

**THE APPLICATION OF AGILE PRINCIPLES AND PRACTICES IN A  
PROJECTS ENVIRONMENT IN SOUTH AFRICA: A BANK STUDY**

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Dissertation submitted in fulfilment of the requirements for the degree  
Master of Science in the Management of Technology and Innovation  
at

The Da Vinci Institute for Technology Management

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2017



**Declaration of authenticity**

I declare that the research project, *THE APPLICATION OF AGILE PRINCIPLES AND PRACTICES IN A PROJECTS ENVIRONMENT IN SOUTH AFRICA: A BANK STUDY*, is my own work and that each source of information used has been acknowledged by means of a complete reference. This dissertation has not been submitted before for any other research project, degree or examination at any university.

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## **Acknowledgements**

I would like to extend my gratitude and appreciation to the following people who contributed hugely to the successful completion of this research project:

Professor Rabelani Dagada – Academic Supervisor

Daniel Serfontein – Chief Operating Officer

Carmen Hengst – Chief Operating Officer

Peter Viljoen – Head of Strategic Projects

## **Abstract**

### **THE APPLICATION OF AGILE PRINCIPLES AND PRACTICES IN A PROJECTS ENVIRONMENT IN SOUTH AFRICA: A BANK STUDY**

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Innovation

**DATE:** 1 January 2016

## **Abstract**

During the past few years, leadership has recognised that, in order for organisations to stay relevant and to be sustainable, they would need to be flexible and adapt to changing environments. In the projects domain, the Agile methodology has been a hot topic over the past few years, with many companies adopting to some degree its principles and practices. Intensive research has been done on this topic but there seems to be a gap in the actual implementation and integration thereof. Specifically, the discussion needs to be focused where the principles of people complexities are involved; focusing only on these principles from the Agile methodology. This research project tries to deduce if the principles of Agile hold true however important to note that it does not interrogate the methodology and try to understand the implementation and usage of Agile principles. The research further tries to identify the complexities related to these discussed principles and hopes to determine if there are unknown factors that need to be further researched or simply managed accordingly.

For this research project, a qualitative approach was followed, due to the study being purely a subject where there are no specific opportunities to measure, using specific metrics given the people factors considered which discuss aspects such as team engagement, trust, structure, location, communication, culture, emotion, level and maturity. It further tried to explore to what extent the bank under study embraces the concept of individuals and interactions or customer collaboration over processes, tools and contract negotiation in a projects environment; a number of qualitative tools were used in this regard. The bank under study for this research project will for all intense and purposes be referred to as "the Bank".

This research project focused on three main topics; 1) determining if divisions within the Bank can work in a flexible and collaborative manner subscribing to the Agile Manifesto, 2) ascertaining if the Agile Manifesto and its principles are not just theories but can be achieved practically at THE BANK and finally, determining what these people complexities are in a projects environment.

Research findings affirm that the Bank does indeed work in a flexible and collaborative manner. It further proves that the principles of Agile are not just theories but are actually the life blood of the Bank as an organisation. It further highlights people factors which include concepts such as the maturity of the organisation, structure, trust, responsibility, accountability, team dynamics, structure, culture, emotion and adaptability. It was discovered that trust was the most prominent factor exposed.

Finally, recommendations specifically for the Bank were noted and suggestions for extended and future research were given.

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## LIST OF ACRONYMS

USA	United States of America
SDLC	Systems Development Life Cycle
CoP	Community of Practice
SLA	Service Level Agreement

## **CHAPTER 1**

### **NATURE AND SCOPE OF STUDY**

#### **1.1 Introduction**

This research project provides background and motivation for the application of Agile principles in the Bank as a cross-functional organisation. Agile principles as summarised refer to a number of factors in a projects domain and the many themes include continuous delivery to the business delivering solutions to the business iteratively. It also focuses on the team dynamic and makes references to dedicated teams built around self-organised and motivated team members in all business and technology domains. Finally, the methodology prides itself on the ability to reflect on work done and how to improve for the up and coming work to be done (Boehm & Turner, 2004).

This study, however, focuses specifically on the people aspects of its principles. Sections in this proposal include defining the research problem, the research aims and its objectives. It does so by setting specific research questions and briefly explains the approach to the literature review. The research design and methodology is explained and concludes with an outline of all the chapters for the final research dissertation.

#### **1.2 Background to the study**

In the current fast-paced business environment, it is imperative that companies are flexible enough to cater for an ever-changing environment. Companies are now needed to adapt products, their technology or processes, based on business needs, to ultimately fulfil a customer's needs. The researcher's view is that if companies are not flexible and able to adapt to their business environments at speed and make changes when necessary, their outcomes and business viability could be negative, as supported by (Moss, 1992).

In the traditional approach to projects, specifically software development projects, sequential models such as the Systems Development Life Cycle (SDLC) and the Waterfall Method have been used for many years (Royce, 1987). These have proved to be successful in some respects since the 1960s, according to Elliott, Strachan and Radford (2004). According to the researcher, the challenge experienced with the traditional constructs of these traditional processes is the fact that these methodologies do not allow for much flexibility for changing requirements. The theory assumes that all requirements are known upfront and have little or no chance of changing until the solution is implemented, as stated by (Boehm & Turner, 2004).

Traditional methods also focused on detailed documentation and tools. Work would not commence unless comprehensive documentation had been completed and all stakeholders had committed and signed off on requirements and work to be done. Tools were used to track and manage projects Royce (1987).

Many other traditional methods existed while software projects evolved through the years, but the themes and constructs, and the underlying processes, were common. Other methodologies, not limited to these, include Evolutionary Development Method (McCracken & Jackson, 1982), the Transform Method (Balzeret et al., 1983) and the Spiral Method (Boehm, 1988). New research brings to light the concepts of the increased complexity of projects.

It was stated that the dynamic pace of technology in today's world leads to increased demand for flexibility, adaption and speed (Kaleshovs, Josimovsk, Pulevska-Ivanovsk, Postolo, & Janevsk, 2015). With the researcher being totally immersed in this domain, it was of personal interest to explore this topic further.

Based on the challenges with the traditional software methodologies, it was clear that, with the ever-changing environment, an evolution in thinking and approach to be made in this regard. "Agile development evolved from the personal experiences and collective wisdom of the consultants and thought leaders of the software community" (Misra, 2011).

In 2001, a group of software practitioners met in Snowbird in the United States of America (USA) to rationalise their thoughts and come up with a solution. It is here that the Agile Manifesto (2001) was born. The Agile Manifesto, as agreed upon by this forum, consisted of concepts concerned with individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation and responding to change in following a plan.

This study theoretical framework uses the cornerstones and main constructs of the Agile Manifesto as agreed upon in 2001. It is, however, important to note that the focus and scope of this research project only focuses on the people engagement constructs being the: 1) individuals and interactions over processes and tools and 2) customer collaboration over contract negotiation. This research study specifically points out the complex components and concepts that are involved with these two constructs.

These specific constructs are further defined as:

**Individuals and interactions over processes and tools:** These are defined as the ability for individuals to engage, interact and collaborate with each other rather than sticking to processes and methodologies. Business people and technical staff must work together and build projects around motivated people with a common interest, rather than implementing tools to measure and communicate with project members (Chen, 2007).

**Customer collaboration over contract negotiation:** This is defined as teams collaborating, interacting and working together for a common goal to benefit the said project and ultimately the organisation. Collaborative teams need not be bound by contracts where there are strict agreements in place and which are inflexible and to the detriment of the company (Dorairaj & Noble, 2013).

### **1.3 The problem statement**

The Bank Business is a division of the wider Banking Group. The Bank is known in the market for their flexible attributes like the principles suggested by the Agile Manifesto. They are also known to be innovative in nature, specifically in their approach to technology projects. The Bank as an organisation has focused project areas with specific methodologies which are perhaps too limiting and too structured, per the Workplace Survey conducted by the Bank in 2013.

the Bank Business is expected to deliver value at the same rate as prior to the new strategy. According to the researcher, it would be easy to deliver continuously, accept late requirements, work on a smaller delivery timescale, have dedicated teams, have constantly motivated and self-organising teams or have the time or discipline to reflect on work retrospectively.

The researcher further notes that with the new strategy to leverage off the wider Group Partners and platforms, there is a clear misalignment as to the implementation, rollout, people engagement model and approach to projects. The problem that this study intends to address is the misalignment and the implementation of the Agile principles within the Bank. These will be quantified through this research project.

The table in Appendix A summarises the main research areas related to the Agile Manifesto and attempts to map each Agile principle to an existing facet of the work-based challenge.

The focus should be placed only on specific points in Appendix A, being one (1) and three (3) where the question arises; given the complexities with project teams and individuals, to what theoretical extent are individuals and interactions more effective than processes and tools, and to what theoretical extent is customer collaboration more effective than contract negotiation in a projects environment? Moreover, it remains to be established whether these concepts are as complex and interrelated as initially understood and whether they actually exist across various project environments.

From the researcher's experience in projects in the last two financial years, several problems experienced. The current thinking is that these are linked to project people preferring tools to manage and measure project success, individuals not trusting their team members, less team interaction and rather the implementation of strict metrics. These are findings that have stemmed from project retrospectives where team and project members have admitted to project team and individual engagement concerns. Accordingly, this ultimately was proven to hinder continuous and valuable delivery.

At this stage, the researcher can confirm that this problem is a real risk facing the Bank and is further prevalent within other South African companies. Further to this, it is understood that this research has not been done to this level. The lack of results regarding this research seems to indicate the need for more research in this field. Current literature does not indicate whether specific studies have been done to cover these complex concepts. According to later literature, research has not theoretically explained or specifically examined how Agile

principles and practices relate to team members' feelings, attitudes or approaches to their work, specifically in a projects domain (Tripp, Riemenschneider, & Thatcher, 2016). Here, we try to close the gap in the research already done with newer research. From the literature, the research was mostly done between the periods of the early 2000s to the late 2016's.

#### **1.4 Objectives of the study**

The aim of this research is to ascertain if, within South Africa and the Bank specifically, project areas are able to work within the guiding principles of the Agile Manifesto, with specific focus on its engagement model and other related complexities across project teams. The objective of this research project is:

- 1) To undertake a study of the literature to:
  - ascertain if this study has been tried in other sectors locally and internationally;
  - determine what factors there are that makes the people construct a complex concept;
  - determine what the guiding principles are that assist with complex project environments.
- 2) To determine by means of a field study, using various techniques to:
  - determine if other divisions within the Bank can work in a flexible and collaborative manner subscribing to the Agile Manifesto; specifically, the people engagement model principles (see Appendix A, no 1 and 3);
  - aim to ascertain if the Agile Manifesto and its principles are not simply theories but can be achieved practically ;
  - determine what these people complexities are and what the relevant combination is that they need to be applied in to make projects a success.

Further to the abovementioned objectives, this research aims to make recommendations to practitioners, managers, researchers and other relevant stakeholders in this specific field of study. The primary research questions to facilitate are summarised below;

- 1) To what extent does the Bank embrace the concept of individuals and interactions over processes and tools in a projects environment?
  - a. What is the use of tools for measurement and management of projects in the Bank?

- 2) To what extent does the Bank embrace the concept of customer collaboration over contract negotiation in a projects environment?
  - a. What is the use of contracts for project management in the Bank?
- 3) What are the people factors considered (prompt: team engagement, trust, structure, location, communication, culture, emotion, level / maturity)?
- 4) In your experience, what are some of the challenges experienced in driving project success?
- 5) In your experience, what is the preferred method of getting project work done?
- 6) **Proposition:** The team and people focus of Agile as a methodology is an essential factor to project success
- 7) **Proposition:** The level / maturity of the team engagement and collaboration is an important factor for project success
- 8) **Proposition:** Team trust is built on the premise of open, honest and frequent collaboration and communication
- 9) **Proposition:** Teams adopting agile principles have concerns linked to the complex people factors

The below table summarises and maps the research study aim/s to the research questions.

**Table 3.1: Research Aims and Primary Research Questions**

Aim	Primary Research Question
Tries to ascertain if, within South Africa and the Bank specifically, if project areas are able to work within the guiding principles of the Agile Manifesto, with specific focus on its engagement model and other related complexities across project teams	To what extent do companies embrace the concept of individuals and interactions over processes and tools and to what extent they embrace the concept of customer collaboration over contract negotiation?
Aims to provide recommendations to the Banking sector, working in a similar structure, culture and environment, and taking into account other people aspects.	
Aims to view what is known, the concepts relevant to the area, the methods and strategies that have been employed in this area, if there are any inconsistencies in findings related to this area and if there are any other unanswered questions in the research area	



<p>Tries to establish if these concepts are as complex and interrelated as initially understood and whether they exist across various project environments.</p>	
<p>the Bank embraces the concept of customer collaboration over contract negotiation in a projects environment, looking at people factors and other challenges; factoring in individuals and interactions over processes and tools and tools</p>	<p>What are the people factors considered in a projects environment?</p>
<p>The team and people focus of Agile as a methodology is an essential factor to project success</p>	
<p>The level / maturity of the team engagement and collaboration is an important factor for project success</p>	
<p>Teams adopting agile principles have concerns linked to the complex people factors</p>	
<p>Team trust is built on the premise of open, honest and frequent collaboration and communication</p>	
<p>To determine and further explore if other divisions within the Bank can work in a flexible and collaborative manner subscribing to the Agile Manifesto</p>	<p>What are some of the challenges experienced in driving Agile project success and what is the preferred method of getting project work done</p>
<p>Attempts to ascertain if the Agile Manifesto and its principles are not simply theories but can be achieved practically</p>	
<p>Aims to make recommendations to practitioners, managers, researchers and other relevant stakeholders in this specific field of study.</p>	

It is important to note that the researcher views and beliefs in this study is interpretative and has been uncovered as such given the researcher works within this domain. Further, the researcher acknowledges that this topic is complex given the factors mentioned above. The researcher further notes that this domain has the ability to adapt and social realities could change and needs to be open to new knowledge that may potentially be brought to light (Maree & Van der Westhuizen, 2009: 20).

## **1.5 Significance of the study**

It is understood that the findings and recommendations of this study will be transferable and applicable to other project environments, in similar areas of significance and other countries. The originality of the contribution of this study to the academic arena and the industry knowledge base will significantly benefit from the additional concepts introduced.

By applying the abovementioned techniques, this research aims to provide recommendations to the banking sector, working in a similar structure, culture and environment, and considering other people aspects.

It further tries to add to the body of knowledge where the benefits are clear for other organisations considering trying to implement Agile principles and practices.

The researcher tries to identify the major complexities of project teams and individuals, highlighting these said principles, and further contributes by analysing further other Agile methodologies as well as practical applications, specifically in the context of the work-based challenge.

It needs to be iterated that this research project only provides background and motivation for the application of Agile principles, in particular the people constructs, in the Bank as a cross-functional organisation. It does not aim to implement the Agile Systems Development Life Cycle (SDLC), but rather to evaluate how other organisations deal with complex people engagement matters and various business projects across a number of functional areas. This all depends on the current business environment and cross-functional challenges.

## **1.6 Structure of this research project**

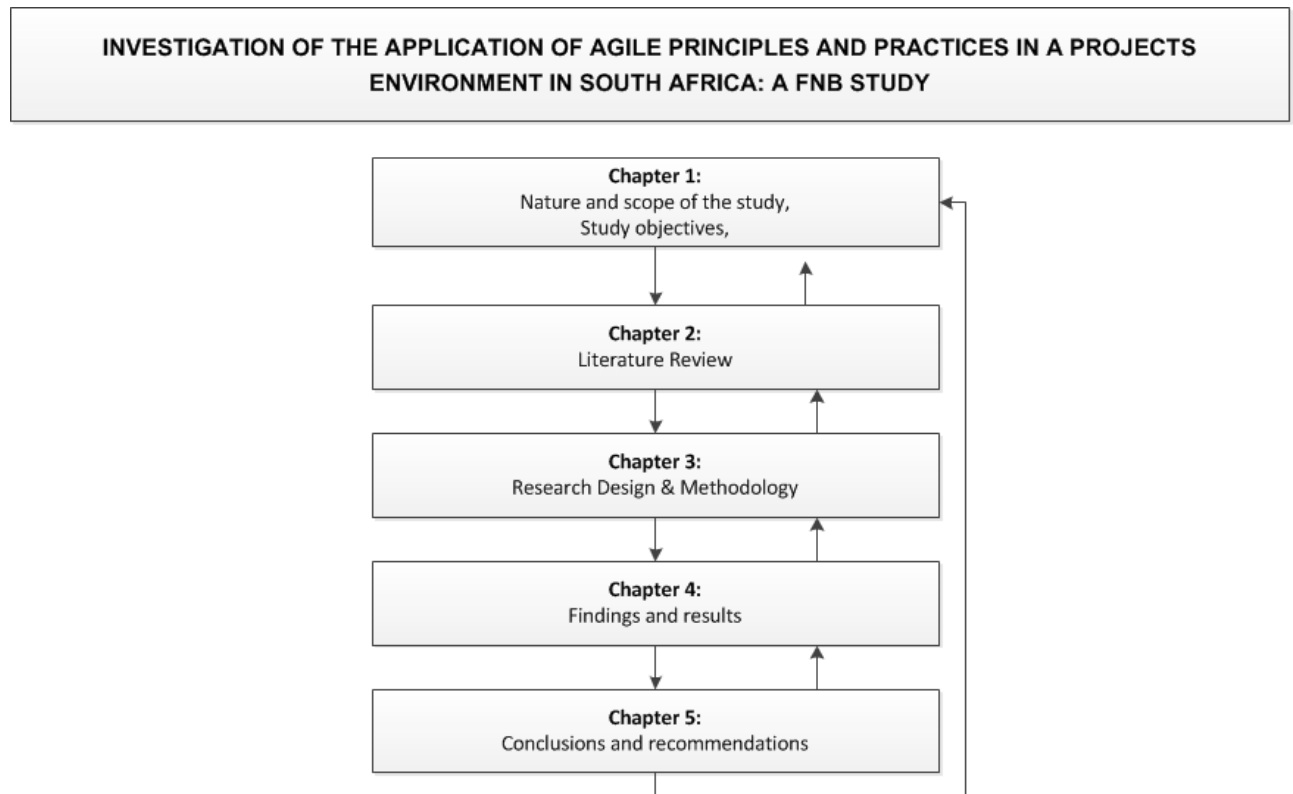
**Chapter 1** provides an introduction, background and overview of the study. It makes note of the research questions specifying the specific sub-questions. It provides a view of the potential contribution it has to the world of knowledge, then details the delimitations of the study being done.

**Chapter 2** contains a detailed literature review on the current literature found during this research project. Components of this research include all people aspects where projects are done; these include change management, team dynamics, team communication, collaboration aspects, environmental aspects, types of projects and, briefly, tools used in a projects environment.

**Chapter 3** focuses on the research design and methodology used for this research project. Specific details are provided regarding the literature review, participants of the research as well as the forums used. Further detail explains the data collection methods used during this process.

**Chapter 4** discusses the findings and results of the interviews. It further explains these results with reference to the literature review. It concludes with the research questions and propositions summary.

**Chapter 5** concludes with summarising the findings with regard to the research. It further provides recommendations and suggestions for further future research.



**Figure 1: Structure of this Research Project**

### **1.7 Abstract of Chapter 1**

In this chapter, a background and a motivation for this study was provided. A brief work-based challenge is brought to light where there is emphasis on the need to successfully implement projects to ensure the future and sustainability of the Bank as an organisation. Further, it makes note of the fact that the human factors and potential complexities which are experienced in projects need to be better understood. The research questions stated will try to identify the extent of these complexities across the research domain and then focus these questions to the immediate domain of the Bank.

The researcher then notes the focus of the study and highlights the contribution to be made to the wider project community.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1. Introduction

As suggested by Bryman and Bell (2011), the purpose of a literature review is to determine what work has already been done in the domain of the research project. It aims to view what is known, the concepts relevant to the area, the methods and strategies that have been employed in this area, if there are any inconsistencies in findings related to this area and if there are any other unanswered questions in the research area.

This research project aims to do a systematic literature review which “. . . aims to minimise bias through exhaustive literature searches of published and unpublished studies . . .” (Tranfield, Denyer & Smart, 2003: 209).

Once a point of literature saturation has been concluded on the specific topic, a meta-ethnography will be concluded which, as described by Noblit and Hare (1998), is a method used to interpret and synthesise qualitative research results.

Over the years, much research has gone into what makes projects successful, but limited focus and studies have been attributed to the human factors that influence project success. It is further stated that projects have typically only been measured by the hard factors, being time, cost and quality (Jetu & Riedl, 2012). The other factors researched in this study hope to bring these to light.

During the past years, a number of studies have been considered including the concept of Project Team Success. Research concludes that focus only on hard measurable factors (time, cost, quality), with lesser focus on the people impact, could significantly and negatively impact any project: “. . . people are considered core elements in the successful delivery of projects” (Jetu & Riedl, 2012). It is further stated that few studies have been done in trying to identify what all these human factors are and how they are interrelated. It is further stated by Jetu and Riedl, (2012) that it is not completely understood if these factors do indeed impact project success and to what extent.

Studies in the early 2000s reveal that there was not much scope and research done in this domain where the concept of team and human factors were rarely mentioned (Keil et al. 1998). In later years, the research identifies further studies on these factors, but these were still not classified as in-depth research (Jetu & Riedl, 2012). Wallace, Keil and Rai (2004) mention the concept of team risk and various factors here are discussed. It is concluded that from the early 2000s to the late 2016s, limited research has been done in this regard (Jetu & Riedl, 2012).

In the previous chapter, a background, motivation, objectives and potential value adding to the study were discussed. In this chapter the literature will be explored

in order to formulate the necessary hypotheses with the aim of achieving the main theoretical study objective. The following will be explored:

**Research Theme 1:** Given the complexities with project teams and individuals, to what extent are individuals and interactions more effective than processes and tools in a projects environment?

**Research Theme 2:** Given the complexities with project teams and individuals, to what extent is customer collaboration more effective than contract negotiation in a projects environment?

From a theoretical point of view, this research project will try to address the human factors that are to be considered when looking at the principles of Agile, in relation to business and software projects. Literature states that this is a multi-dimensional concept and spans a number of disciplines (Jetu & Riedl, 2012).

From a practical point of view, these concepts are useful for all who work in a project domain. If leadership is aware of these factors and their interrelationships, there should be a higher degree of project team success.

In the following sections, a theoretical and empirical view has been given on the research topics and concepts found. The primary base of this information is in-depth reviews of journals in the domain of Agile methodologies, project management principles, project team constructs and projects as a construct. Literature in this domain was vast, so focus was placed on identifying the human factors linked to the Agile principles and research questions.

We start by providing a view and definition of Agile. We determine the relationship of Agile in the workforce and look at the general planning around Agile. We review the definition of a team, the relation of a team in the workforce and introduce the concept of trust within teams. We review the negatives that impact teams and consider conflicts within these teams. We further introduce the concept of team collaboration, its duty in allowing team cohesiveness and see if the location and structure of teams are in any way factors to be considered. Team culture and emotions are considered as well.

## **2.2. General**

According to the literature, in topics wider than that of the current study, it is important to note that the scale and complexity of software development and its projects have increased over the last few years. This is certainly linked to the changes in demand due to advances in technology. Development and thinking therefore needs to constantly keep ahead in this field (Suzuki, et al., 2013).

## **2.3. Agile**

This section provides an overview of the term "Agile" and its use within the business domain. In addition, it denotes the positive as well as negative connotations surrounding this concept. It further mentions the relationship with the people aspects for this study. This section highlights further research still to be done in this domain.

### **2.3.1. What is Agile**

According to literature, Agile transformations are difficult. They require a successful orchestration of people, processes and technology. This highly coordinated process is unpredictable as there are many complex facets surrounding this concept (Anon, 2013).

It is further stated that being Agile is about building the right solution for a problem worth solving, for the right customers. Being Agile is also about finding a market that will support a viable business (Anon, 2013). Agile development also promotes sustainable development which is critical for business survival (Suzuki, et al., 2013).

Research further states that one promise of Agile development has been in its iterative and incremental nature, showing constant business value. It is about frequent delivery of new deployable business value, making use of tight, self-organising teams (Anon, 2013). Taku (2012) mentions that working software is the primary measure of progress, but emphasises the importance of the team in this topic.

Our business environment is all about responding to change, quickly and easily. It is about welcoming changing requirements, even at late stages of development. Agile development harnesses change for the customer's competitive advantage (Taku, 2012).

The 'people' focus of Agile methods is singled out as an essential factor in the success of this process (Boehm & Turner, 2004). The following sections attribute their detail to this construct.

**Proposition 1:** The team and people focus of Agile as a methodology is an essential factor in the success of projects.

### **2.3.2. Agile and the workforce**

According to Whitworth & Biddle (2007), Agile methodologies represent a people-centred approach to delivering software. Suzuki, et al. (2013) conducted experiments to demonstrate that it is effective to learn Agile principles through workshops. A workshop is defined as "a brief intensive course, a seminar, or a series of meetings emphasizing interactions and exchange of information among its participants" (Hori & Kato, 2012).

It has been shown that it is possible to learn Agile principles through workshops, and that participating in workshops can be more effective than studying alone.

Other studies have also shown that in teaching people to have an Agile mind-set or adopt its principles, self-study is the most common way of learning. Suzuki, et al. (2013) emphasise, though, that face-to-face engaged learning is ultimately preferred.

Agile teams are defined as cross-functional and self-organising in nature. Accordingly, a cross-functional Agile team comprises everybody involved in the development of a project, including people from the business area, project management, development, testing, quality assurance and technical support. The members of a self-organising team 'manage' their workload holistically and completely end to end (Hoda, et al., 2010).

Research shows that each organisation or team implements a customised Agile method, tailored to better accommodate its need. These were proven to increase the level of investment and involvement in the representative teams and individuals (Soundararajan, et al., 2013).

Research also reveals that it is easier to adapt to an Agile environment when users view its benefits instead of its challenges. The workforce has learned to expect more changes, and to spend more time talking to team members (Austin, 2013). Agile is also further associated with high levels of helping, trust and goodwill in the team environment (Whitworth & Biddle, 2007).

According to Davis (2013), adopting Agile is effective for teams and helps to shift the focus around ownership and sustainability of the change to all team members (Davis, 2013).

Other approaches, according to Little & Karaj (2013), were around socialisation which was new and exciting to many people. This provided opportunities for people to learn and engage with the Agile community. Little and Karaj (2013) further state that it would be easier for "people to adopt new ways of working if they're involved in it and are intrinsically motivated to do so".

Mezick (2013) mentions that engagement at executive levels is of utmost importance for identifying and responding to change. It is further stated that "to reach levels of engagement sufficient to effectively respond to change, an environment of team psychological safety must exist".

### **2.3.3. Agile project planning**

This section highlights the process and tools adopted in the process of Agile and its planning.

Lorber & Tieszen (2012) mention that it is important to note that there is still a process of planning in the topic of Agile; the process is not without this important starting point.

According to the literature, there is no such thing as a perfect plan, and trying to plan your way to success in an Agile transformation is a recipe for disaster (Anon, 2013).

All research describes one process for planning which involves the project office or relevant planning committees engaging in a work-balancing process to arrive at the planning with a proposed sprint backlog. This proposed backlog is described in story points, using various metrics. It is then matched to the capacity of the team, using estimates of each developer's capacity for the upcoming sprint. The plan is then presented to the team at the beginning of the planning meeting as a starting point for negotiations. The sprint backlog is then derived in the traditional fashion outlined in The Scrum Guide (Lorber & Tieszen, 2012).

#### **2.3.4. Abstract**

It is noted in the research that others in the agile community see the value of the approach. It needs to be made clear though that much work remains to enhance this method and surrounding processes (Anon, 2013).

For this research study, it has been noted that no research has been done on specific research questions for this study. In support of research done by Soundararajan et al. (2013), it is concluded that this study is still to be done on the adequacy of the process and methodology of Agile, the capability of an organisation to provide the environment for implementing the method as well as the overall effectiveness of the method. It is noted that this research emphasises the Agile principles and not the methodology itself.

#### **2.4. Teams defined**

This section provides an overview of the concept 'Team' and its use within the business domain. It denotes the positives as well as negative connotations surrounding this concept. It further mentions factors which are incorporated in this study. In summary, this section highlights relation between the two concepts of Agile and Team and how they relate. It then denotes further research to be done in this topic.

Project teams are defined as "groups convened to develop a concrete piece of work, whose lives begin and end with the initiation and completion of special projects" (Farh & Lee, 2010). Typically, these are networks of interdependent individuals with a shared goal. Farh & Lee (2010) further state that "Like other kinds of social networks, project teams rely on relationships among members for the flow of knowledge, information, and ideas within and outside of the team".

A team can also be formed where team members share common goals and work in close proximity over an extended period; they easily develop a common identity and trust in each other (Kähkönen, n.d.).



It is further understood that teams are a widely studied concept in general business concepts and in software development, “. . . the idea is to solve business and technical problems” (Kähkönen, n.d.).

In later research, it was noted that when multiple teams merge for a common goal, the overall diversity of the team and the project is increased (Ramasubbu, Bharadwaj, & Tayi, 2015)

Team interaction, in this study, refers to the degree of communication among cross-functional team members (Chen, 2007). Accordingly, prior research has provided many clues about the important role of team interactions on the project outcome, as stated by Chen (2007). Linked to this concept is the concept of team cohesion. This is one of the factors that affect team performance (Langfred, 1998).

There are many other studies and models in this domain. One such model is the Social Network theory. As stated by Nan & Kumar (2013), “This models individual actors as nodes of a graph joined by their relationships depicted as links between the node”; “. . . an intra-project collaboration network is a close-up view of relationship structures within a particular project”.

#### **2.4.1. Team CoP**

Community of Practice (CoP) is a concept defined as “people who are bound by informal relationships and who share a common practice” (Kähkönen, n.d.).

It is further explained by Kähkönen (n.d.), that Communities of Practice are ubiquitous, meaning everybody belongs to several communities. Previously, organisational research focused on formal structures. Accordingly, CoP ignores traditional organisational boundaries and takes into account the importance of tacit knowledge. It also looks at the social aspects of a knowledge creation format. It is further stated that in large organisations, CoPs “have multiple dimensions and the formal organizational structure typically reflects only one or two of those dimensions”. CoP thus covers the dimensions that the formal organisational structures do not cover and highlights other important factors.

#### **2.4.2. Team engagement**

This section points out various team factors regarding teams and their engagement.

Team synergy refers to the creative insights that emerge from social interaction as ideas that are exchanged among team members. Accordingly, team synergy becomes effective when the performance or outcomes of a group go beyond the capacities of individual members (Susan & Meneely, 2012). Other research highlights subtle requirements for cohesive teams (Whitworth & Biddle, 2007).

Furthermore, productivity is powered by engagement and, ultimately, synergy between teams. This allows for teams to opt-in and volunteer for team work, by not feeling forced (Mezick, 2013).

Team synergy is generally manageable and strongly prevalent in small teams. A larger, heterogeneous team amplifies the need for efficient practices and closer management (Lorber & Mish, 2013).

Team-wide awareness and control, as supported by agile practices, was seen to allow a focus on quality and craftsmanship in a way that was previously difficult to achieve with traditional project practices (Whitworth & Biddle, 2007). By maintaining regular team awareness of member activity, agile teams allow for an extremely high level of social support and accountability during software development (Whitworth & Biddle, 2007).

Research states that team members share in the collective successes and failures of their teams as they feel they belong to a team (Austin, 2013). Team members feel wanted as well as potentially having ownership and influence over the developed product, because their feedback is considered valuable (Austin, 2013).

**Proposition 2:** The level of team engagement and collaboration is of utmost important for the successful implementation of projects.

### **2.4.3. Agile and team trust**

Given the above discussion surrounding team cohesion and synergy, according to Dorairaj and Noble (2013), without trust, teams face difficulties in developing cohesion which, in turn, directly affects performance of the team.

Literature further suggests that there are few empirical studies on the techniques for building trust in Agile software development (McHugh, et al., 2011); however, it was found that exposing and sharing of knowledge and expertise has been effective in the process of building trust (Dorairaj & Noble, 2013). A team member is deemed to be trustworthy when that member is willing to respond to a need of the team including using existing skills and knowledge for the benefit of the team. This member will also be deemed to be trustworthy if there are general concerns about the overall success of the team and overall project results (Dorairaj & Noble, 2013). Later research highlights two aspects of trust being personal trust and professional trust. Reputation is closely linked to this concept of trust (Takpuie & Tanner, 2016).

Ways of solidifying and building trust include face-to-face meetings, collaboration initiatives and effective communication.

Where there are distributed teams or perhaps vendors, suggestions have been made for frequent visits and sponsor visits. Dorairaj and Noble (2013) also found that trust develops when team members show general concern and empathy for one another.

While trust among team members is imperative for the traditional team structures where software development projects are concerned, substantial effort is required to build trust where there are distributed teams (Ramesh, et al., 2006). Dorairaj and Noble (2013) suggest various Agile techniques, Scrum ceremonies and daily meetings.

These all increase trust within the team by providing transparency and visibility of overall project status. This gives rise to team members being accountable for their responsibilities. The positive effect is open, honest and frequent collaboration. This process allows for sharing of knowledge and obtaining general feedback (Dorairaj & Noble, 2013).

Overall research results show that perceived team task interdependence and communication frequency have positive effects on level of awareness and team cohesion. These conclude that both perceived task interdependence and awareness are positively associated with trust. As stated by Covey (2006), “. . . when the trust account is high, communication is easy, instant and effective”.

**Proposition 3:** Team trust is built on the premise of open, honest and frequent collaboration amongst team members.

#### **2.4.4. Agile and team negatives**

Generally, for Agile-like teams, there is experience of bad quality or incomplete work. Studies show that these are highly social rather than punitive (Whitworth & Biddle, 2007). Later literature states that there will always be pitfalls and negative attributes associated with the adoption and use of a new methodology (Tanner & MacKinnon, 2015).

There are a number of negative effects associated with that of teams and agile methods. According to (Whitworth & Biddle, 2007), in this study, the tendency is for individuals to feel stressed or exhausted after spending the whole day being 'on' or socially active. Another factor mentioned is that the process of Agile methods induces 'burnout' far more quickly than traditional methods. It is stated that increased contact with the same team members may potentially be a cause. The research also dictates that by being in the same project activities, the likelihood for this increased stress is prevalent.

Other research points out that certain individuals or personality styles cannot easily integrate into agile teams, given the nature of a highly collaborative team (Austin, 2013). Agile teams potentially have, or perhaps deal with, low levels of perceived psychological safety, and could result in low levels of organisational (team) learning, which becomes an impediment in achieving a successful adoption of Agile principles (Mezick, 2013).

Extensive studies done by (Dorairaj & Noble, 2013) reveal a number of challenges to be taken into account. The initial analysis mentions building trust,

which was previously discussed, managing knowledge within a team, improving team communication, bridging cultural differences and building team interaction.

It is further demonstrated by (De Dreu & West, 2001), that minority team members can publicly go against the beliefs, attitudes, ideas, or policies, as assumed by the majority. This then introduces a degree conflict into the minds of team members, “. . . thereby increasing divergent thinking and reducing premature consensus” (De Dreu & West, 2001).

According to Kidwell and Mossholder (1997), deterioration in group cohesiveness may negatively impact “citizenship behaviour”. Group cohesion, as previously stated, is the manner in which group members are attracted to and motivated to stay within the group. A number of factors such as face-to-face communication, time spent together, the severity of initiation, group size and external threats all affect cohesiveness. As stated by (Dunphy & Whisenand, 2012), this demonstrates that working in small, diverse teams may result in an improvement in overall project performance. (Dunphy & Whisenand, 2012) further mention that “Negative behaviours within these project teams result in less than optimal project results” (Dunphy & Whisenand, 2012).

According to other literature, it was noted that college students demonstrate resistance to working in teams. The major complaint, as stated by these students, are team members not pulling their weight (Dunphy & Whisenand, 2012). (John & Tom, 2009) refer to this as ‘social loafing’. This is where an individual displays a tendency of not working so hard, because the team would typically support this person so the group does not fail.

**Proposition 4:** Teams working in an environment adopting agile principles have concerns particularly linked to many people factors.

#### **2.4.5. Team traits and creativity**

We define team creativity as “the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together” (Farh & Lee, 2010).

Research has identified numerous personality traits indicative of creative people. These include a willingness to take risks, they are generally attracted to complexity, they have a tolerance for ambiguity, are self-confident, independent, and have broad interests. It is further stated that creative people are likely to be playful but disciplined, logical, humble, proud, imaginative, realistic, introverted yet extroverted, and masculine yet feminine (Susan & Meneely, 2012).

Many possible complex dimensions may be derived by having a vast number of personality traits in the same team. Careful consideration is to be taken when selecting and building a team.

While agile practices instantiate that team activity is to be observable or transparent, cohesive agile teams were seen to be ubiquitous. They encourage openness and honesty at all levels, from developers to management (Whitworth

& Biddle, 2007). It is further noted that these traits are further indicative of teams no matter what the size; these are not only relevant for individuals (Farh & Lee, 2010).

#### **2.4.6. Team structure**

Team structure is a factor to be considered when concerned with teams and working together. Literature suggests that larger teams potentially produce more favourable project performance when the project being developed has a high level of structural interdependency. Projects with a low level of structural interdependency require smaller teams to achieve better project performance (Nan & Kumar, 2013). A classic Agile team is a small, collocated team where the customer is an integral part of the team (Hoda et al., 2010).

Other aspects identified where team structure is concerned is that of centralised versus non-centralised. "Centralized teams tend to have a positive impact on project performance", and the assumption is that the less centralised teams are possibly less positive with their results (Nan & Kumar, 2013). (Dorairaj & Noble, 2013) state that in order for decentralised teams to operate successfully; specific strategies should be employed to bridge spacial and temporal distances. In addition, closer team management is required for decentralised teams.

Despite the increasing popularity of virtual teams in organisations, very little is known about how personality traits may contribute to virtual team effectiveness (Nan & Kumar, 2013). There seems to be a move towards working in more virtual type structures or environments. It is yet to be understood as to what the full benefits of this would be (Dorairaj & Noble, 2013).

Linking this back to the concept of teams and trust, it is imperative for software development project teams that are formed to present substantial effort to be successful (Ramesh, et al., 2006). Accordingly, there are other factors which give rise to a number of key concerns for distributed teams, such as bridging of cultural differences, improving team communication, managing team knowledge and building trust within the team (Dorairaj & Noble, 2013).

**Proposition 5:** The concept of a decentralised and virtual team structure introduces complexities to project environments.

#### **2.4.7. Team conflict**

When individuals or teams come together, conflicts may emerge. As stated, "Conflict refers to any disagreement in goals, ideas, or approach among two or more teammates, often as a consequence of communication problems and differences in working or thinking styles" (Susan & Meneely, 2012).

According to literature, a team, representing multiple disciplines and thought processes, brings diverse perspectives, expertise, and thinking styles, which increase the potential problem-solving space and ultimately pose a risk for team conflict (Susan & Meneely, 2012). Accordingly, it is noted that this is potentially a

positive indicator for problem solving, yet, in the incorrect setting, this competition may divide a team. According to (Ozawa & Zhang, 2013), this may also decrease motivation, involvement and ultimately the cohesiveness of the team.

Furthermore, "Complex interaction of values, attitudes, behavioural norms, beliefs, communication approaches by members of a project with vastly different values may give rise to misunderstanding and misinterpretation of intent that may result in conflict, mistrust, and underutilization of talents" (Ozawa & Zhang, 2013).

Another view is that of a solo mind-set. This could encourage silos within the team to potentially further introduce conflict (Zajac-Woodie, 2013).

#### *2.4.7.1. Resolving team conflict*

As commented by Ozawa and Zhang (2013), it is suggested to find factors looking at the ". . . differences that cannot be changed rather than trying to find the reason for the differences". It is further stated that asking team members directly for a reason to a problem may not lead to a possible resolution. (Ozawa & Zhang, 2013) also suggest trying to resolve issues a little at a time instead of trying to resolve them all at once. This should provide time to allow members to build better relationships based on the change. Another way is to adapt practices in the project to take advantage of the situation as relationships between members' change (Ozawa & Zhang, 2013).

The concept of task conflict is now introduced. Research suggests that task conflict is needed to enhance team creativity as it allows greater information exchange. According to (Farh & Lee, 2010), it further allows for the "re-evaluation of the status quo and scrutiny of the task at hand".

Literature does caution, though, as too much task conflict may present an overload of possibilities and it may be difficult for teams to arrive at a coherent solution (Farh & Lee, 2010).

#### **2.4.8. Agile and team coming together**

According to literature, Agile teams are seen to operate in environments typically more open where members are respected. Supporting this, (Kerth, 2001) states that team members "showed heightened awareness of the actions and opinions of others in their team including a better understanding of their own opinions and roles in relation to the rest of the team". It is suggested that this is because teams with this type of structure and commitment engage often in team reflection and retrospectives (Kerth, 2001). This sentiment is more recently supported by (Taku, 2012).

Agile teams could potentially become isolated from the rest of the organisation, which one could argue could be a positive or a negative (Whitworth & Biddle, 2007). Much later research suggests that there are feelings of perceived control and membership as well as a specific purpose and drive seen within these teams (Mezick, 2013). It is further mentioned that the best requirements and designs

are prevalent from self-organising teams (Suzuki et al., 2013). (Ozawa & Zhang, 2013) suggest that workplaces adapt roles to take advantage of changing relationships and reaping the benefits thereof.

#### **2.4.9. Project lifecycle**

A topic when considering teams is to consider the project lifecycle. Several studies on project teams demonstrate that, regardless of the duration or type of team task, "teams will prioritize task-related goals differently across phases of the team life cycle". At early project phases, teams will engage in the idea of idea generation and may be more involved or motivated, versus later in the project where project execution and implementation tasks are needed (Farh & Lee, 2010).

#### **2.4.10. Team / Agile conclusion**

(Ozawa & Zhang, 2013) state that simply adopting Agile principles is not sufficient in the context of a team. To be successful, the team would need to continuously adapting roles as well as processes. It is further suggested that if there is change amongst members, the processes are to be adapted for project success. Individuals also need to be motivated. (Suzuki, et al., 2013) state that management needs to build projects around specific individuals and provide the environment and support needed to achieve results.

#### **2.4.11. Communication / Collaboration**

According to (Mezick, 2013), "Social systems are complex systems that generate complicated and non-linear feedback". Having all team members in the same room (as per the Agile SCRUM process) should support the integration and speed of collaboration (Whitworth & Biddle, 2007). Collective behaviour is important. Adoption of this engagement process is essential within these social systems (Mezick, 2013).

(Ozawa & Zhang, 2013) bring to light the fact that there are challenges within these social systems. These range from openness of society, to the difference in willingness to adopt new techniques, to problems encountered with specific communication types and mediums. Other studies illustrate the importance of team interaction. These include communication and coordination tasks, factors which play a critical role between cross-functional teams and the project's ultimate result (Chen, 2007).

Earlier research introduced the concept of a collaboration structure. This ultimately is the collection of collaboration ties within the team. This describes a pattern of sorts that can be characterised by factors such as the strength of the ties within the structure or the degree of centralisation within that structure (Wasserman & Faust, 1994).

(Chen, 2007) found that cross-functional teams have two-way communication. This results in more satisfactory project results and member satisfaction. Literature also reveals that team members who are more collaborative (compared to less) can self-organise and divide the labour amongst themselves to successfully produce satisfactory project results (Lorber & Mish, 2013).

Awareness and feedback elicited from the team was found to be particularly important. Sharing knowledge and receiving feedback from the team was seen to be preferred (Whitworth & Biddle, 2007). Where team members are encouraged daily to voice their concerns allows for better team cohesion (Austin, 2013). Agile practices allow for this to happen. In the software development space, teams could potentially produce more valuable software more quickly if they communicate and collaborate often (Zajac-Woodie, 2013). It is important to note that project teams extend to the business users; project teams must work together and collaborate daily throughout the project to ensure success (Taku, 2012). "Customer collaboration is valued over contract negotiation because agile teams would like all parties to the project to be working towards the same set of goals" (Cohn, 2005).

It is important to note that Agile practices should, however, be 'mandated' by management teams. (Mezick, 2013) states that this 'mandate' may "reduce feelings of control and membership . . . the opt-in feature found in well-formed games is absent". This may result in potential negativity around this process.

#### *2.4.11.1. Collaboration tools*

Prior studies by (Chen, 2007) show that tools such as messaging or emails can improve communications. It is further stated that this can reduce wastage currently experienced in face-to-face meetings.

Tools further enhance and support the traditional channels and mediums for collaboration and are generally more flexible. Flexibility is of utmost importance when considering distributed project teams where the use of video conference and other similar mediums are needed.

#### *2.4.11.2. Collaboration challenges*

Literature shows that there are a number of challenges experienced with regard to this topic. (Chen, 2007) states that often individuals across functional areas experience disagreements and this could "produce tension during the project period". He states that the team then suffers these consequences and "consensus become more difficult". This causes potential conflict amongst the team, reduces cohesiveness and slows down innovation and ultimately project success.

The recent trend and reality of globalisation introduces the challenges of the need for collaboration and the need for collaboration networks. Project teams would need to take the form of global networks where teams are far more distributed, making use of technology and other channels or mediums for collaboration.



Other factors such as personalities and culture typically would impact these directly. Previous research studies have shown that teams may evolve quickly, but it is noticed that organisations need to acknowledge the importance of these collaboration structures, considering all factors (Ozawa & Zhang, 2013).

#### *2.4.11.3. Collaboration studies still to be done*

Research has suggested the need for face-to-face meetings when a team is formed, but few studies have considered the role of face-to-face meetings during a team's life (Mezick, 2013).

#### **2.4.12. Agile principles and culture**

According to (Soundararajan et al., 2013), Agile methods provide an organisation with the flexibility to work in a certain way. It allows for teams to apply and implement their understanding of these principles, based on the facets surrounding corporate culture and values. It is further supported that the adoption of these Agile principles is based on other factors such as the types of projects and characteristics of the project team (Kong, et al., 2012).

Where there are inherent issues in adopting the principles of Agile, (Ozawa & Zhang, 2013) cautions that it may not be possible to control any issues as it may be inherent to the core culture and ultimately not have the ability to change. Suggested would be to accept use these variances to "find a way to take advantage of it instead of trying to eliminate it". This is further supported by (Mezick, 2013) who mentions that adoption requires work and ongoing management.

Organisational systems are generally complex systems but ultimately adaptable. Team members need to understand that there is an organisational hierarchy, bureaucracy and corporate culture and a certain behaviour that will be required of them (Pasquim, Campos, & Soares, 2016).

The Agile process is seen as adaptive and includes a process of learning and innovation. To remain relevant, organisational cultures must be flexible to deal with ongoing changes (Kong, et al., 2012). Ultimately, organisations are to adopt an Agile-like culture in order to be sustainable, given the principles referred to.

#### **2.4.13. Environment / Structure / Location**

According to (Chen, 2007), the way in which the organisation, and more specifically project teams, are structured, could have a significant impact on the way they function. Empirical literature proves a mixed view of both positive and negative views on cross-functional teams and distributed project teams (Chen, 2007).

With globalisation being the current way we do business and the preferred business operating model of the future, having cross-functional teams being co-located or distributed is a reality (Little & Karaj, 2013). Research shows that where organisational structures are more decentralised, a cross-functional project structure is often more successful (Chen, 2007). Cross-functional team

structures have a direct impact on relationships and ultimately project outcomes. By its nature, it brings together individual work streams across a number of topics and specialisations.

Another matter which literature highlights is that of the formalisation of the structure, where structure relates to the relationship and connections between project resources. (Chen, 2007) states that the less formal the structure, the more input the individual is likely to make; this means increased communication, co-ordination and collaboration across teams. Other research introduces the concept of structural dimensions. These refer to the patterns of these connections and how they are arranged.

They further refer to commonalities amongst individuals or teams such as language, views, interpretations and many others.

Team size is one aspect which has mixed implications. In theory, a larger network has more processing power but does need increased coordination and management. A smaller team is potentially easier to manage, but does require much effort on larger projects (Nan & Kumar, 2013). Communication too is easier to facilitate.

Another consideration is that of a centralised versus a non-centralised team. A centralised team is easier to facilitate as all team members are co-located. Often, higher levels of team performance and project quality are experienced. Decentralised teams require a higher cost and additional effort to manage.

Other important aspects regarding the depth of team cohesiveness are affected by the degree to which teams are centralised or not centralised (Nan & Kumar, 2013). Suggested by (Tilchin, 2010), is a method of co-ordinating a temporal sequence of project tasks and the team on an ongoing basis for dynamic organisations.

Further research on the topic of distributed teams and structure introduces a term called 'clan control' (Huang Chua & Lim, 2012). This theory emphasises that this is essential in large project and project structures. It refers to the management and sequencing of these tasks, but cautions against factors such as background, culture and diversity. The process of clan control can be done if the clan is built with social conditions and leveraging the clan in mind, by facilitating values and beliefs within the team. This would be done by the controller, ideally a Project Manager or Scrum master in the traditional sense of project management and Agile methodology (Roberts, et al., 2005). This framework does however provide some guidance on clan control but further research needs to be done in this topic.

Physical open space and office layout allows for and encourages Agile adoption (Mezick, 2013). Research suggests it further encourages higher levels of engagement and acceptance of the process for cohesion and open level of engagement.

Ultimately, for special challenges and distributed teams, it was found that trust among members of teams is important for bridging spatial and temporal

distances in order for them to work together (Dorairaj & Noble, 2013). Further research maintains that even for teams who are completely internet-based or virtual, trust would allow for this methodology to work (Beranek, 2000; Iacono & Weisband, 1997; Jarvenpaa, Knoll & Leidner, 1998)

#### *2.4.13.1. Negatives of cross-functional and structured teams*

Studies do indicate that cross-functional teams do not necessarily work. All facets must be taken into account. The thinking is that there may potentially be conflicts and misunderstandings among functional areas over the level of engagement, accountability and group cohesiveness (Chen, 2007).

This is further supported by (Chaudron, n.d.) when he mentions this in the discussion surrounding functional diversity.

Rigid structures may restrict project team individuals and ultimately impact on the ability to perform tasks (Chen, 2007).

#### *2.4.13.2. Environmental / Structure Future Research*

Literature suggests that future researchers study the effect of structural arrangements on team effectiveness. This potentially brings to light and examines if organisational structure is indeed a factor for successful projects and will be part of this research objective.

### **2.4.14. Nature of projects**

Studies done by (Roberts, et al., 2005) found that project complexity can affect the group interaction process. Efforts made to organise project members and define roles were more effective with less complex projects than with those more complex. There is also much potential for conflict and it is believed that the more complex the project, the more need there is for detailed planning and a closer consideration for resource coordination. This then ultimately affects the dynamics of the team. Less complex projects have increased levels of team morale, integration and collaboration.

Finally, other factors such as personalities, culture or any of the above factors could have an impact, being negative or positive, on a project, regardless of its complexity.

### **2.4.15. Emotion**

(Akgu'n, et al., 2011) state that emotional capability of individuals in teams in today's globalised and cross-functional world is becoming an important phenomenon. In the research done, aspects explored were team dynamics, playfulness within teams, reconciliation and identification constructs. In addition, team autonomy is a positive concept when applied to teams. Empirically, collective hope and enthusiasm is directly linked to project overall performance.

There is much focus on the management in this process. (Akgu"n, et al., 2011) suggests that the leadership team should influence and drive positive emotional capability. In particular, leadership should promote courage, hope and joy to increase collaboration and cohesiveness.

Research has identified numerous personality traits generally associated with that of creative people. These people display a willingness to take risks, are attracted to complexity and somewhat passionate, often seen as over- emotional (Susan & Meneely, 2012).

#### **2.4.16. Contracts**

Intensive research has been done and highlights the people aspects in the domain of projects and teams. Not much research makes mention of the actual agreements or contracts. (Mol"kken-Østvold & Furulund, 2007) state that project agreements or contracts are important since they regulate collaboration to some degree (directly or indirectly).

No new constructs exist in the literature reviewed that further support or maintain this idea.

#### **2.4.17. Tools**

(Whitworth & Biddle, 2007) mention tools and the potential reliance on these tools. The absence of these tools allows for missed task events and a potential sense of lack of control over the project tasks. This is further supported by (Melton, 2010) as his research suggests that "everything we do is a project so we need the right tools to do the job right".

On the people side, literature suggests the use of the Agile mind check tool. This is used to check and analyse the participants' degree of mastery of the Agile principles and practices.

(Soundararajan, et al., 2013) further identifies the Objectives, Principles and Strategies (OPS) framework which identifies objectives, principles and strategies for measurement of the Agile methodology.

#### **2.4.18. Abstract of Chapter 2**

This literature review exposed and brought to light many complex facets of the people aspects taken into account in a work environment. There is though, much more research to be done in this area in future.

In the next chapter the research design and methodology of this research will be discussed.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1. Introduction**

In the previous chapter the literature objectives were explored. Chapter 2 further detailed the concepts identified impacting projects and the potential array of factors to be considered in making projects successful, considering people factors. This chapter deals with the research design and research methodology which is used in an attempt to answer the research questions set in Chapter 1. More specifically, the following areas will be detailed: sampling and profiling, data collection methods (which refers to the participants / location of the data, measuring instruments, research procedure and statistical analysis), and further understanding and making use of this data.

#### **3.2. Research design**

Bryman and Bell (2011) define research design and methods as a framework for the collection and analysis of data, using various techniques. These techniques include qualitative and quantitative analysis. This research study is purely a qualitative approach because of the nature of the said topic; the application of Agile principles and practices in a projects environment in South Africa: A Bank Study.

Qualitative research encompasses many research approaches; however, according to Bryman and Bell (2011), qualitative research is defined as “a research strategy that usually emphasizes words rather than quantification in the collection and analysis of data”.

As further suggested by Bryman and Bell (2011), there are a number of qualitative research approaches, all of which will be used for this research project. These include: **Ethnography**, which is where the researcher is part of the social setting or culture of a social group; **Qualitative interviewing**, which is a broad term describing a range of interviewing styles; **Focus groups**, which is another platform to gather knowledge and information pooling specific views and skill sets; and **Literature reviews**, which is a collection of qualitative analysis and documents.

For this research project, a qualitative approach is followed, due to the study being purely a subject where there are no specific opportunities to measure, using specific metrics. As defined by (Creswell, 2012), qualitative methodology further allows for information to be conveyed and gathered using language in a face to face environment. Given there a people factors considered which discuss aspects such as team engagement, trust, structure, location, communication,

culture, emotion, level and maturity, this study allows for the conveying of beliefs, values feelings and other more intricate people factors.

This type of study further allows the researcher to explore to what extent the Bank embraces the concept of individuals and interactions or customer collaboration over processes; tools and contract negotiation in a projects environment (see Appendix B for detailed research questions and sub-questions). The researcher prompted the interviewees on the following concepts; team engagement, trust, structure, location, communication, culture, emotion, level and maturity. The exploratory ability of this research methodology allows the researcher to further delve into these topics deeper and also identify if there are other topics or similar themes linked to these.

Qualitative design further allows the researcher to understand the context of the area or domain being studied. Questioning and further probing allows for complexities to be broken down into smaller parts, to that end, linkages made between various elements allowing for further understanding of topics and themes (Creswell, 2012).

This design further allows for an enquiry where an answer or response is required. An example includes the research questions asked; 1) What is the use of contracts for project management in the Bank? 2) What is the preferred method of getting project work done?

### **3.3. Background to the research questions, propositions and assumptions**

The researcher had, prior to the interviews, sent out the research questions in the form of a self-administered research protocol so there could be a degree of preparation done before the formal interview discussion took place. At the beginning of each interview, the purpose and duration of the interview were explained to the interviewee/s.

The interview protocol had a list of related questions and topics attempting to reach the research aim objectives to ultimately determine to what extent the Bank embraces the concept of individuals and interactions over processes and tools and tools, if the Bank embraces the concept of customer collaboration over contract negotiation in a projects environment, looking at people factors and other challenges.

Further, given the complexities with software projects, project teams and individuals, this design responds to the business problem explained attempting to determine to what theoretical extent are individuals and interactions more effective than processes and tools, and to what theoretical extent is customer collaboration more effective than contract negotiation in a projects environment?

This design further tries to establish if these concepts are as complex and interrelated as initially understood and whether they actually exist across various project environments.

The current thinking is that these are linked to project people preferring tools to manage and measure project success, individuals not trusting their team members, less team interaction and rather the implementation of strict metrics (Nan & Kumar, 2013).

At this stage, it is understood that this problem is a real risk facing the Bank and is further prevalent within other South African companies. Further to this, it is understood that this research has not been done to this level of understanding and hence the need for this research methodology. The researcher attempts to close the gap in the research already done with newer and more relevant research in the specified domain to deepen the understanding of the themes and topics in this problem domain.

Further to this, the research design allows the researcher to determine and further explore if other divisions within the Bank can work in a flexible and collaborative manner subscribing to the Agile Manifesto (see Appendix A no 1 and specifically, the people engagement model principles referring to the people factors of collaboration and interaction. This research design also attempts to ascertain if the Agile Manifesto and its principles are not simply theories but can be achieved practically and further to this, it allows the researcher to determine what these people complexities are and what the relevant combination is that they need to be applied in to make projects a success.

Given the practicality and methodology applied in this research project, practitioners, managers, researchers and other relevant stakeholders in this specific field of study should be able to relate to the topics and themes brought to light. By applying the design methodology and technique, this research aims to provide recommendations to the banking sector, working in a similar structure, culture and environment, taking into account other people aspects practically.

This research study has generated the below research questions and is a summary of the link between question, the data collection, the data analysis and the rationale for asking the questions. The research questions further deduces a number of findings which supports the research aim. Proposition statements have been concluded based on certain findings in this research study and used to reaffirm information gathered in the research questions. These too have been summarised in the below table.

**Table 3.2: Research Design Questions**

	<b>Research Question (see Appendix B for sub-questions)</b>	<b>Data Collection Tools</b>	<b>Data Analysis</b>	<b>Reasoning</b>
RQ1	To what extent does the Bank embrace the concept of individuals and interactions over processes and tools?	Literature reviews  Semi-structured Interviews  Semi-structured Focus Group Interviews	Data coding  Theming of topics	Research reviews  Points of views are easily explained and elaborated on in discussion  Discussion is more convenient
RQ2	To what extent does the Bank embrace the concept of customer collaboration over contract negotiation?	Literature reviews  Semi-structured Interviews  Semi-structured Focus Group Interviews	Data coding  Theming of topics	Research reviews  Points of views are easily explained and elaborated on in discussion  Discussion is more convenient
RQ3	What are the people factors considered in a projects environment?	Literature reviews  Semi-structured Interviews  Semi-structured Focus Group Interviews	Data coding  Theming of topics	Research reviews  Points of views are easily explained and elaborated on in discussion  Discussion is



				more convenient
RQ4	What are some of the challenges experienced in driving project success?	Literature reviews Semi-structured Interviews Semi-structured Focus Group Interviews	Data coding Theming of topics	Research reviews Points of views are easily explained and elaborated on in discussion Discussion is more convenient
RQ5	In your experience, what is the preferred method of getting project work done?	Literature reviews Semi-structured Interviews Semi-structured Focus Group Interviews	Data coding Theming of topics	Research reviews Points of views are easily explained and elaborated on in discussion Discussion is more convenient
	<b>Proposition</b>	<b>Data Collection Tools</b>	<b>Data Analysis</b>	<b>Reasoning</b>
P1	The team and people focus of Agile as a methodology is an essential factor to project success	Literature reviews Semi-structured Interviews Semi-structured Focus Group Interviews	Data coding Theming of topics	Research reviews Points of views are easily explained and elaborated on in discussion Discussion is more convenient

P2	The level / maturity of the team engagement and collaboration is an important factor for project success	Literature reviews  Semi-structured Interviews  Semi-structured Focus Group Interviews	Data coding  Theming of topics	Research reviews  Points of views are easily explained and elaborated on in discussion  Discussion is more convenient
P3	Team trust is built on the premise of open, honest and frequent collaboration and communication	Literature reviews  Semi-structured Interviews  Semi-structured Focus Group Interviews	Data coding  Theming of topics	Research reviews  Points of views are easily explained and elaborated on in discussion  Discussion is more convenient
P4	Teams adopting agile principles have concerns linked to the complex people factors	Literature reviews  Semi-structured Interviews  Semi-structured Focus Group Interviews	Data coding  Theming of topics	Research reviews  Points of views are easily explained and elaborated on in discussion  Discussion is more convenient

### 3.4. Sampling and profiling of the Banks respondents

The sample population will be individuals / members / or associations across project environments in the the Bank. A definitive number of people for the sample cannot be defined unless there are clear themes that stem from the interviewing process and are consistent. The principle was to sample at least 10

pockets of project areas across the the Bank’s group with a minimum of 35 interviews. The researcher can confirm that not all participants were interviewed, as anticipated; however, sufficient respondents were interviewed across all the project domains until points of saturation were reached in terms of themes raised.

Population sampling will be in the form of Purposive Sampling. A Purposive Sample is a sample of people that is not sampled on a random basis. The goal is to sample participants in a strategic way, so that those sampled are relevant to the research being done (Bryman and Bell, 2011). In addition to this method of sampling, the Snowball sampling method will also be used; this means that the relationships made by the Purposive sample of people will be referred to other people in a similar domain or area of expertise.

All interviewees were asked the same questions, but provisions were made where the researcher felt additional questions were needed to delve deeper into a topic to extract information to enrich the topics. The said interviews were set up for forty-five (45) minutes each and were conducted at premises suited to the respondents. All interviews were recorded for record keeping and proof, while the relevant consent was taken upfront in the interview process.

The researcher targeted all roles within the project domain which would successfully provide an appropriate view from all project work streams. The researcher also targeted mostly middle to senior to executive level resources as this would allow an accurate reflection, given qualifications, role and experience in the research topic.

The following table highlights the participants in terms of roles and functions, their levels, as well as their specific areas within the Bank.

**Table 3.2: Sampling and positions of participants**

<b>No</b>	<b>Title / Position</b>	<b>Level</b>	<b>Area</b>	<b>Focus Group Participant</b>
1	Project Sponsor	Executive	Business	n/a
2	Project Sponsor	Executive	Retail	n/a
3	Business Architect Lead	Executive	Business	Yes
4	Chief Information Officer	Executive	Business	Yes
5	Chief Information Officer	Executive	Retail	Yes
6	Chief Information Officer	Executive	Premium	n/a

7	Head of Development	Mid-Senior	Business	Yes
8	Head of Development	Mid-Senior	Retail	n/a
9	Head of Development	Mid-Senior	Premium	n/a
10	Project Manager	Mid-Senior	Business	Yes
11	Project Manager	Mid-Senior	Retail	Yes
12	Project Manager	Mid-Senior	Premium	n/a
13	Project Administrator	Junior	Business	Yes
14	Project Administrator	Junior	Premium	n/a
15	Business Analyst	Mid-Senior	Business	Yes
16	Business Analyst	Mid-Senior	Retail	Yes
17	Business Analyst	Mid-Senior	Premium	Yes
18	Systems Analyst	Mid-Senior	Business	Yes
19	Systems Analyst	Mid-Senior	Retail	n/a
20	Systems Analyst	Mid-Senior	Premium	n/a
21	Test Analyst	Mid-Senior	Business	Yes
22	Test Analyst	Mid-Senior	Retail	Yes
23	Test Analyst	Mid-Senior	Premium	n/a
24	Developer	Mid-Senior	Business	Yes
25	Developer	Mid-Senior	Retail	Yes
26	Developer	Mid-Senior	Premium	n/a
27	Database Administrator	Mid-Senior	Business	Yes
28	Database Administrator	Mid-Senior	Retail	n/a
29	Application Developer	Mid-Senior	Business	Yes
30	Application Developer	Mid-Senior	Retail	
31	Solutions Architect	Senior	Premium	Yes
32	Solutions Architect	Senior	Business	n/a
33	Change Manager	Senior	Retail	n/a

34	Training Manager	Senior	Premium	n/a
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It is important to note that the minimum amount of people were interviewed however not all people mentioned in the table above. At a minimum, each competency was interviewed however not all levels of people were accessible for this project.

### **3.5. Data collection methods**

This research project made use of tools and techniques for qualitative data analysis. It started with a detailed literature review and analysis, including structured interviews with focus groups. More detail is provided in the following sections.

#### **3.4.1. Literature review**

This first stage comprised of a number of approaches. First, a comprehensive literature review was performed. The purpose of a literature review is to determine what work has already been done in the domain, as well as to determine if there are any inconsistencies in findings related to this area, with any other unanswered questions in the research area (Jesson, Matheson, & Lacey, 2011).

The literature review comprised of relevant published and unpublished journals in the domain of the research questions. Electronic databases were scanned for relevant and related literature. A guide of 250 relevant articles was set as a ceiling limit count.

A critical review was done and comprehensive notes were taken. A systematic review was done and a spread sheet was used to track themes, topics and references.

#### **3.4.2. Interviews**

Parallel to the literature review, semi-structured interviews were held with a number of domain specialists at all levels of the organisation (see table 3.3 for population and respondents), where the researcher had a list of questions referred to as the research protocol; suggested, is a minimum of 35 interviews.

According to Bryman and Bell (2011), qualitative interviewing is where the researcher seeks rich and detailed information pertinent to the guided question which will make coding and synthesis easier.

As mentioned, the Snowball sampling, and often referred to as referral sampling method was also used which means that the relationships made by the Purposive Sample of people were referred to other people in a similar domains or area of expertise (Voicu, 2011).

### **3.4.3. Focus groups**

The following stage of the qualitative approach included interviewing participants by using a focus group medium. According to Bryman and Bell (2011), the focus of this type of approach is to have a group interview where a joint discussion can be facilitated with people of similar business interests. Suggested are focus groups containing five people with five varying domain focus groups created.

The researcher had, prior to the interview, sent out the research questions in the form of a self-administered research protocol, so there could be a degree of preparation done before the formal focus group interview discussion took place. At the beginning of each focus group interview, the purpose and duration of the interview was explained to all the interviewees in the group.

The interview protocol had a list of related questions and topics, slightly amended to cater for the group (see Annexure C). All focus groups were asked the same questions and, similarly, provisions were made for where the researcher felt additional questions were needed to delve deeper into a topic to extract more information to enrich the answers. These focus groups were set up for one hour and were conducted at premises suited to the respondents. All focus group interviews were recorded for record keeping and proof and the relevant consent was taken upfront in the interview process.

The researcher targeted many roles for each focus group. The idea was to get varying views from various roles, as well as levels within the organisation, in a combined discussion using this platform for facilitated conversation. Specific roles were identified for Focus Groups.

### **3.4.4. Methods of data analysis**

The data acquired during the various data collection processes was analysed using the coding technique. A coding technique was used to synthesise, further explore the information and try to identify the meaning of the data. As explained by (Morse & Richards, 2007), coding "leads you from the data to the idea and from the idea to all the data pertaining to the idea". It further allows one to break down the data, then compare and categorise the data. In its simplest form, it means to categorise, classify or group ideas or topics.

For the literature review, the researcher looked at key points and topics in the literature and assigned a summary topic, called a code, to each reference, in order to produce a level of abstraction. The data was then further synthesised, explained and summarised to produce the next level of abstraction. Examples of these, which are not limited to, include topics and themes further explained by the researcher being; Agile, Change management, Teams, Collaboration, Culture and Location.

For the interviews and focus groups review, the researcher looked at interview responses and topics and assigned a summary topic, to produce a level of abstraction at a topic level. The data was then further synthesised and summarised to produce the next level of abstraction. Similarly to the literature

review, specific themes were identified and the data allocated to a specific topic or theme; examples include General, Project Plan, Tools, Project, Emotion and other.

This study required the theoretical sampling to be continued until theoretical saturation was reached. Theoretical saturation is when no newer concepts or topics emerge from the data, and further data collection would be a waste of time (Glaser & Strauss, 1967). The process as annotated was then repeated many times until a comfortable level of understanding was reached.

#### **3.4.5. Trustworthiness, quality assurance and reliability of data**

The researcher is responsible and accountable for the quality of the research data, as well as the synthesis and interpretation thereof. The researcher must ensure that specific quality assurance and measures are adhered to, taking into account research ethics (Pauwels, 2007).

For the literature review, the researcher proposes constant validation and coding to sufficient levels of abstraction, until satisfied and comfortable. Where the researcher feels there are gaps within the understanding or comprehension of the topics, the researcher will constantly validate these with the appointed research supervisor.

For the said interviews and focus group analysis, the researcher had conducted constant validation and publishing of the research results to the interviewees; this allowed for the correct integration and understanding to be tested. Detailed notes and voice recording were reviewed for validity and clarification.

#### **3.4.6. Ethical issues considered**

Ethical considerations for this research study were taken into account. The requests to participate in this study were emailed to the relevant participants (see Appendix D: Request to participate in this study). All participants responded in writing and proof was kept on record.

All participants provided the relevant consent and expectations were clearly set during the opening of the interview and focus group sessions. No participants' names were mentioned across related interviews and, when asked, roles were mentioned. Interview transcripts and recordings were held in a safe off-sight and confidentiality was ensured.

### **3.6. Limitations of the study**

Finally, given the research aim, there were specific delimitations of this study. Summarised, the researcher denotes the characteristics that limit the scope and define the boundaries of the study. 1) This study was only limited to cross-functional teams, i.e., teams that work across divisions or departments and across multiple business domains. 2) Both software development and business projects will be analysed and reviewed given the nature of all projects within the Bank. 3) The research was only limited to projects in the last five years, whether

these have successfully implemented or not 4) The project was only limited to the Agile Manifesto principles and its people engagement constructs and complexities (refer to Appendix A no 1 and 3) 5) This project does not try to implement Agile as a methodology as stated, and finally 6) At a minimum, each competency was interviewed at least once however not all levels of people were accessible for this project, across Business, Retail and Premium segments.

### **3.7. Abstract of Chapter 3**

In this chapter the research design and methodology was discussed, starting with an overview of the chapter and describing the sample and profile of the respondents. A description of the research study approach was given, mentioning the qualitative approach for which various tools and techniques were mentioned. It further described the data analysis techniques used to synthesise and makes sense of the data, as specified by the research techniques. In summary, the ethical considerations were considered.



## **CHAPTER 4**

### **FINDINGS OF THE STUDY: INTERVIEWS CONDUCTED**

#### **4.1. Introduction**

In the previous chapter, the research design and methodology were discussed, and Data collection types and methods were detailed. This chapter discusses the specific findings that were obtained during the interviews held. As previously discussed, the coding technique was used to synthesise the data into usable information. The various topics and themes were then classified.

Themes and sub-themes of the interview findings were generated by analysing all the interview transcripts and voice recordings. These interviews addressed the main topics: the question of whether the Bank embraces the Agile Manifesto; specifically, the people engagement model principles (see Appendix A no 1 and 3), and to what extent; secondly, if the Agile Manifesto and its principles are practically used within the Bank; thirdly, what the people factors and complexities are in order to produce successful projects within the Bank. Several sub-themes were derived from these main themes.

#### **4.2. Findings obtained from interviews**

There were 30 interviews held, of which 25 were interviews held with the individual participants, as noted in Table 3.3, while the other five interviews included a number of project resources interviewed by using the focus group method.

These interviews yielded three main topics: determining if divisions within the Bank can work in a flexible and collaborative manner subscribing to the Agile Manifesto; ascertaining if the Agile Manifesto and its principles are not just theories but can be achieved practically at the Bank; and finally, determining what these people complexities are in a projects environment and what the relevant combinations they need to be applied in are to make the Bank's projects a success.

Appendices provide the detailed interview protocol and include:

Appendix B: The Research Protocol: Interview Questions.

Appendix C: The Research Protocol: Focus Group Questions.

Appendix D: Consent.

#### **4.2.1. The Bank embraces the concepts of individuals and interactions over process and tools**

This study found that the attitude towards success in projects and driving change within the organisation is of utmost importance. A common theme experienced by the researcher is that of how the Bank is structured as an organisation. A very experienced Change Manager (Change Manager A) observed that the Bank is not a purely Agile, neither is it a structured organisation in its true definition. He noted that resources need to be coordinated to ensure projects' success. He stated that "the Bank *uses a hybrid model for project delivery.*" It is further stated by a Business Architect (Business Architect A) that "the Bank *can operate without structure and process*" but, at the same time, that structure and process are important to most people.

As stated in the previous chapter, literature defines Agile as an orchestration of people, processes and technology and aligns it accordingly. Literature further explains that organisations typically implement a customised method of Agile techniques to accommodate their needs; the Change Manager affirmed this statement.

This was emphasised by the Chief Information Officer (CIO A) who stated that "the Bank *as a business is run largely like a project. All initiatives are positioned as projects and driven as such.*"

The topic of structure is further asserted by the Head of Development (Head of Development A) when she stated that "*Where there are dependencies across various areas, then structure and support processes are needed.*" She further indicated that "*Whether organisations use and term this as Agile or Waterfall methodology, both of these methodologies are structured . . . smaller teams are better.*" Literature suggests that projects with a low level of structural interdependency require smaller teams to achieve better project performance (Nan & Kumar, 2013). A classic Agile team is a small, collocated team where the customer is an integral part of the team (Hoda et al., 2010).

The topic of individuals and interactions over processes and tools received much discussion. This was confirmed by the Chief Information Officer (CIO B) when he stated that "the Bank *has various project teams and structure types. Some are in a full Agile mind-set with little to no structure in terms of process. Very little tools are used in certain areas and it is all about interaction.*" It is further explained that individuals are pivotal to the success of the Bank's projects. A Project Manager (Project Manager A) confirmed that "*Throughout the delivery lifecycle of projects, it's all about team interaction. You cannot get things done if you don't collaborate with, as much as daily interactions, with the core team.*" As stated in the literature by (Farh & Lee, 2010), project teams are like social networks and interaction is key. (Chen, 2007) further iterates the importance of this team interaction with his research.

The caveat was further indicated that processes are needed to some degree. It was asserted by a Business Analyst (Business Analyst A) that "*Process in general does give a sense of structure; and people need structure. At the same time though here at the Bank, we can operate without structure and process because of our nature, i.e., our project nature.*" Literature affirms that structure is important. (Nan & Kumar, 2013) discussed the level of structural dependency and findings confirmed that with the Bank there is a high level of structural interdependency which facilitates project success.

Further alluded to by the Head of Development (Head of Development 3) is "*Our business is driven by people but supported by tools and systems there is a thought process that needs to be applied that can only be driven by people . . . interactions are very important and further I think that interactions with the right people are important. Consulting with specialists in our business is key.*" Langfred (1998) further confirms that interactions are one of the factors that affect team performance.

As explicitly stated and affirmed by a Project Sponsor (Project Sponsor A), "*At the Bank we influence and we don't need people that are only scribes and document well.*" the Bank relies on high levels of social support and synergy which are the requirements for cohesive teams and are clear at the Bank.

During an interview with the Chief Information Officer (CIO C), it was mentioned that "*In some less established departments, there are not many processes so we depend hugely on interactions amongst team members. However, in other areas, they are very, very process driven.*" He further alluded to the maturity of the area, and stated that "*The more mature, the less processes are needed.*" In Agile management there are still processes adapted to some degree. (Lorber & Tieszen, 2012) clarify that some process is needed in planning. The Bank does consider the flexibility of the Agile methodology, but planning is still imperative for successful delivery.

Focus Group A stated explicitly: "*We had no processes, no documentation; we needed to get people to help us drive stuff. In some areas, like technology areas, perhaps process is needed but it is not how we roll here at the Bank.*"

A Project Manager commented that "*Some projects like Project X, people tried to make use of tools but communication has been poor . . . for me it's a balancing act. In some instances, we make use of tools because we are such a large organisation and tools help. It is scenario and area-specific. We deal with complex projects.*" (Chen, 2007) affirms that tools can improve communications but are only meant to support collaborative efforts.

### **The use of tools for measurement and management of projects**

This study found that the use of tools used within the Bank is very clear. A Senior Project Manager (Project Manager B) adamantly revealed that, "*I never*

*drive a delivery date because Microsoft tells me so. I make use of its tracking ability but completely rely on my daily interaction with team members to keep abreast of where I am. Tools simply allow me to graphically represent the project roadmap which helps to present to various committees. I manage by interaction."*

Discussion with Business Analysts in a Focus Group discussion revealed that *"Tools perhaps are relevant at one point in time and not relevant at another point in time . . . tools are merely an enabler and cannot ensure success of projects . . . at the Bank we don't really innovate using tools"*.

(Melton, 2010) confirms this when he affirms what has been said by the research; the Bank's interviewees mention everything is run as a project. Melton states that *"Everything we do is a project so we need the right tools to do the job right."* The researcher disagrees to some degree as tools are not absolutely needed but rather facilitate the process of projects and interaction.

#### **4.2.2. The Bank embraces the concept of customer collaboration over contract negotiation**

During an interview with the Head of Development (Head of Development C), this study showed that customer collaboration is hugely embraced by the Bank. The researcher was informed that *"Customer collaboration is of utmost importance in my area. We discuss and process everything."* Literature confirms that collaboration and feedback are important. (Whitworth & Biddle, 2007) affirm that this collective behaviour in social systems as large as the Bank is essential. (Chen, 2007) further affirms how critical cross-functional teams are in project success.

The researcher further established that the Bank is clear about collaboration between its internal team members where accountability is imperative. Project Manager (A) commented that *"There is never a contract or agreement but it's about dual accountability."*

It was also established that the depth or complexity of the type of collaboration depends on the individual and may be people-specific. A Project Manager (Project Manager A) stated that *"I collaborate on all my projects to the n-th degree but hardly manage using a project plan or contract vs say Mr X manages against a plan and does so daily. Experience has taught me I'll get more out of people by collaborating."* Further, the Head of Development (Head of Development 2) stated, *"Everybody in the bank needs to collaborate for success. This is lobbying 101, we sensitise each other."*

(Cohn, 2005) affirms that customer collaboration is valued so teams can work towards the same set of goals. The motivation and encouragement for the Bank is clear. (Zajac-Woodie, 2013) claims that companies could potentially produce more valuable software more quickly if they collaborated often.

## **The use of contracts for project management**

Project Manager (Project Manager B) states that *"We don't try to make sense of this in my business. We collaborate. We manage our internal SLA (service level agreement) on principle of work to be done. Under the Bank's culture we don't SLA but rather collaborate."*

A Head of Development (Head of Development B) made it known that *"Every contract we have internally is up for negotiation, I don't think it's a hard and fast rule hence collaboration and negotiation allows us flexibility."* The Chief Information Officer concurred and stated that *"It depends on the relationship between various areas. This determines how flexible we are. Overall we (as the Bank) are flexible by nature. If you have a good relationship and you trust them, we become successful."* Another Head of Development (Head of Development C) further claimed that *"We do not get into contractual conversations as here at the Bank, we do not play the SLA game."*

It is noted that contracts are generally binding and consequences will have to be borne where there are breaches. A Project Sponsor (Project Sponsor B) clearly commented that: *"You have to be able to negotiate on all aspects of projects. The real world is ever-changing and evolving and fixed contracting will allow for the Bank to be less flexible in the way we operate . . . the contract in its true sense makes no sense in the Bank."* There is not much literature to support the interviewee comments but a firm point made is that contracts are important since they do regulate collaboration to some degree (Moløkken-Østfold, K., & Furulund, K. 2007).

Project Manager (Project Manager B) concurred that *"Contracts assist with clarifying the project boundaries and expectations, but by no means do we manage against these. They are merely guidelines for our internal management and tracking within the project streams and with stakeholders."* He further affirmed that *"We do contract with each other across business units, but are often very flexible against what these boundaries are. Contracts are of course most important when we contract with external vendors offering service."*

### **4.2.3. Considering the people factors**

During interviews with focus groups, common themes emerged, particularly linked to organisational people factors. Factors linked to various topics including the maturity of the organisation, structure, trust, responsibility, accountability, team dynamics, structure, culture, emotion and adaptability.

### **The maturity of the Bank for project success**

This study found that the maturity of the Bank as an organisation played a pivotal role in the implementation of successful projects. Focus Group A noted that to get work done, the maturity of the business owners and the areas they work in contributed to them understanding their requirements, so making it easy

for technical people. The group made it clear that *"When you have mature business owners and mature areas understanding their topics and scope, we all can get work done efficiently. This allows for us to be flexible and agile in the way we do projects."* This was also supported by Focus Group B on the topic of processes and tools where they were adamant that *"Less mature environments or people need structure and documentation to fall back on."* This was further supported by the Change Manager who stated that *"The Bank culture has matured over time. Our business is built around delivery but is linked to the maturity."*

During an interview with the Business Architect Lead, it is made known that: *"If we were not a mature environment, we would not be where we are today."* This was further expressed as *"a mature project managed framework"*. Skills maturity and delivery maturity are what are fundamental, as stated by the literature.

The Bank is seen as being a mature and fluid organisation when it comes to project delivery. A Project Manager (Project Manager A) confirmed this by stating: *"We are Agile, if you implement Agile in an immature team; the focus is more on the process than the delivery of stuff. Maturity eats theory for breakfast. Here we get things done because we can and always have."*

### **Organisational structure supports successful projects**

Given that the Bank makes use of a hybrid model, interviewees commented that structure is mostly done around people, specific teams or is project-based. This was backed up by the Chief Operating Officer when he stated that *"We know how to structure teams around different business problems. We also take into account the team dynamics. We are mature, so we don't have to follow a common or structured approach always."*

Literature suggests that teams operate in environments that are more open and team openness and dynamics of teams are considered. (Kerth, 2001) further states that open team structure facilitates commitment and engagement by almost all team members as teams often reflect on work done, including Agile retrospectives.

The Bank's business model is noted to be different from others in the financial services industry. This was supported by the Chief Information Officer (CIO A) when he affirmed that *"Our structure and matrix model forces collaboration as we have dual reporting lines. We don't have a central projects area within the Bank and we make use of a federal model. This works in our favour and other banks have huge central project areas which of course need structure, processes and contracts."* (Chen, 2007) affirms the fact that a cross-functional structure is often more successful. He further supports what was mentioned by the Chief Information Officer (CIO A), that it brings together *"Work streams and specialisations successfully. Accordingly, the Bank makes use of a concept introduced called "clan control. The Bank takes pride in its culture and leverages*

*the "clan" with its internal values and beliefs. At the Bank this is referred to as its Projects culture."*

## **Culture**

During an interview with the Chief Information Officer (CIO B), he affirmed points around the Bank having a project culture. He explicitly stated that *"The culture at the Bank is more innovative, we have more space. We also do have an owner-manager culture which allows you to get stuff done. People are responsible and accountable for what they do; culture is a big thing."*

The Bank works in a certain way and literature suggests that Agile methods allow for organisations like the Bank to work in a flexible way (Soundararajan, et al., 2013). Further explained, adoption of a projects culture will require constant work.

## **Trust within the organisation**

Trust is fundamental as a business concept. This study found that all interviewees brought up this topic, whether prompted by the researcher or not.

Asserted by the staff at all levels of the organisation and noted by Database Administrators, Application Developers and Solutions Architects in focus groups, *"Trust is huge. You can only gain trust with credibility. This means you understand your area and your domain, you've made calls to influence the way things happen. Further to this, trust is earned. If you are not credible, trust is lost. Where there is no trust, guidance and oversight is needed and more structure is to be put in place."* Literature states that if a team member is to be deemed trustworthy, it means he is willing to respond to a need of the team. He is also seen as trustworthy when he is concerned about the general and overall success and project (Dorairaj & Noble, 2013). Focus Group C concurred and stated that *"There is a big element of trust. This is based on relationships which are built over time."*

Generally, trust is assumed by the team. Project Manager (Project Manager C) claimed, *"To be able to build a strong relationship, one needs trust. Our daily scrum sessions allow for this trust relationship."* As suggested in the literature, Agile techniques such as SCRUM ceremonies do facilitate this process and allow for the increase in trust amongst team members (Dorairaj & Noble, 2013). (Covey, 2006) further confirms that when the trust account is high, communication is easy and effective.

## **Responsibility and accountability**

Literature reveals that Agile teams allow for an extremely high level of social support and accountability during software development (Whitworth & Biddle, 2007).

This study reveals that accountability is an important factor for driving change and ultimately project success. During an interview with the Chief Information Officer (CIO B), he confirmed that it is the responsibility of business unit heads to be accountable for their actions. *"Here at the Bank we are held accountable*

*and this is how we drive change. Each business area has the responsibility to the balance sheet for growth and the Bank's sustainability."*

Literature suggests that there may potentially be conflicts and misunderstandings among functional areas, of which some factors are accountability and group cohesiveness (Chen, 2007). During an interview with a Project Sponsor (Project Sponsor B), he is adamant that that *"there is much responsibility with the business owners and each of them need to take responsibility. We are accountable and this is our nature."*

### **Adaptability**

The Bank is adaptable in nature. Reminded by the Solutions Architect (Solutions Architect B), *"This is why we are the most innovative bank in Africa. We adapt from various project methodologies (Waterfall to Agile) based on business problems or projects. The Bank is very fluid. We also adapt to various business problems."* Organisational systems are generally adaptable by nature but have to remain flexible (Mezick, 2013).

### **Emotion**

Accordingly, literature suggests that the emotional capability in teams is becoming an important phenomenon (Akgun et al., 2011). As stated by the Change Manager, *"Some people are driven by emotion and some by reward. Emotion is what drives them daily hence its importance. Emotion is critical to how we deliver."*

An interview with a Business Analyst (Business Analyst B) mentions that *"Every person takes a viewpoint differently. Emotions must be considered always."* Literature supports this and suggests one be cognisant of peoples' personality traits (Susan & Meneely, 2012).

### **Structure**

This study found that the Bank is not too concerned with organisational structure. Of all research done on this topic, only limited feedback was brought to light. The Change Manager stated that *"We are generally flat structured, but with a large organisation like the Bank, I would say roles are more important than structure is. Hierarchy is not important in the space that we operate but understanding your role and what value you bring is important."* A Project Manager (Project Manager A) stated that *"If you don't have structure, you can't put the people in place."*

Literature affirms this point and states that teams would need to constantly adapt roles as well as processes within an Agile team. (Suzuki, et al., 2013) states that leadership needs to build projects around individuals for project success and results.

The Head of Development (Head of Development B) mentioned that *"Technology of today allows us to be decentralised. But, trust, plays a role where teams are distributed. Daily check-ins are needed, which is where we adopt some Agile processes."* Research confirms that where organisational structures are more



decentralised, a cross-functional project structure is often more successful (Chen, 2007). Cross-functional team structures have a direct impact on relationships and ultimately project outcomes. (Ramesh, et al., 2006) further confirm that trust is imperative for traditional team structures but, for distributed teams as with the Bank, team trust is essential.

**Proposition 1:** The team and people focus of Agile as a methodology is an essential factor to project success.

This research topic found the Bank research audience very clear on the proposed propositions. The below table summarises the main themes with the answer given explicitly as "Yes".

**Table 4.1: Proposition 1**

<b>Data collection technique</b>	<b>Answer to proposition posed</b>	<b>Themes to answers to proposition proposed</b>
Individual interviews and focus group interviews	Yes	<ul style="list-style-type: none"> <li>•Teams are important.</li> <li>•Interaction amongst team members ensures project success.</li> <li>•It's all about the people.</li> <li>•People are accountable.</li> <li>•Agile methodology is used as a guide only.</li> <li>•People are forced to collaborate with an Agile methodology.</li> <li>•We are very flexible in nature.</li> <li>•We are fluid in getting the job done.</li> <li>•Self-organising teams are important in a federal model.</li> <li>•Drives how people deliver.</li> <li>•People are results-orientated.</li> <li>•Teams need to have a level of maturity.</li> </ul>

**Proposition 2:** The level / maturity of the team engagement and collaboration is an important factor for project success.

This research topic found the Bank research audience very clear on the proposed propositions. The below table summarises the main themes to the answer given explicitly as “Yes”.

**Table 4.2: Proposition 2**

<b>Data collection technique</b>	<b>Answer to proposition posed</b>	<b>Themes to answers to proposition proposed</b>
Individual interviews and focus group interviews	Yes	<ul style="list-style-type: none"> <li>•Team engagement is important.</li> <li>•Mature (established) teams need less structure.</li> <li>•Less mature (less established) teams need structure and process.</li> <li>•Collaborative teams need guidance.</li> <li>•Trust in teams is important.</li> <li>•Teams collaborate differently based on the business problem.</li> <li>•Only mature organisations have open and honest collaboration channels.</li> <li>•Team dynamics must be considered with collaboration.</li> <li>•Team collaboration adapts.</li> <li>•We define boundaries for team engagement.</li> <li>•Projects will fail without team engagement.</li> <li>•We make use of a federal model.</li> <li>•Teams negotiate for success.</li> <li>•Our matrix model enforces collaboration.</li> <li>•Our business is built around delivery but is linked to maturity.</li> <li>•With mature environments, less structure is required.</li> <li>•Mature organisations need less management.</li> <li>•Organisational maturity grows over time.</li> </ul>

		<ul style="list-style-type: none"> <li>•Understanding the topic / scope of work is important.</li> <li>•Theory comes second.</li> <li>•Leadership needs to guide and mould.</li> <li>•It makes complex projects easier.</li> </ul>
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**Proposition 3:** Team trust is built on the premise of open, honest and frequent collaboration and communication.

This research topic found the Bank research audience very clear on the proposed propositions. The below table summarises the main themes to the answer given explicitly as “Yes”.

**Table 4.3: Proposition 3**

<b>Data collection technique</b>	<b>Answer to proposition posed</b>	<b>Themes to answers to proposition proposed</b>
Individual interviews and focus group interviews	Yes	<ul style="list-style-type: none"> <li>•Without trust, teams will fail.</li> <li>•Teams are credible because of trust.</li> <li>•Open and host conversation facilitates trust.</li> <li>•Teams will trust regardless of methodologies used.</li> <li>•Trust, collaboration and openness are closely linked to organisational culture.</li> <li>•Trust in teams is important.</li> <li>•Trust is needed with a matrix structure.</li> <li>•Trust overpowers contracts.</li> <li>•With trust there is accountability.</li> <li>•Trust is earned over time.</li> <li>•With trust, one can influence to get work done.</li> <li>•Where trust is lacking, structure will compensate.</li> <li>•Trust relationships need to be maintained.</li> <li>•Must be tailored for your audience.</li> </ul>

		<ul style="list-style-type: none"> <li>•Assists in building strong relationships.</li> <li>•Respect facilitates the process of trust.</li> </ul>
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#### 4.2.4. Challenges experienced in driving project success

Literature reviews reveal a number of factors on the Agile project space including, but not limited to, the tendency for individuals to feel exhausted because of the constant social nature of this approach, difficulty with various personality styles, perceived psychological safety, factors around the process of building trust, improving communication and bridging cultural differences, general group deterioration and the concept of 'social loafing'.

A number of different challenges were highlighted during the research. During an interview with a Project Sponsor (Project Sponsor B), it was asserted that, *"As soon as there is no business ownership and buy-in to the structure, culture or the Bank's DNA, people struggle to work optimally."*

A Project Sponsor (Project Sponsor A) concurred with the previous point on the Bank's culture and added that *"Sometimes people buy into a certain thinking or methodology, and it's difficult to change them . . . we as the leadership team need to respond to this and ensure our goals are aligned"*. Literature confirms that the challenge of culture fit is a worldwide concept that requires much focus (Ozawa & Zhang, 2013).

When referring to the concept of Agile, a Project Manager (Project Manager C) eluded to the fact that: *"Agile initially starts slow, then progresses, when one sees results we can move forward."*

A Head of Development (Head of Development B) stated that, mostly, in his experience, skillset is important. *"Skillset in our current technology space is a huge contributor to delayed projects and perhaps rework too. We need to be hiring the right people and enough of them. We need to ensure we can sustain our development pipeline."*

A Head of Development (Head of Development B) further states that *"Having a de-centralised model can create complexities. Sometimes there are large pipelines of work to be done but timelines do not allow for proper prioritisation . . ., but ultimately collaboration and interaction resolves this in my space"*.

A Head of Development (Head of Development C) observed that an important factor is lack of knowledge. He asserted that *"Lack of knowledge amongst new staff. My area has a high staff churn merely because we are in a technology-rich space."*

All Project Sponsors noted that typical importance is around mandates. Whoever has the biggest income and brings the most money to the balance sheet gets their projects done first: *"This is an issue as there may be regulatory projects*

*that takes precedence . . . it's all about profit.*" This was also expressed as *"your clout at the table"*.

*"People may spend too much time together talking and collaborating but not delivery. Agile says we need to spend time but this needs to be balanced. We often engage but don't solution. Sometimes we do process too long."*

Literature suggests that there are other factors such as personality traits that are to be considered (Ozawa & Zhang, 2013).

#### **4.2. Preferred method of getting work done at the Bank**

At the Bank there are particular ways of getting work done. Focus Groups summarised, and all concurred, that it was all about relationships, clear scope, understanding the business problem, communication, understanding what we are solving, maturity conversation, and ongoing conversation as paraphrased by the researcher.

A Change Manager stated that *"It's about talking to the right people, to gain the right insights, it about using the relationships, it's about influencing behaviour."* Literature suggests that team member's feel wanted when they have influence over the work as their feedback is considered valuable (Austin, 2013).

During an interview with a Business Analyst (Business Analyst C), it was commented that *"I get work done with relationships. Without it you can't move forward. Only at the relationship point is someone willing to listen to you and action . . . everything we do is reciprocal"*. (Farh & Lee, 2010) further state that, as in all kinds of networks, project teams rely on relationships among members for the flow of knowledge, information and ideas.

The Chief Information Officer (CIO B) clearly stated that *"There needs to be structure of sorts. Whether it is Agile or Waterfall it does not matter, but there needs to be flexibility also. You can't completely lock down requirements, up to a point of course."* (Kanter Moss et al., 1992) suggest that companies are flexible so they can adapt to their business environments at speed and make changes when necessary.

Focus Group D highlighted a number of factors and the researcher paraphrased this as *"I know people are the most important part of your project, doesn't matter what your role is. People will make stuff happen for you. Treat everyone with the same amount of respect. If you value people, they will do anything for you."* Accordingly, relationship structures amongst teams are important social network structures within an organisation (Nan & Kumar, 2013).

### **4.3. Abstract of Chapter 4**

This chapter presents the findings as obtained through interviews as a data collection method. The main findings of this chapter affirm that the Bank does indeed work in a flexible and collaborative manner. It further proves that the principles of Agile are not just theories but are actually the life blood of the Bank as an organisation. All research findings affirm that the principles of Agile are the only way the Bank can operate.

It further highlights *people* factors that were affirmed by the literature review process, which include factors such as the maturity of the organisation, structure, trust, responsibility, accountability, team dynamics, structure, culture, emotion and adaptability.

The propositions as noted include the topics of people, maturity of the organisation and trust. The answers given in these topics were unanimous and were affirmed by various statements to support these propositions. The research topic regarding how work gets done at the Bank all triangulate the information and show consistencies with the questions posed on Agile principles.

The following chapter concludes this research study, providing recommendations and suggestions for further research.

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Overview of the study

This chapter contains the summary, conclusions, recommendations as well as suggestions for further research for practitioners and researchers.

This research study has attained the objectives that were articulated in Chapter 1 as follows:

1) To undertake a study of the literature to ascertain if this study has been tried in other sectors locally and internationally. It further tries to determine what factors there are that make people construct a complex concept. Finally, to determine what the guiding principles are that assist with complex project environments.

2) To determine, by means of a field study, using various techniques, if other project areas within the Bank can work in a flexible and collaborative manner subscribing to the Agile Manifesto; specifically, the people engagement model principles (see Appendix A no 1 and 3). It then aims to ascertain if the Agile Manifesto and its principles are not just theories but can be achieved practically. Finally, it tries to determine what these people factors are and in what relevant combination they need to be applied to make projects a success.

Through the literature review, it was stated that Agile methodology and adhering to its principles do provide organisations with guidance around how to work more flexibly. It does further explain that other factors are to be taken into account and implementing Agile only will not ensure project success. Factors such as team engagement, trust, team traits, team structure, team structure and location, the degree of collaboration, culture, working environment, team emotion and the nature of projects need to be considered when measuring project success.

Through the literature review, the researcher confirmed that there was much focus only on hard measurable factors (time, cost, quality), with less focus on the people elements. It was also further confirmed that it was not clear if people factors do impact on the success of projects. Research showed that it was easy for organisations to adapt to Agile concepts as they showed huge benefits in the way team members were interacting. The concept of having an 'Agile mind-set' was introduced and teams were beginning to work in self-organising teams. The literature did, however, mention that purely adopting Agile principles would not be sufficient. Teams would need to constantly adapt the way they work.

Finally, there were no guiding principles suggested by literature, but it did highlight a number of factors to be considered in the complex world of projects.

The research questions and propositions resulted from the literature review. The research questions and proposition findings suggest that the Bank as an aceAgile Manifesto and its principles. The the Bank projects community does prefer individuals and interactions over processes and tools for successfully implementing projects. The Bank does strongly agree that collaboration is far superior to contracts and affirmed that the Bank does not play the Service Level Agreement (SLA) game.

The researcher confirmed that the Bank's Agile principles are practically achieved, with many testaments confirming this. The research firstly affirms the assertion that the teams and their members' focus of Agile as a methodology is an essential factor to project success. Secondly, it affirms that the level / maturity of the team engagement and collaboration is an important factor for project success. Finally, it affirms that team trust is built on the premise of open, honest and frequent collaboration and communication.

One needs to completely understand the value of face to face relationships. The literature affirms there are ways of solidifying the building trust; ultimately face-to-face engagement, collaboration initiatives and effective, open and honest communication. The research affirms that all people factors are to be considered, when considering the value of face-to-face engagement, such as, team trust, team structure, team location, levels and depth of communication, team and organisational culture, individual emotional intelligence and levels of maturity. Direct face-to-face human interaction removes any ambiguity in tone, mood, context and other factors that may go against the initial intended message. Building trust and agreeing a shared mission allows for success.

## **5.2. Conclusions of the study**

The researcher concluded that Agile methods provide an organisation with the flexibility to work in a more flexible way. Large organisations such as the Bank need adaptive change methods to succeed, given the volatility, complexity and external influences they face. Most transformation initiatives still fail to deliver on their desired outcomes and it is found that business and IT are generally not aligned. Adapting to the Agile mind-set has the potential to be the glue that brings these two worlds together for success. It facilitates the process for an organisation to apply and implement its understanding of these principles, based on the facets surrounding corporate culture and values. It is further supported that the adoption of these Agile principles is based on other factors such as the types of projects and characteristics of the project team.

Where there are inherent issues in adopting the principles of Agile, particularly the people facets, the researcher cautions that it may not always be possible to control all issues as they may be inherent of the core culture and ultimately not have the ability to change or adapt to the methodology.

The process of Agile is seen as adaptive and includes a process of learning and innovation. To remain relevant, organisational cultures must be flexible to deal with ongoing changes. The target area must have reached a level of insight and



maturity to realise its benefits, rather than treating this approach and methodology as the next 'fad' or information technology theory to be adapted.

The researcher makes note that, although this particular research study has been concluded, the learning journey has only just commenced. Considering the complexities within project areas and considering all people factors, much still has to be investigated, analysed, written up and be further considered and investigated by the wider research community.

The researcher must however make note of the value and contribution the research project has brought to the researcher and to the Bank. Firstly, the researcher notes the context and holistic approach and complexity of the projects domain within the Bank. A personal and vested interest has been sparked in the researcher to change the Bank by applying the knowledge positively and following through with the recommendations as noted. The Bank's owner-manager culture allowed for passion to be re-ignited to take this forward unequivocally, with focus and drive. The researcher further notes that the knowledge gained, awareness and guidance provided by the research audience and various domain supervisors, will allow for focused leadership extended to the professional network created during this project. Finally, the researcher notes that the methodology used by the DaVinci institute of Mode II learning, provided a deeper sense of learning and ultimately provided a zoned in research and consultancy opportunity to the benefit of the Bank.

During this research journey, topics were subject to peer review and detailed discussions took place to affirm credibility within the study.

### **5.3. Recommendations**

The researcher is of the view that the findings and recommendations of this study will be transferable and applicable to other project environments. In addition, the contribution of this research study to the academic arena and the industry knowledge base are significantly beneficial. This research study aimed to make recommendations to other banking sectors working in a similar structure, culture and environment; taking into account various other people aspects. It further tried to provide insight for other organisations attempting to implement Agile principles and methodologies within their projects domains.

A number of concepts were brought to light by the research study. The researcher recommends the following concepts to be implemented within the Bank, which are also transferable to other organisations. Firstly, the concept of a collaboration structure is vitally important. This is a formal structure that needs to be created, managed and its benefits tracked. Secondly, in some areas of the Bank there are daily collaboration sessions, but only in areas that formally have the mandate of Projects area. The research revealed that all the Bank's areas and work streams are run and managed as projects. The Bank should consider implementing formal daily collaboration sessions. Learnings can be taken from the Agile SCRUM process. Further, the Bank should consider the OPS framework. The OPS framework identifies objectives, principles and strategies for

measurement of the Agile implementation within an organisation. Finally, the Bank is to implement and formalise the concept of Community of Practice (CoP). This will allow for the Bank to move away from formal structures and boundaries, but rather look at the tacit grouping of knowledge and centres of excellence. Creating this project knowledge in a social setting with all its dimensions can prove successful.

Ultimately, organisations are to adopt an 'Agile-like' culture in order to be sustainable; given the principles referred to. Suggested would be to accept these variances, to find a way to take advantage of the potential benefits. This is further supported by the research stating that adoption requires work and ongoing management. Organisational systems are generally complex systems, but ultimately adaptable. Ultimately, team members need to understand that there is an organisational hierarchy, bureaucracy and corporate culture and a certain behaviour that will be required of them (Pasquim et al., 2016). The Bank is to package a formal initiative to drive and implement a certain way of project thinking within its corporate culture.

Considering the volatile environment that large organisations like the Bank operate in, it should consider the concept of developing for minimal viable product. This can be stated for services, system, processes or other capabilities. This concept involves solving the main concepts and solving the immediate business requirements. It is important to note that this is not ignoring other capabilities, but merely deferring, given budget, time and other constraints. Business requirements do change and this process will allow for minimal wastage of project resourcing.

The Bank needs to consider building for change as a design factor. This notion speaks about the reality of identifying where focus needs to be placed, as well as what degree of focus. Mostly, all impact to the business is never seen in one particular place. Projects and change impact the business at various levels and may impact people, processes or systems. Some areas' rate of change may be introduced quicker than in other areas. The secret is about identifying, knowing and balancing this impact. Important here is having the ability to keep changing.

The Bank leverages a key concept that assists with its large transformational technology projects. This concept is about creating tools and applications that are built for scalability and configuration. This new design model does not only enable quick technology projects, but also allows for proof of concept approaches and test scenarios before product launch to market.

It must be stated that the Bank, as a transformational organisation, will have pockets of excellence. Professionalism of staff, trust amongst high performing colleagues which builds credibility, and maturity in thinking and assimilating will pave the way for an easier and more successful adoption of Agile practices. In reality, adoption is simply a mind-set and a way of work which is more than a SDLC process or being tools-dependent. A directive to practise Agile ways will not work where the respective communities have not yet embraced true collaboration and shared accountability required for success in an Agile way of work. People in an Agile domain will have to 'mature' in their thinking, behaviour

and values; this means completely embracing the new paradigm to be truly successful.

#### **5.4. Suggestions for further research**

During the research project, the researcher identified several concepts for future studies. Future research would allow for further data and findings to be built, further extending this topic. Further research could also widen and deepen the contextual factors of this topic. The recommendations proposed will require reasonable time to implement and to show success.

Literature suggests small empirical studies on the techniques for building trust. Firstly, research could focus on trust factors and how trust can be gained and further solidified within project teams. Secondly, future research should investigate that future researcher's study the effect of structural arrangements on team effectiveness. This potentially brings to light and examines if organisational structure is indeed a factor for successful projects. Thirdly, research into Projects culture and its concepts should be considered. Fourthly, the nature of projects should be of concern. Research revealed that not much research has gone into this topic but this could potentially be a material concept to be further explored.

Given this research project, the delimitations of this study are to be noted for the environment given the characteristics and the scope of the study. This study was limited only to cross-functional teams, i.e., teams that work across divisions or departments and across multiple business domains which includes both software development and business projects. Given the nature of all projects within the Bank this research was limited only to projects in the last five years, whether these have successfully implemented or not. The research questions pertain only to the Agile Manifesto principles and its people engagement constructs (refer to Appendix A no 1 and 3). It must be re-iterated that this research project did not try to implement Agile as a methodology but rather to find out to what extent the principles are implemented and successful in the Bank's domain. And finally, it must be noted that each competency was interviewed only once however not all levels of people were accessible for this project, across Business, Retail and Premium segments within the Bank.

Thoughts and ideas expressed in this research study will make an impact if shared, refined and implemented. Within the boundaries of this research project, the researcher hopes that future researchers will further contribute by expanding on the said topics. The researcher affirms that it is imperative that the knowledge economy today continues its inquisitiveness to ensure sustainable knowledge and constant positive growth on the part of scholars and practitioners.

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## Appendix A

### Agile manifesto versus current business challengers

No	Agile Manifesto	Current Challenges
1	Individuals and interactions over processes and tools	<ul style="list-style-type: none"> <li>- People prefer tools to manage and measure.</li> <li>- Individuals don't trust their relationships and use tools to manage this process.</li> <li>- Processes give a sense of structure – wrongly or rightly so.</li> </ul>
2	Working software over comprehensive documentation	<ul style="list-style-type: none"> <li>- People insist on having comprehensive documentation. Even if the software is delivered incorrectly.</li> <li>- Documentation allows someone to blame another for incorrect software. Problem occurs where there is a blame game but still incorrect software, meaning no business benefit and another software cycle.</li> <li>- Working software is not the ultimate goal.</li> </ul>
3	Customer collaboration over contract negotiation	<ul style="list-style-type: none"> <li>- People believe that contracts are binding.</li> <li>- Collaboration comes secondary.</li> <li>- Contract negotiation is time consuming.</li> <li>- There is not enough focus on customer collaboration.</li> </ul>
4	Responding to change over following a plan	<ul style="list-style-type: none"> <li>- Plans are often inflexible as Project Manager's manage against them. This disallows for changing requirements.</li> <li>- Delivering on a plan makes it seem the project is successful. The software may not have been delivered.</li> </ul>

		- Business does not respond to changes in business need given planned timelines.
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## Appendix B

### The Research Protocol: Interview Questions

Protocol for the Semi-Structures Interviews: *THE APPLICATION OF AGILE PRINCIPLES AND PRACTICES IN A PROJECTS ENVIRONMENT IN SOUTH AFRICA: A BANK STUDY*

- 10) To what extent does the Bank embrace the concept of individuals and interactions over processes and tools in a projects environment?
  - a. What is the use of tools for measurement and management of projects in the Bank?
- 11) To what extent does the Bank embrace the concept of customer collaboration over contract negotiation in a projects environment?
  - a. What is the use of contracts for project management in the Bank?
- 12) What are the people factors considered (prompt: team engagement, trust, structure, location, communication, culture, emotion, level / maturity)?
- 13) **Proposition:** The team and people focus of Agile as a methodology is an essential factor to project success
- 14) **Proposition:** The level / maturity of the team engagement and collaboration is an important factor for project success
- 15) **Proposition:** Team trust is built on the premise of open, honest and frequent collaboration and communication
- 16) In your experience, what are some of the challenges experienced in driving project success?
- 17) **Proposition:** Teams adopting agile principles have concerns linked to the complex people factors
- 18) In your experience, what is the preferred method of getting project work done?

## Appendix C

### The Research Protocol: Focus Group Questions

Protocol for the semi-structured focus group interviews: *THE APPLICATION OF AGILE PRINCIPLES AND PRACTICES IN A PROJECTS ENVIRONMENT IN SOUTH AFRICA: A BANK STUDY*

- 1) Given the complexities and interdependencies with projects, to what extent does the Bank embrace the concept of individuals and interactions over processes and tools in a projects environment?
  - a. What is the use of tools for measurement and management of projects in the Bank?
- 2) Given the complexities and interdependencies with projects, to what extent does the Bank embrace the concept of customer collaboration over contract negotiation in a projects environment?
- 3) What is the use of contracts for project management in the Bank?
- 4) What are the people factors considered (prompt: team engagement, trust, structure, location, communication, culture, emotion, level / maturity)
- 5) **Proposition:** The team and people focus of Agile as a methodology is singled out as an essential factor to project success
- 6) **Proposition:** The level / maturity of the team enjoyment and collaboration is an important factor for project success
- 7) **Proposition:** Team trust is built on the premise of open, honest and frequent collaboration
- 8) In your experience, what are some of the challenges experienced in driving project success?
- 9) **Proposition:** Teams adopting agile principles have concerns linked to the complex people factors
- 10) In your experience, what is the preferred method to get project work done?

## Appendix D

### Consent

Dear << respondent's name >>

This letter is an invitation to consider participating in a study I am conducting as part of my Master's degree. I am studying in the faculty of Technology, Innovation, People and Systems Thinking.

The title of my research project is:

#### **THE APPLICATION OF AGILE PRINCIPLES AND PRACTICES IN A PROJECTS ENVIRONMENT IN SOUTH AFRICA: A BANK STUDY**

As part of this research project, I will be interviewing people in the domain of our projects environment across the various functional areas and roles. These will include people at various levels of the organisation.

It is on this basis that I hereby request a meeting with you at a date and time convenient to you. You will also be asked to consent to being interviewed and having this interview tape -recorded for data analysis. These tape recorded interviews will be coded (using pseudonyms) and be stored in an off-sight locked facility.

Please note that if you agree to be part of this study you are at liberty to withdraw from the study at any time, without any pressure to provide reasons. I also undertake all possible means to ensure that no specific responses are given with your name and promise to protect your identity. It is important to note that any information revealed, either personal or professional, will be regarded as absolutely confidential.

Further to this, I would like to share the research protocol questions which are to be discussed during our interview. These will be printed and brought along to the interview.

I hereby request that you review the document, in order to indicate that you are au fait with the conditions stated above and that you have consequently given your permission to take part in this research project.

I am doing this research project under the supervision of Prof Rabelani Dagada who is an Associate Professor at the Vaal University of Technology.

If you have any questions regarding this study, please contact me or my supervisor.

Thanking you in anticipation.

Carl Nolan

Prof Rabelani Dagada

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## Appendix E

### Research Questions: Detailed Questions

**Research Question 1:** Given the complexities with project teams and individuals, to what theoretical extent are individuals and interactions more effective than processes and tools in a projects environment?

**Research Question 2:** Given the complexities with project teams and individuals, to what theoretical extent is customer collaboration more effective than contract negotiation in a projects environment?

The following the above research questions, these are linked to the the Bank scenario:

**Research Question 1a:** To determine, given the complexities with project teams and individuals, to what extent other organisations have benefited fro'sm individuals and interactions over processes and tools in a projects environment.

**Research Question 1b:** To determine, given the complexities with project teams and individuals, to what extent does the Bank embrace the concept of individuals and interactions over processes and tools in a projects environment.

**Research Question 2a:** To determine, given the complexities with project teams and individuals, to what extent other organisations have benefited from customer collaboration over contract negotiation in a projects environment.

**Research Question 2b:** To determine, given the complexities with project teams and individuals, to what extent does the Bank embrace the concept of customer collaboration over contract negotiation in a projects environment.