledge transfer

The explanation for the calculation is provided in Section 4.3.5. The highest summed frequency response and the percentage of the total responses is highlighted in larger font.

Table 13: Raw questionnaire results – proposition 1

No.	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	In our projects part of our process is inviting other similar past projects so as to learn from their experiences	3	38	11	32	3
2	Success, failure and war stories are systematically collected and used in our projects	3	48	8	25	3
3	There are lessons learnt and best practice repositories available	15	35	11	24	2
4	There are communities of practice where we can exchange views and ideas	10	38	12	26	1
5	I get appropriate lessons learnt sent to me where I can benefit	16	55	8	8	0
6	Individualised learning is usually transformed into organisational learning through documenting this knowledge into the organisations knowledge repository	11	48	16	12	0
7	I am often frustrated in projects knowing full well that some other project member has tackled a similar problem before but do not have means of accessing them	8	34	19	24	2
	Summary	66	296	85	151	11
	Percentage of total responses	11%	49%	14%	24%	2%

5.4.2. Results for research proposition two to six

Research propositions two to six are listed in Table 14. The explanation for the calculation is presented in Section 4.3.5.3. The highest summed frequency count per set of questions is shaded in grey and in larger font for clarity.

Table 14: Raw questionnaire results – proposition 2 to 6

Proposition No.	Research Proposition	Applicable questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
2	Knowledge transfer within and between projects is likely to be less successful if there is the lack of a recognised, deliberate process facilitating the transfer of tacit knowledge.	1,2,3, 4,5	44	**190**	43	142	16
	Percentage of total responses		10%	**44%**	10%	33%	4%
3	Tacit knowledge transfer within and between projects is likely to be less successful if there is no responsible, designated role dedicated to driving tacit knowledge transfer.	6,7,8, 9,10	57	**222**	68	84	4
	Percentage of total responses		13%	**51%**	16%	19%	1%
4	Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of trust between projects members.	12,13, 14, 15,16	17	53	30	**249**	86
	Percentage of total responses		4%	12%	7%	**57%**	20%

Proposition No.	Research Proposition	Applicable questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
5	Tacit knowledge transfer within and between projects is likely to be less successful if there a lack of collaborative culture	23,25, 26,27, 28	16	39	41	220	119
	Percentage of total responses		4%	9%	9%	51%	27%
6	Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of rewards and recognition	18,19, 20 21,22	56	136	124	98	21
	Percentage of total responses		13%	31%	29%	23%	5%

The mean and standard deviation for each of the question sets for proposition two to six is averaged and presented in Table 15:

Table 15: Mean and standard deviation: proposition 2 to 6

Proposition No.	Research Proposition	Applicable questions	Mean	Standard deviation
2	**Knowledge transfer within and between projects is likely to be less successful if there is the lack of a recognised, deliberate process facilitating the transfer of tacit knowledge.**	**1,2,3,4,5**	2.76	1.02
3	**Tacit knowledge transfer within and between projects is likely to be less successful if there is no responsible, designated role dedicated to driving tacit knowledge transfer.**	**6,7,8,9,10**	2.44	0.95
4	**Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of trust between projects members.**	**12,13,14, 15,16**	3.83	0.88
5	**Tacit knowledge transfer within and between projects is likely to be less successful if there a lack of collaborative culture**	**23,25, 26,27, 28**	3.89	0.83
6	**Tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of rewards and recognition**	**18,19,20 21,22**	2.75	1.01

5.5. Chapter summary

The chapter presented the results from the survey questionnaires received in three sections, 5.2 describing the sample responses, 5.3 presenting the raw results per section of the survey and section 5.4 presented the results per proposition. The next chapter presents the analysis of the results.

6. Discussion of results

6.1. Introduction

In this chapter the results of the study will be evaluated and interpreted. The relationship between this chapter and chapter one (where the research aim was discussed); chapter two (within which the relevant literature was reviewed) and chapter three (where the research propositions were presented) will be established and made clear.

The discussion of the findings were categorised into three key areas. The first reviews the demographic details of the respondents (6.2). The second and most important section (6.3) reviews in detail for each research proposition the discussion of the results and relates the findings back to the literature review. The final section pulls the results together.

6.2. Discussion of the respondents response rates

The first result discussed is the response rates to the request to complete the research questionnaire. The purposive sampling technique was utilised, which according to Welman and Kruger (2005) is the most important kind of non-probability sampling. The researcher relies on their experience to deliberately obtain units of analysis. This occurs in such a manner that the sample obtained may be regarded as being relevant to the entire population. Thus the process to obtain such a sample was important to ensure that the sample was

representative of the population. This was an important element of the study as the aim was to infer the findings to the population. Thus Table 3 highlighted the projects approached through the help of the Group Business Change Enablement division. A total of 30 projects from across 25 different areas were approached.

Each project manager for the projects described in Table 3 was asked to identify 4 to 6 project representatives only, from their project team and provide a list of names. Each of the units of analysis was emailed and reminded after a week of the email being sent. Within the first week less than 30 responses were received. After the reminder, a total response rate of 70.2% from the 124 emails sent was received. Welman and Kruger (2005) advice that as a general rule, any sample with less than 15 units of analysis should not be used and preferably one with more than 25 units of analysis. With the number of responses received from the various areas (see Table 6), the researcher was very satisfied with the response rate and the aim to infer the results on the population.

6.3. Discussion of the demographics

An important aspect in the discussion of the results was to eliminate other factors that could have contributed or been attributed to the results. Table 4 shows the split in the respondent's level in the organisation. The majority of respondents, namely, 83% were P level middle managers. P level managers are specialists within their respective environments. This is consistent with the

researchers experience within the environment where the large majority of project participants are P level managers. The data for the percentage split per level for projects was sought from the Group Human Resource department. No such data was unavailable.

Another demographic explored was the number of years of experience. This again was important to note and analyse, as the number of years of experience could impact the perceptions of the factors explored in this research and ultimately impact the conclusions from the results. As an example Disterer (2002) and Lucas (2005) support that trust develops over time and must be nurtured and protected. It is pre-condition for the sharing of experiences. Thus if many of the respondents had just joined the project environment i.e. between 1-2 years; it could be argued that this factor would impact the results. They may be unaware of the practices of transferring tacit knowledge.

The results indicate that the number of years of experience is evenly spread with 27% of respondents being 1-2 years; 24% being 3-5 years; 26% being 6-10 years and 23% greater than 10 years. Thus this even spread eliminates the possibility that most respondents could be too new in the environment or that too many of the respondents have been too long in the organisation thus possibly impacting the results. Hence the even spread ensures that a fair variety of experience reflects what is occurring in the environment.

The final demographic was that of the area of expertise. This was an important demographic which points to how representative the sample was from across Absa's project environment. If too many respondents were from one area, it could be argued that due to the practices within that specific environment the results could be skewed or inaccurate. The data from Table 6 indicates that 36% of the respondents were from BCE, 21% from the business environment, 21% from IT and 22% from SMS. Although the BCE representation was slightly higher than the other areas, this was anticipated as the entry to the project environment was through the BCE environment. Further, the Head of the Enterprise Project Office, Devorah Barnes having assisted in steering out the emails, has influence over this environment which could have persuaded a greater response from BCE members. Nevertheless based on the spread of respondents from different areas, the split between the respondents area indicate a broad representation from the various areas.

6.4. Findings on the research propositions

The structure of the findings on the research propositions below will be:

- For each research proposition the findings will be analysed
- There will be a link back to the theory and the research aims
- There will be a summary of key findings

6.4.1. First research proposition – introduction

The primary focus of this research report was to identify the factors that impede the transfer of tacit knowledge within and between projects. From the literature review, linked back to the analysis of results in this section, there was evidence that companies who are successful at transferring tacit knowledge are first and foremost cognisant and recognising of tacit knowledge and its value. They are aware of what it is and search to tap into this knowledge type (Dixon, 2000; Milton 2005). The first research proposition was thus: Tacit knowledge transfer is likely to be less successful if there is a lack of recognition of the value of tacit knowledge within and between projects.

The analysis of results for showing how well Absa faired in recognising tacit knowledge and the assessment for the extent of tacit knowledge transfer within and between projects is presented below.

6.4.2. First research proposition – analysis of results

The results from Tables 11 and 12 and Figure 3 show that Absa within its project environment fairs very lowly with regards to recognising the value of tacit knowledge. To understand the impact of the score: a score between 76 and 100 would rate an A and an indication of high recognition of tacit knowledge. A B rating (between 50 and 75 points) would indicate a good recognition of tacit knowledge with a few improvements in certain areas identified through the various categories within the questionnaire. Further a score between 0-49 points would indicate some recognition of tacit knowledge but a lot of focus required within the majority of the categories such as processes, organisational structure, culture and rewards and recognition. A D or F rating (ratings between -1 and -50 and -51 and -100 respectively) would be poor scores and basically imply that the organisation did not recognise the value of tacit knowledge.

The average score was 1.74. From Figure 3, 78% of the responses were between the ranges -25 and +25 and 98% were between -50 and +50. This implies that the majority of responses were in a range that implies that the recognition of the value of tacit knowledge is very poor. A C rating implies that although there is some recognition, a lot more focus must be given to processes for transferring tacit knowledge. The low C and strong distribution within the D domain implies that there is a lack of recognition of the value of tacit knowledge within and between projects in Absa.

Further the results provided in Table 13 indicate that the perception with regards to the extent of tacit knowledge transfer within and between projects is low. In total 60% of the responses resided within the strongly disagree or disagree categories, with the highest frequency count being 296 disagrees.

Thus in the final analysis the scores indicate that there is a very low recognition of the tacit knowledge (a low C) and there is a low occurrence of tacit knowledge transfer (60% in the disagree category). This result ties in well with the literature. Nonaka and Takeuchi (1995) ask why Japanese companies have become successful at transferring tacit knowledge. They posit that Japanese companies are more successful because they recognised the value of tacit knowledge (personal knowledge embedded in experience and involving intangible factors such as personal belief, perspective and the value system) and focus to surface this knowledge and make it explicit.

Dixon (2000) further supports that companies that recognise tacit knowledge transfer are more successful at transferring tacit knowledge as they realise the value in tacit knowledge. The recognition of the value of tacit knowledge is witnessed through their investment in processes such as The United States Army's After Action Review (AAR), Lockheed Martin's LM 21 best practice and Chevron's Capital Management project. They invest capital and time for example as Milton (2005) notes in BP's Peer Assist programme. They actively seek to tap into this reservoir of value. Riege (2005) succinctly explains that the key factor for the lack of transfer for tacit knowledge is the low recognition and

value placed on such knowledge. This pattern of not recognising and not focusing on tacit knowledge transfer between and within projects is emphasised by Pretorius and Steyn (2005) in their findings.

6.4.3. First research proposition – summary

Thus from the results obtained from the research study in Absa and the literature support, it can be concluded that there is support for the proposition that tacit knowledge transfer within and between projects is less likely to be successful if there is a lack of recognition of the value of tacit knowledge. Further from the results and the literature review (more specifically Riege (2005) and Pretorius and Steyn (2005); it must also be noted that this factor of the lack of recognition of the value of tacit knowledge is a core factor that impedes the transfer of tacit knowledge i.e. foremostly, if companies do not value tacit knowledge transfer they will not invest time and effort towards extracting and tapping into this valuable resource.

6.4.4. Second research proposition – introduction

Part of a project's processes; define what occurs within the project. For example budgeting, scheduling, managing issues and risks and monitoring project. Time and money are set aside for these activities as they are important activities that must be executed in the project. The argument from the literature (discussed in more detail in the analysis of results section below) is that deliberate, defined processes improve the likelihood of transferring tacit knowledge. Thus the

second research proposition is: Tacit knowledge transfer within and between projects is likely to be less successful if there is the lack of a recognised, deliberate process facilitating the transfer of tacit knowledge. Again the research aim was to identify if the lack of processes is a key factor that impedes tacit knowledge transfer within and between projects.

6.4.5. Second research proposition – analysis of results

Table 14 highlights the results to determine how well processes facilitate the transfer of tacit knowledge within and between projects in Absa. The overall result indicates that the highest frequency count, highlighted in bold font for proposition was 190. This confirms that the majority of respondents felt that sufficient, deliberate processes were not in place in order to facilitate tacit knowledge transfer within and between projects. A total of 54% of respondents disagreed that deliberate processes were in place whilst, 10% neither agreed nor disagreed.

The question (Table 7, question 5) that highlights strongly the emphasis on the lack of a deliberate process was: 'There is formal time and budget set aside for us to share our mishaps, mistakes, insights and experiences', to which 71 of the 87 responses disagreed that this was occurring. Thus 82% of the respondents disagreed that such a recognised, deliberate process exists for facilitating learning from mishaps, mistakes and experiences. For this question, from Table 8, there was an average of 2.06 and a standard deviation of 0.87, which highlights the strong centering towards disagreement for this question. A low

standard deviation indicating that most observations cluster around the average. This is a clear indication that processes are not in place. Further from Table 7, Question 2, a total of 51 of the 87 respondents disagreed that, 'Success, failure and war stories were systematically collected and used in projects'. Thus 59% of respondents disagreed that this was occurring.

However 33% of respondents agreed that such processes were in place. The contributing factor for this could have been poorly worded question 3 namely, 'We are expected to share our learning's from key deliverables during and after the project'. The highest frequency count was 54 counts of agree, an average of 3.51 and a standard deviation of 1.02, which indicates positive support for this statement. Thus the expectation for sharing learning could be expressed but does not give an indication if a formal, deliberate process is in place. Thus this question reflects expectations and not is what is actually occurring. The rest of the questions support that there are no formal processes defined with higher counts of disagreement, as noted in Table 14. Further support is provided by reviewing the data in Table 9, wherein respondents were specifically asked to rank the most important reasons as to what the most significant challenges were to sharing past experiences and insights within and between projects. The lack of processes was populated as the second most important factor with a sum total of 277 counts. This provides further evidence that the lack of recognised, deliberate processes that facilitate the transfer of tacit knowledge within and between projects do not exist.

Again in terms of the extent of tacit knowledge transfer within and between projects; from Table 13 it is noted that the perception with regards to the extent of tacit knowledge transfer within and between projects was low. A total of 60% of the responses resided within the strongly disagree or disagree categories, with the highest frequency count being 296 disagrees. Thus from a data perspective the second proposition is supported.

From the literature, Dixon (2000) strongly supports that for successful tacit knowledge transfer to occur; deliberate and recognised processes must be designed. Dixon (2000) and Milton (2005) provide concrete examples such as BP's Peer Assist to highlight that for tacit knowledge transfer to successfully occur between and within projects; the process cannot be left undefined, informal or left to chance. It needs to be carefully crafted and formal.

For example After Action Review (AAR) which occurs during and after a project, firstly has a specific name that everyone recognises namely, AAR. The meeting must not be lengthy. The suggested process is to explore three questions namely what was supposed to happen, what happened and what accounts for the difference? For BP's Peer Assist (PA), the process is formal, where a project team can ask members from the organisation for help. Being a formal, deliberate, recognised process; it goes beyond project members asking for help, to participating in a sanctioned activity. It legitimates the activity and removes it from the category of favors. Kasvi *et al* (2003) supports that this should not be a haphazard, undefined process that occurs only at the end of a

project. Kasvi *et al* (2003) and Schindler and Eppler (2006) further support and highlight the importance and necessity of managing tacit knowledge transfer as part of a project's process.

6.4.6. Second research proposition – summary

Thus from the results obtained and evidence from the literature, there is support for the proposition that tacit knowledge transfer within and between projects is less likely to be successful if there is a lack of tacit knowledge transfer within and between projects.

6.4.7. Third research proposition – introduction

Much of the recent literature, in the last three years have highlighted that a designated person, responsible within the project environment is key for the transfer of tacit knowledge within and between projects. The third research proposition explored was thus: tacit knowledge transfer within and between projects is likely to be less successful if there is no responsible, designated role dedicated to driving tacit knowledge transfer. This proposition was explored through a clustering of specific questions within the questionnaire. The subscale scores for these clustered questions are analysed below.

6.4.8. Third research proposition – analysis of results

From Table 14, proposition 3, five questions were grouped to assess if there were designated roles that were responsible for the transfer of tacit knowledge within and between projects. The result from Table 14 indicates that the highest frequency count was for the disagree option. A total sum of 222 was noted with 64% of respondents noting there disagreement that such a role existed. From Table 7 and Question 7 namely, 'Within our project environment a designated person is responsible for transferring knowledge between projects", highlights clearly that no such role exists. 59 of the 87 responses i.e. 68% of the responses confirmed that there is no specific role, whose responsibility it is to ensure that the tacit knowledge transfer occurs between and within projects.

Further supporting evidence is provided from Table 9, Question 29; where the factor ranked highest for the most significant challenge to sharing past experiences and insights within projects and between projects was the lack of centralised co-ordination. It received a summed count of 353. This is an indication not only of the non-existence of a designated, centralised role but also highlights how important such a factor is in transferring tacit knowledge within and between projects. It is has already been established that the extent of tacit knowledge transfer within and between projects is low. Thus from the data there is evidence that supports the proposition that tacit knowledge transfer within and between projects is likely to be less successful if there is no responsible, designated role dedicated to driving tacit knowledge transfer.

This data is well supported by the literature. Kasvi *et al* (2003), Schindler and Eppler (2003), and Bresnan *et al* (2003) support the assigning of the responsibility to managing the transfer of knowledge to a specific person. Pretorius and Steyn (2005) build on Kasvi *et al*' (2003) work and builds a model to describe how effective knowledge transfer can take place within and between projects, by leveraging of a designated role. Pretorius and Steyn (2005) further supports that within a project the natural point of responsibility seems to be the project manager. They further suggest that there should be a knowledge manager; a designated, responsible person between projects.

6.4.9. Third research proposition – summary

Thus both the data in the research and the literature highlight the importance of a designated role that are responsible for the transfer of tacit knowledge within and between projects. Bresnan *et al* (2003) adds depth to the discussion by noting a few factors that make the role a success namely:

- That the role be clearly defined with clear responsibilities
- The designated person must not regress by focusing on short term business issues but long term knowledge transfer development needs
- There must be clear line authority so there is incentive to feedback
- The designated person must be proactive and persuasive. Success depends on interpersonal and social skills rather than technical mechanisms

Thus in the final analysis, from the results obtained and evidence from the literature, there is support for the proposition that tacit knowledge transfer within and between projects is likely to be less successful if there is no responsible, designated role dedicated to driving tacit knowledge transfer.

6.4.10. Fourth research proposition – introduction

Many authors support that trust between parties is important in order for tacit knowledge to be transferred. Relationships are critical in building trust and occur over time. Riege (2005) supports the importance of trust and notes that it is impossible to discuss knowledge transfer without mentioning the word trust. Thus the fourth proposition explored was: tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of trust between projects members.

The questions for assessing the proposition was again clustered with specific questions grouped. The level of trust between project members and other project members reveals an interesting result.

6.4.11. Fourth research proposition – analysis of the results

It has already been established in previous sections (6.4.2), (6.4.5) and (6.4.7) that the extent of tacit knowledge transfer is low. Thus no further comment is

provided. The data was analysed to establish if the lack of trust was indeed a factor that contributed to the unsuccessful transfer of tacit knowledge.

The process for assessing the data was the same as for proposition 2 and 3. A set of questions were grouped together and subscale scores noted in Table 14. The results indicate that a highest score of 249 in the agree category, with a total of 77% indicating that there is great trust within project teams and between project teams. Thus there are clearly no issues around trust within and between project teams. This is highlighted clearly from Table 7 where in Question's 13 and 14 namely, 'I would be comfortable talking about my mistakes in my project team in order to help others learn from my experiences and I would be comfortable talking about my mistakes with other project teams in order to help others learn from my experiences', a total of 89% and 81% responded in the affirmative that they would be comfortable sharing their mistakes with their project team and other project teams. This was also supported by the data in Table 9 where trust was rated the least important factor contributing to the challenge in transferring past experiences and insights. Thus the data does not support that tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of trust between projects members.

The findings from the data appear to contradict the findings from the literature review. Koskinen *et al* (2003) draws from their findings and note that the greater the level of trust, the greater the level of accessibility and the better the opportunities for the transfer of tacit knowledge to be transferred. Levin and

Cross (2004) emphasise that their findings that trust was especially important for the receipt of tacit knowledge. Lucas (2005) in a recent study concludes in his findings, that trust was important to knowledge transfer.

The only author that comes close to dispelling that trust is a key factor to the transfer of knowledge is Dixon (2000). She claims that her experience is quite different and that it is not difficult for people to share experiences and knowledge i.e. trust is not a factor. She asserts that if we know something that we think someone else needs to know, it is difficult for us to refrain from telling them. However an important caveat is that the transfer needs to be face to face and not electronic.

The finding is interesting in the sense that it appears to contradict the theory. However, the researcher believes that it does not. As noted by Koskinen *et al* (2003), the greater the level of accessibility and the better the opportunities for the transfer of tacit knowledge. None of the authors conclude that the lack of trust implies a less successful transfer of tacit knowledge. Trust is an important factor for transferring tacit knowledge but it is a supporting factor. The literature supports that the greater the trust between project members the more the likelihood of the transfer of tacit knowledge.

6.4.12. Fourth research proposition – summary

There is thus no support for the proposition, from the data, that tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of trust between projects members. However, trust is a factor that supports the transfer of tacit knowledge.

6.4.13. Fifth research proposition – introduction

Culture is often cited as a key factor for the successful transfer of tacit knowledge. Of the many factors identified by Goh (2002) in his model for effective knowledge transfer, a collaborative culture was one of the key factors. Riege (2005) includes collaborative culture in his list also and notes the lack of a collaborative culture as a core barrier. Thus the fifth research proposition was: Tacit knowledge transfer within and between projects is likely to be less successful if there a lack of a collaborative culture.

6.4.14. Fifth research proposition – analysis of results

Table 15 highlights that the total average for the set of questions to ascertain if there is a perception of a collaborative culture was 3.89 and a standard deviation of 0.83. From Table 14 the highest frequency count was 220 for the agree option a majority of 78% of respondents indicated that they agree with the questions posed. Thus the data supports that there is a collaborative culture.

However as noted the data from Table 13 indicates that the extent of tacit knowledge transfer is low.

This evidence ties well with views provided by Dixon (2000). Dixon (2000) indicates that there are three myths pervading the idea of knowledge transfer. The first myth is that the transfer of knowledge happens only in organisations that have a noncompetitive or collaborative culture. The idea is that you first have to create a collaborative culture before knowledge transfer can occur. The data above and the literature by Dixon (2000) contradict Goh (2002) who insists that the existence of a strong co-operative and collaborative culture is an important pre-requisite for knowledge transfer. Dixon (2000) strengthens her argument by highlighting that this is a kind of chicken and egg issue: which comes first, the collaborative culture or the transfer of knowledge.

Her argument is that given the kind of abysmal success rates of organisations changing their culture, her money would be on the knowledge transfer impacting the culture rather than waiting for the culture to change. Milton (2005) shares Dixon's (2000) views by adding that processes such as AAR, PA's and technical limits are themselves culture change-agents.

6.4.15. Fifth research proposition – summary

Thus there is the data and some of the views by authors such as Dixon (2000) and Milton (2005), do not support the proposition that tacit knowledge transfer

within and between projects is likely to be less successful if there a lack of a collaborative culture. The views are in contradiction to other views found in the literature. Further as evidenced by researchers such as Lucas and Ogilvie (2006), culture has a significant positive effect on knowledge transfer. Thus the data supports that a collaborative culture is a support factor for knowledge transfer but is not a factor that impedes the transfer of tacit knowledge within and between projects.

6.4.16. Sixth research proposition – introduction

Rewards have been highlighted in the literature as one of the motivational factors that encourage the transfer of knowledge. Szulanski (1996) notes that without incentives it becomes more difficult to affect successful knowledge transfer. Thus the final proposition was: tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of rewards.

6.4.17. Sixth research proposition – analyses of results

The results from Table14 indicate that the option with the highest score for the subscale questions on rewards was disagree with 136 as the summed score. Therefore 44% of the respondents disagreed that rewards were provided for the transfer of tacit knowledge within and between projects whilst 29% of respondents neither agreed nor disagreed with the questions. From Table 15, the average for the grouped questions was determined to be 2.57 with a

standard deviation of 1.00. Thus the scores from Table 14 support that the majority of respondents believed that no adequate rewards were in place for the transfer of tacit knowledge within and between projects.

Table 9 presents the rankings for the most significant challenges to transferring experiences and insights highlights that the lack rewards is one of the less significant factors. The lack of rewards was ranked second least important. For completeness, noting the low tacit knowledge transfer within and between projects in Absa and from the data from Table 14 supports that if there is a lack of rewards there will be less successful transfer of tacit knowledge within and between projects. However the data from Table 9 indicates that the lack of rewards is not the most significant challenge in transferring tacit knowledge within and between projects. It is preceded by the lack of processes and the lack of a designated role. Thus the data indicates that although the lack of rewards contributes to a less successful transfer of tacit knowledge between and within projects, it is not as important as factors such as lack of processes and the lack of a designated role. The lack of rewards is however a factor that impedes the transfer of tacit knowledge within and between projects.

This is supported in the literature. Goh (2002) and Riege (2005) confirm that rewards are an important motivational aspect that encourages the transfer of knowledge i.e. if rewards are provided to project participants for the transfer of tacit knowledge; it encourages the transfer and improves the likelihood of success.

6.4.18. Sixth research proposition – summary

Thus the proposition that tacit knowledge transfer within and between projects is likely to be less successful if there is a lack of rewards is supported by the data and the literature. The additional finding is that the lack of rewards ranks lower that the factors such as lack of processes and lack of a designated role to co-ordinate the transfer of tacit knowledge within and between projects.

6.5. Summary of the chapter

The chapter presented the analyses of the results. In summary there was a 70.2% response rate, which represents a very good response rate for the research design applied, namely a survey questionnaire administered via email. Further from a representation perspective, areas that provide project members to projects were well represented namely BCE (36%), Business (21%), IT (22%) and SMS (22%). Also the years of project experience of project participants was well spread with 1-2 years (27%); 3-5 years (24%); 6-10 years (26%) and greater than 10 years (23%). There was support from the data and the literature for propositions one, two, three and six, with no support from the data for propositions four and five.

The next chapter presents the main findings from the research.

7. Conclusion

7.1. Introduction

This chapter provides the main findings from the research. The chapter contains 4 main sections namely: a link back the research problem and the research aim (7.1) and draws alignment with the main findings of the research (7.2). Further there are recommendations for Absa (7.3) and recommendations for future research (7.4).

7.2. Link back to research problem and aims

The research begins with the definition of the research problem in section (1.1) and (1.2). To reiterate the research problem highlights the following important points:

- Although there is recognition by leading researchers (Dixon (2000); Milton (2005); Nonaka and Takeuchi (1995) and Szulanski (1996)) of the value of knowledge as a resource, with Drucker (1995) noting that it is the only meaningful resource; only recently has focus been directed towards managing knowledge in project environments. Yet research points to project environments and project organisations as the breeding ground of learning, containing fertile knowledge and experiences for the blossoming of future innovation (Kasvi *et al,* 2003).

- Further, although project environments offer the context and are suitable for learning and the transfer of knowledge, this very often does not occur Disterer (2002). Nonaka and Takeuchi (1995) argue that this is because a more important kind of knowledge, tacit knowledge is often overlooked. More specifically in the project work context tacit knowledge is not yet sufficiently understood and leveraged (Foos *et al*, 2006). Published results indicate a strong focus on managing explicit knowledge within and between projects (Bresnan *et al*, 2003 and Schindler and Eppler, 2003); whilst the dissemination of tacit knowledge seems to be at a strong disadvantage (Pretorius and Steyn, 2005).

Thus in summary, the research problem highlights that tacit knowledge remains untapped and elusive especially within and between projects. This is strange as there is evidence by leading researchers that there is great value and potential competitive advantage from tapping into and transferring such knowledge.

7.3. Main findings of the research

7.3.1. Importance of the findings

Thus given the research problem re-iterated above, the aim of the research was to obtain a clearer understanding of the factors that impede the transfer of tacit knowledge within and between projects. A clearer understanding of the key

factors is important, as it would provide the decision making information in order to place emphasis on the factors identified. The understanding of the factors that impede tacit knowledge transfer within and between projects will allow for drawing of attention on certain key factors. The effort on eliminating these impeding factors would improve the likelihood of success of transferring tacit knowledge within and between projects. If this understanding is not surfaced, successful tacit knowledge transfer will most likely continue to remain elusive and untapped.

7.3.2. Main findings

Thus the following six factors were explored: the lack of recognition of the value of tacit knowledge, the lack of recognised, deliberate processes, the lack of a designated role, the lack of trust, the lack of a collaborative culture and the lack of rewards.

The findings from the data and the literature shed light on the following:

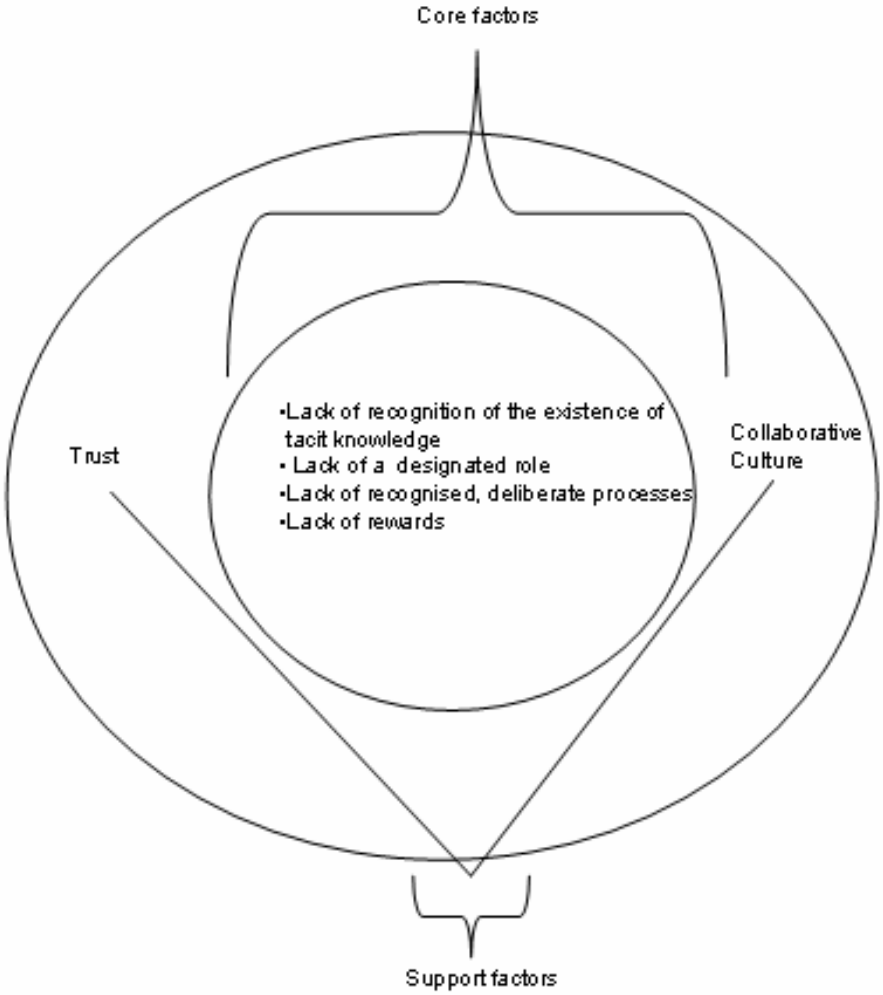
- Four factors were identified that support the proposition that the lack of these factors contribute to the less successful transfer of tacit knowledge namely: the lack of recognition of the value of tacit knowledge, the lack of recognised, deliberate processes, the lack of a designated role and the lack of rewards. The lack of rewards though ranks lower than the other three factors. These factors can be considered core factors.

Initiative and effort to remove these impeding factors imply a greater success of tacit knowledge transfer between and within projects.

- The lack of trust and culture had no support for propositions four and five as noted in Section 6.4.12 and 6.4.15. Therefore the lack of trust and collaborative culture does not imply that there would be a less successful transfer of tacit knowledge within and between projects. However as supported by the literature in Section 6.4.11 and 6.4.14, these factors if present, make the success of tacit knowledge transfer within and between projects more likely. They are enablers of tacit knowledge transfer or support factors.

Thus the graphical representation below suggests that there are core factors, and support factors (enablers). Focus and effort should be placed on addressing the four core factors, rather than an emphasis on the lack of trust and the lack of a collaborative culture. The researcher has not come across representation from the literature reviewed, that highlights graphically the difference between core factors that impede the transfer of tacit knowledge within and between projects (without which the likelihood of successful transfer is reduced) and support factors that enable the transfer of tacit knowledge (without which tacit knowledge transfer could still successfully occur).

Figure 4: Graphical representation of core factors and support factors



Thus re-iterating; the importance of the above enables the understanding that concentration of effort should begin with emphasis on core factors rather than support factors in order to have a greater likelihood of the transfer of tacit knowledge within and between projects.

7.4. Recommendations for Absa

The following five recommendations can be utilised by Absa to improve the transfer of tacit knowledge between and within projects:

7.4.1. Raise the level of awareness of the value of tacit knowledge at senior management level

Given the very low level of tacit knowledge recognition in Absa (6.4.2), the first recommendation would be to raise the awareness of what tacit knowledge is and importantly the value that can be achieved from tapping into it.

The suggestion is to first target M level (senior) as well as E level (general) managers. The support and leadership from these levels is most important. The support for initiatives that aim at transferring tacit knowledge requires time, effort and budget. As noted from the literature (Foos *et al*, 2006), there often is a disconnect between delivering projects within time and budget and the perceived strain on time and budget required to transfer tacit knowledge within and between projects. If the management does not support and see the value and need to transfer tacit knowledge, the disconnect will impact the successful tapping into tacit knowledge within and between projects. A suggestion to increase awareness would be to present the efforts and benefits of companies that successfully transfer tacit knowledge within and between projects to senior management. Another suggestion to raise awareness would be to pilot a sub-

process defined below to determine first hand what the benefits and challenges are.

7.4.2. Implement deliberate, recognised processes

The data supports that Absa have few deliberate designed processes with the purpose of facilitating the transfer of tacit knowledge within and between processes. Thus by far the most important recommendation is to define, deliberate processes. This will assist in shifting the discussion of the transfer of tacit knowledge from a strategic to an operational and tangible level. Project members can experience through the deliberately designed processes the meaning of transferring tacit knowledge. One main process and two sub-processes are suggested.

The main process is a process defined by Collison and Parcell (2001) and highly recommended by Dixon (2000) and Milton (2005) in the transfer of tacit knowledge within and between projects. The process is Learning Before, Learning During and Learning After. This requires that as a project begins (either at the outset of the project or the next phase), to consciously, deliberately surface the learning, experiences, mishaps, mistakes and successes from the previous phase or from other similar projects. This process occurs not just at the end of a phase or the end of a project but at the beginning, during the project and at the end of a project. The deliberate and

recognised name of the process is important as it formalises and drives the message that it is a part of the process.

The sub-processes that are suggested to assist with this main process are two processes namely After Action Review (AAR) and Peer Assist (PA). An after action review occurs after a task is delivered and is a process that specifically attempts to bring to surface the tacit knowledge gained through experience, insights, mistakes or successes. Dixon (2000) suggests that the AAR meeting must be designed:

- To be held regularly - (either held at a regular time every week or at the end of a defined action. It should not occur because a problem has occurred or a because of a success. It should be a routine.
- Meetings must be brief - everyone stands rather than sits and there is a formal format example:
    - What was supposed to happen?
    - What happened?
    - What accounts for the difference?
- Everyone involved in the action participates
- There are no recriminations – nothing said or discovered in AAR can be used in any personal action
- There are no formal reports

The second process is that of a Peer Assist. This usually occurs before the project and during the project. When the project team struggles with an issue or wishes to tap into tacit knowledge of project members from previous experiences, they formally call on the help of project members from other projects or from the organisation that have experienced similar issues. This is a formal process and is not a favor being asked by the project team. This process provides the ability to tap into and facilitate the experiences and insights learnt from previous projects. A key motivating factor for the above is that project members perceived that such processes will enable creation of better ideas and reduce the error of mistakes. From Section 5.3.1.2 and Table 9, the lowest ranked option for adopting such processes was 'no benefit' indicating that such processes are seen as beneficial and will be accepted by project members.

7.4.3. Driver of tacit knowledge transfer linked to business goals

Another recommendation for Absa is that the driver for the transfer of tacit knowledge within and between projects must be linked to business drivers such as reducing costs and decreasing project delivery time. Thus the transferring of tacit knowledge must materialise in specific, pre-determined business goals.

7.4.4. Reward and celebrating short term wins

The transferring of tacit knowledge must be linked to rewards. Rewards re-enforce and encourage the practice of processes. These do not have to be financial rewards but can include personal recognition. For example project members that facilitate PA's can be specially recognised by attaching their names to achievements. Further as projects achieve benefits of the AAR's and PA's, the small wins should be celebrated so that the awareness of the value of tacit knowledge transfer is further emphasised and confidence in the process gets further embedded.

7.4.5. Leverage of trust and collaborative culture

As noted in Sections 6.4.11 and 6.4.14 there is clear indication of a high level of trust and a collaborative culture between project team members and across project teams in Absa. The research indicates that these factors are support factors and therefore can be leveraged to facilitate the transfer of tacit knowledge. A practical suggestion by Dixon (2000) would be to train team members in the communication skills of advocacy and inquiry that can assist them in learning to provide reasoning behind their conclusions, to examine their own assumptions, to inquire into the assumptions of others and to remain open to errors in their own reasoning. An existing high trust level and collaborative culture provides support and eases the facilitation of such training.

Thus in summary, five recommendations are made for Absa. The successful implementation of a program to increase the likelihood of success of tacit knowledge transfer is dependent on the alignment between the recommendations.

7.5. Recommendations for future research

- Only a few factors specifically chosen as key factors identified from the literature were tested. It would be beneficial to explore further factors and increase the number of factors represented in the graphical representation, both from a core and support factor perspective.
- The research was conducted in only one institute. Extending the research to other financial institutes and other industries will expand the study and test to determine if similar results will be obtained.
- Further research would benefit from a longitudinal study for example - after the introduction of an intervention such as specific processes (AAR and PA) within Absa.
- A study involving further intense investigation into the ranking of impeding factors would provide great value and insight.

7.6. Final words

If knowledge is the only meaningful resource (Drucker, 1995) and is the competitive weapon of the future (Dougherty, 1999); wasting of such a resource by not utilising its full potential because of an absence of understanding of

factors that contribute towards the lack of its transfer, is unacceptable. Specifically in line with this research, if tacit knowledge is this precious, valuable knowledge reservoir (Nonaka and Takeuchi, 1995); especially within the project context (Disterer, 2002; Foos *et al,* 2006); and is not been extracted and not tapped into successfully (Pretorius and Steyn, 2005), then continuous research towards an understanding of the factors that impede the transfer of this most valuable resource is absolutely imperative.

This research has scratched the surface of the factors that impede the transfer of tacit knowledge within and between projects. It presents and opens the debate that there are core factors, the lack of which makes the transfer of tacit knowledge within and between projects less likely to be successful. Other factors may be present but these are support factors that can act as catalysts if the core factors are addressed. This research can benefit from future research that sheds light on these factors, which would enable and inform good decision making; that then inform where energy, time and money should be spent in order to optimally extract and transfer tacit knowledge within and between projects. The aim ultimately should be for the transfer of the tacit knowledge to speed up projects, reduce costs and inspire innovation.

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Appendices

Appendix One: Survey Questionnaire

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RESEARCH QUESTIONNAIRE

Thank you for taking the time to respond to this research questionnaire. The questionnaire will take you no longer than 20 minutes to complete. Please be assured that your responses will be strictly confidential and is only being used for research purposes.

The aim of this study is to gain an understanding of the factors that influence the transfer of experiences within and between projects.

SECTION 1: PERSONAL PROFILE

1. Level in the organisation
3. Years of experience in Absa projects
4. Area of expertise

SECTION 2:

Refelecting on the projects you've worked on and Absa's project environment, please select the most appropriate response according to the available options

1. In our projects part of our process is inviting other similar past projects so as to learn from their experiences
2. Success, failure and war stories are systematically collected and used in our projects
3. We are expected to share our learnings from key deliverables during and after the project
4. There are lessons learnt and best practice repositories available
5. There is formal time and budget set aside for us to share our mishaps, mistakes, insights and experiences
6. There are communities of practice where we can exchange views and ideas
7. Within our project environment a designated person is responsible for transferring knowledge between projects
8. I get appropriate lessons learnt sent to me where I can benefit
9. Indivisualised learning is usually transformed into organisational learning through documenting this knowledge into the organisations knowledge repository
10. I am often frustrated in projects knowing full well that some other project member has tackled a similar problem before but do not have means of accessing t
11. Past insights are often sought from me so as to not 're-invent the wheel' on project deliverables
12. I feel comfortable approaching project colleagues for help with my work even if I have not worked with them before
13. I would be confortable talking about my mistakes in my project team in order to help others learn from my experiences
14. I would be confortable talking about my mistakes with other project teams in order to help others learn from my experiences
15. I can share my crazy ideas and deep feelings around project issues with our team; they are non-judgemental
16. I can freely disagree with my project team; we are equally committed to uncovering the truth and the best solution
17. My project team and I always have time for long term problem solving
18. I find that project individuals who share their experiences and learnings receive additional rewards and compensation beyond the standard reward system
19. My supervisor gives me special recognition for sharing my practical know-how with other project team members
20. I find that there is no personal benefit in sharing my insights with other project team members
21. I am promoted and rewarded based on my ability to share my knowledge with others
22. I believe that rewards on a project should be for delivering my tasks on time and within budget and not for shairng my expertise and insights
23. There is strong support from management for sharing of knowledge across teams
24. I find it necessary to know the right people and be part of a social network in order to tap into the experiences of others
25. I don't like to share my expert knowledge with my colleagues because that would mean that somebody else would end up with my job
26. There is value in discussing problems and mistakes as a project team during and after the project
27. I am hesitant to ask a colleague for help on a project work matter because I don't want the person to know that I don't know how to solve it myself
28. The office layout is conducive to speaking with my colleagues and meeting people

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SECTION 3:

For the following questions, please rank the five options from 5 down to 1 in order of importance. 5 is your most important response to the question and 1 the least important.

29. What do you see as the most significant challenges to sharing past experiences and insights within projects and between projects

Lack of centralised co-ordination	No incentives/ rewards	Lack of processes	No trust	Culture

30. How would you rate the potential benefits of a pre-project knowledge sharing workshop where experienced employees sit with a new project team to discuss issues relevant to the ne

No benefit	Saves time	Reduce risks of making errors	Sharing knowledge builds trust	Creation of better ideas

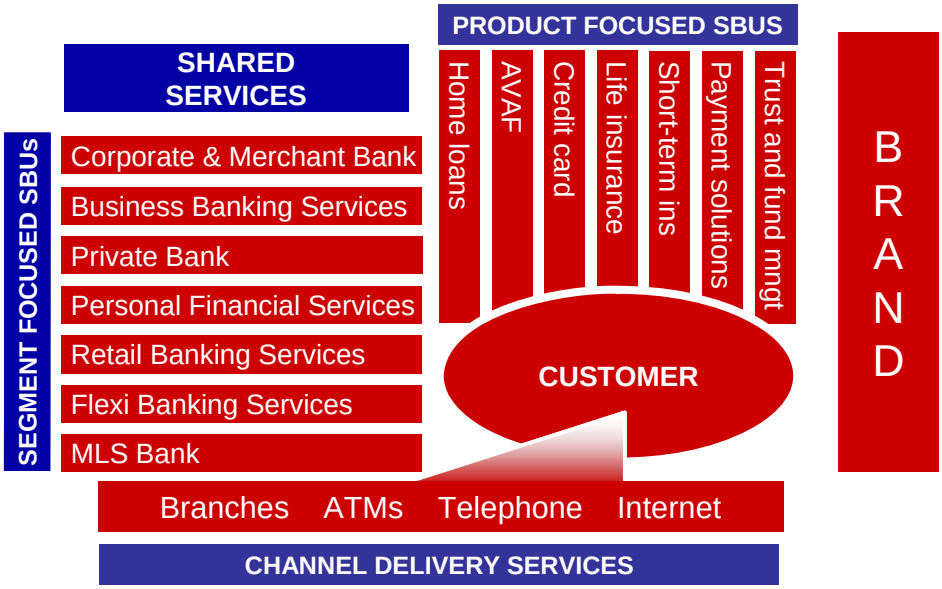
Your contribution to this research is most appreciated, thank you!
Please email arifi@absa.co.za
with your responses to also qualify for entering for the prizes!

arifi@absa.co.za

Appendix Two: Profile of Absa and salient statistics

- The ABSA Group is one of South Africa's largest financial services organisations, serving personal, commercial and corporate customers.
- The Group also provides products and services to selected markets in the United Kingdom, Germany, Singapore and Angola, Mozambique, Namibia, Tanzania and Zimbabwe in Africa.
- As at 31 March, 2005, ABSA had more than 32 515 staff, assets of R348,7 billion, 675 full and subsidiary outlets, more than 5 078 ATMs and South Africa's largest Internet banking customer base.
- 1991 signified the formation of Amalgamated Banks of South Africa Limited (ABSA) through the merger of UBS Holdings, the Allied and Volkskas Groups, and certain interests of the Sage Group.
- In 1992 ABSA acquired the entire shareholding of the Bankorp Group (which included TrustBank, Senbank and Bankfin), thereby extending its asset base even further.
- In 1998 the United, Volkskas, Allied and TrustBank brands were consolidated into a single brand, and ABSA adopted a new corporate identity.
- In 2005, Barclays, one of the world’s top ten banks, acquired a majority stake in ABSA as part of its drive to expand its global product and international retail and commercial banking businesses in attractive markets outside the United Kingdom.

The ABSA structure is provided below with a clear indication of SBU's segmented in line with their market e.g. Flexi Banking Services focus on the lower end of the market.



Salient Statistics

ABSA SEGMENTS	No of Customers*	Cross-sell ratios*
Total Retail	7,291,285	1.42
Business Banking Services	78,058	1.77
Corporate & Merchant Bank	2,294	1.14
TOTAL	**7,371,637**	**1.42**

ABSA STAFF	31 Mar '05
No of Staff	32 515+
No of Outlets	675

ABSA FINANCIAL RESULTS	31 Mar '05
Growth in Headline Earnings	23.3
Dividends per share growth	62.1
Return on average equity	25.5
Return on average assets	1.68
Impairment charge	0.52
Cost-to-Income ratio	56.8
Headline earnings	**R5 484m**

Personal bank project budget - 2006

SBU / GSF	IT Hardware	Pro Fees	Software	Manpower	Other	Total
Retail Delivery Total	12,500,000	85,641,000	6,750,000	28,195,000	5,000,000	**138,086,000**
RBS	0	0	300,000	6,300,000	0	**6,600,000**
Private Bank	21,785,000	9,576,000	908,000	3,313,000	0	**35,582,000**
Allpay	1,000,000	3,200,000	850,000	4,000,000	0	**9,050,000**
FBS	7,078,000	4,022,000	3,130,000	9,935,000	21,924,000	**46,089,000**
Small Business	7,000,000	2,000,000	7,000,000	1,505,000	0	**17,505,000**
Group Payment Systems	640,000	21,114,000	9,613,000	35,443,000	0	**66,810,000**
Absa Card	2,250,000	36,000,000	3,000,000	13,500,000	5,300,000	**60,050,000**
Home Loans	4,964,000	11,550,000	4,480,000	10,735,000	14,459,000	**46,188,000**
Absa Brokers	2,234,000	3,290,000	80,000	0	20,000	**5,624,000**
Product & Pricing	0	0	0	30,480,000	0	**30,480,000**
AVAF	7,600,000	28,600,000	0	17,000,000	0	**53,200,000**
PCP	10,000,000	0	0	107,000,000	0	**117,000,000**
	77,051,000	**204,993,000**	**36,111,000**	**267,406,000**	**46,703,000**	**632,264,000**