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# THE ROLE OF ENTERPRISE RESOURCE PLANNING IN ENTRENCHING BUSINESS PROCESSES IN A SELECTED ORGANISATION IN THE WESTERN CAPE, SOUTH AFRICA

**by**

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**Thesis submitted in fulfilment of the requirements for the degree**

**MASTER OF TECHNOLOGY: BUSINESS INFORMATION SYSTEMS**

**IN THE FACULTY OF BUSINESS AND MANAGEMENT SCIENCES**

**AT THE CAPE PENINSULA UNIVERSITY OF TECHNOLOGY**

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# DECLARATION

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**Signed** **Date**

# ABSTRACT

The main objective of research is to determine how business processes influenced by corporate strategy can be entrenched in an organisation. Organisations rely on business processes to deliver product and services to customers and meet organisational goals. Several process weaknesses prevail in organisations and impede process performance. Organisations merely focus on technical aspects of the transformation to address efficiency and effectiveness in business processes and tend to ignore the social elements attached to the transformation which bring considerable changes in the employees working environment. Human attitude and behaviour can thus impede process change and entrenchment. As a result, the change endeavour fails, and processes are not entrenched. The study thus gave due consideration to the socio-technical elements because process relies on human intervention to progress at some points.

The study aimed to understand and interpret how business processes can be entrenched in an organisation and used a selected organisation in the Western Cape, Cape Town as a case study. To address the main research objective three subordinated objectives were developed and a main research question and three sub-research questions were investigated. Given the human element involved in the process transformation, the phenomenon is a socially constructed reality that can be understood and interpreted using a social theory. Actor Network Theory (ANT) was used as a lens through which to understand and interpret the factors influencing the entrenchment of business processes. It is argued that enterprise resource planning (ERP) influences both technical and non-technical factors involved in process entrenchment and that entrenchment emanates from the alignment of interests of social, process and technology actors.

An interpretative paradigm applies to the study where qualitative philosophy was followed together with the underpinning theory. The theory and review of literature were used to develop semi-structured interview schedules to collect opinions from participants. The research participants included twenty-one managers at senior, middle and lower level positions from the Finance, HR and IST departments of the studied organisation. Ethical considerations applied to this research relate to the data collection process and the disclosure of the research findings. Data collection was approved by the institution under study to ensure confidentiality and non-violation of organisation policies. In addition, interview questions were reviewed by senior managers to ensure that the information obtained would not hurt the reputation of the organisation. The research findings revealed that actors need to be transformed and supported to accommodate the change and that the principles of ERP can be implemented as a strategy to lead the process transformation and entrenchment. The

research generated a general framework to guide the use of technical and non-technical factors to influence process entrenchment. As such, recommendations are made to actors of process transformation to ensure entrenchment.

**Key words:** Actor Network Theory, Business Process, Entrenchment, Enterprise Resource Planning

## ACKNOWLEDGEMENTS

**I wish to thank:**

- The Lord who makes everything possible.
- My family and friends for their constant support and motivation.
- My supervisor for his guidance, feedback and encouraging remarks.
- My co-supervisor for her guidance, pertinent comments and motivation.
- The participants in the study who made this study possible.

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# GLOSSARY

| Abbreviation/ Acronyms/ Terms | Definition/ Explanation |
|---|---|
| ANT | Actor network theory |
| BP | Business process |
| BR | Business rule |
| ERP | Enterprise resource planning |
| F | Finance |
| HR | Human resource |
| IT | Information technology |
| IS | Information systems |
| IST | Information systems and technology |
| M | Manager |
| MM | Middle manager |
| SM | Senior manager |

# CHAPTER ONE: INTRODUCTION

## 1.1 Introduction

This thesis assesses the role of enterprise resource planning (ERP) strategy as a means to entrench business processes using a selected organisation in the Western Cape, South Africa as a case study. By utilising the Actor Network Theory (ANT) and the moments of translation (MOT) as the underpinning theory, this thesis attempts to understand and interpret how business processes can be entrenched in an organisation.

## 1.2 Rationale

### 1.2.1 Background

It is noted and outlined in literature that business processes in organisations are not entrenched. In spite of the numerous initiatives pursued by organisations to implement systems intended to optimise processes and practices, the entrenchment of processes is still not achieved. As a customer of various organisations, the researcher has observed this reality in many institutions in the Western Cape. Employees still employ old practices, such as making use of paper-based systems to record details, while computers and computer programs were installed to replace older systems to bring about improvement. This is to say that employees prefer their old ways of operation and are neither willing to adopt modern technology nor adapt to a changing environment. These habits often render it difficult to locate pertinent documents as there is no centralisation of data and sharing of information is impeded. In fact, in public institutions such as municipalities, employees still make use of applications that run either in parallel or separately to the ERP systems, even when a suitable ERP solution has been well implemented with the necessary modules to optimise operations (Deloitte Consulting, SALGA & GIZ, 2013). Employees thus need to change their attitude towards using modern technology and new ways of working that optimise processes and abandon practices that sub-optimise the organisation's operations.

### 1.2.2 Problem statement

It is remarked in literature that business processes and resources are crucial to organisations (Bibiano, Mayol & Pastor, 2007), while the business processes are not used to full potential (Deloitte Consulting, SALGA & GIZ, 2013). In order to survive in exceedingly competitive marketplaces, it becomes important to efficiently share and manage resources employed in business process execution (Raunak & Osterweil, 2005). Resources include people, material, technology, time, information and knowledge. However, poor resource allocation during business process execution impacts on process performance. Additionally, the existence of

process weaknesses contributes to the sub-optimisation of business processes. This means that processes designed by organisations to conduct daily business operations and deliver products and services to customers are not successful in meeting expectations.

Optimisation is defined as making the most effective use of something, or the action of making the best of something (Hall, 2013). According to Oseni, Foster, Rahim and Smith (2014), efficiency, effectiveness and flexibility are the three measures of business process optimisation. Efficiency relates to the transformation of resources in the shortest time and with the least resource utilisation; while effectiveness deals with stakeholders' satisfaction resulting from meeting objectives. Flexibility concerns the business's capability to adjust processes to changes (ibid). However, organisations tend to fill business gaps with manual activities, making business processes less efficient and effective (Khanna, 2013). Sub-optimisation of processes and functions occurs when a business does not make the most effective use of processes. Sub-optimisation of processes in an organisation is caused by numerous factors. These factors include, but are not limited to, inappropriate use of IT systems, the lack of proper communication and deficient data transmission (Delfmann & Höhenberger, 2015).

Organisations rely on business processes to deliver products and services that meet customers' expectations. Organisations thus make huge investments intended to render processes more effective and efficient to the satisfaction of customers, and to remain competitive (Raunak & Osterweil, 2005). The most common approaches to render a process more effective and efficient include six sigma, benchmarking, and business process reengineering (BPR) (Siha & Saad, 2008). Organisations want to eliminate process deficiencies such as supplementary workforce, inaccuracy of data and extra cycle time (Shang & Seddon, 2007). Process reengineering techniques are initiated to identify and improve inconsistent or sub-optimised business processes (Lankford, 1996). In addition, enterprises engage in business process management to bring considerable improvements to existing processes and to enable an organisation to reach their goals or vision.

Despite the implementation of strategies such as ERP to address matters of effectiveness, organisations need to consider what will bring employees to entrench the processes (Chang Cheung, Cheng & Yeung, 2008). Although organisations implement many techniques to bring improvement in operations, sub-optimisation of processes still prevails. Implementing new digital systems in organisations brings changes in organisational culture, processes and systems. As such many systems implementations fail because the organisation mainly focuses on technical factors and tends to neglect change management including the people involved, strategy and structure (Al-mashari, 2003). These new implementations face resistance from staff members at various levels in the institution, given that it requires change in behaviour and work habits (ELsheikh, Abou-Zeid & El-Zanaty, 2010). A total of 67% of endeavours initiated

to transform organisations fail (ibid). Reasons behind business processes reengineering failure include the absence of involvement and ownership from staff members within numerous departments and the incapability to encourage a reengineering culture with organisations (Parys, 2003). Additionally, employees are resilient to incorporate business process improvement techniques initiated and continue to operate in old manners. Thus, in spite of the implementation of strategy and systems entrenchment of business processes is not fully achieved.

## 1.3 Problem Conceptualisation

The nature of the problem is a socially constructed phenomenon and, therefore, requires a combination of thoughts to clarify the facts surrounding it (Jabareen, 2009). These thoughts are illustrated in **Figure 1.1**, which conceptualises the problem.

In order to entrench process change initiative through business process implementation, management must identify and implement a strategy that enables the organisation to meet its objectives. A planning strategy is an articulated plan with a mission, vision and objectives. The identified strategy establishes priorities and the direction of the organisation, setting out the goals and clarifying stakeholders' involvement in achieving the vision. Thus, the strategy elaborates a plan, identifies goals and allocates resources to the entire endeavor. In the process of entrenching business processes, every stakeholder such as management, human resources and technology could have distinct interests. In addition, stakeholders may have different ideas on the strategy to drive process entrenchment. Therefore, a main stakeholder initiates and drives the process entrenchment, as well as solicits other stakeholders to sustain the initiative. This entails forming a network of a common interest among the organisation's stakeholders to achieve the given objectives.

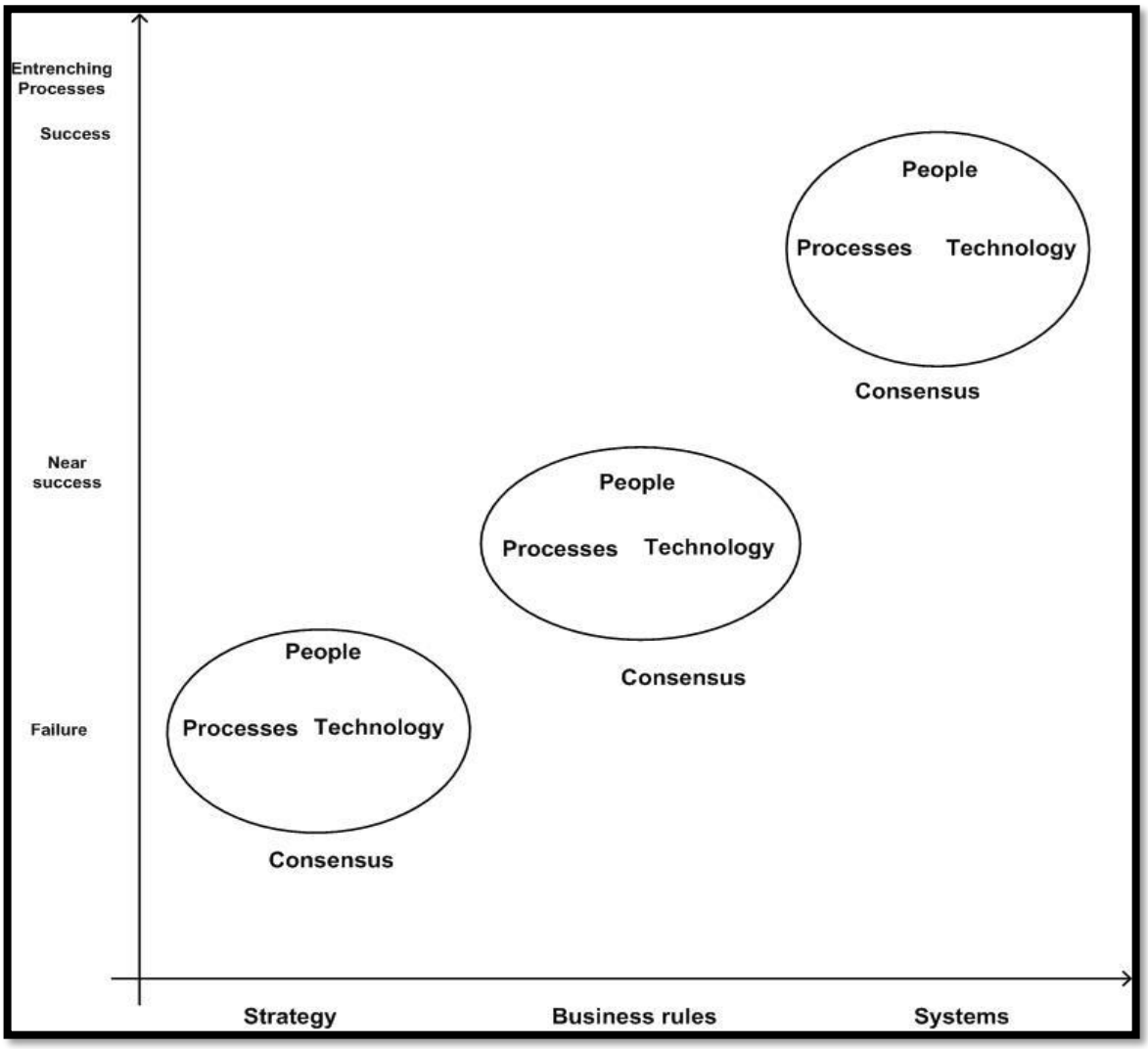


**Figure 1. 1**: Problem conceptualisation

In an organisation, top management is seen as the driver for organisational initiatives. Therefore, top management makes sure that the identified planning strategy is supported by resources and stakeholders and must ensure that neither betrays the goals. In fact, once the strategy to entrench processes is established, management convinces different stakeholders to find a consensus. Implementing a new process strategy in an organisation brings about change in organisational culture, processes and systems. These new implementations face resilience from staff members at various levels in the organisation, and hence it requires change in behaviour and work habits (ELsheikh *et al.,* 2010). Thus, information systems, people and processes are all involved in process execution, and thus influence process entrenchment. Having said this, the aforementioned strategy should address the role of each resource allocated to the plan.

Although human and non-human interests may align, it is important to point out that not all strategies succeed; and entrenchment of processes is thus susceptible to failure. Al-Turki (2012) summarised the causes of planning strategy failure as a lack of ownership, planning strategy culture, as well as the absence of top management and stakeholders' commitment. Thus, additional measures need to be implemented to ensure that the strategy goals are systematically carried out. Thus, business rules need to be elaborated to sustain the strategy. Business rules are important since it guides human and non-human behaviour within an organisation. At this stage entrenchment of processes reaches near success, and systems are still needed to reach successful entrenchment of processes. Even though a strategy and rules have been implemented, there is still a need for systems to enable facilitation of activities as they align to business rules. Systems automate processes, making them more effective and efficient. Thus, systems contribute to cost savings and the reduction of waste during process execution. Additionally, systems are developed with built-in rules to enforce the execution of business rules and to enforce processes are executed in the intended manner.

## 1.4 Aims and objectives of the study

It is perceived that it is not only systems that impact on the entrenchment of business processes, but social factors also play a role in business process entrenchment. The study aims to understand and interpret how business processes can be entrenched in an organisation. To substantiate the research aim, the main objective is to determine how business processes, influenced by corporate strategy, can be entrenched in an organisation. To address the main objective the following subordinated objectives were formulated:

**(a)** To determine the non-technical factors influencing business process entrenchment;

**(b)** To determine the technical factors influencing the entrenchment of business processes;

**(c)** To propose a general framework, guided by the non-technical and technical factors influencing business process integration, to achieve entrenchment of processes in an organisation.

### 1.4.1 Main research question

Given the problem statement, aims and the objectives of this research, the main research question to meet the main objective of this research was formulated as:

How can business processes, influenced by corporate strategy, be entrenched in an organisation?

### 1.4.2 Research sub-questions

In addressing the main research question the following sub-questions were considered:

**(a)** How do non-technical factors influence the entrenchment of business processes?

**(b)** How do technical factors influence the entrenchment of business processes?

**(c)** How can an organisation achieve business process integration and entrenchment?

## 1.5 Significance of research

This study addresses a gap that exists in the literature pertaining to business processes. It is envisaged that the findings of this research will contribute to the development of a general framework to guide the entrenchment of business processes in an organisation. Thus, by focusing on the social factors that influence such entrenchment, this study provides a novel way of addressing this phenomenon. It is envisaged that this research will be useful to organisations in general and process consultants. The outcome of the study has the prospect of improving overall service quality through an innovative approach to business process implementation.

## 1.6 Delineation and limitations of research

This study argues that enterprise resource planning as a form of enterprise strategy can be used to entrench business. It focuses on factors influencing the entrenchment of business processes in an organisation. As such, the study focused on determining the social and technical factors that contribute to entrenching business processes derived from ERP as a means of enterprise strategy. The study was conducted in three selected departments; including the finance, human resources and information system and technology departments of a selected organisation. Data collected for the research were gathered during interviews with managers at senior, middle and lower level positions.

## 1.7 Structure of the thesis

**Chapter One: Introduction**

This chapter stipulates the existence of a real-life problem identified in organisations. It presents a background to the problem of the absence of the entrenchment of processes, in spite of the implementation of systems and process optimisation strategies. Additionally, it presents the objectives of the thesis, its delineation, and the significance of the research.

**Chapter Two: Literature review**

The review of literature unpacks the components of the problem conceptualisation that was developed to guide the research. Chapter two identifies and shows the importance of planning strategy, the alignment of divergent interests of actors, rules and regulations, and systems involved in the entrenchment of business processes.

**Chapter Three: Underpinning theory**

The main objective of this study was to understand and interpret how business processes can be entrenched in an organisation. This chapter on the underpinning theory presents the theory used during the research. It presents the actor network theory (ANT) and its components. Moreover, it explains the researcher's motivation toward using the theory and the importance of underpinning the research. Additionally, it shows how the theory was used as a lens to frame the research through the development of the conceptual framework.

**Chapter Four: Research design**

Chapter 4 elaborates on the research methodology and design adopted. It explains the researcher's philosophical stance, and the interpretivism model applied in the study. The chapter also describes the research design employed and presents the procedures, research approach, the organisation studied, as well as the population included during the data collection process. Additionally, the chapter pays attention to the ethical considerations taken into account during the study.

**Chapter Five: Data collection and analysis**

This chapter presents the findings based on the data collected. It further presents an analysis of the data using the underpinning theory, and an interpretation of the data in relation to existing literature. Moreover, a refined conceptual framework is developed from the interpretations gathered.

**Chapter Six: Conclusion and recommendations**

The last chapter concludes the thesis by reflecting on the primary findings of the thesis and providing recommendations on possible solutions to the problem at hand. In addition, it provides insight into future research directives.

## 1.8 Summary

This chapter outlined the main components of the thesis and represented the research background and problem statement. The objectives and questions for the research were also outlined. The significance of the study was discussed, as well as the delineating criteria. Lastly this chapter provided the overview of the structure of the thesis.

The next chapter discusses a review of literature based on the problem conceptualisation to entrench business processes in an organisation. The chapter presents and elaborates on the contribution of non-human variables, such as strategy, organisational rules, processes and technology, and human variables that impact on the entrenchment of business processes. As such the chapter focuses on each variable that contributes to process entrenchment, and the relationships between these variables.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

The previous chapter outlined the key components of the study. It represented the research background, problem statement, and outlined objectives and questions for the research. In addition, the significance of the study was discussed, along with the delineating criteria and the overview of the structure of the thesis. This chapter presents the review of literature.

In discussing the rationale and research problem, it was established that process optimisation is not achieved within organisations because changes to processes are not entrenched. The implementation of new systems to help in optimisation on its own will not guarantee entrenchment because entrenchment also involves people. Human input becomes necessary to operate systems and entrench processes. Thus, people form part of information system components since they have the precise role in enabling the other information system components (hardware, software and processes, for instance) to work together to achieve the broader goal of the system, and thus the organisation (Oz, 2009:15). Improving processes directly relates to improving organisational efficiency (ibid). A process is a collection of activities, or tasks, performed to realise a product of value. Instructions to execute process activities are written in coding and business rules can be built into that coding. It integrates attributes and paths, coordinated by humans, to realise tasks. Despite largely being facilitated by a system, the process is still reliant on human intervention to progress the process at certain points.

Processes are useful because they enable proper governance of operations that can produce output that is of value (Anand, Wamba & Gnanzou, 2013). Despite the importance of processes in organisations, they are not entrenched, and companies still face challenges. These challenges include the inaccuracy of data, extra cycle time, unconnected activities and delayed operations (Delfmann & Höhenberger, 2015). Thus, the sub-optimisation of processes still prevails. Sub-optimisation entails not making the most effective use of processes; and it is caused by a number of factors. These factors include, but are not limited to, inappropriate use of information systems, the lack of proper communication, and deficient data transmission during process execution (ibid).

Customer satisfaction and competition in the market place drive organisations to bring change to existing business processes. Inefficient and unnecessary activities that delay operations are identified in order to bring improvement with up to date systems (Habib, 2013). Literature reveals that bringing change, be it small or huge, will impact an organisation. Change is difficult to achieve, as it is costly in resources, annoying and most of the time it fails (ELsheikh *et al*., 2010). Given that organisational changes bring considerable modifications that affect

employees at various levels in their work environment, people are usually resilient to accommodate change; and in some circumstances, change fails (ibid). Although change is painful and difficult to achieve, most people are not scared to change (Chang *et al*., 2008). Change in an organisation is successful when employees perceive the benefits thereof. Thus, having a compelling reason for change will prompt people to support change.

To address matters of sub-optimisation and change to respond to changing market conditions, process reengineering is used (Chen, 2001). Similar to any organisational change, reengineering of processes is expected to face difficulties of prejudgment from employees, which contribute to failure (Magutu, Nyamwange & Kaptoge, 2010). In fact, 84 % of process reengineering initiatives fail because of issues related to people (Serban & Iorga, 2016). According to Pishdad and Haider (2013), employees' resistance to new technology or initiatives, such as enterprise resource planning (ERP) strategy, is a social phenomenon where change will never occur if employees are not willing to adopt and embrace the change. It has been identified that during processes transformation, there is a tendency to only look at the technical side of the transformation and ignore the social aspect linked to the transformation (ELsheikh *et al*., 2010). Top management often fails to bring alignment between key elements contributing to the success in restructuring processes (Habib, 2013). The success to restructuring business processes encompasses coordination between three key elements; including people, technology and processes (Habib, 2013). Thus, facilitating the insertion of newly restructured processes requires cultural, human and non-human adjustment (Magutu *et al*., 2010).

Therefore, in order to entrench organisational processes, this literature review specifically focuses on human and non-human factors that impact on process change, and its successful entrenchment. In addition, it focuses on how a business can get employees to change their attitude about these changes so that it becomes part of the way they operate. Additionally, it shows how entrenchment is achieved through the alignment of human and non-human actors. The following sections thus elaborate on social and technical factors influencing process entrenchment.

## 2.2 Corporate strategy

### 2.2.1 Overview of strategy

Strategy is a concept that continues to be a focus of research due to the fact that it is critical to organisational success. Strategy can be formulated to meet long- or short-term goals. Chandler (1962:53), however, indicates that strategy is the definition of long-term goals and

the adoption of a course of actions and resource distribution to meet these goals. In general, a strategy involves the plan of activities organisations initiate to meet goals or objectives. Strategy is, therefore, formulated to meet the gap between ends and available means; and resources are deployed to perform strategy in order to meet ends (Nickols, 2016). For the purpose of this study, both short- and long-term goals resulting in process changes and entrenchment will be regarded.

Examples of organisational goals include successful system implementation and the entrenchment of changes. Al-mashari (2003) found that a strategy is important for the successful implementation of systems, among other factors. This is because strategy sets systems implementation objectives, develops the necessary plan to meet the intended objectives, and encompasses participation of various stakeholders. This angle of strategy is regarded as necessary in process entrenchment because it ensures the participation of stakeholders and the establishment of plans and objectives to guide the initiative and its materialisation. Systems implementation to optimise and entrench processes has failed to achieve the intended objectives (Axelsen, 2007). Thus, additional factors have to be considered for successful entrenchment. Strategy, as one of these factors, therefore becomes a precursor for successful entrenchment, since it integrates various actors and enables their participation during the strategy formulation process. Strategy is established during meetings in the presence of stakeholders, during which different stakeholders exchange ideas. Goals and objectives emanate from discussions between organisational members and the understanding of objectives and goals is achieved through these discussions (Nickols, 2016). Ideas are communicated to other members of the institution. As such, it places organisational members on the same page. It is in this regard that Botes, Guzek, McWilliams and Alberts (2010) advise organisations to carefully choose a strategy to successfully entrench process changes in the organisational environment. Consequently, strategy is an important precursor to process change to provide a solid foundation for successful entrenchment due to the fact that it provides the platform for consultation with the relevant stakeholders.

### 2.2.2 Enterprise Resource Planning as a Strategy

Numerous researchers perceive Enterprise Resource Planning (ERP) uniquely as a technical system. They thus define ERP as comprehensive software applications that integrate all the business processes, functions, departments and data of an institution to provide managers with a holistic view of the business (Cheng & Wang, 2006; Doom, Milis, Poelmans & Bloemen, 2010; Mir, 2013; Seo, 2013). Rayner and Woods (2011), assert that ERP strategy is defined as "*a technology strategy that integrates a set of business functions, such as finance, HR and*

*purchasing, with operational aspects, such as manufacturing or distribution, through tight linkages from operational business transactions to financial records*". While these definitions of ERP are geared towards a systems perspective, other researchers have highlighted the concept of ERP from the business approach perspective. As such, The Educational Society for Resource Management (cited in Jafari, Osman, Yusuff & Tang) defined ERP as: "*A method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company*". In this definition, ERP is perceived as a strategy for the proper allocation of resources required in the execution of business processes. The most important task of management is to allocate the necessary resources of the company for process execution (Jafari *et al.*, 2006). Strategy is formulated by management, who uses the principles of ERP for planning. ERP is being used as a template to develop a strategy that brings all resources together for their optimisation.

In an organisation, resources include people, finance, material, information and knowledge, for instance. ERP enables resource optimisation during the execution of processes. Chandler (1962:53) identifies a strategy as the determination of goals, the courses of activities, as well as the allocation of resources, to carry out the goals. Since resources are useful to companies they should be used efficiently and effectively during process execution to achieve process optimisation. Appropriate organisational resource allocation optimises practices and enables organisations to reach strategic goals. This can be achieved through ERP as a strategy. The perception of ERP as a strategy drives processes and functionalities and represents the foundation of an ERP system, as alluded to earlier. Given that ERP addresses matters of process sub-optimisation through resource optimisation; and strategy has been identified as a precursor for process change; it can be asserted that ERP strategy can be used as a vehicle to ascertain how the entrenchment of processes can be achieved. In addition, it will be ascertained how a well-established concept like ERP strategy can elicit the buy-in from human and non-human entities to entrench processes.

### 2.2.3 Strategy and processes

The strategy of an organisation sets the vision, goals and objectives. Processes are activities executed to realise outputs of value that contribute toward organisational goals. It becomes important to align processes to corporate strategy to ensure that the strategy is materialised. Morrison *et al.* (2011) states that processes align to strategy when they apprehend the strategy and when processes are sustainable. Similarly, Davis (2009) states that one of the criteria of a good process is alignment to organisational strategy. Strategic alignment allows an organisation to anticipate its endurance and determine how achievable the vision for the future

is. Processes do not exist in isolation, as every input or output to the organisation affects the nature of a process. During the development of workflow, developers strive to create sustainable workflow processes. When designing processes, organisations need to look at more workflow, and thus consider the environment in which processes operate, the resources needed for process execution and business objectives (ibid). Business processes are thus considered as being sustainable when they realise part of an organisational strategy (Morrison *et al.,* 2011). Organisations are considered to be sustainable when implemented business processes realise all strategies. As stipulated earlier, the strategy relates to a plan of activities to meet organisational objectives and goals, which are to be executed through organisational processes. Therefore, the quality, or nature of processes will impact on the activities of the organisation, and thus the success of achieving organisational goals.

### 2.2.4 Strategy and people

A discussion of strategy is incomplete without addressing its key elements, which include a vision, goals, objectives, and a plan. This is because business processes are driven by the provisions of the strategy with the view to implement the strategy. The literature revealed that each of the elements mentioned are factors contributing to process entrenchment. In addition, consultation with the main stakeholders during planning activity provides for sustainable output and augments the rate of success of the strategy (Kaur, 2007). Such consultation, therefore, cannot be ignored in process change and entrenchment initiative since it is favourable to deliver a set of outcomes desired by the stakeholders. Organisations in developed countries realised the importance of stakeholders to participate in planning activities so that actions are implemented to encourage different stakeholders' participation (Kaur, 2007). Additionally, broad organisational goals and objectives are reached by combining the activities of various stakeholders that work toward a common purpose. When organisational stakeholders partake in the development of strategic goals and objectives, they become willing to contribute and embrace the change (Foudraine, 2015). People need to understand strategic goals and objectives and link them to their own activities (Wairimu & Theuri, 2014). Employees, technicians and software users, for instance, must be informed of their role in business processes, while their individual efforts contribute toward organisational goals. Stakeholders are thus involved in all stages of activities from the planning phase to the conception of the project, thereby nurturing satisfaction and a sense of ownership of planned actions (Kaur, ibid). This is to say that, consulting main stakeholders enables them to provide an understanding of their needs and aspirations from their side. It enables them to provide their input, objections and subjections, develop a sense of ownership from the first to last activities, and picture the development strategy. This makes the changes to the operations, and thus process activities, more susceptible to successful entrenchment.

Introducing change to improve and transform business processes in an organisation can cause feelings of uncertainty among employees. For this reason, Ali (1993) advises management to develop a strategy to minimise this feeling. Botes *et al.* (2010) recommend that organisations choose a suitable strategy to positively entrench process change in an organisation. Thus, organisations should, for instance, distribute information regarding process transformation to employees. Management needs to provide support and implement communication strategies to make employees aware of changes and inform them of the transformation. Another strategy suggested by Botes *et al*. (ibid) is to train employees who are directly involved in the process transformation. The training sessions are intended to expose employees to transformation. Employees should also be rewarded for their participation to motivate them to introduce personal thoughts and energy throughout process change. These different strategies intend to solve the human factor that may hinder process transformation and thus lead to entrenchment of business processes.

### 2.2.5 Strategy goals and objectives

Khaparde (2012) reviewed literature on the causes of systems implementation failure. Out of 51 papers reviewed, 75% identified the poor definition of strategic goals as a cause of systems implementation failure (ibid). This illustrates the importance of management's responsibility to clearly set strategic organisational goals during systems' implementation, or similar strategic initiatives. Strategy is a precursor to process entrenchment where goals and objectives are developed. Organisational strategic goals are set during the strategy formulation process and represent a foremost component in achieving the overarching vision. During the formulation process of strategy, objectives are developed to support strategy and goals are established to evaluate organisational progression towards achieving the objectives (Jacka & Keller 2009:5).

Masters (2011) advises that organisational objectives should be a pillar to process improvement initiatives by delivering the required context to lead improvement activities. In addition, entrenching business processes signifies that processes are embedded in work activities and employees, for instance, are committed and consistent in executing processes (CMMI, 2009). The level of entrenchment is included in organisational goals and objectives (ibid). Drawing on the views of Masters (2011), and Jacka and Keller (2009:5), strategic goals and objectives play an important role in defining process improvement and entrenchment goals, appraisal objectives, the organisation of process improvement actions, and developing and implementing process solutions. Clearly defined strategic goals need to be communicated to employees and stakeholders for them to be aware of their role in meeting goals and

objectives. Additionally, stakeholders need to have their own objectives for their personal goals that contribute to broader organisational goals (The Saylor Foundation, 2007).

### 2.2.6 Strategy action plan

An action plan is a schedule of activities and the resources allocated to the activities. It is a step-by-step guide for employees to achieve the strategy and should be informed by the mission (Allen, 2007). An action plan contains activities, time frames of when activities are subject to be performed; and includes material requirements, cost, staff and other assets or resources needed in achieving specific tasks (ibid). Like any other initiative, having an action plan will coordinate the entire process change initiative and schedule activities to reach goals and objectives. The plan is developed to describe process change initiative and is used to ensure agreement to the plan by stakeholders (CMMI, 2009). In addition, the plan will specify the responsibilities of each member and the training to support the process. Knowing what to do and how to do a specific task of a process, with necessary available resources such as finance, software or hardware, promotes good process execution.

## 2.3 Business rules

### 2.3.1 Overview of business rules

In addition to organisational strategy, the concept of business rules has emanated from literature as a variable influencing process entrenchment. According to Hay and Healy (2000), business rules are statements compelling some aspects of an enterprise to regulate or influence comportment. In the study of the role of business rules in information systems by Steinke and Nickolette (2003), it was found that business rules are statements aiming to guide behaviour. These definitions allude to the fact that rules guide information and behaviour and include organisational policies, culture and definitions that stipulate how an enterprise should be managed. Rules are thus valuable as they promulgate how institutions operate when executing process activities.

As such, rules should be well-documented and made available to everyone in the institution for successful process entrenchment (Steinke & Nickolette 2003). Andreescu and Mircea (2012) have distinguished various contexts that business rules can be applied to. Rules can apply to business processes, user interfaces, databases and people. Due to the focus of the study, the researcher will mainly focus on rules governing business processes and people.

Business rules can be defined on the strategic level of an organisation or to specify the requirements of an information system and can be of three different natures: governing, operating and automated (Rabova, 2009). A governing rule is a formal law, or prescribed obligation. It is applied in a business process or used for an information system design to constrain or regulate an organisation and its stakeholders. An operating rule, is a declarative statement expressed in business language. It is suitable for direct application of a business process and consideration in an information system design (ibid). In addition, it enables an organisation to run its activities in a suitable and optimal manner or to comply with organisational goals. As such it acts in a preventative role, and any employee that violates the rule faces drastic sanction. Flouting the business rules does not break the knowledge of such rules and the threat to sanction is real (Rabova, 2009). An automated rule, however, is a precise business rule expressed in a programming language that a computer can interpret. It helps business analysts to understand and communicate what happens in business process and activities (ibid). The automation of business processes is influenced by business rules driving its activities (Kaula, 2012). The business rules are, therefore, abstractions of the procedures and practices of an organisation. Generally, it simplifies conditions of business guidelines, stated declaratively in condition and action language where “if” conditions represent the constraints and the “then” the action to occur (ibid). Table 2.1 below presents examples of automated, governing and operating rules.

**Table 2. 1:** Example of business rules

| **Nature** | **Automated rule** | **Governing rule** | **Operating rule** |
|---|---|---|---|
| **Definition** | The rule is expressed in a programming language. It is stated declaratively in condition and action language where “if” conditions represent the constraints and the “then” the action to occur. | A governing rule is a formal law, or a prescribed obligation. | An operating rule is a declarative statement expressed in business language. |
| **Example** | The operating rule to express the remuneration of employees who have been working for two years is as follows: **If** year of employment =2 **Then** remuneration = 2000 | The company will not reduce production cost if it means: violation safety policies and impede quality. | To check customer eligibility criteria prior to granting a loan |

Business rules influence business processes by including rules in application software that complete activities that are part of a process. Business process events are governed by business rules, and such events in turn impact on the entity nature. Entity refers to a human or non-human that needs to process data.

### 2.3.2 Strategy and Business Rules

Business rules are indispensable for an organisation that has implemented strategy. As identified earlier, strategy sets organisational objectives, and rules direct behaviour toward reaching those objectives. Each enterprise has a set of policies to govern behaviour (Rai, 2001). Business policies clearly stipulate the direction a business should follow to meet the goals and vision. The business rules emanate from policies. Steinke and Nickolette (2003) concur that business rules are the bridge between what the company desires, and what the company says it desires. Rules are a bridge between the ends and means of an organisation. Business rules therefore become important to achieve successful entrenchment of processes since rules represent the list of guidelines influencing behaviour toward meeting organisational goals and define how a business is managed (Plotkin, 1999). The governmental institution, NSW Industrial Relations (2013), enumerates the benefits of business rules, including maintaining the direction of the organisation even during periods of change. In other words, rules support organisational goals since rules keep humans and non-humans in line with the initial direction during process changes. In addition, Ross (2003) contends that business rules are motivated by business goals and objectives. This clearly shows a relationship between rules and strategy because organisational goals and objectives are established during the strategy formulation process.

The aforementioned assertions are supported by Twum-Darko and Harker (2017) who found that policies and rules reinforce strategy. Their study focused on getting people to share knowledge or create a network for sharing knowledge. The study revealed that the growth of a network to share knowledge is preceded by a strategy that defines the role of each shareholder included in the network. The knowledge sharing strategy established is strengthened by policies by legitimising the role of the shareholders in the network (ibid).

Despite the fact that this study focuses on the entrenchment of processes, these studies have similarities based on the dynamic of getting people to participate in organisational initiative and subsequent change. The literature revealed the importance of the support that business rules provide in achieving the goals and objectives. These rules are needed to keep human and non-human actors in line with organisational practice, which is a precursor for process entrenchment.

### 2.3.3 Processes and Business Rules

As defined in the previous sections, a process is a collection of activities to produce an output that is of value to customers. Processes represent the central asset of any business since they bring income and sometimes represent a proportion of expenditure (Polpinij *et al*., 2015). Business processes are the most important part of an organisation and are controlled and regulated by rules (Rabova, 2009). Business rules guide the collections of activities that constitute a process, and rules are incorporated into applications or in the database structure that run processes to accomplish these activities (Kaula, 2012; Rabova, 2009) . Including rules in applications or workflow process ensures the quality of activities and the output produced because the intended workflow processes will be executed in accordance with the stipulated design. Business rules are often encoded during the analysis phase of processes to prevent users from modifying rules (Andreescu & Mircea, 2009). This ensures homogeneity in the nature of rules, compliance to rules and the entrenchment of processes. In fact, preventing users from modifying business rules can retain the consistency of rules, process flow and activities. In addition, processes in an organisation do not stand alone. Every input or output to the organisation is connected to processes. Therefore, it is only once laws, business policies, regulations and constraints are considered in the environment that processes exist, that a proper understanding of processes is developed (Davis, 2009). Business rules influence the nature and quality of processes in an organisation, and thus it can be deduced that it will also influence the entrenchment of processes by influencing practice and behaviour during process execution.

### 2.3.4 People and Business Rules

According to Andreescu and Mircea (2009), business rules encompass knowledge about business regulations that organisations must abide with. Given that many people interact in an organisation, it is important to institute a set of rules that regulate actions and civilise people. Once rules are made available to everyone in the organisation, employees should acknowledge their awareness by signing proper documents such as ethical behaviour documents. To enforce employees to perform their tasks toward achieving organisational objectives, ethical behaviour is expected from them. Sibiya, Makoni and Van Wyk (2016) state that the more rules are established and respected in the workplace, the more optimistic, resilient and hopeful their workforce will be. This means that an ethical climate encourages employees to become self-motivated to be successful even during periods of trouble by remaining oriented to goals, open to new challenges and staying motivated when facing

difficulty to accommodate change in processes. The presence of an ethical climate in an enterprise enables the workforce to distinguish between right and wrong and compels employees to execute what is expected from them. It plays a positive role in employees' behaviour, and the business too. As such, Sibiya *et al*. (ibid) draw attention to the role that business rules play in an organisation to influence employee behaviour as the absence of an ethical climate impedes employees' aptitude to remain resilient, optimistic and hopeful. Training and development programmes can promote the embedment of such behaviour so that its benefits extend to best practices and entrenchment of processes (ibid).

### 2.3.5 Systems and Business Rules

It has been established that business rules are integrated into information systems to automate the execution of business processes (Rai, 2001). Business rules are intended to represent aspects of organisational knowledge needed in the decision-making process, which prevents human factors leading to error and inconsistency. Based on business internal commands, practices and compliances, business rules establish what actions are to be executed in an application or a system (Smaizys & Vasilegas, 2009). Such rules are enforced in the following ways:

- Business rules model transformation performed into the execution of an application code;
- Business rules model transformation performed into the parameters of software application;
- Business rules enforcement through execution of workflow-based business processes.

In systems such as ERP systems, for instance, the default rules applied are basic business rules. In circumstances where an organisation needs complex legal (or other) compliance, customisation can be performed to extend rules and allow flexibility (Ross 2003). Thus, it can be proposed that rules can be modified to a point that allows enough flexibility to fit organisational needs, whether to accommodate process change, or to entrench process activities.

### 2.3.6 Influence of business rules on process entrenchment

Business rules should meet certain requirements to be successful (Steinke & Nickolette, 2003). They should be precise, atomic, consistent and business-oriented. When business rules follow these requirements, they are favourable to human understanding of what the rules entail, the importance of rules, and hence acceptance of the rules. In view of these characteristics, one can argue that it can render business rules favourable to changes and the entrenchment of these changes.

Proper business process execution is stimulated by business rules that guide the behaviour of information system components, which include people, hardware, software, and data. Rules are based on law, ethics, culture and organisational commitment to guide behaviour (Herbst *et al*., 1994). Boyer and Mili (2011) sustained this idea and perceive business rules from two different viewpoints: the business and information systems. This perception is due to the fact that rules control humans and the nature of information systems. Rules guide human and technology comportment during process execution to ensure good performance and ethical behaviour (Herbst *et al.*, 1994). Derriks (2012) added that rules deepen business processes because rules specify how tasks and activities are executed. Process activities can be manual, automated, or a combination of both. The norms for handling business process execution are institutionalised using business rules included in manuals or books to control process execution (Bider & Striy, 2008). When processes are automated, controls are included in systems that enforce execution (ibid). Since process entrenchment depends on human and non-human factors, and rules have the potential to guide both human and non-human behaviour towards business goals, it can be concluded that rules have the potential to positively impact on process entrenchment. Humans and non-humans will then be compelled to do what is expected from them, and workflow-based processes will be executed as intended.

## 2.4 Processes

### 2.4.1 Overview of Processes

Numerous researchers have provided definitions of business processes which converge to the same meaning. A business process is a collection of activities which are executed by different functional areas, using an input to create a final product that is of value to a customer (Monk & Wagner, 2009:1). In some cases, though, the final product may not add value, but becomes input to another process (Harrington, 1991). Figure 2.1 below depicts this cross-functionality of a business process. The figure presents the set of activities, or tasks involved in fulfilling a customer order. The process starts when a customer places an order and ends when the customer receives their order. The value to the customer is the goods that have been received. The activities of the process are performed by the Sales and marketing, Warehousing, Purchasing, Production, Logistics and Accounting and finance functional areas. Sales and marketing receives and validates the customer order. Purchasing procures raw materials to be used in Production, Warehousing prepares the order for delivery and Logistics delivers the order to the customer. The Accounting and finance functional area issues the invoice to the customer.

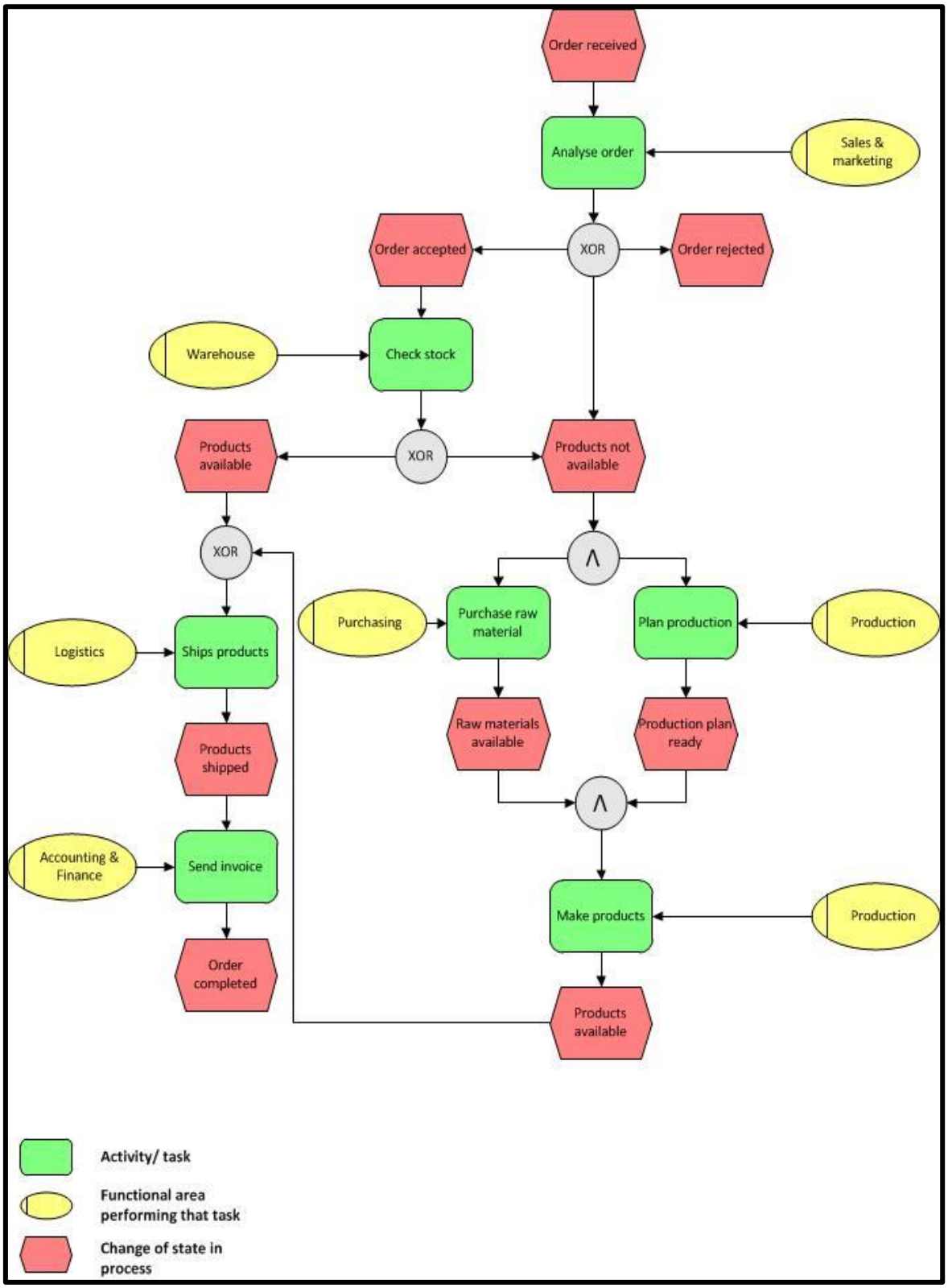


**Figure 2. 1:** Example of process activities

The main functional areas of an enterprise include Sales and marketing, Accounting and finance, Supply chain management (SCM) and Human resources. The Warehousing, Purchasing, Production and Logistics functions constitute SCM. The functional areas have

their own respective business functions (activities) that they perform, such as product pricing, managing accounts, production planning and hiring new employees (Monk & Wagner 2009:2), but most of their activities form part of a larger end-to-end process. A single process can flow through different functional areas and no unique entity has control over it (Van der Aalst & Scheer, 2000). Given the cross-functionality nature of process, it is understandable that the input from each functional area is required to be consistent with the nature of the process activities to allow a smooth transition between the different areas. As such, effective and efficient communication and interaction between business functions is required for a coordinated process flow. The absence of such coordination during process execution might lead to process deficiencies and sub-optimisation might arise (Magal & Word, 2011).

Processes are essential to an organisation to understand, manage, and coordinate the activities, as well as generate value. In contrast to a functional-oriented thinking that is centred on the task that is completed within one function, process-oriented thinking implies a focus on the manner of completing organisational goals, being the process. This thinking moves the organisation away from operating in silos to improve the effectiveness and efficiency of operations. As such, organisations engage in different activities, such as the implementation of an ERP strategy, not only to transform thinking to a process-oriented approach, but to also guarantee the entrenchment of such changes. Thus, the overall orientation of functional areas is toward achieving sub-goals that contribute toward the organisational goals, thereby bringing about the organisational strategy.

### 2.4.2 Processes and Systems

Nowadays, organisations depend on technology to deliver products and services to customers. People equipped with specific skills, knowledge and process aptitudes are required to operate and adapt to ever-changing technology (Buttles-valdez *et al*., 2006). Technology is a central element contributing to the effective management of an organisation and its processes. Technology becomes critical for successful entrenchment since it enables an organisation to use up-to-date methods to facilitate process activities in a more efficient and effective manner. The technology each organisation uses differs from one to another and has a critical effect on the environment, plan and structure of the organisation (Ahmad, 2014).

The introduction of technology in an organisation has brought augmentation in productivity resulting from changes in processes and the work environment. The implementation of new technology is needed to render business processes more efficient and effective (Ahmad, 2014). To attain such benefits, Ahmad (ibid) advises that organisations accept technology devotedly and that managers introduce reform to their practices. Information technology

organises and directs businesses processes and attains proper organisational design. However, Franch *et al.* (2016) indicate that there is a gap between implemented business processes and technology intended to support and improve these processes. This gap needs to be narrowed to provide better services to customers (ibid.). As such, there are technologies such as ERP systems, radio frequency identification (RFID) or mobile devices whose embedding can modify workflow of implemented processes (ibid).

Business systems are packaged applications that automate and manage business processes and constitute a group of components working together to achieve unique or multiple goals (Bosilj-Vuksic & Spremic, 2005; Gulla, 2004; Oz, 2009:19). Organisations rely on systems to execute business activities effectively and efficiently and keep information updated and available (ibid). Systems provide important benefits to the organisation, such as speed up business processes, improve the quality of processes and optimise and reengineer processes (Gulla, ibid). In addition, systems improve information flow, save time and costs, and maintain the constancy of data.

Enterprise systems are excellent for entrenching business processes (Botes *et al.*, 2010). This is because after transforming the organisation through people and processes, the business process blueprint can be integrated into technology such as ERP systems to embed the changes (ibid). Fuentes (2014) asserts that systems can facilitate process entrenchment through the embedment of best practices. Additionally, the structure of ERP systems does well to facilitate the move from a function to process-oriented business perspective. ERP software modules are designed around processes, not activities. This means that the strategic move from a function to a process-oriented approach was a clever way of addressing the process-related inefficiencies, while embedding business process transformation into technology (ibid). The system also automates compliance to business rules and plays a central role in regulatory compliance, as opposed to manual processes relating to compliance, which can be inaccurate and time consuming (Heinricher, 2010). This can include, for instance, maintaining an audit trail through the archiving of transactions, digital electronic signatures to improve work flow process security, quality control to enforce inspections at crucial points of workflow, as well as maintain compliance to the requirement and security to prevent unauthorised access to a system (ibid).

A well-implemented system can support strategic organisational goals and objectives (Rayner & Woods, 2011). Systems therefore sustain strategic business transformation through standardisation as it can be applied as a principal foundation of strategic objectives (ibid). Rayner and Woods (2011) agree that systems deliver all the aforementioned advantages when they are perceived as a strategic tool. Having said this, it can be asserted that systems provide

the support for the implementation of strategy and ultimately the entrenchment of the business processes emanating from strategy. ERP systems have the capability to streamline governance and compliance during process execution (Botes *et al.*, 2010). In other words, ERP systems have the capability to compel everyone to execute processes with the right attitude.

### 2.4.3 Processes and People

Generally, in industries people and machines perform standards procedures through the performance of recurrent activities. These standards procedures should be followed by all employees. Burattin (2015) identified these standards procedures as business processes. These standards procedures are performed in a coordinated manner, either simultaneously or one after another, whether manually, or automated by a machine. Swenson and Farris (2009) identified automation and facilitation as the two forms of support for business process activities. Automation refers to the elimination of humans from executing the process activities and substitutes humans with machines (ibid). Facilitation is where people provide resources to other people to execute activities (ibid). Since manual activities rely on people to perform what the standards procedures have outlined, and facilitation is reliant on the successful sharing of information by people, process execution is reliant on people. In addition, people influence the efficiency of processes because systems rely on people to provide input to manual activities.

Radomir (2013), argued that processes have a huge impact on employees' performance. This is because excellent business processes empower employees with the potential to provide high quality services and responses to queries, for example. Long (2011) identified three factors to achieve business process improvement, which include understanding that it is people that make an enterprise successful, that each employee needs to be educated with enough knowledge on processes, and people must own process initiatives through active participation and empowerment. It is all employees at all levels of an organisation that make process change and entrenchment initiatives succeed, and not a specific group of employees. Organisations should allow employees who are equipped with the necessary expertise and capabilities to be involved in process changes. To get people to buy into changes in processes, and the entrenchment thereof, employees must understand what the changes involve and have knowledge to implement the changes.

Processes deal with competencies required to address business needs, and people bring skills, knowledge and competencies to execute processes (Buttles-valdez *et al*., 2006). Employees' participation is, therefore, another element to enable employees to buy into process changes and entrenchment. In fact, employees' participation develops a sense of ownership to process change initiative, which is favourable to entrenchment because when

they are involved in change initiative, employees accept the changes and long for its success and consideration of people as resources (Chen, 2001). Organisations are thus advised to commence process improvement initiatives when the people working with the system participate in improvement and support such changes (ibid).

## 2.5 Social factors influencing entrenchment

### 2.5.1 Employees

Organisational change provides many benefits to an organisation, such as improved competitiveness and customer and employee satisfaction. Ironically, though, one of the most important challenges that organisations are facing is resistance to change (Rebeka & Indradevi, 1999). Resistance to change arises from employee attitude or uncertainty towards new ideas (ibid). Employee attitude can positively or negatively influence responses to organisational changes, including changes to processes. Different actions can trigger employee acceptance of organisational changes in different contexts. In the context of processes, changes are successfully achieved when human forces are included and embrace the change. Actually, human factors such as involvement or participation are fundamental constituents of the success of system implementation (Kujala *et al.,* 2005). ELsheikh *et al*. (2010) reinforced this idea and found that a principal element in process change is to allow people to participate in the development, implementation and evaluation phases of a new system. Similarly, Kujala *et al*. (2005) indicated that user involvement represents a key element during the development of systems and has a positive effect on the system success. Since process change requires the people who work with the process and/ or system to embrace the changes for its entrenchment, including people in process change initiative can harness change in behaviour and attitude toward change initiative. It also develops understanding and a sense of belonging and enables employees to perceive the advantages of the change initiative.

### 2.5.2 Management support

Management support is defined as the assistance on a project endowed by its central stakeholder (Zwikael, 2008). Assistance provided by top management can include providing resources to the project team such as commitment, time and finance, for instance. Management and department leaders are compelled to provide inspiring leadership during process change (Wilson, 2011). Management support is considered as a crucial component of system implementation and process change success. In other words, the more support top management provides to the project, the more likely it is for it to succeed (ibid). Creasey (2016)

identified five attributes management should have during a time of transformation. This includes being a communicator, resistance manager, advocate, coach and liaison. In fact, managers are responsible for communicating information relating to change initiative to employees since employees would like to receive such information from the person they report to (ibid). Managers first need to support change endeavour before they enrol employees into the change. In addition, managers are best positioned to identify employee resistance to a certain project and manage resistance when it occurs. Therefore, top management support is indispensable to the overall stages of the process change and entrenchment and should remain present during all the stages. The availability of management during process change thus strengthens the process changes and entrenchment initiative since it encourages employee participation.

### 2.5.3 User training

To manage people's behaviour and attitude and establish processes, process embedment workshops need to precede user training (Nicholas, 2014). In fact, process embedment workshops enable users to grasp processes they are involved in and their impact on achieving organisational results. These intend to address people's behaviour and issues that can affect performance in integrated processes and entrench processes. During the workshop, critical elements are explained. Users need to identify process trigger elements, potential risks to the process, governing policies that regulate the business process, systems activities, roles and responsibilities for each user and service level agreement at each integrational point between functional areas of operation or departments. During workshops, topics such as process triggers, rules, employees' roles and responsibilities and activities are elaborated. Explaining process trigger input enables users to understand where information comes from and goes to after the process is initiated, provides insight into key integration points into the process, helps to understand why work quality is important and how it affects other people in the process, and to understand mandatory tasks as a serious element. It also identifies the main risk that affects processes. Once the risks are identified, policies governing the processes are also identified to mitigate the risks. It highlights the importance of rules and the cost of ignoring or violating the rules. Next, users identify the activities involved in processes. These include activities in the systems and non-system activities embedded in the process, and users can see which activities they partake in. This, therefore, triggers users' responsibility in the task(s) they are involved in. Service level agreements ensure a smooth transition between integration points. Process embedment workshops are, therefore, important to process entrenchment, since it is a graphical representation of the platform to provide training to users.

Training users is a method for implementation of management control. Management control is the group of steps taken by management to ensure employees perform their duties in the best interest of an organisation. It prevents people from failure of completing duties assigned to them (Aydinh *et al*., 2007). Management control includes three types of control, including result, action and personal control. Training is part of personal control that involves employees' individual and natural anticipation to be regulated at the workplace (ibid).

Furthermore, training teaches users behaviour, skills, knowledge and value. The training sessions should stipulate the reasons for change, requirements of new systems and a detailed plan of transformation, according to ELsheikh *et al*. (2010). Providing employees with proper training increases their ability to perceive the need for change in processes and their adaptation to the change and entrenchment (ibid). Training needs to be provided to all organisational departments of an organisation so that employees do not revert to old practices and entrench new methods. Entrenchment of processes is susceptible to happen when users receive adequate training and new skills to operate systems implemented to optimise business process.

### 2.5.4 External support

External support includes support provided by consultants and vendors. External support constitutes another support to process entrenchment. As mentioned by Doom *et al*. (2010), support from consultants or vendors is very important for a successful implementation of a system when the organisation lacks internal expertise. External support or expertise will be of great help when employees lack the skill to operate systems implemented to optimise processes. This type of support intends to provide humans with the necessary skills to operate changes in processes as well as supporting the system sustaining the changes (Nejib, 2013). In addition, it builds confidence of internal expertise to use systems since there will be someone to count on when encountering a difficulty. It is intended to render humans more confident in case of difficulty to operate systems implemented to optimise processes. In fact, employees will have a backup when uncomfortable to leave old ways and embrace new practices. This backup or support helps employees to accept and stick to new practices.

## 2.6 Summary

The introduction of the chapter presented a problem that organisations are currently facing. It was elaborated that process entrenchment is not always successful. Despite different techniques to optimise processes, such as systems implementation and new strategies, process entrenchment is not always successfully achieved.

The research problem was explained in depth and the variables to the problem were identified. The literature has highlighted both social and technical factors as influencing process entrenchment. While the chapter reveals that technology plays a crucial role in process change and entrenchment, it also equally reveals the significant social influence that people bring to the phenomenon.

The next chapter will elaborate on the theory underpinning the study, which has been used to lead the development of the conceptual framework. The following chapter thus expands on two main components: it explains the choice for the selection of the actor-network theory to underpin the study and gives explanations of the theory. Secondly, it will provide an understanding of the developed conceptual framework that will guide the data collection, analysis and interpretation processes.

# CHAPTER 3: UNDERPINNING THEORY

## 3.1 Introduction

The previous chapter elaborated on the entrenchment of business processes. The literature revealed that processes in organisations are not always entrenched. In spite of different initiatives implemented to improve processes, such as systems and strategy implementation, the entrenchment of processes is not always successful. The literature review presented those factors that contribute to the success of process entrenchment. It revealed that technical and non-technical factors such as people, processes and technology influence process entrenchment. Given the research problem, aim, objectives, research questions and reviewed literature, it was evident that a social theory as a research lens would better facilitate an understanding and interpretation of the phenomenon, due to its social nature.

Entrenching business processes is not only achieved through the application of technology, such as ERP systems. The application of technology is adequate to address process efficiency and effectiveness and organisations depend on systems to support, automate and manage business processes. However, the reality is that people must interact with the systems, as there are parts of a process that require interaction with humans. As mentioned in the previous chapter, parts of a process can occur manually, and people use the systems that facilitate the processes. Entrenchment is also brought about by human behaviour, and thus entrenchment requires the buy-in of people in order to change the way work is done. Human behaviour needs to be given particular attention since the tendency is that human behaviour and attitude can affect the change initiative and process entrenchment as a result. There are numerous reasons that can cause humans to oppose the success of process entrenchment initiatives. These include the fear of failure, the threat of losing employment, and the fear of the unknown, for example.

The social orientation of this research justifies the need for a social theory to underpin this study. The actor-network theory (ANT) was, therefore, selected to understand the phenomenon, not only from the perspective that people are involved in the entrenchment of processes, but also because the success of any new initiative is dependent on the ‘buy-in’ of a network of actors to achieve a common goal.

## 3.2 Use of theory in empirical research

Kawulich (2009) defined theory as a framework for observation and understanding that shapes what can be seen and how it is seen. Theory emphasises a connection between two phenomena and explains the relationship between the phenomena. Through observations and observational statements, theory enables a researcher to create connections between the tangible and intangible, the theoretical and practical (ibid)**.** Theory helps researchers understand the difficulty of realities in social lives and explains people's behaviour in a given context, such as process entrenchment, and gives insight and direction for enquiries (Neuman, 2014:56). Theory was, therefore, used in this research to provide concepts and relationships between those concepts which would serve to direct the research inquiry to answer the research questions and to make sense of the data collected, as it relates to the role of ERP in entrenching business processes. As such, it assisted in the development of a conceptual framework where the research problem was conceptualised based on the variables identified in the literature, and their relationship to the phenomenon, and to direct the data collection and the analysis and interpretation thereof. In addition, theory was used to understand human and non-human interaction in process entrenchment, as well as the influence of their behaviour on the success of process entrenchment.

There is numerous theory one can choose to guide a research. These include but do not limit to the Actor-network theory, Structuration theory, Social impact theory, Activity theory and Grounded theory. Lee (2001:iii) states that "research in the information systems field examines more than just the technological system, or just the social system, or even the two systems side by side; in addition, it investigates the phenomena that emerge when the two interact". For Aanestad *et al.* (2004:117), ANT is an appropriate examination device to enable the researcher to understand and explain the interaction between social and technical systems. The theory is useful to understand the complex social interaction associated with information technology. It shows the importance of human and non-human interaction in innovation, such as process changes. For this reason, the successful entrenchment of processes relies on the interaction and alignment of the interests of human and non-human actors. ANT was, therefore, used in this research to understand the interplay between technology, processes and people to entrench processes.

## 3.3 Overview of actor network theory

The actor-network theory (ANT) was conceptualised by Michael Callon, Bruno Latour and John Law in the 1980s. ANT was introduced to comprehend aspects associated to science and technology improvements (Cressman, 2009). It is profoundly focalised on the understanding

of people and their collaboration with inert objects (Cresswell, Worth & Sheikh, 2010). ANT studies human and non-human actors such as technology, processes, files and concepts, among other contexts (Goody & Hall, 2007:185). People and technology interact to fulfil business processes. Introducing change to processes impacts on the socio-technical elements involved in process execution. ANT can thus be used in this study to understand the socio-technical interaction in process entrenchment. ANT studies humans and non-humans in order to understand the role each component can play in a certain environment (Sarker *et al*., 2006). The non-distinction between humans and non-humans creates the particularity of the theory (Ibid). This particularity of the theory enables the recognition that processes and technology play critical roles in process entrenchment since ANT does not exclude non-human actors from the analysis. Humans and non-humans play different roles in an environment, but this environment is a network of aligned interests.

ANT enables the study of the relationship between human and non-human members of the network in accordance with the four moments of translation. Translation refers to the alignment of interests of different sets of actors with that of a focal actor (ibid). The moments of translation include problematisation, interessement, enrolment and mobilisation. The four moments of translation envisage achieving an alignment of interests, as well as the creation, expansion and solidity of a network of actors. The strength of a network of aligned interests depends on the successful implementation of the four moments of translation (ibid).

The first moment of translation is problematisation. During the problematisation phase, the focal actor identifies a problem affecting other actors and initiates a network of interests. The focal actor makes himself indispensable to other actors. An obligatory passage point (OPP) is the situation that must occur for all actors to align interests as defined by the focal actor. Once interests are aligned, actors can enter the second moment of translation, which is interessement. During interessement, the focal actor negotiates with actors to accept his/ her interests. The focal actor makes use of incentives to convince other actors in the actor-network to abandon their initial interests and align to those interests identified by the focal actor. Once interessement is complete, the third stage, enrolment, is said to occur. At this stage the actors accept the interests defined by the focal actor. Once enrolment is complete, legitimating the actor-network occurs during the mobilisation phase, which is the last moment of translation. Inscription is the process to ensure that the aligned interests remain constant during the mobilisation phase and prevents the betrayal by the actors. In the event of betrayal, the actors stop conforming to the agreement previously made either by them, or by their representative. Betrayal can lead to the failure of the network formation. When the actors are well established in the network, it becomes very strong and black boxes are created. The well-established network represents a strong assemblage that can be counted as an actor. This thus transfers the actor-network to a state of irreversibility. Irreversibility represents the incapability of actors

to go back to a situation where they have interests other than that of the network. In other words, the actors continue to serve the interests defined by the focal actor, even if they are no longer interested. Sarker *et al.* (ibid), defined each concept of ANT as follows:

**(a) Actor:** every human or non-human component that makes any other component depend upon it. An actor includes any individual or group of elements possible to connect or disconnect to other agents. Frequent examples of actors include humans, technology, business rules, books as well as other technical artefacts and/ or their representatives. Crawford (2004) mentions that actors do not have a prescribed nature, name and purpose; it is through entrance into the network that actors get their name, position, purpose and nature assigned by the focal actor. It is, however, through their networked association that they are attributed to them. Each actor has an interest that requires accommodation and negotiation. In this study, employees, management, processes, rules, technology and vendors are actors involved in the network of process entrenchment as presented in **Table 3.1**. This is because each element interacts and exerts influence on another element, and vice versa. Employees use technology to execute processes regulated by rules, and report to management. Management decisions in turn impact on employees' activities, for instance. Each actor and/ or representative needs to abandon individual interest and align to those identified by management to sustain processes entrenchment initiative.

**(b) Network:** actors with disparate interests go through a discussion process to persuade other actors to create an alignment of mutual interests. When this process is effective, a network is created. In an organisation, management, employees, technology and processes have different functions. When all these elements merge together and focus on a particular goal, the goal becomes communal, and a network of interest is created.

**(c) Problematisation:** the first moment of translation**.** During this phase, the focal actor strives to become indispensable. The focal actor, the management, recognises its interests by outlining a problem, highlighting actors affected by the problem, and stipulating how they are affected by the problem. The actors are perceived as the ones to provide a solution to the problem (Tatnall, 2010). At this stage, the actors have different motives or interests. The focal actor makes the case for other actors to enter a network where the identified problem could be solved if they pass through the OPP. Different actors constituting the network may include humans, technology, and processes as the primary actors. At this stage, the actors must pass through the OPP to have similar interests. The OPP is the situation that has to prevail for all the actors to achieve their interest, as defined by the focal actor (Sarker *et al*., 2006). In this study, it was revealed that the entrenchment of processes is susceptible to emanate from an alignment of interests amongst technology, process and people. As such, management is

responsible to get each actor to partake in process entrenchment initiative so that the actors can align their interests. As such, management elaborates a strategy that stipulates the set of goals and vision of the organisation. During the strategy formulation process, stakeholders might have different interests. At the same time, management initiates a network of interest and involves different stakeholders in order to elaborate the set of plans to address issues and satisfy the interests of each stakeholder.

**(d) Obligatory passage point**: ANT is founded on the application of the four moments of translation by a focal actor so as to affect other actors in the network (Twum-Darko & Harker, 2014). The first moment of translation is problematisation, where a focal actor frames its interests by identifying a problem affecting other actors. The focal actor makes itself indispensable to other actors, and establishes an OPP that other actors must pass through (Şeker, 2004). The OPP refers to a situation that has to occur for all actors to align their interests with those of the focal actor (ibid). The focal actor is in charge of defining the OPP. It has to be noted that the OPP is a reconciliation point of interests, which other actors must pass for successful process entrenchment. Therefore, the OPP of this study is when the actors agree to the initiated strategy that stipulates the set of issues and plans to undertake.

**(e) Interessement:** the second moment of translation, involving negotiation amongst actors. At this stage, the focal actor makes use of different techniques during the negotiation process to be able to persuade other actors in the network to align to their interests (Twum-Darko & Harker, 2014). In this phase, inducements are being used for heterogeneous actors to change direction from their own paths and pass through the OPP. In fact, the focal actor tries to keep actors in the position they have been assigned in the network (Gunawong, 2010). In this study, training and definition of roles and responsibilities develop an understanding of the role of each player during process execution. This equips employees with new skills and encourages their enthusiasm so that the initiated strategy can be materialised. During this process technology and systems might have delegates or representatives to negotiate interests on their behalf.

**(f) Enrolment:** after passing through the OPP, the actors will take their respective roles in the created network. In fact, once the interessement process is successful, enrolment takes place. At this stage, the focal actor attributes roles to be played by the other actors in the established network. In order words, it involves actors accepting the interests identified by the focal actor to be in accordance with the actor-network's interests. In this study, stakeholders elaborate the business rules to control every actor in the organisation and guarantee the nature of the business process. The enrolment stage can be temporary if betrayal occurs. Betrayal happens when actors proceed in opposition to the agreed upon interests, which can be caused by competing networks. When enrolment is complete, mobilisation takes place.

**(g) Mobilisation:** the fourth and last step of the theory that legitimises the network and ensures that the actors will not quit the network. It involves stabilising the actor-network through different inscriptions. Latour (1992) defines inscription as the creation of artefacts that guarantees the interests of the focal actor. Artefacts can be in the form of texts, documents and books, for example. Indeed, once the enrolment phase is complete, an agreement between actors is created. This agreement is legitimate and needs to be recorded or stored through the process of inscription in the form of legal documents, for instance. A system is introduced to execute processes as intended. Executing business processes through a system provides employees with an optimised procedure to perform their activities and guarantees the interests of management. This is made possible since the system automates process execution, integrates business rules and executes business processes developed according to the strategy. In other words, the enterprise system has the potential to compel every actor to the change and entrench the change in processes.

At this last phase of the formation of a network, Sarker *et al.* (2006) highlights the possibility of irreversibility and competing networks that may occur. Irreversibility refers to the incapability of actors to go back when an actor faces changing circumstances. In the context of this study irreversibility is ideal to ensure perpetuity of a network for the entrenchment of processes. In fact, actors will still serve agreed-upon interests, albeit the actor is no longer interested in serving that network. In other words, irreversibility will prevent actors from reverting to old practices impeding on the entrenchment of established good practices and processes.

### 3.4 ANT and information systems research

Research in Information systems (ISs) is concerned with the connection between people, ISs and technology (Alexander & Silvis 2014). However, traditional IS research focused on the technical side of a phenomenon and tended to ignore the social aspects associated with any innovation (ibid). Contrary to traditional research, ANT contributes to IS research in a manner that opposes the entirely technical focus and brings to bear the social relations in information systems research. This one aspect underscores the particularity of ANT in the IS field, since ANT denies that there is possible separation between the technical and social aspects of a phenomenon (Alexander & Silvis, ibid). Therefore, theory dealing with sociotechnical division by denying the existence of division between social and technical elements provides interesting possibilities (Tatnall & Gilding, 1999). Such possibilities have become evident in studies in the IS discipline that have employed ANT as a theoretical lens.

An example of where ANT proved useful to provide additional understanding on IS innovations was the use of ANT to explain and identify the process of information systems curriculum change (Tatnall, 2010). In this study, the author studied the implementation of the visual basic

(VB) programming language as part of the curriculum at an Australian university in the 1990s. For Tatnall (ibid), ANT was useful because it gave due consideration to the contribution of human and non-human actors during such changes. When making use of ANT to approach a curriculum change, introducing a new programming language that looks like an easy process is now perceived as a complex reality because ANT integrates many actors such as learners, academics, workers, information technology and university infrastructure to the initiative (ibid).

Sarker *et al*. (2006) employed ANT to understand the failure of business process changes at a telecommunications enterprise. In their study, the authors used the moments of translation of ANT to understand the order of proceedings that caused the failure of the organisation's business process change. In socio-technical studies such as business processes changes, ANT allows practitioners to better anticipate the scope of emerging complexities by revealing the supportive or restrictive role of information technology (ibid), while also including micro (people) and macro (organisations) actors and their shifting nature. Thus, ANT can bring to light aspects of process change that have not been revealed within current literature (ibid). In the aforementioned study, for example, ANT could reveal complexities such as errors in the problematisation phase, parallel translation, infidelity and irreversibility of interests as causes of processes change failure (ibid). In addition, the focal actor failed to acknowledge the existence and influence of human and non-human actors (such as tools, senior executives and IT supporting processes) impacting on the process change initiative.

Drawing on the aforementioned studies and the views of Tatnall and Gilding (ibid), it becomes impossible to separate social and technical entities in exploring phenomena that exist in an IS-influenced context. While the focus of this study is on the entrenchment of processes, today's processes are as reliant on information systems as they are on people. In addition, the orientation of this study is toward ERP systems' influence on process entrenchment. ERP is synonymous with information systems because the strategy behind ERP is brought to bear through the use of information systems, among other resources, thus this study has a strong orientation toward the information systems domain. In addition to ISs, people and processes are also important to the ERP strategy. Thus, ANT will do well to serve the needs of this study to understand the interaction between the aforementioned variables to contribute to the entrenchment of activities performed to fulfil a process. This assertion is based on the aforementioned views on the role that ANT can play in social research. ANT renders every element (actor or actant) associated to a phenomenon as entities (Alexander & Silvis ibid).

### 3.5 ANT and business process entrenchment

It has been established that the entrenchment of business processes is a socio-technical phenomenon, and hence it requires both human and technological buy-in and interaction to

succeed. Entrenchment is about establishing the way that people and technology are meant to operate in an environment. However, it is important to get the buy-in from these actors before a state of entrenchment is achieved. Thus, ANT can uncover the processes that lead to entrenchment. Through the utilisation of ANT, the researcher was able to understand and interpret how entrenchment can be achieved and what factors influence the process of achieving it. The theory is thus a proper theoretical lens to guide the analysis and comprehend the role of ERP in entrenching business process in an organisation.

Twum-Darko and Harker (2017) conducted a study where ANT was utilised to study the dynamics influencing knowledge sharing as an entrenched practice. The study used the moments of translation of ANT as a lens to interpret and understand socio-technical challenges in sharing knowledge. It was a novel way of studying and interpreting the difficulty to share knowledge. The study revealed that for knowledge sharing to be an entrenched culture, a strategy is an essential element to lead the implementation of facilities to facilitate knowledge sharing. In addition to strategy, policies, standards and procedures (processes) were also suggested to consolidate the strategy. Policies serve as the inscription of commitment made by each actor. Standards and procedures represent crucial elements to ensure what is to be realised and how to realise it. The entrenched culture of knowledge sharing does not emanate from policy, standards, and procedures only; it is also headed by coordination and continual effort to obtain buy-in from actors. Similarly, business process entrenchment emanates when human and non-human actors buy into the initiative. A strategy is to be developed to lead the endeavour and policies and procedures need to be developed to enforce them.

In another study by Montenegro and Bulgacov (2014), ANT was used as a lens to reflect on governance and strategic outcomes. In that study, it is recommended to use theory to research strategy in social practice. This suggestion was made because daily organisational tasks gain importance by considering the relationship between different actors and it is given form when they converge divergent interests to reach a common organisational goal. Practices in an organisation depend on the stability of the relationship among actors. No actor, whether human or non-human, has supremacy of interest. It is the relationship between the actors that is more important. As such, a precise strategy in an organisation comes into existence at the moment that its existence becomes material for a network of actors (human and non-human actors) that support it (Montenegro & Bulgacov, 2014).

The application of ANT in both studies revealed crucial elements to consider for entrenching behavior that is in line with an organisational strategy. These include a precise and well-defined strategy to head entrechment endeavour and getting the buy-in from actors for the realisation of a strategy and support for the strategy. Policies and procedures served to inscribe commitment of the actors and ensure the realisation of strategic objectives. Feigenbaum,

(2010) thus sees translation as the interaction between actors to build and develop common meaning, identify representatives, and collabaration between actors to reach common goals. Therefore, the strategising process becomes a process of translation toward a possible well-defined and irrevesible strategy (ibid). The elements emanating from the aforementioned studies; including strategy, rules, people, technology and processes, as well as the variables from the literature, will be studied through the lens of ANT to undersand their influence on process entrenchment.

### 3.6 Conceptual framework

The previous sections provided an overview of ANT and the relevance of the theory in information systems studies, and this study in particular. It was revealed that bringing changes in an organisation is not a straightforward process. Introducing change is susceptible to face resistance from members in an organisation. This is similar to organisational initiatives to drive process entrenchment. Organisations realise the need to introduce strategies to address process sub-optimisation. This leads to process change, and thus the need for the entrenchment of these changes to realise its benefits. However, such initiatives can face challenges such as resistance from stakeholders. In fact, employees are resilient to incorporate process improvement initiatives and still operate in old manners. Given the social orientation of this research, and the relevance of the formation of a network of aligned interest between various actors to entrench organisational process change, the relationship between the concepts of ANT was found suitable to reveal socio-technical factors influencing the entrenchment of processes.

As established, the entrenchment of processes relates to both human and non-human actors that need to adhere to enterprise initiative. Therefore, it becomes important to plan these initiatives though strategic decision and consider all actors during such planning. This constitutes the problematisation phase of the study. During this phase, the focal actor frames the problem and how it will affect the actors (Gunawong, 2010). Management represents the head of the organisation and drives initiatives. Therefore, management identifies a strategy and guarantees the identified strategy is supported by the resources or stakeholders. In fact, during the strategy formulation process a strategy is established to lead process entrenchment initiative and management convinces human and non-human elements to align their interests to his interests. When actors such as technology, and/ or its representatives, and employees perceive their advantages in the identified strategy, the OPP is susceptible to happen. Different actors must participate in the strategy formulation to bring all actors together and align technical and non-technical actors to the objective of the strategy. Once the alignment of interest occurs, interessement can take place.

Interessement is the process where negotiations are introduced to guarantee the interests of the focal actor. During this stage, incentives are used for actors to abandon preliminary interests and pass through the OPP. In this study interessement takes place through enterprise resources transformation. Resource transformation includes people, environment and business process change to optimise their potential. Actors are transformed and equipped with necessary skills to conduct process activities as identified by management. As such, employees for instance are sent for training. In addition, actors are informed of the need for the process change to better grasp the benefits of such transformation. Business processes are to be developed according to the strategy and consequent business rules. In addition, during process design workflows are developed according to strategic goals, and are incorporated into processes to guide behaviour during process execution. According to Morrison *et al.* (2011), processes align to strategy when they apprehend the strategy and when processes are sustainable. These transformations represent incentives that attract organisation stakeholders to embrace and entrench the changes.

The next step to occur when interessement is complete is enrolment through business processes. Enrolment is the process where the focal actor assigns roles to actors in the network. Actors take their respective roles as defined by the focal actor in the network. Entrenchment of business processes can start when actors in the network fulfil their assigned roles. In other words, actors act in the interest of the network. In this study, enrolment takes place through business rules. Business rules are established to reinforce the strategy. In the study of the role of business rules in information systems by Steinke and Nickolette (2003), it was stated that business rules are statements aimed to guide behaviour. In fact, rules direct the behaviour of individuals and non-humans, and as such should be well documented and made available to everyone in the institution. Business rules are established with the participation of other actors that specify what it should constitute. During meetings, actors negotiate to provide input to business rules that regulate their operations. In effect, rules are valuable as they constitute important assets to the organisation. The actors and/ or their representatives understand the benefits from the process change and entrenchment initiative. They take position and elaborate their own rules according to what stakeholders want to achieve. Stakeholders understand the importance of goals developed and the need to have rules. Developing the business rules guarantees the materialisation of the perceived benefits by regulating behaviours. Business rules are made available to everyone in the institution, and employees should acknowledge their awareness by signing proper documents such as ethical behaviour documents.

Lastly, mobilisation occurs to legitimise the network and assure actors will remain in the network. Mobilisation is in the form of systems implementation. Developed business processes are incorporated into systems to support its execution. A system integrating business processes needs to be implemented in order to support built-in rules, as well as initial strategy. Irreversibility in this study prevents actors from betraying interests defined by management. Irreversibility is achieved through continual alignment of the interests of actors during the stages of change and entrenchment presented in the study. In other words, securing the interests of each actor during the strategy formulation, developing business rules, resources transformation, and system implementation keep actors in line with the interests defined by management. At the same time, irreversibility prevents actors (employees, technology, processes, rules and/ or their representatives) from reverting to old practices, keeping processes entrenched. Only when the four moments of translation are complete, can successful process entrenchment occur. Actors, and their roles in entrenchment of processes, are summarised in **Table 3.1** below:

**Table 3. 1:** Actors and respective roles

| **Actors** | **Roles** |
|---|---|
| **Management** | Management sets the vision and identifies strategic goals to reach the vision. These long-term goals are broken into short-term goals. Short-term goals are further broken down in daily tasks to be performed by employees. As a focal actor, management identifies deficiencies affecting business processes in the organisation. Management identifies actors affected by the problem and proposes a solution. Management thus initiates the network of process entrenchment. Management initiates a strategy to guide the organisation towards successful entrenchment of processes. Additionally, management gives the organisation direction toward reaching goals and ensures it is comprehensible enough to other actors. |
| **Employees** | Through business processes, employees perform daily activities aimed at fulfilling organisational short-and long-term goals set by management. Therefore, employees' contribution during process entrenchment initiatives is fundamental. Employees need to be included in the actor-network to understand the factors encouraging their involvement, support, and how to get their buy-in into process entrenchment initiatives. |

| | |
|---|---|
| **Technology** | Technology is to be considered as an actor in process entrenchment initiatives. It supports entrenchment by facilitating adherence to processes. Technology constitutes a central asset for the management of an enterprise. Technology includes software, hardware, and computer systems supporting business activities. Actors make use of technology such as hardware and software to respond to organisational needs and perform work duties. In addition, technology can be used to integrate resources; processes, humans and other actors to support processes entrenchment. |
| **Business processes** | Processes, and/ or its delegates, need to be included in the network of process entrenchment. Entrenchment initiatives are to optimise processes; thus, they should be analysed to identify those processes presenting deficiencies, and which require alteration. They need to be included in the actor-network in order to find an adequate solution to use them to their fullest advantage. |
| **Rules** | The strategy alone, as elaborated by management, cannot lead to successful process entrenchment. Additional measures need to be in place to sustain the strategy. Business rules are thus derived from organisational goals to sustain the strategy. Rules direct human and non-human actors and prevent negative behaviour from happening, and thus impeding on goals. Rules can be incorporated into, and imposed by, a system that automates compliance, and is adhered to by humans when executing processes. Through rules, behaviour will be compelled to entrenchment of processes. |

The literature review, and the concepts of ANT, as well as their relationships, served in the development of the conceptual framework. Thus, the proposed relationship between strategy, business rules, processes and systems is presented in **Figure 3.1**, developed through the use of ANT as a theoretical lens. The conceptual framework was developed to guide the data collection, analysis and subsequent interpretation.

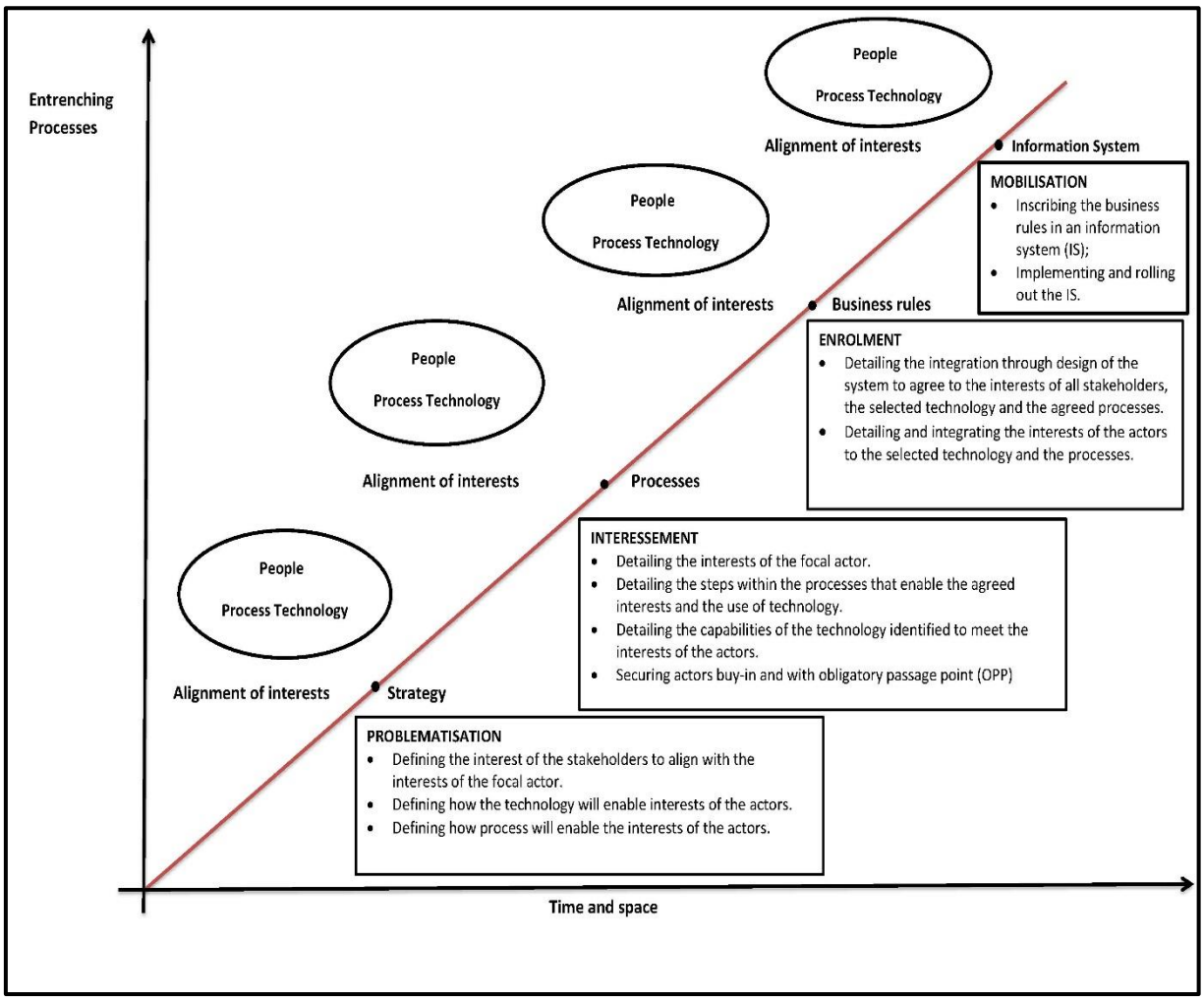


Figure 3. 1: **Conceptual Framework**

## 3.7 Summary

The chapter presented the theoretical framework underpinning this research. It presented the actor-network theory and its concepts. Additionally, it explained the researcher's motivation toward using the theory and the importance of underpinning the research. It is understood that ANT is a suitable lens to understand IS innovation due to its capability to consider humans and non-humans as equally associated. The theory has, therefore, been utilised to underpin a number of IS studies. Furthermore, the advantages of using ANT as lens to understand the entrenchment of behaviour in an organisation were explored. In addition, the theory permitted the researcher to identify the actors of a business process entrenchment network to underpin the understanding of the relationships and explore entrenchment dynamics. Another point of this chapter was to present and elaborate on the conceptual framework established to collect

and analyse data to support the study. The following chapter of the thesis will elaborate on the research methodology. It will present details of the units of analysis, method and techniques used to collect and analyse data.

# CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

## 4.1 Introduction

The aim of this research is to understand and interpret how business processes can be entrenched in an organisation. The previous chapters elaborated on the context and significance of this research. Chapter two was a review of the literature against which the research findings will be evaluated. The underpinning theory in chapter three provided the relevance and potential of using ANT to underpin this study and conceptualised the research problem. The research philosophy, methodology, approach, strategy and design will be elaborated in this chapter, together with the research data collection process to be applied to the study.

## 4.2 Research philosophy

The review of literature in chapter two revealed that entrenching organisational business processes involves the commitment of, and interaction between, social and technical factors. It has been elaborated that process entrenchment is influenced by various elements including people, technology and processes. However, the tendency is that organisations only focus on implementing technology to optimise and entrench processes. It is insufficient to only consider technology in entrenchment and consideration should also be given to human factors. This research focuses on social factors such as people and employees' attitude that support process entrenchment, making this a social study. Social research can either be quantitative or qualitative. Saunders, Lewis and Thornhil (2009:151) differentiate between the two methodologies by stating that quantitative research is concerned with statistical numbers, and the quantity of perceptions, while qualitative research deals with obtaining in-depth insights about phenomena. Qualitative research relates to procedures to understand research participants in a specific context (ibid).

Antwi and Hamza (2015) differentiate between qualitative and quantitative research approaches as follows: a quantitative approach applies a positivism paradigm, deductive approach, and objectivist epistemology, while qualitative research applies an interpretative, subjectivist epistemology and an inductive approach. In addition, quantitative research depends on quantitative data collection techniques, such as numerical data for instance, while qualitative data relies on non-numerical data collection techniques such as interviews or pictures, and focuses on in-depth understandings of reality through words and opinions (ibid). Another differentiating factor is that quantitative research concentrates on a large number of

samples for the generalisation of findings; and qualitative research does not intend to generalise the findings, but rather focuses on a subjective account of the research participants and particularises the findings.

This study uses the moments of translation of ANT as a lens to study the entrenchment of processes in an organisation. The objective of this study was to understand and interpret the entrenchment of processes, thus the objectives can be more suitably achieved through a qualitative methodology. The researcher will have to interact with the research participants to obtain in-depth views on the phenomenon to achieve this understanding from a social perspective, thus qualitative data collection techniques would serve this purpose. This means that the researcher can obtain insights on the phenomenon from those affected by, or who have observed this phenomenon, and have the opportunity to probe for further details. Thus, a qualitative methodology would be used to gather thoughts from the respondents using "a highly intensive and detailed analysis of the accounts produced by a comparatively small number of participants" (Clifton, Larkin, & Watts, 2006). In doing so, the researcher does not intend to generalise the findings, but to provide an in-depth study of a particular case to provide the answers to the research questions.

Research philosophy refers to the process during which the researcher develops different understandings, knowledge and notions while conducting a study (Saunders *et al*., 2009:107). It is a process during which new knowledge is acquired. The research philosophy a researcher adopts contains hypothesis about the research discernment of the world (Saunders *et al*., 2009:108). In other words, the adopted philosophy is built around the researcher's perception of a study. Adopting a research position is critical for four reasons. First of all, to provide research design clarification, secondly to identify which design is suitable or not for a specific study, thirdly to allow the researcher to stay within the boundaries of the research objectives, and lastly to enable the researcher to provide a personal experience while conducting the research (Easterby-Smith, Thorpe & Lowe, 2002:28).

Epistemology is the research philosophy representing acceptable knowledge in a specific field of study according to Saunders *et al.* (2009:112). It generally means the study of knowledge, and studies what is real or what exists. Research epistemology contains three different positions: positivism, realism and interpretivism. Ponterotto (2005) states that epistemology studies the connection between research participants and the researcher. The positivist position of epistemology encompasses dualism and objectivism. This means that research participants are totally independent from the research topic (dualism), and by following proper guidelines of studies, the researcher can study participants and the research topic while remaining objective (objectivism). The second position, realism, assumes that objects exist

independently of the human mind. The aforementioned is contrary to idealism, which supports that the human mind and its content coexist (Saunders *et al*., 2009:114).

Qualitative research is informed by an interpretivist philosophy, also known as anti-positivism, while quantitative research follows a positivist stance (Sahay, 2017). Realism is similar to the positivist position in that it assumes the development of knowledge from a scientific approach (ibid). Positivist researchers utilise scientific methods and systematise the process of knowledge generation with the support of quantification to enhance precision. Interpretivism however, contradicts the positivist position which asserts that the world exists independently of human knowledge and realities are based on general assumptions. Interpretivism believes that knowledge is objective since it results of interpretation (Prince, 2015). It is understood that interpretation of a reality is based on the perception the researcher develops about a specific context. This is because each researcher's experience of a reality is different. Nonetheless, there is no good or bad philosophical approach as the quality of philosophy depends on the way a researcher defends the chosen philosophy. The objective of this study is to develop an understanding of how processes, influenced by a corporate strategy, can be entrenched in an organisation. This can be best achieved using an interpretivist position, given that it allows the researcher to interpret this reality in accordance with the meanings that actors involved in the phenomenon assign to it, and at the same time create new knowledge (ibid). In addition, the use of the actor-network theory to guide this research necessitates a qualitative approach to the research through an interpretivist epistemology. From the gathered insights, the researcher will perform analysis and interpretations to develop an understanding of the phenomenon to better understand the entrenchment of processes. The interpretations will be facilitated by the theory.

## 4.3 Research approach

The literature endorses two research approaches, a deductive and an inductive approach. According to Saunders *et al.* (2009:124), inductive reasoning works from specific to general and deductive reasoning establishes understanding from general to specific. Deductive reasoning applies to quantitative research, as it is more concerned with studies that follow rigid methods that do not permit further explanation of a phenomenon (ibid). The intention of quantitative research is to test theories and makes use of deduction to affirm or refute the theory. This can be done using rigid methods that do not permit further explanation such as asking closed ended questions to research participants. In addition, quantitative data are collected using numbers where statistical analysis can be performed to affirm or reject the hypothesis (Soiferman, 2010) and aligns more to a positivist philosophy (Saunders *et al*., ibid). Contrary to deductive reasoning, an inductive approach is associated with qualitative studies.

An inductive approach emphasises that the researcher takes part in the research process (Saunder *et al*., 2009:126), whereby qualitative methods are employed. This is because inductive research is concerned with understanding the context in which realities happen in order to develop an in-depth understanding of the phenomenon. Qualitative research intends to get insights from the research participants by making use of open-ended questions. As such, qualitative studies look for themes in analysis using data collected during interviews or observation, for instance. The data collected cannot be precisely quantified but instead is interpreted and organised into categories.

This research aims to understand and interpret how business process change can be entrenched in an organisation using qualitative methods to enable the researcher to be part of the data collection process, have direct interaction with research participants in their environment, and probe for further details of the phenomenon. Qualitative data is best analysed through themes, categories and personal interpretations that best describe the studied phenomenon and to develop an in-depth understanding. An inductive reasoning, underpinned by theory, was, therefore, suitable for this study because inductive reasoning is an argument which is constructed from observation or experience (Gregory & Muntermann, 2011) and aligns to the interpretivist philosophy.

Inductive reasoning, together with interpretivism, enabled the researcher to contextualise the data. The moments of translation of ANT therefore sustained the inductive approach. While ANT was merely used as a lens to conceptualise the findings, the findings were guided by the raw data collected via qualitative techniques. In addition, the study employed some degree of deductive analysis. Factors influencing the entrenchment of processes are explored inductively, but the use of ANT employed deductive analysis to conceptualise the factors and explain them in relation to each other. This was to accord with the interpretive nature of the case study strategy employed in this study.

## 4.4 Research strategy

Research strategy refers to the planning that the researcher enterprises to answer the research questions. A research strategy is selected to enable the researcher to respond to the research questions, and meet the research objectives (Saunders *et al*.,2009:141). A case study research strategy follows the interpretative paradigm when it attempts to understand phenomena by getting insights from the participants (Darke, Shanks & Broadbent, 1998). It is defined as a research method that strives to provide understandings, intensive description, prediction and management of an entity (Woodside, Wilson & Elizabeth, 2003). This can be

done since the research methodology is qualitative, whereby the researcher takes part in the research process and develops an understanding of a phenomenon based on personal experience. Another definition of case study research is provided by Yin (2003) who indicates that it is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. Yin’s (ibid.) definition recognises that the events and environment are sometimes indiscernible in a real-life environment. This aligns to the anti-positivist epistemology applied in this study, while contradicting the positivist position, which asserts that the world exists independently of human knowledge.

This research uses ANT as theoretical lens through which to understand the entrenchment of business processes in a selected enterprise. It sought to follow an interpretive case study strategy given that the study uses the concepts of the moments of translation of ANT as theoretical framework and focuses on one organisation. A case study is a qualitative research strategy, which is suitable when the emphasis of the research is restricted to a certain number of participants (Welman & Kruger, 2001). In addition to a case study being suitable for qualitative research, it is particularly suitable for unpacking the “how” and “why” type of research questions and enables an intensive description of the phenomenon (Baxter & Jack, 2008). Furthermore, case study research can follow a single or multiple case design, where the case represents the area of interest to be studied (Yin, 2003). While multiple case studies focus on more than one case study (Baxter & Jack ibid), a single case study focuses on a precise event such as an institution. This study follows a single case study by focusing on one institution that applied business process transformation in its working environment.

Zainal (2007) highlights the advantages and disadvantages of this strategy of research. The advantages are that (ibid.):

- It is conducted in the environment that the phenomenon occurs;
- it allows both qualitative and quantitative analysis of data; and
- Qualitative outputs produced from case study research permit to describe not only real-life situations, but also explain the complexities of real life which cannot be achieved through survey research.

A disadvantage of the strategy is that it lacks rigour, and is used on a small sample size, or a small number of research subjects, and therefore cannot be used as a reference for scientific generalisation. However, the aforementioned strategy does not present a disadvantage to this study since an interpretive qualitative stance was used by the researcher to gather a deeper understanding of the phenomenon and the study does not intend to generalise the findings (Darke *et al.,* 1998).

## 4.5 Research design

Given the aim of this research to develop an understanding of the phenomenon, an exploratory case study was found to be suitable for this study. Case studies are recognised for their appropriateness in social sciences when the study intends to gather an in-depth understanding of a phenomenon (Zainal, 2007). While employing an exploratory case study, the researcher was able to obtain management team insights on factors influencing the entrenchment of processes in an organisation. This is because it emphasises the need for the researcher to use qualitative methods of investigation so that the respondents can provide answers that bring new insights. Exploratory research design is conducted to discover new concepts and gain new knowledge and understand new phenomena (ibid). The lack of literature on enterprise strategy and social factors driving entrenchment of processes in an organisation accentuates the choice of exploratory study. **Figure 4.1** below summarises the research philosophy, approach, strategy and method employed in this research:

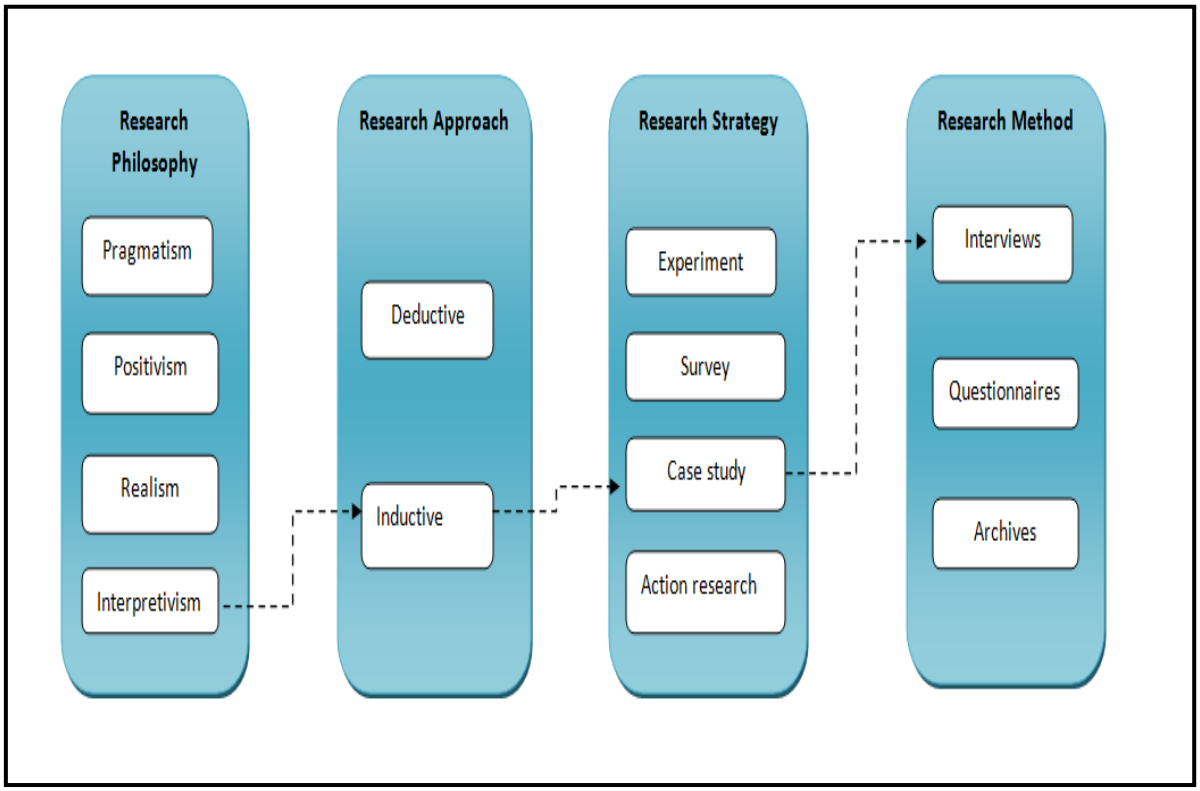


**Figure 4. 1:** Research methodology adapted from Ruhode (2015) as cited in Tekeh, (2015)

## 4.6 Overview of case study:

### 4.6.1 The case

The institution where the study is conducted is located in the Western Cape. Cape Town is the capital city of the province. The Western Cape is the fourth-largest province in terms of population and surface amongst the nine in South Africa. The province of the Western Cape is located in the south-western part of the country and expands on about 129,450 square kilometres with a population of about 5.8 million. The well-establishment of industries and businesses in the province grants it the lowest unemployment rate in the country. The case consists of a local governmental institution of the Western Cape Province.

The organisation under study strives to improve the living conditions of the population. It aims to provide opportunities to the population to reduce poverty, and increase the economic state through economic development of localities and improved health, education and safety. The institution constitutes nine directorates; the community, development, city secretariat, corporate support services, executive management, finance, service & infrastructure, operations, strategy & development and roads & planning directorate that serve the population through dispersed branches around Cape Town. On the fifth of December 2000, seven districts of the province were merged to constitute a unique municipality (City of Cape Town) (Sooful, 2003). The research was conducted at different offices located in the central business district (CBD) in the northern suburbs of Bellville and Durbanville.

### 4.6.2 Unit of analysis

Babbie (2010: 101) identified the units of analysis as the ‘‘what’’ or ‘’whom’’ being studied. The unit of analysis in this research defines what the above-mentioned case study will focus on in terms of the population, organisation, and the environment the study relates to, and identifies the boundaries for the population.

The population of this research included managers from different departments namely Finance, Information systems and Technology (IST) and Human resources (HR). Participants were selected based on their involvement in strategic organisational operations which include planning, controlling, assessing and monitoring. The researcher chose respondents at different hierarchical positions, including senior-, middle- and lower-level managerial positions, to gather answers representing the overall department. This study focused on the role of ERP as a strategy to entrench business processes in a selected organisation. Organisational managers are usually involved in strategic operations. This is partly because executives are responsible to set the direction and areas of focus of the organisation. In other words, managers are responsible for establishing the strategy that the organisation decides to

implement. Another justification for the choice of participant was the level of expertise in strategic management at the chosen institution. Hence, the selected participants are chosen based on a common element being the strategic alignment in organisational policies, standards, knowledge and expertise, which is relevant to the objectives of this research.

The Ikhwezdi team comprises several directorates under which the population of the study was chosen. The HR management and development department falls under corporate services and IST department under operations directorate. Finance is a directorate which gathers treasury (T), revenue (R), expenditure (E), supply chain management (SCM), valuations (V), and Budgets and asset management department (BAM). These departments are involved in service delivery to the population through organisational business processes execution and the managers have overall supervision of such activities. **Figure 4.1** below depicts the department structure of the organisation where the study was conducted.

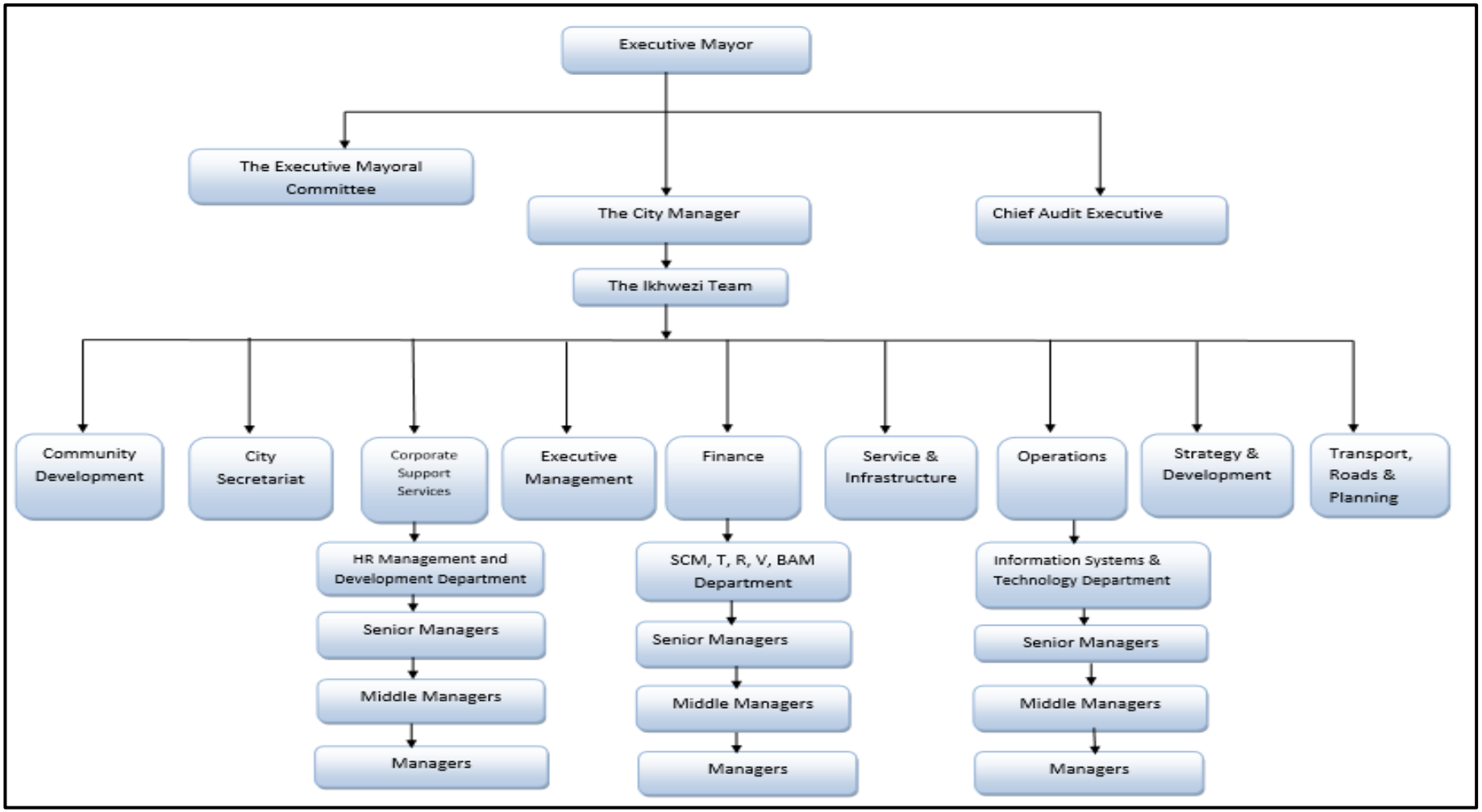


**Figure 4. 2:** Organisational structure (adapted from City of Cape Town, 2008)

## 4.7 Sampling

Sampling is the process of selecting a representative segment from a group or population that represents the entire population. The aim of sampling is to identify the characteristics of the sample that can be attributed to the entire group or population (Trochim, 2006). The literature recognises the existence of two different sampling techniques, including probability and non-probability sampling. According to Saunders *et al*. (2009.225) during probability sampling, the chances for the population to be included in the sample is determined and cannot equal zero. This process uses random selection to identify the sample of a population to study. Contrary to probability sampling, non-probability sampling is a non-random sample selection process. Battaglia (2011) perceives it as a process that makes use of subjective methods to decide what elements are to be included in the sample. Thus, the intentions behind it are not to generalise, and the subjective nature of the sampling does not detract from the value that is derived from such sampling. Given the research questions, the intention is not to generalise results, however it is to explore the case by providing intensive descriptions of the phenomenon at hand. This view is supported by Palinkas *et al.* (2013), who stated that non-probability sampling is ideal for studies that do not intend to generalise, but rather ensure that the most appropriate respondents are chosen and are knowledgeable about a particular phenomenon in their context and are deemed to add more value to a study. As such, non-probability sampling was applicable to this study.

The chosen sampling technique satisfies the requirements for case study research, which is about obtaining intensive descriptions, and this can only be achieved by directly targeting those respondents that will provide the relevant knowledge on the phenomenon under investigation (Saunders *et al*., 2009:233).

This study made use of a combination of non-probability sampling techniques, namely purposive and snowballing sampling. Purposive sampling is suitable for case study research because the units of analysis selected for the study will be rich in information (Welman & Kruger, 2001:189). In addition, non-probability sampling applies expert knowledge or judgment by the researcher to determine the sample that represents a cross-section of the population of this study (Battaglia, 2011). Purposive sampling is used in qualitative research to select information-rich cases for effective use of limited available sources of information. This is done through the selection and identification of knowledgeable and experienced participants about a given phenomenon (Palinkas *et al.*, 2013). The researcher thus used purposive sampling to select senior managers.

In addition to purposive sampling, snowball sampling was used to expand the sample size selected using a purposive technique. According to Palinkas *et al.* (2013), the objective of

snowball sampling is to identify cases of interest from the sampled population who know participants who share the same characteristics and who in turn can identify participants with identical characteristics. A snowball technique was thus used with interviewed higher-level managers of the relevant departments to nominate additional managers at lower-level positions. This was due to the incapability to get a list of all the potential respondents within the population (Battaglia, 2011). As such, once interviews were completed, senior managers introduced the researcher to middle-level managers who in turn introduced the researcher to lower-level managers.

The advantage of using the aforementioned sampling methods is to reach relevant, informative, research participants to inform on the phenomenon under study. This was possible since the sampling technique allowed the researcher to include managers who have sufficient knowledge, are experienced, and are involved in organisational strategic activities of the selected case study, in other words, to access managers sharing similar characteristics to that of the senior managers. From this sample, the researcher obtained in-depth, rich information on technical and non-technical factors influencing process entrenchment in the selected organisation.

Deciding on an adequate sample size can be ambiguous when using the above-mentioned non-probability sampling techniques (Saunders *et al*., 2009:233). This is because, unlike probability sampling, there is no rule for selection; rather it is the relation between the chosen sampling technique and the purpose of the research that is important (ibid). Therefore, the sample size of this study depended on non-probability sampling techniques (purposive and snowball) and research questions asked to develop an in-depth understanding on process entrenchment. In other words, it is what the researcher intended to find out, or the focus and purpose of this research, that determined the proper sample size (ibid). This is mostly possible since this research is qualitative in nature and makes use of qualitative data collection techniques. Therefore, it is the understanding obtained and the quality of the data collected that will do more for the researcher's data collection than the sample size (Patton & Cochran, 2002). As such, Saunders *et al*. (2009:233) advised to reach the data saturation point to determine the proper sample size for qualitative research using qualitative data collection techniques. This means, when the researcher can see identical codes are repeating in a given category, data saturation is reached, or no new information can be identified.

According to Guest, Bunce and Johnson (2006), twelve in-depth interviews are enough to reach data saturation point in a study that intends to understand similarities in homogeneous groups. The researcher reached data saturation point with a sample size of twenty-one managers. This means that the researcher noticed repetitive codes at twenty-one interviews. Therefore, the sampled population comprised twenty-one managers of the municipal

institution. This included senior managers from the HR management and development, IST and finance units. Each selected senior manager elected two additional managers at the middle-level position. Middle managers, in turn, elected two lower-level managers each. The hierarchy of managers per department; including senior-, middle- and lower-level managers, are assigned the abbreviations SM, MM and M, respectively, for the purpose of this study. The letter x represents the institution of study and f, hr and ist represent the finance, human resources, and information systems and technology departments, respectively. The selected departments are involved in service delivery through business processes influenced by an enterprise resource planning system. Therefore, the research participants were judiciously selected and the focus was on the managers because of the additional value they bring to the study to exactly describe the factors encouraging organisational business process entrenchment. The system was elected once a corporate decision to optimise processes was taken. Given the experience and knowledge of the interviewed population, and high percentage of involvement of these departments in business processes activities, the researcher was, therefore, able to obtain in-depth understandings of the role of ERP as a strategy to entrench business processes. **Table 4.1** below presents the sample of the population.

## 4.8 Inclusion and exclusion criteria

The selected representatives of the population included different managerial levels of the institution, namely senior-, middle- and lower-level management of the Finance, IST and HR management and development departments. Managers were selected based on their expertise and level of responsibility. The expertise and level of responsibility confer to the managers an overview and supervision of the organisation's activities, and alignment with organisational corporate strategies. This was to obtain valid and reliable insights and perceptions from the participants operating in different departments and hierarchical positions. Furthermore, besides the fact that other departments could be involved in organisational corporate strategy, the selected departments already comprised units of operation with similar functions to those departments that were excluded. In other words, the excluded departments would not add any value to the context.

**Table 4. 1:** Sample of population

| Directorate / Department | Hierarchy of Management | Code | Managers per department | Total Interviewed |
|---|---|---|---|---|
| Finance | Senior Manager | SMxf | 7 | 1 |
| | Middle Manager | MMxf | 30 | 2 |
| | Manager | Mxf | 62 | 4 |
| HR | Senior Manager | SMxhr | 1 | 1 |
| | Middle Manager | MMxhr | 9 | 2 |
| | Manager | Mxhr | 20 | 4 |
| IST | Senior Manager | SMxist | 1 | 1 |
| | Middle Manager | MMxist | 7 | 2 |
| | Manager | Mxist | 34 | 4 |

## 4.9 Recruitment of participants

The process of recruiting participants started with a request for permission to conduct research at the chosen organisation. The request comprised of the interview questions and the research proposal detailing the research objectives, aims, and planning. The permission was requested via email. Subsequently the researcher received a response from the organisation requesting a few amendments on the research proposal in terms of the period to carry out the data collection process. After three weeks an email was received containing the approval letter **(Appendix C).** Upon receipt of the approval, an email was sent to the director of the IST department of the organisation to request a meeting. The meeting was to be held to set up a programme for the interviewing process. The meeting took place with the director, but at that time a schedule to collect data could not be provided because the staff members' schedules would not allow it. After the festive season, another email was sent in order to establish the planning where the researcher was put in contact with the one of managers of the IST department. Subsequently the other two departments, Finance and HR management and

development, were contacted to book appointments with them. Not all managers had a personal assistant (PA), and not every PA responded to the request for an interview. Thus, in certain cases the managers were directly contacted, either telephonically or in person, to request a meeting. Approval was granted after a month, and the researcher was able to obtain meetings with the senior managers. During the meetings with the senior managers, the researcher requested that they nominate additional managers at lower positions to participate in the interviewing process. The senior managers assisted the researcher with the request and nominated key informed managers at the middle level, who in turn introduced informed lower-level managers to the interview process. This approach is in agreement with the views of Zohrabi (2013) which is that it is acceptable for a researcher to find additional reliable and knowledgeable participants by asking other research participants to introduce reliable informers.

### 4.10 Data collection method:

This study used semi-structured, face-to-face interviews to gather opinions from the respondents. The interview questions were related to the entrenchment of business processes. Qu and Dumay (2011) identify three types of interviews; namely structured, semi-structured and unstructured interviews. Unstructured interviews follow the form of a discussion with the participants, rather than conforming to predetermined questions (Jamshed, 2014). Adversely, when using structured interviews, the researcher asks a series of predetermined questions, which reduces the number of possible categories in responses (ibid). It produces brief answers since the participants are asked the same questions in the same order, as opposed to unstructured interviews, where the respondents can express themselves in their own terms. When using semi-structured interviews, research questions are developed by considering identified themes and the researcher can inquire for more elaborated responses. This capability to reveal important unseen information on human behaviour brings out the particularity of semi-structured interviews (Qu & Dumay, ibid). In addition, semi-structured interviews involve a series of open-ended questions related to a research topic. The open nature of the questions gives the interviewee and the interviewer the opportunity to discuss issues in more detail, since the interviewer can encourage the interviewee to consider the questions further (Mathers, Fox & Hunn,1998).

Semi-structured interviews were, therefore, suitable to this research since the objective was to develop an understanding of the social factors influencing the entrenchment of processes. In addition, the study was exploratory in nature, but was guided by the underpinning theory, thus semi-structured interviews directed the questions in relation to ANT, while proving the flexibility to explore issues in more detail. In contrast to unstructured interviews, semi-structured

interviews not only provided the researcher with the guidance and flexibility to channel imprecise responses, but also provided the guidance to the type of expected responses relating to the moments of translation of ANT. Furthermore, face to face interviews enabled the researcher to provide explanations on questions to the interviewees if they were unsure about anything. Although the data collection method utilised presents numerous benefits for this study, it is important to mention the challenges that the method brings too. As such, the advantages and disadvantages of the method will be discussed in the following section.

### 4.11 Advantages and disadvantages of interviews

An advantage of using interviews is that it is possible to collect a great deal of insights from fewer respondents (Remenyi *et al*., 2009:55). In addition, interviews enabled the researcher to interact directly with the respondents. The researcher was, therefore, able to meet and have face-to-face discussions with management team members involved in developing and implementing organisational corporate strategy. This enabled the researcher to receive explanations and develop an understanding of the phenomenon. Open-ended questions were asked during the interviews to allow the variables to be explored, as perceived by the respondents. Interviews also allowed for probing on questions posed. Furthermore, the interview process ensured the discussion remained channelled so that the responses do not diverge from the research interview questions, which were structured around the concepts of moments of translation of ANT.

Notwithstanding the above-mentioned advantages emanating from the use of interviews, this method presents some limitations in terms of disclosure and generalisation of the research findings. Interviews provide less validity compared to quantitative methods (Zohrabi, 2013). Quantitative questionnaires, for instance, enable the researcher to administer similar questions simultaneously to a large number of respondents and acquired information is more similar, exact and typical (ibid). However, this is more important when the intention is to generalise the findings, which is not the intention of this study. In addition, questionnaires are anonymous, which means that the respondents feel more comfortable to share information easily, contrary to face-to-face interviews. However, ethical consideration, such as anonymity, was applied. Disclosure of participants' identities was not permitted unless otherwise specified by the respondent. This allowed the respondents to openly express themselves. In addition, given their involvement in corporate strategy, the respondents were more than willing to share their insights on the studied phenomenon.

## 4.12 Design of interviews

The gaps identified in the literature review guided the design of the interview schedule. In fact, interview questions were developed following the main ideas of the conceptual framework developed using the moments of translation of ANT. The main factors that emerged from the review of literature were social and technical factors such as processes, technology and people. The research questions formulated for the interview were formed in accordance with the factors identified in the literature review, which were then put into perspective using the moments of translation of ANT as a guiding framework. Consequently, the theory enabled the researcher to view the above-mentioned themes in relation to each other in order to understand what needed be to be addressed in the study. The interview schedule included nineteen questions related to the conceptual framework presented in **Figure 3.1.** and these questions are presented in **Table 4.2** below.

**Table 4. 2:** Interview questions

| Interview questions |
|---|
| 1. What initiative did management follow to drive organisational goals and objectives? Please explain your answer. |
| 2. Do you think stakeholders' suggestions made to drive organisational objectives were considered? Please elaborate. |
| 3. Do you think management manages to get stakeholders' consensus in corporate decision influencing processes? Please elaborate. |
| 4. Do you think stakeholders were in accordance with management's initiative to drive and achieve organisational objectives? Please elaborate. |
| 5. Do you think organisational standards guarantee the nature of processes? Please elaborate. |
| 6. How do organisational standards enforce/ impact business process execution? Please elaborate. |
| 7. What organisational or structural change did management implement to maintain the nature of business process activities? Please elaborate. |
| 8. What resource transformations motivate process entrenchment when changes are implemented? |

9. Do you think stakeholders support the change and entrench of business processes? Please elaborate.

10. How does technology influence the entrenchment of processes? Please elaborate.

11. What makes you integrate systems in your work?

12. What measures did management implement to materialise the initiatives? Please elaborate.

13. Do you think management has implemented procedures to enforce the institutionalisation of processes? Please specify.

14. Do you think management made use of proper techniques to encourage the institutionalisation business processes? Please elaborate.

15. How do organisational standards sustain goals and objectives? Please elaborate.

16. Do you think technology influences the consistency of business processes? Please elaborate.

17. What factors encourage the quality of business processes?

18. How do people and or technology impact on the integration of business processes? Please elaborate.

19. Do you think the organisation's initiatives deliver intended results?

### 4.13 Process of data collection

The process of data collection started with a pilot of the research instrument. A pilot is a preliminary interview that is conducted in preparation for subsequent data collection to ensure the validity of the data collection instrument (Dikko, 2016). It is conducted with a small sample of research participants that share the same characteristics as the population of the study (Aliff *et al.*, 2017). Piloting the research instrument was conducted with managers at a senior level from the identified departments for review and assurance of the validity of questions. This was to guarantee that the interview questions are reviewed and assessed for the level of complexity and sensitivity, prior to conducting the interview sessions. In addition, piloting ensured that the presented questions were suitable to gather the expected types of answers (Dikko ibid). Another purpose of piloting was to ensure that the interview questions were unambiguous,

precise, clear and easy to understand. The pilot revealed that the questions were suitable to achieve the anticipated kind of data, but some answers were repeated in some questions. As such, unnecessary questions that generated the same answers were discarded from the interview schedule (ibid).

The first part of the interview schedule provided the background to the research, including an introduction of the research and the research objectives. This section was intended to serve as an explanation of the study at the beginning of the interview process so that the respondents had a clear understanding of the research. The second part comprised the interview questions relating to non-technical and technical factors identified in the review of literature.

Before the interviewer began the interviews, each manager was provided with an explanation of the research and was assured of their anonymity. There was no specific planning, or order, to meet with the respondents, as the appointments were according to the managers' accessibility. An appointment with a manager of a specific department was granted after a phone call was made to a manager's personal assistant to request for an appointment. Subsequently, the personal assistant sent an email invitation with the date and address of the place to conduct the interview. Upon receipt of the email, a confirmation was sent to the PA. Due to the difficulty of getting an appointment with managers, the invitation from a personal assistant could not be rejected. Interviewed managers were mainly from three different offices located in Cape Town. These included offices in the city centre, Bellville and Durbanville.

The process of data collection was conducted in two different stages. The first stage was interviews conducted with the senior managers, and the second stage was interviews with middle- and lower-level managers. The duration of the interviews varied, but on average took about sixty minutes (Gill *et al.*, 2008). Interview sessions were recorded with the participant's consent to ensure that the responses were fully apprehended. The recordings were later transcribed in order to ensure the validity and reliability of data (Krueger & Casey, 2000:12). However, this was not the only method used to capture answers since the researcher noted down key concepts that emanated from the answers as well. Interviews were conducted in English. During the interview, the respondents were given the opportunity to respond to questions without being interrupted. When necessary, probing questions were asked to better understand or obtain in-depth answers.

## 4.14 Data analysis

### 4.14.1 Analysis

According to Saunders *et al.* (2009:490) there is no standard procedure for data analysis. However, data analysis procedures can be grouped into three main practices; including summarising, categorising and interpreting (ibid). These practices are identified and applied as follows:

- Summarising data involves condensing long sentences into fewer-worded sentences while retaining the same meaning;
- Categorising involves grouping the data into identified sections of the same meaning;
- After summarising and categorisation to provide a rich summary and class of the data collected, the data was interpreted using the moment of translation of ANT as lens.

The aforementioned analysis steps were applied in this study. Interviews were transcribed, and it took about four hours to transcribe each interview. Transcribed interviews were summarised so that the responses from the respondents were condensed, while retaining the respondents' main viewpoints. From these summaries the researcher identified similar sentences and words frequently used by the respondents into codes. Scrutiny applied during the data analysis process enabled the researcher to understand the meaning of data through interpretation, coding, recognition, themes and classes emerging from the raw data (Ngulube, 2015) to answer the research questions (Gillham, 2000:25). In other words, the analysis process intended to make sense of, and interpret, the large amount of data collected in relation to the variables identified in the review of literature. As such, the researcher performed numerous readings of the data set to obtain a full picture of the data. Additional readings of the data set were performed to identify and group the responses of similar meaning. These resultant variables included technical and non-technical factors and comprised organisational strategy, business rules, business processes, employees' involvement, management support, user support and training, as well as systems. The data collected was interpreted and analysed in relation to the variables to uncover meaning and provide answers to the research questions. In addition, the variables provided the themes that guided the classification of data. Therefore, the data that emerged from the responses was categorised into three themes, including technology, processes and social factors, and interpreted in relation to the concepts of ANT. Hence the moments of translation of ANT were used as a theoretical framework to interpret the data and provide answers to research questions.

### 4.14.2 Analysis technique

The study aimed to develop an understanding of how an organisation can entrench processes. A qualitative methodology was selected in this study due to the nature of the research and the need to develop an in-depth understanding of the phenomenon under study. The study applied an inductive reasoning, backed up with ANT as the underpinning theory. Interviews were selected as the data collection method. The collected data was transcribed from audio to a word processing document for analysis. Kohlbacher (2006) identified content analysis as the most effective technique to analyse rich text such as interviews. It is the process of condensing transcripts, or raw data, into categories according to suitable grouping (Zhang & Wildemuth 2005). This process uses groupings and themes that emerge from transcripts and gives specific value to the general overview of the transcript. In other words, after the transcription of the mass of data obtained during interviews, data was analysed in respect of the non-technical and technical factors identified in the review of literature. The transcripts were also compared to the developed conceptual framework through the lens of ANT as the underpinning theory in order to provide the understanding of the process of entrenchment.

Content analysis is an effective research tool to identify words or concepts from texts or a collection of texts (Palmquist, 2014). Content analysis can either be quantitative or qualitative. While quantitative content analysis strives to identify the recurrence of a given concept that appears in a transcript; qualitative content analysis intends to reveal underlying meanings of words used in transcripts, or the manner in which the words are used (Berg, 2007:242). Palmquist, 2014 (ibid) identified two forms of qualitative content analyis, including conceptual and relational analysis. Conceptual analysis intends to establish the existence and frequency of concepts in texts. It relates to quantifying the presence of such concepts and relates to quantitative content analysis. Relational analysis is similar to conceptual analysis and begins by identifying concepts appearing in a text or set of texts. However, it goes beyond conceptual analysis and explores the relationship between the concepts. Content analysis in this study aims to achieve a broad understanding of a phenomenon; where the results of analysis performed are not only concepts to explain the role of ERP in entrenching processes, but also the relationship between these concepts (Elo & Kyngäs, 2007).

Content analysis can be used in an inductive way when there is no previous knowledge or existing knowledge of a phenomenon, or this knowledge is fragmented (Elo & Kyngäs, 2007). Since the research identified a lack of literature relating to the entrenchment of processes, an inductive approach to content analysis was used. When inductive content analysis is used, themes and categories emerge from the raw data (Zhang & Wildemuth, 2005). In other words, themes and categories emanate from the researcher's cautious inspection of the raw data.

Therefore, directed content analysis was used and codes were generated before and during analysis. Coding is the process of condensing data into categories; it involves reasoning by which categories or themes are generated. The themes were generated from the researcher's careful examination and interpretation of the data considering the conceptual framework. The underpinning theory was thus used to categorise those themes using the concepts of the moments of translation. A large amount of qualitative evidence was gathered while conducting interviews during this research. The aim of using qualitative content analysis in the study was to sort themes and categories (ibid), and explore the relationship between the themes in the body of data collected and thus provide a rich description to process entrenchment. This is because the theory provides the richness of the description when looking at these concepts through the lense of ANT. The qualitative alternative of content analysis was suitable for this research since it employs an interpretive paradigm (Zhang & Wildemuth, 2005). The choice of an interpretivist paradigm is supported by Berg (2007:243) who clarified that an interpretivist paradigm aims to analyse social reality through rich narrative text; depending on the theoretical positioning of the researcher. Elo and Kyngäs, (2007) summarised the content analysis process steps as data preparation and understanding, open coding, coding sheets, grouping, categorising and abstraction. As such, the researcher conducted the inductive content analysis of this study using the above-mentioned steps to organise and analyse data collected through qualitative interviews, as presented in section **5.2.2**.

Despite the exploratory and interpretive benefits of content analysis, it is criticised as it may lead to possible errors in coding. Content analysis is perceived as time-consuming, and researchers may face fatigue during the coding process, possibly leading to errors in coding (Elo and Kyngäs, 2007; Palmquist, 2014). This limitation was not observed during this study, even though coding was performed manually. The researcher did not code the entire data set at once. The data set was coded over numerous sessions, allowing for a break to avoid being overloaded by the analysis process. In addition, as the researcher progressed through the analysis, the codes were constantly checked for consistency. Additional checks for consistency were performed after the entire data set was coded to ensure consistency (Palmquist, 2014). This minimises errors in the coding. An additional unique and serious limitation of content analysis is to find relevant text for analysis in studies that utilise content analysis as an analysis strategy, instead of using an analysis tool, such as in the case of an already-recorded message (Berg, 2007:259). The researcher, however, was not exposed to such a limitation because a conceptual framework was used and guided the data collection together with the involvement of the researcher during the interview sessions to ensure that the respondents' responses were relevant.

### 4.14.3 Reliability and validation

Reliability and validity are critical to research and need to be given considerable attention. Reliability and validity distinguish between good and poor research; and reassure fellow researchers that rigorous procedures have been employed in a study (Brink, 1993). Validity is concerned about the credibility and exactness of results. Validity is mostly the extent to which findings represent reality and that representation of reality is applicable across groups; contrary to being the results of inappropriate variables. Reliability, however, is the possibility of a research method to produce the exact same results when repeated tests are performed over a recurrent period (Brink, 1993). This means that every time the researcher uses the same or similar methods, comparable results will be produced (ibid).

There is no commonly accepted recommendation for the validity of qualitative studies (Venkatesh *et al.*, 2013). The validity of the analysis of qualitative research ascertains the degree to which the study actually evaluates what it intended to measure or how accurate the results are (Golafshani, 2003). One way to ensure the validity of the research was through transcription and the analysis technique. The transcription of interviews engaged the researcher with the data and guaranteed a deeper understanding of the responses. The researcher performed the content analysis manually, which means that the content analysis was not automated or performed by computer-based instructions. Contrary to humans, computers cannot precisely apprehend the nuances or differences in the actual meanings or thoughts presented by the respondents. Alshenqeeti (2014) argued that the open nature of interviews generates poor reliability. As such, Alshenqeeti (ibid) recommended that researchers follow techniques to ensure validity and reliability of the research at the same time. This includes piloting the research instrument, taking notes and probing for more detail during the interview sessions. The interview schedule was, therefore, tested using a pilot. This was achieved by prior submission of interview questionnaires to senior managers of selected departments for approval, as previously stipulated in section 4.13. The data collected through interviews was recorded, while the researcher noted important points about the answers. To improve the researcher's understanding of the data and responses, probing helped to clarify and give more detail on responses. This was to ensure that the respondents understood the study and could ask for clarity on questions so that their answers were relevant. In addition, reliability and validity of this research was ensured with the utilisation of precise and transparent data analysis and interpretation techniques explained in section 5.2 of chapter 5.

### 4.14.4 Constraints and limitations

A certain number of limitations surfaced during the study. One obstacle experienced during the research was the difficulty to get respondents to participate during the data collection process. In fact, the researcher was only allowed to approach a small number of employees in the organisation where the study was conducted. In addition, within the approved departments there was resilience from some managers to participate in the interview sessions. This unavailability or non-willingness to participate did not enable the researcher to reach a wide variety of respondents, which prevented the researcher from gathering responses from deliberately selected respondents. This consequently impeded on the final research result. However, while making use of the snowball technique, the researcher requested higher level management to involve lower-level management from different units to reach a variety of participants. Valid and informed consent from the participants was obtained as elaborated in sections 4.13 (data collection process) and 4.15 (informed consent). In addition, while there were limitations on the number of respondents that were willing to participate, the data saturation point was still reached.

The aforementioned challenge prolonged the duration of the data collection process. Thus plenty of time was spent waiting for the respondents to be available for the study and to analyse the answers. While Zohrabi (2013) cautions against the time-consuming nature of qualitative data collection and analysis techniques, this did not impede on the study itself, as the researcher performed additional planning to accommodate the delay. This was achieved by extending the allocated time to the data collection process while at the same time writing the thesis.

The restriction of data collection to a limited number of departments represented a limitation. The research was approved to be conducted in only three departments within the entire organisation, namely the Finance, HR and IT departments. The organisation is formerly made up of seven municipalities; thus, such a small number of departments does not significantly represent the realities of the entire institution. Given that the research is inductive, the insights gained from those departments do not automatically apply to other departments within the institution.

Lastly, a limitation related to data collection is also applicable to the respondents' understanding of enterprise resource planning as a system and as a strategy. The researcher thus tried to eliminate such confusion by providing prior explication and differentiations between both concepts. However, it was not possible to determine whether all respondents were able to apprehend the difference. Therefore, the researcher probed for further detailed responses in order to strengthen the interview responses (Zohrabi, 2013).

### 4.15 Ethical considerations

The concept of ethics relates to what society perceives as acceptable human behaviour. It implies the rule of conduct empowering one to distinguish between right and wrong (Sally, 2012). Therefore, ethical consideration guided behaviour when the research was conducted. The researcher demonstrated the following conduct during the study:

- Confidentiality: Information was valued and respected, as no information was revealed without the appropriate power to do so. The researcher maintained the anonymity of the respondents during the research process. Unless the respondent gave permission of disclosure, no information about the respondent or the institution was revealed. This was to ensure confidentiality and non-disclosure of information that could hurt the organisation or violate its policies.

- Openness: The research was not conducted in a clandestine manner. A formal letter was issued by the organisation of study to grant the researcher the opportunity to conduct the research at the organisation. In addition, an example of the interview questionnaire was sent for approval by the senior managers.

All interviews gathered during the data collection process were recorded literally and transcribed into a word processing document, and then into spread sheets. This was to ensure that the information in the transcripts accurately represented what was said during the interviews. The transcribed interviews were securely stored in the researcher's personal computer and protected with a fingerprint lock and password to ensure the safety and privacy of the information. An additional copy of the transcribed interviews was stored on an external hard drive, which was kept in a locked safe. During the analysis phase, the transcribed interviews were subjected to critical evaluation and examination and sent for a validity check to guarantee the uniformity of the data presented and to ensure that the data was not tampered with.

Permission to conduct the research was granted by the research ethics committee of the Cape Peninsula University of Technology **(Appendix B).** This was done after an approval to collect data was obtained from the organisation where the research was to be conducted. In addition, prior to conducting the interviews, the researcher provided oral and written assurance that the respondents' participation in the research was purely voluntary.

## 4.16 Summary

The aim of this study was to understand and interpret how business processes can be entrenched in an organisation. The chapter elaborated on the research methodology and design adopted in the study to achieve the aims of the research. It explained the research philosophy adopted by the researcher, as well as the interpretivism model applied in the study. Inductive reasoning applied through case study analysis in this exploratory research was expounded on. The data collection process and analysis were outlined as well. Lastly the ethical considerations taken into account during the study were highlighted. The next chapter thus presents the analysis and interpretations of the data collected.

# CHAPTER FIVE: ANALYSIS AND INTERPRETATIONS

## 5.1 Introduction

The previous chapter elaborated on the research methodology, including the approach to, and the design of the study, the data collection and the analytical procedures performed. It presented the context of the study together with the units of analysis. In addition, it introduced the ethical considerations applied to this research.

This chapter presents the analysis processes performed on the qualitative data collected, as well as the results emanating from the research. The results are discussed in relation to the research questions, as well as the main themes arising from the literature reviewed and the interviews. Furthermore, the chapter presents the interpretations of the data in relation to the concepts of the moments of translation of ANT, used as the underpinning theory of the research.

## 5.2 Data Analysis: The Process

### 5.2.1 Introduction

Content analysis was conducted on the qualitative data collected to systematically interpret the meaning of the data. Content analysis aims to provide a broad description of a phenomenon and the results of the analysis are categories that describe the phenomenon under study (Elo & Kyngäs 2007). The steps of content analysis recommended by Elo and Kyngäs (ibid) were followed to analyse data collected through qualitative interviews. These steps are represented in the sections below.

### 5.2.2 Data preparation

#### 5.2.2.1 Preparation and unit of analysis

Data preparation started with the transcription of raw interview data that was captured via recordings and additional notes taken. The interviews conducted with the managers of the selected organisation in Cape Town were transcribed verbatim into written format using a word processor. The qualitative data was read thoroughly by browsing entire transcripts as a whole to identify respondents' attitudes, behaviours and common thoughts to obtain first insights on data collected.

The responses to the interview questions were then transferred and organised into a spread sheet. Each question was individually labelled and represented on separate worksheets. Spread sheet data was organised into columns to specify the interview number, tenure length

at the company, the respondent's gender, race, and the code for each response. Additional columns specified managerial levels and department. The department codes were xf (Finance), xist (Information System Technology) and xhr (Human Resources). The managerial levels were senior (SM), middle (MM) and lower (M), as illustrated in Table 4.1. Another step of the data preparation was to identify the unit of text to include when performing content analysis (Elo & Kyngäs, 2007). The researcher highlighted the relevant part of the interview answer to include in the analysis while reading the answers with caution.

#### 5.2.2.2 Categorising and coding

The next step of the analysis was the coding of the data set. The data collection process was guided by the problem conceptualisation, the literature and the underpinning theory. This provided a foundation for predefined codes and themes appearing in the problem conceptualisation that aligned to variables identified from the literature review and the moments of translation of the actor-network theory. As such the codes were guided by the variables emanating from the review of literature and the themes were guided by the moments of translation of ANT, used to develop the conceptual framework. An open coding process was used, meaning while reading through the meaning unit (raw data excerpts), the researcher wrote down notes that better described the answer. In that sense, the researcher searched for words, sentences or phrases relating to the variables appearing in the conceptual framework. In addition, the researcher identified new variables revealed in the data. The researcher performed additional readings to identify as many possible variables to answer the research question, and to describe the studied phenomenon. The coding process was performed until saturation was reached and no new codes could be generated. The variables were collected and grouped into more abstracted categories.

#### 5.2.2.3 Abstraction

During the abstraction phase, each category was named according to what better reflected the content of the category (Elo & Kyngäs, 2007). These variables were categorised according to the main concepts driving processes, including people, processes and technology. Excerpts from the raw data were used in the analysis process to justify the presence of the variables identified. The code generated for each response was thus inserted in its assigned column in the spreadsheet. An example of the categories, codes and meaning units identified during analysis appears in **Table 5.1** below:

**Table 5. 1:** Example of categories, codes and meaning units

| Category | Code | Meaning unit |
|---|---|---|
| Technology | Dependence on system<br><br>System drives optimisation | "We cannot work if we do not use SAP."<br><br>"Well, the system helps us to correctly manage a large workforce in a short time and reduce the amount of complaints we receive after salary payments were processed. It definitely improves on quality." |
| Social | Definition of activities<br><br>Dependence on users | "Employee roles and responsibilities are properly defined, they know what is expected from them in the institution."<br><br>"It is true the system equips us with tools to provide services… However, the system does not do the job alone. When people that are in charge of doing certain tasks do not do their job, we can no longer expect the same quality." |
| Process | Process enforces compliance.<br><br>Business process optimisation | "Yes, by using workflow process, there are many rules we adhere to".<br><br>"We do good process analysis, we improve processes when we do solution design and optimise the business processes..." |

## 5.3 Data interpretation and discussion

The research problem identified was that, in spite of the implementation of strategy and systems, the entrenchment of business processes is not fully achieved. This research has proposed that process change tends to focus on technical aspects of the transformation, while ignoring the social influences (ELsheikh *et al.,* 2016). Thus, it is arguable that the human aspect of process change is disregarded during business process redesign initiative. In that sense the review of literature presented the socio-technical factors influencing process change entrenchment. The literature revealed how strategy, people, process, rules and technology influence the phenomenon under study. Additionally, it was proposed in the conceptual framework that process entrenchment emanates from an alignment of interests of different actors, including human and non-human actors. Given the socio-technical elements involved in the study, the actor network theory was used to underpin the research.

In order to achieve an understanding of process entrenchment, data was collected at a selected organisation in the Western Cape that has implemented an Enterprise Resource Planning strategy and system and attempted to achieve entrenchment of their redesigned processes. As part of its strategy (Smart City Strategy) to transform its operations, SAP ERP was introduced in 2000 to sustain the idea and transform the service delivery through business process automation. The SAP system was to integrate seven different municipalities into one Unicity or Mega City. The ERP system would run most modules including logistics, human resource, real estate and land, revenue management and finance, for instance. Employees were assigned job functions and performed their work through the system.

The units of analysis were senior-, middle- and lower-mangers of the Human resources, Finance, and Information systems and Technology departments. Qualitative data was collected during interviews with seven (7) managers of the respective departments. A total of twenty-one (21) managers were interviewed and nineteen (19) interview questions were asked during the interview sessions. Semi-structured interview questions were asked during the interview process and qualitative content analysis was applied as an analysis technique. In addition, the concepts of the moments of translation of the actor network theory underpinned the research, including the interpretation of results. The following sections outline the analysis, results and discussion of the data in respect of the research questions, and an interpretation of the results follows to understand how processes, influenced by a corporate strategy, can be entrenched.

### 5.3.1 How do non-technical factors influence the entrenchment of business processes?

As mentioned, this study proposed that business processes are not optimised because changes to processes are not entrenched**.** In addition, it was established that process entrenchment is a social phenomenon because entrenchment not only has technical, but also social influences, such as people who participate in processes. As such, the social and process categories were developed to reveal the nature of the non-technical factors influencing the entrenchment of business processes in an organisation and to understand and interpret how these factors influence the phenomenon. As part of non-technical factors, process and social factors such as organisational strategy, user involvement, and people emanated from the research findings. Each of the aforementioned factors were found to influence process entrenchment and are discussed in more detail in the sections below.

#### 5.3.1.1 Organisational strategy

Strategy is perceived as a precursor for process entrenchment. As proposed in the conceptual framework, organisations need to develop a strategy to lead the process entrenchment initiative. This is because a strategy is essential for the success of an organisation since it sets the goals, directions and objectives of the company. In addition, the strategy sets and establishes the plans to achieve them. The strategy formulation process involves the participation of different stakeholders and becomes the platform for consultation among actors. In this study, the findings of the investigation affirm that the selected managers follow a clearly defined strategy to achieve the organisation's objectives. All twenty-one managers interviewed (100%) indicated that they follow the integrated development plan (IDP) and further elaborated on their understanding and knowledge of the organisational strategic plan as follows:

> *"We have 5 years IDP strategy which is a very well-defined plan or road map on what we need to implement with the solution and that then forms the project we need to implement"* (MMxhr).
>
> *"We are aligned to the City integrated development plan (IDP), which stipulates a set of issues that must be driven such as our vision and priorities…."* (SMxist).
>
> *"Management follows the annual business plan that must be aligned to the city IDP. IDP is the strategy through which the city intends to realise its vision. Resources, budget, everything we need is clearly defined (*SMxhr).
>
> *"We have a business plan submitted annually, that aligns to 5 pillars, and to IDP. We also measure the business plan on the department level, and report quarterly in terms of key performance indicators."* (Mxist).

Given the statements above, all interviewed managers uniformly indicated that they follow the organisation's strategy that specifies what they need to achieve. The IDP is the enterprise strategy for regional municipalities in South Africa that must be developed upon request by governmental institutions. It is developed according to the needs and priorities within the region. In this study, the results present an organisational strategy as the baseline of process change and entrenchment initiative.

The understanding according to which strategy contributes to process entrenchment relates to the capability of a strategy to provide the direction to process entrenchment initiative. In other

words, the ability of the strategy to deliver a plan and the actions to meet the objectives set by corporate managers. The strategy provides the foundation on which the process change initiative relies on. The strategy stipulates the business objectives, and the actions to reach them. In addition, the strategy elaborates a plan for the resources needed, which aligns to the business processes. These plans are developed to ensure proper allocation and utilisation of resources in accomplishing organisational goals. The degree to which the strategy has contributed to the entrenchment was to gain buy-in from people to show that the changes appear to be feasible considering the direction that it provides. It is also noteworthy that the strategy is seen to be developed to meet specific organisation-wide goals, instead of individual goals.

This finding confirms the proposition made in the conceptual framework and agrees with the literature. The finding sustains the conclusion drawn by Masters (2011), and Jacka and Keller (2009:5) which is that strategic goals and objectives are crucial for the process definition, assessment objectives, improvement activities, implementation of process solutions and entrenchment goals. The research finding also affirms the assertion made by Chandler (1962.53), which is that a strategy enables an organisation to develop a plan to meet objectives. Similarly, the findings agree with that of Nickols (2016), which is that a strategy implies the establishment of actions and the allocation of resources to achieve the objectives. These resources comprise people, technology, and finances.

The respondents revealed that they incorporated process transformation as part of their work because the system ensured that they had to comply with the changes brought about by the strategy in order to get their job done. They commented as follows:

> *"There was a decision at the time that the City goes ERP…" (*MMxhr*).*
>
> *"Well SAP system is the corporate approved system…" (*MMxist*).*
>
> *"It was a corporate decision to make use of SAP… (*Mxist).
>
> *"SAP is the corporate ERP of the institution; we do not have other choice than using it" (*MMxf*).*

While the process entrenchment was driven by a strategy, it was enforced by the system. As the changes were introduced, everyone was compelled to accept the change in process to continue to perform the work activities. In other words, it was difficult for employees to perform their duties without applying the changes in processes. The strategy to transform business processes was initiated by local government in Cape Town. The strategy intended to reposition Cape Town as a leader in information economy and upgrade operational infrastructure in the

region. The particularity of a strategy is in agreement with the definition of an ERP strategy, highlighted by Jafari *et al.* (2006), which sees ERP not solely as a system but as a strategy for optimised resource management. However, the system is designed to implement the strategy by employing its principles. The system is seen to enforce the changes that the strategy articulates. As such, the system through which processes are transformed and executed is customised according to the goals and objectives of the institution. Process optimisation is at the forefront of an ERP strategy, and is achieved by the system designed to meets its goals.

#### 5.3.1.2 People

It was proposed in the literature review and conceptual framework that process change entrenchment does not solely depend on technology, but on people as well. This is because people are part of process execution. People interact with technology and coordinate the process activities. People explicitly emanated from the data analysis as influencing process entrenchment. The respondents indicated that:

> *"It is true, the system equips us with tools to provide better services. However, the system does not do the job alone. When people in charge of doing a certain task do not do their job, we can no longer expect the same quality. This applies to people inside and outside of the organisation"* (SMxf).

> *"The ERP system helps us to keep control, but there are still people that need to do the job, if they do not do what they are supposed to do there will not be quality"* (Mxf).

> *"Our work quality depends on two factors, internal and external. Internal factors in terms of business processes may provide quality, however external parties may either improve or affect the quality"* (Mxist).

> *"Business processes are based on best practices, if well executed it will help to achieve targets. However, there can be external bodies that affect business processes (dependence from outside), if dependent parties are doing their work, there will be good service"* (Mxist).

It is obvious that besides the change in process to address process deficiencies to drive optimisation, entrenchment still relies on people to carry out activities and operate the system. The aforementioned statements recognise human actors as an indispensable constituent of process change and entrenchment. As such, it justifies the need to address social factors in relation to process optimisation and entrenchment. The following sections elaborate on the social factors that emanated as influencing process entrenchment.

#### 5.3.1.2.1 Stakeholder involvement

The strategy formulation process involves consultation with relevant stakeholders. This adds to the elaboration of the necessary plans to meet strategy objectives. It was elaborated in the conceptual framework that a main stakeholder initiating the process entrenchment initiative should involve other stakeholders in the strategy formulation. This is because each actor in the process entrenchment initiative may have different interests and divergent perceptions of the strategy. As such, involving other actors in the strategy formulation intends to develop a mutual interest to the process entrenchment initiative and to obtain buy-in from the stakeholders. The respondents indicated:

> *"Well, there was coordination between management, the trade union, the library, garden, and cape strategy. Lower-level staff members also participated in the meeting" (*SMxhr).
>
> *"We consulted with the IT department and managers from all the other departments" (S*Mxf).
>
> *"When the decision is made, a representative of each level is present" (*MMxhr).

Consultation between stakeholders emerged as a precursor to process entrenchment. This is because stakeholders are not excluded from the strategy formulation process. During the strategy formulation process, each stakeholder provides input to the strategy to achieve a common agreement on process change. The respondents indicated that:

> ***"****We consult with the IT department and managers from all the other departments. The consultation is to get the stakeholders' buy-in and sign-off processes"* (SMxf).
>
> ***"****During the workshop we align interests"* (Mxit).

> *"There was a collaboration between the stakeholders. During the meetings we reach a common agreement"* (Mxf).
>
> *"We involve everyone in the decision-making process. Even low-level management will be given an opportunity to give their point of view"* (Mxf).
>
> *"Not all the stakeholders were in agreement for the simple fact that we need to disagree. Disagreement shows the need for improvements. If there is a disagreement on a specific matter for example, management notes down the points of disagreement and investigates the matter"* (Mxhr).

The research revealed that different parties are involved in the establishment of the IDP. External parties are as important as internal parties in establishing the IDP. Stakeholders involved in the IDP processes included municipalities, councillors and managers. Stakeholders such as the municipalities, councillors, and communities, for instance, participate in the IDP's development because the IDP guides the municipalities development plan, gives councillors the chance to elaborate on their needs to make decisions, and enables communities to elaborate on their needs. Stakeholders' identified needs are included in the IDP. This shows stakeholder involvement in the strategy formulation process. The strategy formulation is the point of discussion between stakeholders to elaborate the plans in accordance with each party. It is also a point where each stakeholder develops a sense of belonging and understands the role they need to play to meet the strategic goals and objectives. Stakeholders come to agree on and align divergent points with the intention to reach organisational goals and objectives.

The proposition that strategy should be a precursor for the entrenchment of process change is supported by the respondents. Strategy provides the necessary plan to perform each activity to reach the established goal and provides a platform of discussion and alignment of objectives between the stakeholders involved in the change. All respondents should thus converge to the same thought. This agrees with Kaur (2007) and Foudraine (2015) who indicated that companies that involve stakeholders in the strategy formulation have a greater chance for success. Stakeholders have a deep knowledge of a company's strengths and weaknesses. By involving people in the strategy formulation process, they establish organisational goals and objectives. During this process, they can better grasp how their roles impact on the organisational strategy (Wairimu & Theuri, 2014). As such, the process entrenchment strategy should be embedded in the organisational strategy, which stipulates the need for process change and entrenchment. Undoubtedly, specifying and adapting an adequate strategy becomes a driver toward the entrenchment of change in processes.

#### 5.3.1.2.2 Change management

As indicated in the review of literature, people's behaviour impacts on business process nature. Change is difficult, and employees are susceptible to resist when processes change. The research findings revealed that some employees showed resistance to the process change initiative. Managers indicated that:

> *"Some people were reluctant because they do not like change. Some very excited because of possibilities. At the beginning they were opposed…"* (SMxist).
>
> *"It is complex to make changes to organisational structure to meet best practices structure, actions are being put in place at the telecommunication side of the IT department"* (Mxist).
>
> *"Not everybody was in agreement. Change is difficult and requires good change management…"* (Mxist).

It is understandable that some of the stakeholders resisted the changes implemented in business processes despite their involvement in the strategy formulation. The research analysis revealed that some stakeholders did not imperatively adopt the change applied to processes. These findings agree with that of Rebeka and Indradevi (1999), who believe that resistance to change is a challenge organisations face when new ideas are introduced. A strategy was elaborated to guide the people during the change. Although the strategy formulation process required the contribution and involvement of different organisational stakeholders, some stakeholders were reluctant to embrace the change. The findings reveal that it is the instinct of people to oppose as the main cause of opposition to changes. In addition to instinct, people oppose change because they do not perceive the productivity benefits of the change instantly. Furthermore, the resistance to change emanated from the fact that, during the strategy formulation, the idea of transforming the process activities remained superficial and non-concrete.

Creasey (2016) recommends that managers should manage resistance to change through communication and time commitment, for example. This is to drive people to adopt the correct attitude and behaviour to embrace the changes. The resistance factor underpins the need to address the social aspects capable of impeding the entrenchment of change in processes. It was proposed in the literature review and the conceptual framework that people and processes need to be transformed to accept and entrench the changes in business processes. The results of the analysis present that people resist the change at the introductory stage of the change

initiative. It requires good practices to enable people to abandon their old ways and embrace new ones. In other words, resistance to change does not last when necessary measures are taken. Stakeholders started to approve the change due to change management. The respondents mentioned that:

> *"…with change management we ensure solutions are aligned to other parties"* (SMxhr).
>
> *''Mostly stakeholders are in agreement, however it takes a series of good change management processes to make sure everybody is on board''* (SMxhr).
>
> *"Change is difficult and requires good change management …"* (Mxist).
>
> *"Yes, when good change management is implemented"* (Mxf).

The statements above prove that change management initiatives are needed for employees to embrace the change in processes. As part of the change management initiatives, the respondents indicated:

> *"As part of change management, we send our staff for training when necessary…"* (SMxhr).
>
> *"Not everybody was in agreement. Change is difficult and requires good change management. We provide training; super users assist with training to communicate benefit of using SAP"* (Mxist).

In the context of this study, change management relates to the capability of the organisation to systematically transform and manage the changes that will result from the strategy. Consequently, the organisation should also transform and manage the resources required to meet the expected outcome of the process change. Organisational resources such as people, procedures, and the working environment need to be transformed to facilitate the entrenchment of processes. This research finding aligns to that of Nicholas (2014), which specifies that users need to be educated and involved in the process transformation to understand the impact of the change on their activities to minimise feelings of uncertainty. Similarly, Botes *et al*. (2010) advise organisations to train the employees that are directly affected by the change. The sections above presented the need to address the people side of

the transformation. In spite of the fact that there was user involvement in the formulation of the strategy to guide the process change initiative, people still tended to resist changes. Thus, change management was found necessary to support the strategy and promote the entrenchment of change. For this organisation in particular, change management involved training employees, involving employees in the process analysis and design, proper documentation, and education on processes. As such, managing change intends to modify the existing quality of procedures and the mindsets to achieve the entrenchment of processes.

#### 5.3.1.2.3 Defining user roles

It was established in the review of literature that people influence the entrenchment of process change and will entrench the change when the conditions in the organisation promote change in behaviour. Change in behaviour can be initiated with a clear definition of the roles and responsibilities of the affected people. In other words, employees require a clear definition of the activities that they must perform during process execution. When the respondents were asked to identify what transformation drove motivation, they indicated that:

> *"Each user of the system has a system portfolio that determines what role to play"* (MMxist).
>
> *"Employees' roles and responsibilities are properly defined, they know what is expected from them in the institution"* (Mxist).
>
> *"If responsibilities and roles were not clearly defined, people would be complaining about them not being paid for example"* (Mxhr).
>
> *"Each employee role is well defined and is in accordance with the assigned portfolio"* (MMxf).

In the context of this study, the employees' duties and responsibilities were well established and defined, and subsequently each employee was assigned a portfolio outlining the tasks that should be executed. A clear definition of processes, activities and roles simplifies the use of business processes (Nicholas, 2014). As debated in the literature review, people can be resistant when new ideas or change in practice is introduced in their work environment. This dynamic exists when changes to processes are also introduced. It is only when employees felt comfortable with the change that they accepted it. Such comfort can be brought about by a providing a clear definition of their roles and responsibilities. The intention is for employees to

appreciate and understand the change applied to their roles, particularly when the users are involved in the definition of the portfolio. This involvement enables users to grasp which part of the process they will intervene, the importance of their task, triggers to their tasks and the rules applied to their tasks, for instance. This enables employees to assimilate the change to business processes as part of the way of doing business (Nicholas, 2014). It is, therefore, in this context that defining users' roles and duties will positively influence the entrenchment of processes.

#### 5.3.1.2.4 User training

To maintain the new definition of roles and duties; staff members are guided and receive training in conjunction with the new tasks that they perform. This equips them with the necessary skills to operate IT and encourages business process acceptance and execution. The respondents indicated:

> *"As part of change management, we send our staff for training when necessary to equip them with required skills to operate or execute processes"* (SMxhr).
>
> *"Users receive training to use SAP, they become aware of what to do and are willing to properly use the system"* (MMxhr).
>
> "*…. each employee has a role that he will fulfil after receiving training. This encourages employees to work" (*MMxhr*).*
>
> *"Users are guided during training on their roles in the institution"* (Mxist).
>
> *"…before users start using the system they get trained to encourage their enthusiasm"* (SMxhr).
>
> *"We improve our business performance and somehow quality as well. I said that because we do recruitment, we plan, reward staff, develop our staff through ERP which make these processes faster and effective"* (Mxhr).

Once the employees are informed of their new roles, and have agreed to their new portfolios, training and education empowers users with new behaviour, skills, knowledge and values to accept the change. Training helps employees understand their roles and responsibilities. A result of training is that the role of every user is clearly defined based on individual portfolios

for the activities they need to perform in a process. Training users is a way to implement management control. Management control is the group of steps taken by management to ensure employees perform their duties in the best interests of an organisation. When employees obtain the necessary skills, they are more willing to change and embed the transformation as part of their work. This finding is in agreement with those of ELsheikh *et al*. (2010) and Aydinh *et a*l. (2007) who assert that providing employees with proper training increases their ability to perceive the need for change in processes and their adaptation to the change.

#### 5.3.1.2.5 Business process design

As part of change management activities, another variable influencing employees' willingness to embed processes activities is proper process design and involving employees in the process analysis and design, as the respondents indicated that:

> *"Processes are clearly analysed and documented"* (SMxist*).*
>
> *"We clearly do business process design and before users start using the system they get trained to encourage their enthusiasm"* (SMxhr).
>
> *"We do good process analysis, we improve process when we do solution design and optimise the business processes..."* (MMxist).
>
> *"We ensure business processes are effective and efficient by removing unnecessary step delays"* (MMxhr).
>
> *"Business processes are well designed to ensure process optimisation, to ease process execution and promote acceptance from employees"* (MMxist).

From the comments it is understood that the design applied to a process is important to entrench the changes. Having properly designed business process eases the flow of activities. Proper design optimises business process execution and encourages employees to execute the processes in respect to its specified nature. The nature or design of a process has the potencial to drive optimisation and entrenchment of good practices. In addition, it becomes easy to understand and execute activities through well-developed processes. This is made possible given that proper design drives effectiveness and efficiency in processes. In addition,

optimised processes encourage employees' enthusiasm to change. This finding is supported by Radomír (2013), who argued that processes have a significant impact on employees' performance because deficiencies in processes generate inconsistent outputs.

The second aspect of process design is to involve users in the process design activities. This would support the variable of defining user roles by helping employees to understand their responsibilities by enabling them to see the process activities affected by the change. It also enables users to undestand the importance of the change and how the change in process will enhance their capabilities when employees accomplish their daily operations. Involving users or employees in the process design enables users to develop a sense of belonging to the change initiative as well as embrace the changes in processes. In fact, the absence of collaboration and coordination during process execution can lead to process deficiencies (Magal & Word, 2011). These findings support that of ELsheikh *et al*. (2010) who contend that the principal element of process change is to involve employees in the change process.

#### 5.3.1.2.6 Organisational culture

Organisational culture is an unexpected factor emerging from the data analysis. Although, organisational culture was not proposed to influence the entrenchment of processes in the conceptual framework and review of literature, the results show the need for its consideration. Organisational culture emerged as having various levels of influence on entrenchment as follows:

> *"It is the nature of the organisation to consider stakeholders' suggestions."* (SMxist).
>
> *"It is what business requires to do, that we implement"* (Mxist).
>
> *"… There is a culture of applying and implementing rules. There is a right culture in the organisation"* (MMxf).
>
> *"Yes, because all business units want to achieve the best for the institution to move forward"* (Mxhr).

From the views presented above, it is comprehensible that the culture at the organisation sets the tone for employee behaviour to change. The culture of the organisation dictates how different elements operate, including the interaction between people, the manner of conducting activities, and the compliance to business rules. In that sense one can understand that

organisational culture can promote changes in processes. The culture promotes behaviour that drives the success of the organisation. While organisational strategy is the foundation of process entrenchment initiative, the organisational culture is what sustains the strategy. Webster (2018) defines cultures as "the set of shared attitudes, values, goals, and practices that characterises an institution". Thus, the culture is brought about by employees' attitudes toward the organisational environment. The organisation has enforced the practice of involving employees in discussion on strategy and processes that affect their work. User involvement has developed a sense of belonging in this organisation which has evidently driven the success of the endeavour. However, culture is not sustained unless there is consistency applied. In addition to involving stakeholders, employees are regularly sent for training to sustain the values of the institution. Thus, through training, the culture becomes entrenched.

The understanding of how organisational culture influences entrenchment emanates from the fact that the culture provides a social environment that can influence employee behaviour. Organisational culture dictates how employees execute the process activities.

#### 5.3.1.2.7 Management support

Management support was identified in the literature review and conceptual framework as an influencer of process entrenchment. It emanated from the managers' responses that management support is present during the process changes. The respondents noted that:

> *"We clearly do business process design and before users start using the system they get trained to encourage their enthusiasm"* (SMxhr).

> *"Mostly stakeholders are in agreement, however it takes a series of good change management processes to make sure everybody is on board''* (SMxhr).

> *"We make sure people know about rules, statutory framework. It can be done via email to staff"* (MMxf).

> *''We involve everyone to the decision-making process. Even low-level management will be given opportunity to give their point view''* (Mxf).

> *"I personally check that we meet all legislations compliance. We have audit department we also have audit in general…" (SMxhr).*

It emanates from the excerpts above that management involved relevant stakeholders in the process change initiative, maintained communication with employees, and implemented the necessary tactics to ensure that employees accept the change in processes. These elements underpin the understanding according to which management support contributes to process entrenchment. This is because management can involve the necessary actors in process change initiative as well as identify people that oppose to the change. Management thus implements the corrective action to ensure people align to the change. This research finding is supported by Creasey (2016) who sees management as a communicator, resistance manager, advocate, coach and liaison when changes are introduced to an organisation.

#### 5.3.1.3 Business rules

The literature review and conceptual framework showed that business rules promote the entrenchment of changes to processes. The respondents expressed that business processes are executed in accordance with policies and legislations that regulate the organisation. Business rules govern online and offline activities and regulate behaviour. Information technology (IT) employees have the responsibility of coding that which reflects organisational policies on the system. For example, one manager said:

> *"We have needs that are presented to the IT team so that they can deliver a product that satisfies us. IT is then responsible for implementing or taking into consideration policy and regulations"* (Mxf).

It is understood that whenever a department needs additional functions on the systems, the request is sent to qualified information technology technicians. The technicians have the responsibility to deliver a product that meets the department's needs, and at the same time supports organisational policies and rules.

In addition, compliance to organisational policies, laws and regulations reinforces process execution. Every time a process is executed to recruit a new employee, generate an invoice, to settle a payment or process a customer order, for example; actors, documentation and procedures used during the transaction follow the stipulated guidelines. Rules that dictate process execution are incorporated during process design and applied when process activities are performed. The respondents indicated:

*"Policies are incorporated into business processes during process design. If we do not incorporate policies to the system, processes may produce outputs which do not align to the organisational policies" (*Mxist).

*"Processes are designed in accordance with organisation policies, to ensure work we produce is regulated" (*MMxhr).

It is important to specify that rules and regulations are automated. Rules are built into the systems to ensure employees do not skip them, whether intentionally or unintentionally. To make sure users abide by the rules and entrench processes, different techniques have been established beforehand. These techniques include user rights provision, workflow processes, and authentication techniques. For instance, the respondents indicated that:

*"Workflow process is a rule that enforces how processes need to be executed" (*SMxf).

*"By using workflow process, there are a lot of automated rules which we adhere to" (*SMxist).

In addition to the flow of processes, authentication techniques and additional rules of operation are automated during process execution. The respondents thus stated that:

*"...stakeholders, for example employees, cannot work if they do not follow rules. They have to follow or agree to rules to access the system. Rules are built on the systems and there is strong control on who has access to the system. Stakeholders are sent for training, are assessed, and have to pass the training in order to have access"* (MMxhr).

*"For example, time and attendance - the system is built around that policy. In other words, performance management must be implemented around the systems. We align the systems to our rules and policies in terms of the systems' act"* (MMxh).

*"We work on a policy of zero tolerance of error margin, we need to do certain tasks in a certain time, and the system enforces that"* (SMxf).

*"We ensure our system is designed according to policies. The system is very much governed by policies"* (SMxhr).

Automated rules ensure that processes are executed effectively and efficiently to sustain organisational objectives. Managers, therefore, stated that:

*"SAP for the city of Cape Town was customised according to what our objectives are, and there is a different interface for each user in a given position. Access to information is limited, which somehow enforces rules" (*MMxist*).*

*"The system, for example, logs you off automatically when we are way from the computer" (*Mxf*).*

*"User right provisions are implemented to ensure we do not skip rules. There is always a log to what you are doing" (*MMxist).

*"User restrictions are automated procedures to enforce rules and policies"* (SMxhr).

*"Management cannot do their job without SAP system, there is key measurement. You must do a certain percentage on your systems to be paid accordingly" (*SMxhr*).*

Whenever a new rule is implemented, or there is an update to an existing rule, the system integrates the changes. Notifications are sent to employees at management positions when a rule is added or updated:

*"An email is frequently sent from management with updated policies; once it is done, there is an automated update to the system" (*MMxhr*).*

*"Notifications are sent to us specifying new rules or updates to rules; those updates are automatically updated to the work we do" (*Mxhr*).*

Business rules governing human and non-human behaviour are developed during meetings held with different stakeholders. During rules formulation, stakeholders provide their input that will constitute the business rules. This guarantees their buy-in to institutionalised rules governing processes. The respondents thus mentioned that:

*"Because we set rules with them, we make good buy-in from stakeholders" (*SMxhr*).*

*"Rules were established in their presence and were in accordance to the rules" (*Mxist*).*

*"Rules were set in the presence of stakeholders where they also gave input, proving input shows their agreement" (*Mxf*).*

*"We set the rules in the presence of stakeholders, and get buy-in from them*" (MMxist).

Business rules govern behaviour in the institution and prevent chaos from happening. It compels every stakeholder to have the right attitude. Compliance to business rules is compulsory, as the respondents indicated that:

*"They have to respect rules to work in a manageable work place" (*MMxhr*).*

*"There are many people in the organisation, and rules govern all of us" (*Mxf*).*

*"Rules and regulations have to be abided, it makes the workplace governable" (*Mxhr*).*

*"It is compulsory for every individual to follow rules and regulations"* (Mxist*).*

*"First of all, we work with money. I have statutory obligations that we cannot ignore. I have the culture of applying and implementing rules. There is a right culture in the organisation" (*Mxf*).*

Another element to ensure that employees fulfil the duty assigned is that auditors are assigned to review employees' work.

*"Employees are aware of their duties, and responsibilities to do what has been assigned to them. They get audited on the job that they have performed" (*MMxist).

In addition, the respondents added that disciplinary measures are in place to ensure people respect rules.

> *"Stakeholders have no choice than respecting the rule, to avoid disciplinary action. But first there are counselling sessions held where a copy of the rules is given, in case they were not aware. After that there is a disciplinary hearing" (*Mxhr*).*

> *"Yes, they have to, to avoid disciplinary hearing" (*MMxf*).*

Business rules emanate from business policy and regulations, which are born out of organisational strategy and business needs. Rules emanate from law, ethics, culture and organisational commitment (Herbst *et al.*, 1994). Business rules are built into a system to enforce and automate compliance. Compliance to business rules promotes proper behaviour and activities during process execution. These findings support the views of Kaula (2012) and Rabova (2009), who assert that business rules are included in application codes to realise the set of activities that constitute the business process. It also appears that rules guide the collection of activities constituting a business process to guarantee the nature of processes. In addition, business rules drive a healthy attitude in the work environment, which encourages sound practices. When stakeholders partake in business rule formulation to drive their compliance with business rules, this can contribute to the creation of an organisational culture for compliance.

Given that not all business rules are programmed into the system, and some process activities are performed manually, there is only partial reliance on technology to enforce business rules. This reinforces the need to address the social aspects of processes, and to create a culture that conforms to rules. Therefore, this culture can gradually be created when users understand the business goals, the resulting business rules, and the subsequent design of processes. This could begin to develop the culture for compliance because their involvement will deepen their perception of their tasks when accomplishing a business process. Subsequently this culture will promote good behaviour and the accomplishment of duties in accordance with the strategic objectives (Plotkin, 1999; Ross, 2003). It creates awareness among people regarding the importance of complying with business rules in the organisation. Given that business rules compel humans and technology to perform in accordance with organisational norms during process execution, it is understandable that rules can promote process entrenchment.

### 5.3.2 How do technical factors influence process entrenchment?

The previous section presented how non-technical factors influence process entrenchment. This section presents the technical factors emanating from the data analysis, and their impact on process entrenchment. The technical factors include process optimisation and entrenchment, compliance to business rules, system reliance, and process automation, process efficiency and effectiveness, and external support. It was proposed in the conceptual framework that technology influences the entrenchment of processes. Technology, together with people, is needed to facilitate process activities. Technology, such as a system, has the potential to optimise processes and promote compliance during business process execution. In the data analysis it was revealed that systems have the capability to integrate and automate changes to process activities. In addition, technical support emerged as an important factor to contribute to entrenching process change. While technical support is not a technical factor per se, it is related to the use of a system, and was thus classified as a technical factor. The emergent technical factors are presented below.

#### 5.3.2.1 System factors

##### 5.3.2.1.1 Process optimisation and entrenchment

It was debated in the literature, and presented in the conceptual framework, that a system can optimise processes and promote compliance during process execution. The results of the analysis revealed that a system was implemented to optimise and entrench business processes. It was revealed that compliance with the reengineered processes to integrate the various municipalities would not be possible without a system that facilitates a unified database. In particular, an ERP system was implemented. The processes were reengineered, and the system supported the reengineered business processes and the organisational strategy. The system maintained process improvement during execution and the quality of services rendered by complying with the changes that were made to optimise and improve the processes. In particular, process optimisation involved the integration of disparate municipalities, and the ERP system was a suitable solution to ensure a unified system would support the reengineered processes. Through the channel of a database, the divisions of the municipality are now interconnected. Information sharing and retrieval is performed in real time. The respondents noted that:

> *"Benefits flow from the utilisation of the system; it integrates all disparate municipalities, as an example" (*Mxist*).*

> *"At the time we had all seven municipalities… we unified manual and disparate processes, transformed the local government" (*MMxhr*).*

> *"Without SAP, we would not be able to work, from the time everything was done by hand and there was no integration, with this volume it would be impossible"* (Mxf*).*

It is understood from the above statements that integration resulted from the process change implemented. Integration transformed the organisation from disparate functions to process-oriented activities to address process-related deficiencies. This research finding is supported by various researchers, including Rayner and Woods (2011), who believe that a successfully implemented system can support strategic organisational goals and objectives, such as the integration of disparate municipalities, as an example, and Fuentes (2014), who asserts that technology can be implemented to address the process related deficiencies by moving from function-oriented to process-oriented activities by embedding processes into technology. The understanding of how technology entrenches processes is demonstrated through the implementation of a system such as an ERP system. The system maintained the changes applied to processes to support the organisational strategy. The ERP system perpetuates the materialisation of the strategic objective because the system is designed around the strategy through optimised resource distribution because the system maintains the integration of disparate functions, as reported by the respondents. ERP strategy was implemented through the system and is entrenched not only through enforcing compliance to process changes, but also through the continuous use of the system. The processes are carried out through the system and become entrenched through using the system.

The optimisation of processes was achieved through improved efficiency and effectiveness of business processes. The use of automated workflow essentially enforces compliance to organisational standards. As such the outputs generated by the processes are accurate and produced on time. Respondents added that:

> *"Through SAP, transactions we perform are accurate. When goods are ordered we are sure the right amount is ordered, the system provides records easily" (*MMxf*).*

> *"ERP improves business processes, for example in the human resource department, SAP made it possible to execute all the*

*personnel and payroll required operations. I cannot imagine what it would have been without SAP" (*MMxist).

*"In our department, for example, SAP drives our business processes. We are responsible for attendance, ERP has given us a tool to do time attendance and leave, that drives efficiency; there is no application form. No application forms can get lost, as it used to be the case"* (Mxhr).

The excerpts above emphasise that business processes become more efficient and effective through the use of an ERP system. In addition, the system has the built-in capability for effective resource management, which renders the organisation and employees' administration more efficient. It also reveals that transparency prevails inside the organisation since ERP systems keep track of transactions. This research finding aligns to that of Ahmad (2014) who asserts that through process automation business processes become more effective and efficient and generate output of quality. Improved process efficiency and effectiveness relieves employees from the tasks they previously performed manually by automating the transaction. This means that employees spend less time on completing their tasks and the system minimises the possibility of errors when performing their duties. This helps employees to accept and understand the need for changes to business processes to achieve process optimisation.

#### 5.3.2.1.2 Process automation

Other than the integration of disparate functions, the ERP system replaced much of the human presence when performing the process activities. The business processes are built into the system, which automates the flow of activities. The respondents indicated that:

*"Yes, if we look at our workflow built into SAP…."* (MMxist).

*"Workflow are built to SAP…"* (MMxhr).

*"Workflow are built into SAP, this enables good process flow"* (Mxf).
*"In our department, for example, SAP drives our business processes"* (Mxhr).

*"An example is collecting rates; processes sit in the ERP system to enable good quality. The system oversees rendering services and makes things easier to citizens"* (SMxist).

It emanates from the above excerpts that process change led to the automation of the business processes. Given that processes are now developed and executed though a system, the execution of business processes becomes easier. This research finding is emphasised by Ahmad (2014) who believes that a system can automate processes, which guarantees the approved nature of the business process. Similarly, Bider and Striy (2008) contend that the moment processes are automated, controls are included in systems to enforce execution. A system integrates and enforces business rules, which prevents inconsistency during process execution. The ERP system creates an alignment between processes, people, the work environment and the strategic objective during process execution. This alignment has become embedded in organisational practices to the point that in the event the system malfunctions, the organisation is paralysed, and no work can be performed. Technology can, therefore, be applied to change business processes and institutionalise the change when activities are performed. The system also has the potential to address social conditions such as resistance to change. The system also automates compliance to business rules and plays a central role in regulatory compliance, as opposed to manual processes relating to compliance, which can be inaccurate and time consuming (Heinricher, 2010).

#### 5.3.2.1.3 Business rules compliance

In addition to optimising and automating processes, another factor found from the analysis is compliance to business rules. Business rules are built into the system during process design and are enforced automatically when users access and use the system. In addition, the ERP system automatically runs updates on business rules. The respondents indicated:

> "*SAP has built-in functionality that enforces rules in the organisation"* (Mxits).
>
> "*Regarding SAP, the system provides us with a trail and log in details, which enforce rules"* (Mxits).
>
> "*New rules or updates to existing rules are inserted into the system"* (Mxf).

The managers' responses show that the system integrates the business rules. These business rules regulate human and non-human behaviour. During processes execution, the system employs and enforces the business rules which enforce the behaviour and action necessary for process execution. This is made possible through internal commands, streamlined governance, and compliance, which specify the activities to be executed by the system. These research findings accord with that of Rai (2001), who contends that business

rules are developed within information systems to automate the execution of business processes. The findings also agree with Smaizys and Vasilegas (2009) and Derriks (2012), who indicated that business rules specify what actions are to be performed in an application or a system; and how tasks are to be executed. Compliance with business rules that govern processes influences process entrenchment and, if built into the system, can more effectively govern the behaviour necessary for process entrenchment and simultaneously bring about an organisational culture of compliance.

#### 5.3.2.1.4 System reliance

Another factor revealed in the analysis is employees' reliance on the system. Employees understand the added value from the systems in completing their process activities. The respondents thus indicated:

> *"We rely on SAP for most of our activities; we ensure we give departments the business processes that meet their requirements and quality standards" (*SMxist).
>
> *"Well, the system helps us to correctly manage a large workforce in a short time, and reduce the amount of complaints we receive after salary payments were processed, it definitely improves on quality" (*SMxhr).
>
> *"ERP definitely improves the quality. Work is performed through workflows that were carefully built onto SAP, which basically automates business processes and saves on cost and time" (*SMxhr).
>
> *"We improve our business performance, and somehow quality, as well. I say that because we do recruitment, we plan, reward staff and develop our staff through ERP which makes these processes faster and effective" (Mxhr).*

The change introduced to business processes provided advantages to employees. Employees can rely on the system to easily complete their tasks. The output from the process execution is of a higher quality. The benefits perceived by the employees during process execution encourages them to accept and maintain the changes to processes. This finding agrees with that of Gulla (2004), who believes that an enterprise relies on systems to perform business

processes efficiently and effectively. The finding is also justified by Nicholas (2014) who believed that educating the employees enables them to understand the importance and the advantage of the changes (Nicholas, 2014). It was indicated that employees previously resisted the change to business processes. It was only when they perceived the benefits of the changes, that they accepted the change. In using the system, users can now experience first-hand the benefits anticipated from the system. Besides the benefits from the use of the system, the reliance on system to execute the process activities creates total dependence on the system, as every part of their work needs to be executed through it. The managers indicated:

> "*SAP might improve or affect the quality in the sense that if SAP is down we cannot work, if SAP is slow we do not get a response to and from our clients" (*SMxist).
>
> "*Sometimes it improves, sometimes it does not. ERP is just a tool that they provide us to perform our task. I say that because we of course do most of our work with SAP; in the instance it malfunctions, or it is slow, our work will be negatively affected" (*SMxhr).
>
> *"It will be difficult to work without SAP"* (SMxhr).

While these excerpts appear to reflect what the respondents perceive to be a disadvantage of using the system, it is actually an indication of total reliance on the system. From the statements above, it is understood that changes to processes have transformed the work practices of employees. Acceptance of changes transformed the institution to the point that it created dependency on the new ways of work, through the use of the system. Employees were unable to revert to old practices of work. The dependence on the system affirms the proposition that a system can entrench processes (Botes *et a*l., 2010; Fuentes, 2014; Moller *et al*., 2014).

#### 5.3.2.1.6 External support

It was proposed in the literature review that support provided to users is a facilitator of process entrenchment. External support provides users with the necessary skills and assistance to accommodate the process changes. The external support team has the skills needed to implement applications that are in line with the policies and objectives of each department or unit. In addition, the support team provides support to staff for the daily operation of the system. External support emanated from the findings as a precursor for process entrenchment as follows:

*"IT specialists deal with the technical side of system implementation"* (Mxf).

*"The IT team integrates regulations into the systems when business processes are developed"* (Mxf).

*"We specify to IT what we want, and they are responsible for implementing policies or restrictions in the systems"* (MMxf).

*"Our SAP team support is part of information system and technology (IST) corporate service"* (MMxist).

In the organisation under study, user support was so important that the institution created an entire ERP unit on its premises. The ERP unit was available for queries and assistance related to the ERP system. The technicians account for business needs and develop process workflows that meet the needs and integrate policies. The technicians assisted in developing systems that run activities, provided training, developed employees' skills, and provided support with queries. In other words, the organisation developed a user support unit to assist users with the process changes.

The influence of the external support to promote the entrenchment of process is strengthened by the fact that the SAP support team is part of the institution, and was involved in the strategy formulation process. They had knowledge of the strategic objectives of the organisation. In that sense, when a unit needs a new solution, the support team develops a solution in the ERP system that meets the needs of the unit and supports the accomplishment of the strategic goals of the organisation. In addition, the support team assisted users with operating the application. This study confirms that support from consultants or vendors is very important for a successful implementation of a system when the organisation lacks internal expertise (Doom *et al*., 2010). The support team developed adequate solutions and supported users in the form of training and addressing queries when using the ERP system. In addition, employees that were sent for training needed guidance and understanding from the support team so that they can understand and operate the system. In doing so, the support team contributed to the success of the system implementation and the entrenchment of processes.

### 5.3.3 How can an organisation achieve business process entrenchment?

The results of this study have shown that the entrenchment of business processes is a socio-technical phenomenon that requires both human and technological interaction to succeed. Entrenchment is about establishing the way that people and technology are meant to operate

in an environment. However, it is important to get the buy-in from these actors before a state of entrenchment is achieved. Thus, the actor-network theory (ANT) was used to understand the interaction between these actors and the process that leads to entrenchment. Through the utilisation of ANT, the researcher was able to reflect on the factors, and the relationship between these factors, that influence process entrenchment to be able to understand and interpret how entrenchment can be achieved. This included understanding how technical and non-technical elements align interests to reach a stage of entrenchment. This alignment of interest needs to prevail during the steps of the process change endeavour. Using the findings of the data analysis previously discussed, the moments of translation (MoT) of ANT including, problematisation, interessement, enrolment and mobilisation, were used as a lens to understand how alignment can be achieved to progress to a state of entrenchment. The interpretation thereof is presented below.

#### 5.3.3.1 Problematisation

Problematisation is the first MoT where the focal actor identifies a problem affecting the other actors in a network and makes himself indispensable to achieve an alignment of interest to the problem. The focal actor makes a case for the other actors to enter a network where the identified problem could be solved if they pass through the obligatory passage point (OPP). The OPP is a situation that must prevail for all actors to arrive at a common agreement (Şeker, 2004). The research findings revealed that management must involve its stakeholders when dealing with issues that affect the organisation. Stakeholders have their say in each initiative. The organisational strategy provides direction, goals and objectives of the organisation. Plans to reach the elaborated objectives are developed and the necessary resources are identified during the strategy formulation process. The strategy formulation process should include all relevant stakeholders to provide their input. This constitutes the initial step of process entrenchment. The initiation of a strategy by management to identify the set of issues to address, aligns with the problematisation phase of the ANT. During the strategy formulation, the manager, as the focal actor, identifies the stakeholders that should contribute to the strategy formulation process. During meetings and discussions, management and the stakeholders attempt to align their diverse interests by elaborating, analysing and understanding the strategy objectives. In doing so, the stakeholders begin to comprehend, understand, and subsequently accept the change in processes to reach the objectives of the strategy. The stakeholders provide input to the initiative, which is examined, and integrated as part of the strategy. The stakeholders include executive management, process owners, technology vendor and employees. The OPP is thus the approved strategy for successful entrenchment to take place.

#### 5.3.3.2 Interessement

Interessement is the second MoT which involves negotiation amongst the actors. At this stage, the focal actor makes use of different techniques during the negotiation process to be able to persuade the other actors in the network to align their interests (Twum-Darko & Harker, 2014) and pass through the OPP. As previously discussed, an actor can be human or non-human. Human actors in this research are employees and management, and non-human actors include technology and processes. Management must provide the proper structure and create a suitable environment to ensure alignment to the process change. As such, management need to ensure that the requisite resources are in place to maintain the interest of the stakeholders that were included during problematisation and implement change management.

Change management intends to transform the resources and ensure that stakeholders are in line with the interests of the focal actor. Change management thus involves implementing a proper business process design, defining the roles and educating employees on their roles and responsibilities, and providing training. By changing business process design, the flow of activities are changed to drive the optimisation of processes. Thus, employees must be encouraged to perform the processes as defined by the strategy. Defining user roles and responsibilities enables employees to know and understand how their role will be influenced and changed by the process changes and how their role will contribute to the entire process.

User training equips employees with the necessary skills and knowledge to execute process activities and progressively addresses resistance to change. This contributes to the establishment of an organisational culture that aligns to corporate strategy. These elements can be considered as incentives induced to convince actors to support the formulated strategy. Inducements are being used for heterogeneous actors to change direction from their own paths and pass through the OPP. The formulated strategy in the problematisation phase presented the set of issues that needed to be addressed. Change management and resource transformation during the interessement phase further promotes entrenchment of the changes in processes, but process entrenchment is still minimal at the interessement phase.

#### 5.3.3.3 Enrolment

Once the interessement phase is completed, enrolment takes place. During this MoT, the focal actor attributes specific roles to the actors in the network. The actors accept to play their respective roles in the created network of aligned interest. Therefore, management, an external support team and employees play their respective roles. Management supports the change as a communicator and resistance manager, for instance. External support provides

the necessary guidance to the employees who will be the users. In addition, all the stakeholders are involved in the design of business processes and in the definition of the user roles. Furthermore, the stakeholders should become involved in the development of business rules that direct activities. Business rules are developed to support process entrenchment whereby people participate in the rules formulation process, and subsequently buy into these rules, and their resultant roles in the new processes. Rules are developed to sustain the new organisational strategy. The organisation counts on many employees with different personalities. Rules assure that employees promote the entrenchment of good practices and prevents abnormal behaviour by keeping employees responsible for their actions. By buying into these rules, the stakeholders execute processes accordingly and the organisational culture for change progresses into a state of entrenchment through participation in implementation of the processes.

#### 5.3.3.4 Mobilisation (or Entrenchment)

Mobilisation is the fourth and final stage of the network creation that legitimates the network of aligned interest and ensures that the actors will not quit the network. In fact, once enrolment happens, an agreement between actors is created. This agreement is legitimised and stored in documents or in the rules and workflow that are embedded in a system. Inscription during the mobilisation phase guarantees the interests of the focal actor (Latour,1992). Technology, or an Information System, supports process transformation and materialises the process entrenchment initiatives. Systems are customised according to the goals and objectives (i.e. strategy) of the organisation. Achieving the objectives of the strategy is reinforced by implementation and utilisation of a system to enhance support and interactions between departments. In the specific case study, a framework guided the enterprise strategy and provided the platform for the integration of the main functions of an organisation, while the system provided the implementation and automation thereof (Bosilj-Vuksic & Spremic, 2005). Process activities are executed in workflows which are developed into systems that automate execution according to organisational standards and requirements. Additionally, a system enforces compliance to business rules. Business rules are integrated into the technology that automates compliance and enforces the rules, while maintaining the change in process nature. Systems address process effectiveness and efficiency and compels actors to entrench the changes during process execution. Furthermore, using the system creates dependency on the system to perform the process activities. This can be interpreted as a state of irreversibility, given that the institution becomes reliant on the system to execute its business processes.

### 5.3.4 The role of ERP in entrenching business process

Enterprise Resources Planning constitutes a strategy for process optimisation through the integration of all the business processes, functions, departments and data of an institution. It is a strategy for the proper allocation of resources required in the execution of business processes. Thus, when employing an ERP strategy, an organisation must transform its processes to align to the principles of the ERP strategy, and thus achieve process optimisation through improved process efficiency and effectiveness. The objective of this research was to ascertain how ERP as a strategy can achieve the entrenchment of business processes. However, it is evident that a strategy on its own cannot achieve process entrenchment. The influence of ERP strategy on process entrenchment is twofold: there is a clear influence on people and the way that they work, and the influence that a system brings to marry the concept of ERP, and the way that people work. Thus, ERP influences both technical and non-technical actors for the entrenchment of business processes.

In terms of non-technical factors, the concept of ERP constitutes the organisational strategy that guides process transformation. Resource allocation is the most important task of management to allocate the necessary resources of the company for process execution (Jafari *et al*., 2006). The notion of ERP resource allocation and optimisation becomes the underpinning principles for the management of processes and people. The structure of an ERP strategy facilitates the move from a function to process-oriented business perspective. Thus, the way that people work will undoubtedly be affected, resulting in process changes. However, these process changes bring about process improvements that are noted by employees, and which start to affect people's perceptions of the process changes. While process changes are traditionally met with resistance, the remarkable improvements in the way that work is performed, and the quality of process output was shown to address the inherent negative perceptions of changes to the way that people work. The strategy in and of itself thus begins to entrench an organisational culture of compliance, which contributes to the process entrenchment not only from the perspective of process transformation, but also the transformation of the way that people work and perceive their work.

While an ERP strategy guides the transformation of business processes and the resources that underpin these processes, one of the resources that must also be transformed is the information systems that support and facilitate these processes. As such, ERP systems were introduced to sustain the principles of an ERP strategy and strategic business transformation through standardisation. ERP concepts are built into an ERP system to promote business process automation, integration, optimisation and compliance to business rules. Through an integrated system, processes are optimised. ERP software modules are developed around

processes, not activities. Thus, an ERP system supports and facilitates the move from a function to a process-oriented approach to correct process-related deficiencies, while embedding business process transformation into technology (ibid). These systems facilitated process entrenchment through the embedment of best practices (Fuentes, 2014). Furthermore, the system maintained corporate governance which compelled human actors to have the correct attitude during process execution. ERP systems institutionalised the transformation of business process changes and prevented users from reverting to practice that defeats the change initiative. Enterprise systems are thus excellent for entrenching business process changes (Botes *et al*., 2010).

The system maintained the changes applied to processes to support the organisational strategy. The ERP system perpetuated the materialisation of the strategic objective because the system was designed around the strategy through optimised resource distribution because the system maintains the integration of disparate functions. ERP strategy was implemented through the system and is entrenched not only through enforcing compliance to process changes, but also through the continuous use of the system. The processes are carried out through the system and becomes entrenched through using the system.

### 5.4 Refined conceptual framework

The conceptual framework developed in Chapter 3 was based on the problem conceptualisation developed in Chapter 1, the findings from the literature review, and the concepts of the underpinning theory. Subsequently, the findings that emerged from analysis and interpretations were used to refine the conceptual framework into a general framework to represent the findings of the research, which are represented in **Figure 5.1** below.

The results of the analysis showed that changes to business can be entrenched. Entrenchment is contingent on the continuous alignment of the interest of people, processes and technology in each phase of process development. Entrenchment is made possible when the people affected by the change understand the importance of the change. In that sense, humans need to be placed in a situation that enables them to build knowledge and understand the importance of the change. As such, the strategy formulation process needs to involve the different stakeholders affected by the change and/ or their representative. All stakeholders should contribute to the formulation of the strategy. All stakeholders work in association to identify the resources needed and elaborate the necessary plans to lead the change in processes.

The strategy formulation is to be followed by human and non-human transformation or change management. Change management includes training to equip humans with the necessary skills and knowledge to accept and comprehend the transformation. Employees are educated

about their duties and roles; and on how the change in process will affect their task. In addition, as part of the transformation, proper business process design is employed. Applying the proper design to business processes addresses process deficiencies and inconsistencies and drives optimisation. Management support manifests in the support structures that facilitate systematic change management. Management support assists different users to embed the change as part of their activities and to coordinate the entire change in business processes.

In addition, business rules are to be developed and respected by stakeholders. Stakeholders need to be involved in writing the business rules that control the process activities and in the definition of their roles and responsibilities. This is for the employees to understand the importance of their roles and to buy into the rules. The rules compel human and non-human actors to have the correct attitude during process execution. Management needs to support process transformation and should act as a communicator and resistance manager, for instance. External support should provide the necessary guidance and skills to the employees who will be the users. The resource transformation is to align the resources with the existing culture of the organisation.

Lastly, a system is introduced to integrate the change and enforces compliance to business rules to optimise resource utilisation during process execution. Business rules are integrated into the system which complies employees to abide by the rules when they execute the process activities. In addition, the system corrects process effectiveness and efficiency and compels employees to entrench the change during process execution. Technical support will assist to understand the changes to processes, and to operate the system. The external support team has the necessary expertise to guide employees to accommodate the change.

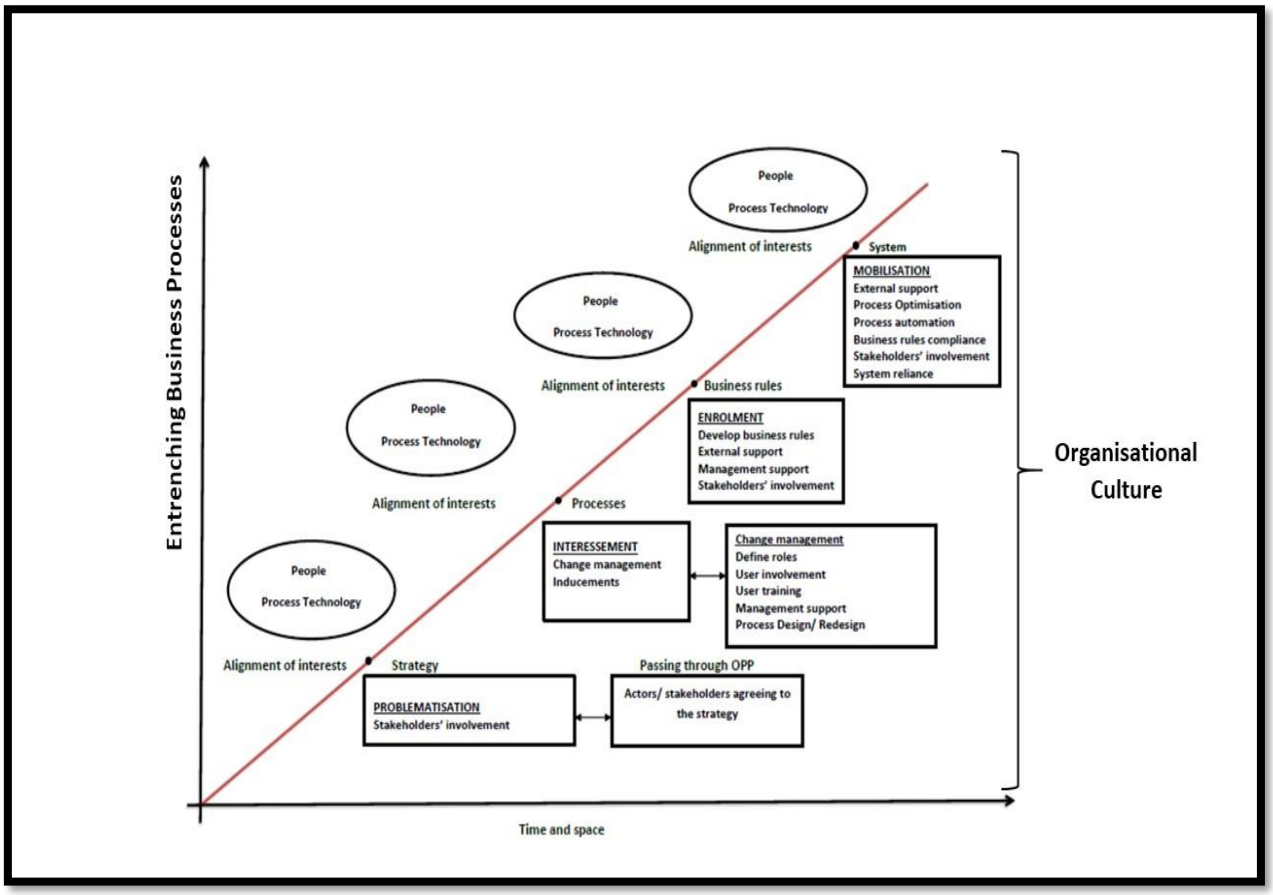


**Figure 5. 1:** Refined conceptual framework

## 5.5 Summary

This chapter presented the analysis and interpretation of the data collected. The chapter first articulated the data analysis processes followed and subsequently described the results of the analysis, and the interpretation of the results to answer the respective research questions and achieve the overarching research objective. In addition, enterprise resource planning (ERP) strategy and technology was evaluated in terms of how it contributed to the entrenchment of process change for the given case study to reveal its enabling influence on process entrenchment. The outcome is a general framework which outlines the results of the research, guided by the actor-network theory as the lens to understand how process entrenchment is achieved within organisations. The summary of the answers to the research questions, as well as some recommendations, will be discussed in the next chapter.

# CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

## 6.1. Introduction

This thesis assessed the role of enterprise resource planning (ERP) strategy to entrench business processes using a selected organisation in the Western Cape, South Africa as a case study. By utilising the Actor Network Theory (ANT) and the moments of translation (MOT) as the underpinning theory, this thesis attempted to understand and interpret how business processes can be entrenched in an organisation. It was perceived that it is not only systems that impact on the entrenchment of business processes, but social factors also play a role in business process entrenchment. The study, therefore, aimed to determine the technical and non-technical factors that influence process entrenchment, and to propose a general framework to guide the entrenchment of processes in an organisation.

The research was qualitative in nature and employed semi-structured interviews to gather insights from respondents on the entrenchment of business processes. The units of analysis comprised of senior-, middle-, and lower-level managers of the finance, HR and IST departments. Seven managers from each of the departments were selected and a total of twenty-one interviews were conducted. The previous chapter discussed the data analysis and the interpretation and discussion of the research findings to answer the research question posed. The data was analysed using qualitative data analysis techniques and the research findings were interpreted using the concepts of the moments of translation of ANT that was used as a theory to underpin the study.

This chapter concludes the thesis by providing an overview of the research and summarising the findings in respect of the research question. It presents the limitations to this research, the contributions this research is able to make to the body of knowledge, and the recommendations and suggestions for future research.

## 6.2. Overview of the research

Chapter 1 presented the background and problem statement to which the research pertains. It conceptualised the problem and discussed the significance of the research, as well as the delineating criteria. The chapter outlined the research question and objectives and provided an overview of the structure of the thesis.

Chapter 2 presented the review of literature. It elaborated on the contribution of human and non-human factors, including those pertaining to strategy, processes, people, and technology

for the entrenchment of business processes. As such, the chapter emphasised on how each factor contributes to process entrenchment and the relationships between these factors.

Chapter 3 discussed the underpinning theory and presented the actor-network theory (ANT) as the theoretical lens to guide the interpretation and understanding of the phenomenon. The chapter presented the components of the theory, including the moments of translation, and discussed the rationale for using ANT in this research. The application of the theory and literature reviewed led to the proposal of a conceptual framework, which guided the design of the data collection instrument and the analysis process.

Chapter 4 discussed the research methodology applied to the study. It narrated the research philosophy and in particular, the interpretivism approach applied in the study. Inductive reasoning was expounded on through a case study analysis in this exploratory research study. The chapter presented the case study and introduced the units of analysis. In addition, it highlighted the data collection processes and analysis, as well as the ethical considerations applied during the study.

Chapter 5 discussed the data analysis techniques and interpretations of data. The chapter elaborated on the processes followed in interpreting the data. The responses from the data collection instrument were analysed and interpreted under each objective. The underpinning theory served to interpret the results. Lastly, a general framework was developed based on the research findings.

## 6.3. Non-technical factors influencing process entrenchment

This study proposed that business processes are not optimised because changes to processes are not entrenched. In addition, it was established that process entrenchment is a social phenomenon because entrenchment not only has technical, but also social influences, such as people who participate in processes. Non-technical factors in this study constituted both process and social factors. The findings revealed organisational strategy, user involvement, change management, defining user roles, user training, business process design, organisational culture, business rules and management support to be the non-technical factors that influence the entrenchment of processes.

The strategy provides the foundation for process change by stipulating the business objectives, and the actions to reach them and elaborates a plan for the resources needed, which aligns to the business processes. These plans are developed to ensure proper allocation and utilisation of resources in accomplishing organisational goals. The degree to which the strategy contributed to the entrenchment was to gain buy-in from people to show

that the changes appear to be feasible considering the direction that it provides. Buy-in is reinforced by involving stakeholders from the onset, including during strategy formulation, defining user roles within the redesigned processes, during the design of the new business processes, and formulation of the business rules. People were found to be important because entrenchment relies on people to carry out activities and operate the system. The proposition that strategy should be a precursor for the entrenchment of process change was supported. By involving people in the strategy formulation process, they establish organisational goals and objectives and they can better grasp how their roles impact on the organisational strategy.

Change management relates to the capability of the organisation to systematically transform and manage the changes that will result from the strategy. The organisation should also transform and manage the resources required to meet the expected outcome of the process change. Organisational resources such as people, procedures, and the working environment need to be transformed to facilitate the entrenchment of processes.

User involvement entails involving the employees in the establishment of their duties and responsibilities. This involvement enables users to grasp which part of the process they will intervene, the importance of their task, triggers to their tasks, and the rules applied to their tasks, for instance. This enables employees to assimilate the change to business processes as part of the way of doing business.

Training users is a way to implement management control to ensure employees perform their duties in the best interests of an organisation. When employees obtain the necessary skills, they are more willing to change and embed the transformation as part of their work.

Proper design optimises business process execution and encourages employees to execute the processes in respect to its specified nature. The nature or design of a process has the potencial to drive optimisation and entrenchment of good practices. In addition, it becomes easy to undestand and execute activities through well-developed processes. In addition, users must be involved in process design activities. This would support the variable of defining user roles by helping employees to understand their responsibilities by enabling them to see the process activities affected by the change.

The organisational culture sets the tone for employee behaviour to change. The culture of the organisation dictates how different elements operate, including the interaction between people, the manner of conducting activities, and the compliance to business rules. User involvement can develop a sense of belonging in an organisation that can contribute to its culture. Continually involving employees and regular training can sustain the values of the institution to create an organisation culture.

Management support positively contributed to process change entrenchment when management involved relevant stakeholders in the process change initiative, maintained communication with employees, and implemented the necessary tactics to ensure that employees accept the change in processes.

Business processes are executed in accordance with policies and legislation that regulate the organisation. Business rules govern online and offline activities and regulate behaviour. Compliance with organisational policies, laws and regulations reinforce process execution. Rules are built into the systems to ensure employees do not skip them, whether intentionally or unintentionally. To make sure users abide by the rules and entrench processes, different techniques have been established beforehand.

### 6.4. Technical factors influencing process entrenchment

It was proposed in the conceptual framework that technology influences the entrenchment of processes because technology is needed to facilitate process activities. Technology indeed emerged as contributing significantly to process entrenchment by optimising and entrenching business processes, automating processes, enforcing business rule compliance, and creating system reliance to entrench processes. In addition, technical support, or 'external' support emerged as contributing positively to process entrenchment.

In this study an ERP system was implemented at the selected organisation and the resultant integration transformed the organisation from disparate functions to process-oriented activities to address process-related deficiencies. The system maintained the changes applied to processes to support the organisational strategy. The optimisation of processes was achieved through improved efficiency and effectiveness of business processes. The use of automated workflow enforced compliance to organisational standards. ERP strategy was implemented through the system and was entrenched not only through enforcing compliance to process changes, but also through the continuous use of the system.

Given that processes were developed and executed though the system, the execution of business processes became easier. The system integrated and enforced business rules, which prevents inconsistency during process execution. The ERP system created an alignment between processes, people, the work environment and the strategic objective during process execution. The system also automated compliance with business rules and played a central role in regulatory compliance. Compliance with business rules that govern processes influences process entrenchment and, if built into the system, can more effectively

govern the behaviour necessary for process entrenchment and simultaneously bring about an organisational culture of compliance.

Besides the benefits from the use of the system, the reliance on the system to execute the process activities created total dependence on the system. Changes to processes transformed the work practices of employees and acceptance of the changes transformed the institution to the point that it created dependency on the new ways of work by using the system. Employees were unable to revert to old practices of work. The dependence on the system affirmed the proposition that a system can entrench processes.

This study confirms that support from consultants or vendors is very important for the successful implementation of a system when the organisation lacks internal expertise. They had knowledge of the strategic objectives of the organisation so that the support team could develop a solution that met the needs of the unit and support the accomplishment of the strategic goals of the organisation. In addition, the support team assisted users with operating the application.

### 6.5. How an organisation can achieve business process entrenchment

The study revealed that process entrenchment does not solely rely on technical factors, but that entrenchment also relies on non-technical factors. Humans are part of the business processes and their attitude and behaviour (social factors) can impede process change and entrenchment. In terms of non-technical factors, organisational strategy, business rules and people factors emerged as factors influencing entrenchment. In terms of technical factors, external support and system factors were revealed as influencers of process entrenchment. Each actor and its influence on process entrenchment were presented in the previous sections. Process entrenchment thus relies on the interaction between the socio-technical actors to succeed. As such, it is important to obtain buy-in from each actor.

In using ANT as a lens to understand the phenomenon, it emanates that during the problematisation phase, management should identify the problem affecting the institution and involve every actor to the strategy formulation process. By involving actors to the strategy, actors are invited to align their interests and to provide input on the issues that affect the institution. This represents the problematisation of the process of entrenchment. Human and non-human factors are to be transformed during the interessement phase. People, process and the working environment are to be transformed so that they align to the goals (i.e.) strategy initially established. In the enrolment phase, management encourages employees and plays the role of a resistance manager, or communicator. External support provides guidance to

employees involved in the transformation and employees need to be involved in the development of business rules that direct the process activities. Business rules that promote best practices in the institution need to be developed to support the process entrenchment. Technology, or an information system, needs to be implemented during the mobilisation phase. This is to support the transformation and materialises the entrenchment of processes. The system should be customised according the goals and objectives of the (i.e.) the strategy of the organisation.

ERP influences both technical and non-technical actors involved in the entrenchment of business processes. The notion of ERP constitutes the organisational strategy that guides process transformation. The structure of an ERP promotes the move from a function to process-oriented business perspective. The strategy in and of itself thus begins to entrench an organisational culture of compliance, which contributes to the process entrenchment and the process transformation, but also the transformation of the way that people work and see their work. In addition, ERP concepts are built into an ERP system to promote business process automation, integration, optimisation and compliance to business rules. ERP system embeds business process transformation into technology. Furthermore, ERP systems institutionalise the transformation of business process changes and prevent users from reverting to practice that defeat the change initiative. The system also maintained the changes applied to processes to support the organisational strategy. Therefore, the processes are executed through the system and become entrenched by means of the system.

## 6.6. Research contribution

### 6.6.1 Theoretical contribution

It was identified that despite the implementation of strategy and system, processes are not entrenched. Process entrenchment is a social study since entrenchment does not solely rely on technical transformation. Instead, entrenchment also relies on people who participate in the business process. Current literature merely focuses on the technical side of process transformation and tends to ignore the social elements of the transformation. However, this study gave due consideration to social factors given that people are also affected by the transformation due to their interaction with business processes. Due to the embedded socio-technical factors, the study used the moments of translation (MoT) of ANT as a lens to understand and interpret the use of non-technical and technical factors influencing business process entrenchment. The theoretical contribution of this study relates to the influence of ANT as an underpinning theory in generating the research findings. The theory was used to frame the conceptual framework, and the interpretation and analysis of the data collected. By using ANT and an interpretive case study, different perspectives were explored to bring new

insights on process entrenchment. As far as the researcher is concerned, it is the first time that ANT and an interpretative methodology are used to understand process entrenchment. The theory provided a deeper understanding on the role of ERP in entrenching processes. In other words, through the lens of ANT, a general framework (Figure 5.1) is proposed to guide the use of technical and non-technical factors in process entrenchment. The developed general framework is the new perspective on the phenomenon being studied.

### 6.6.2 Methodological contribution

Researchers develop understanding during research philosophy. This research aims to understand and interpret. The research objective was to understand how processes influenced by corporate strategy can be entrenched in an organisation. The study used the interpretative case study as philosophy and applied the qualitative method where interviews were used. In other words, the research had one-on-one discussion with the participants to gain in-depth information on the phenomenon under study. The approach provided a better understanding of the role of ERP in entrenching business processes. It also gave an understanding of how the management team perceives the phenomenon in their environment. These understandings are context specific and are opposed to the positivist approach that bases its conclusion on general understanding. From these understandings, a general framework was proposed. The framework presents the factors influencing process change and entrenchment and can guide process change and entrenchment initiatives. In addition to the interpretative case study used, the study also employed the actor-network theory as the underpinning theory to reveal new ways of understanding process entrenchment. Using ANT allowed the research to consider both the human and the non-human actors in a network of aligned interests. As far as the researcher is aware, the use of interpretivism and ANT to understand process entrenchment is a novel way of understanding of the phenomenon.

### 6.6.3 Practical contribution

Practical contribution of the research refers to the implications of the research findings and the contribution of the developed general framework. The research findings revealed that social elements need to be given considerable attention when changes in process are introduced in an organisation. To stay competitive on the market, organisations rely on technology. Technology is continually changing and the change in technology brings continual modifications in their business processes. Given the change in technology and processes, employees need to keep up and accommodate the change in the way they work. Since there

are continuous changes in the organisation and interactions between process, people and technology, the topic of process change entrenchment remains of contemporary interest to the scholars and practitioners in this area. The research findings are beneficial to information system vendors, companies in need of process transformation and employees involved in the process changes. The proposed general framework will guide organisations to determine factors likely to influence process improvement and entrenchment. The proposed general framework can thus be used as a guide in an organisation to align the diverse interests of employees, processes and technology towards the institutionalisation of processes. In addition, the research underpins the need to consider ERP from a different angle. The study draws attention to the perception of ERP as a strategy and not solely as a system. The ERP strategy could thus be used to guide the transformation.

## 6.7. Limitations and future research

The phenomenon under study was investigated using ANT as a theoretical lens and an interpretative case study as the methodology. Despite the fact that a rigorous process of data collection and analysis was applied, the study still presents some limitations. The study used data collected at a single organisation and, therefore, the findings cannot be interpreted beyond the context of the organisation of study. As such, future research could reproduce this research at another institution to validate the findings and ascertain whether similar results would emanate from a different organisation employing an ERP strategy.

While this study employed a qualitative methodology to obtain the depth of knowledge about the phenomenon, future research could expand the breadth of this study by employing a quantitative methodology to substantiate the findings. This could improve the validity of the research and improve the generalisability of the research findings.

## 6.8. Recommendations

This study employs the moments of translation of the actor network theory as a lens through which an understanding of how socio-technical factors influence process entrenchment. It is advised that future study makes use of other social theory to identify whether the same result can emanate from the analysis.

Taking into consideration that the organisation of study uses an ERP system to support its daily activities, it is recommended that future research should be conducted at an institution that does not employ an ERP system to determine whether process entrenchment can be achieved. Furthermore, given that the study was conducted with managerial teams, it is

recommended that future researchers consider expanding the research to employees. This is because employees are part of the business process and to determine whether similar socio-technical factors can be generated as research findings.

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# APPENDICES

## APPENDIX A: INTERVIEW SCHEDULE

### SECTION A: BACKGROUND

My name is Anissa Ockenga Ndoulou, post graduate student at Cape Peninsula University of Technology. I am inviting you to contribute to a research study by means of an interview.

- This interview is voluntary, and respondents will be anonym unless permission to use your name is granted.
- You have the right not to answer any question you are not comfortable with.
- Information collected during the interview will remain confidential and properly analysed.
- Interview information will be safely stored.

### SECTION B: INTERVIEW QUESTIONS

1. What initiative did management follow to drive organisational goals and objectives? Please explain your answer.

2. Do you think stakeholders' suggestions made to drive organisational objectives were considered? Please elaborate.

3. Do you think management manages to get stakeholders' consensus in corporate decision influencing processes? Please elaborate.

4. Do you think stakeholders were in accordance with management's initiative to drive and achieve organisational objectives? Please elaborate.

5. Do you think organisational standards guarantee the nature of processes? Please elaborate.

6. How do organisational standards enforce/ impact business process execution? Please elaborate.

7. What organisational or structural change did management implement to maintain the nature of business process activities? Please elaborate.

8. What resource transformations motivate process entrenchment when changes are implemented?

9. Do you think stakeholders support the change and entrench of business processes? Please elaborate.

10. How does technology influence the entrenchment of processes? Please elaborate.

11. What makes you integrate systems in your work?

12. What measures did management implement to materialise the initiatives? Please elaborate.

13. Do you think management has implemented procedures to enforce the institutionalisation of processes? Please specify.

14. Do you think management made use of proper techniques to encourage the institutionalisation business processes? Please elaborate.

15. How do organisational standards sustain goals and objectives? Please elaborate.

16. Do you think technology influences the consistency of business processes? Please elaborate.

17. What factors encourage the quality of business processes?

18. How do people and or technology impact on the integration of business processes? Please elaborate.

19. Do you think the organisation's initiatives deliver intended results?

# APPENDIX B: ETHICS APPROVAL

Cape Peninsula University of Technology

**P.O. Box 1906 • Bellville 7535 South Africa •Tel: +27 21 6801680 • Email: saliefa@cput.ac.za**
**Symphony Road Bellville 7535**

| | |
|---|---|
| **Office of the Chairperson**<br>**Research Ethics Committee** | **Faculty:** **BUSINESS** |

**At a meeting of the Research Ethics Committee on** 16 September 2015**, Ethics Approval**

**was granted to** NDOULOU, ANISSA OCKENGA (211005037) **for research activities**

**Related to the MTech/DTech**: MTech: BUSINESS INFORMATION SYSTEMS

**at the Cape Peninsula University of Technology**

| | |
|---|---|
| **Title of dissertation/thesis:** | The role of enterprise resource planning in entrenching business processes in a selected organisation in the Western Cape, South Africa<br><br>Supervisor: Dr M Twum-Darko |

**Comments:**

**Decision: APPROVED**

| | |
|---|---|
| **Signed: Chairperson: Research Ethics Committee** | **16 September 2015**<br>**Date** |

| | |
|---|---|
| **Signed: Chairperson: Faculty Research Committee** | **Date** |

Clearance Certificate No | 2015FBREC291

# APPENDIX C: RESEARCH STUDY APPROVAL

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

**CORPORATE SERVICES AND COMPLIANCE**

**Gerhard Ras**
Executive Director: Corporate Services and Compliance

T: +2721 400 7430
E: Gerhard.Ras@capetown.gov.za

2015-09-04

Anissa Ockenga Ndoulou
M-Tech candidate
CPUT

**RESEARCH STUDY APPROVAL**

I refer to your request to conduct research study on the Topic: The role of enterprise resource planning in entrenching business processes in a selected organisation in the Western Cape, South Africa.

The request for research is approved subject to the following conditions:

1. The respondents (City officials) are not obliged to respond or participate, but do so voluntarily and to the extent that they are able or wish to respond or participate.
2. If the research results are published, the name of the City of Cape Town is not to be used without the City's prior permission.
3. It is to be stated in your thesis that it has been prepared in your personal capacity and does not reflect the views of your employer.
4. A copy of the final, completed thesis is to be sent to the Director: Information Systems and Technology( Andre Stelzner); the Acting Director : Internal Audit ( Vincent Botto) and the Director: Development Information and Geographic Information System (Keith Smith)

I wish you well in your research.

A. G. Ras

**GERHARD RAS**
**EXECUTIVE DIRECTOR: CORPORATE SERVICES & COMPLIANCE**

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## APPENDIX D: INTERVIEWS

1 What initiative did management follow to drive organisation's goals and objectives? Please explain your answer

1. We are aligned to the City integrated development plan (IDP), which stipulates the set of issues that must be driven such as our vision and priorities. In making sure the city adheres to IDP we build systems such as support systems, decision making systems that support the IDP. In order to build that systems, we need to define and strategise what these systems are.
2. Management follows the annual business plan that must be aligned to the city IDP. IDP is the strategy through which the city intends to realise its vision. Resources, budget, everything we need is clearly defined.
3. Each section in the branches has its KPI and get communicated each year.
4. We have 5 years IDP strategy which is a very well-defined plan or road map on what we need to implement with the solution and that then forms the project we need to implement.
5. The city has a 5-year IDP plan that sets out strategies.
6. We follow the IDP.
7. The IDP of the city to which we align.
8. The 5 years plan IDP.
9. The IDP that specify what we need to implement.
10. We align to the 5-year plan IDP.
11. We follow the City's IDP.
12. We align to the IDP.
13. eHR strategy is elaborated for HR department and sustains the city IDP.
14. We have a business plan submitted annually, that aligns to 5 pillars, and to IDP. We also measure the business plan on the department level, and report quarterly in terms of key performance indicators. We have inner IST where we also assess for risk.
15. Once a year meeting where we decide what we want to achieve; we also have quarterly meeting.
16. The City aligns the IDP.
17. IDP defines what needs to be done.
18. Our IDP objectives are to align our business processes to SAP to align to 5 pillars.
19. Everything aligns to the IDP.
20. We follow the IDP.

21. We follow the IDP.

2 Do you think stakeholders' suggestions made to drive organisational objectives were considered? Please elaborate

1. It is the nature of the organisation to consider stakeholders' suggestions.
2. Well, there was coordination between management, the trade union, the library, garden, and Cape strategy. Lower-level staff members also participated in the meeting. Input from every stakeholder is useful and taken into consideration when valid.
3. If anything is not aligned with trade union requirement, business signs off blue print written by information technology department. Once the signature is given, then suggestions made can be implemented.
4. Stakeholders have an input and it is taken into consideration.
5. We consulted with the IT department and managers from all the other departments. The consultation is to get the stakeholders' buy-in and sign-off processes.
6. Meeting are held in presence of managers from different departments, representatives from all level who give their input during those meeting, accordingly suggestion are taken or not when it is constructive.
7. It is what business requires to do that we implement.
8. Not necessarily, we consult with IT department, other business parties and other departments we take their suggestion it is valid, if not we discuss about it, but we need to take a decision at the end of the day.
9. When the decision is made the representative of each level is present. When a valid suggestion is made by parties it is taken in consideration; else it is not taken into consideration.
10. Yes, constructive suggestions are taken into account for relevant matter after there has been investigation.
11. Yes, when valid points are made.
12. Their suggestions are very much workshopped and taken into account.
13. We take suggestion in consideration.
14. Yes, we consider suggestion made by stakeholders.
15. Yes, constructive suggestions are definitely taken into consideration.
16. Representatives from all parties took part during the strategy, contribution made were examined, when deemed valid it was then taken into consideration.
17. Suggestion from all parties are taken down, assessed and then take into consideration.

18. If the suggestion made is valid, yes we take it into consideration.
19. New and different suggestion made are very important to organisation's growth and we cannot ignore them.
20. That's part of the growth of the organisation to take into account suggestions made by stakeholders.
21. People on the floor provide crucial input that are taken into consideration since they work this ERP, they face different challenges and might give the more precise solution in a given situation.

3 Do you think management manages to get stakeholders' consensus in corporate decision influencing processes? Please elaborate

1. Other parties are definitely taking into account when mapping the business process. In terms of focus group, employees for example understand productivity. They understand it is beneficial for them.
2. We make sure business requirement is well defined and we bring good solution, with change management we ensure solutions are aligned to other parties.
3. Through training and change management align its interest.
4. ERP is an expensive product, so we have to make use of it. It activates information type as need is perceived.
5. IT staff member deal with information systems and technology related matters.
6. When a valid point is given by parties, city manages to align to that point; when a non-valid point is made, there is no alignment.
7. ERP does involve stakeholders, all directorates of the city.
8. ERP requires sign off from business process before anything can be put in SAP production system.
9. When suggestions are analysed and found useful then it is taken for implementation and alignment of interests happens.
10. Information systems and technology are responsible for this matter.
11. During workshop we align interests.
12. I think yes, we manage to align interests.
13. We assure there is alignment between parties and what ERP provides us.
14. There is what is called Blueprint phase where we build business case for ERP implementation of city in presence of all stakeholders regular SAP training sessions where held with stakeholders.

15. Of course, management has to align its interests, it is a systems millions were spent on, so we have to make sure it works.
16. We collaborate with stakeholders during workshop.
17. No always, depending on suggestions made there is or no alignment of interests.
18. We align interest during workshop with stakeholders, where they provide their inputs.
19. We make sure we align interests during workshop, all business units give inputs.
20. Stakeholders attend workshop, training and go through change management before using SAP systems.
21. We involve everyone in the decision-making process. Even low-level management will be given an opportunity to give their point of view.

4 Do you think stakeholders were in accordance with management initiative to drive and achieve organisation's objectives? Please elaborate

1. Some people were reluctant because they do not like change. Some very excited because of possibilities. At the beginning they were opposed, however as they started using SAP they realised productivity gain and started giving their approval.
2. Mostly stakeholders are in agreement, however it takes a series of good change management processes to make sure everybody is on board''.
3. Yes and no. Stakeholders did not like the implemented idea at the beginning but later on started to appreciate benefits.
4. Yes.
5. There is not much I can say about; IT staff members will be more suited to answer this question since they are the one responsible for providing us the system.
6. Yes, but only after good change management.
7. Not everybody was in agreement. Change is difficult and requires good change management. We provide training; super users assist with training to communicate benefit of using SAP.
8. Yes, stakeholders do find a common agreement.
9. Most of the time stakeholders are in agreement, we can disagree in theory but practically we are in agreement because we obviously want what is best for the institution.
10. Definitely, stakeholders do come to a collective agreement.
11. All business units were involved in planning and were in accordance with the decision.
12. Even low staff member may make a valid point we might thought about.
13. Yes, because stakeholders had to sign off on all business processes.
14. People do not agree with everything said, disagreement keeps work going.

15. Not all the stakeholders were in agreement for the simple fact that we need to disagree. Disagreement shows the need for improvements. If there is a disagreement on a specific matter, for example, management notes down the points of disagreement and investigates the matter.
16. Not everyone was in agreement; however through prolonged concertation, stakeholders manage to reach common agreement.
17. Yes, because all business units want to achieve the best for the institution to move forward.
18. Even though there can be some disagreement, we manage to agree to the decision.
19. There was a collaboration between the stakeholders; during the meetings we reach a common agreement.
20. Some stakeholders agreed at the beginning some did not, it takes a series of good change management to achieve a common agreement.
21. Yes, when good change management is implemented.

5 Do you think organisational standards guarantee the nature of processes? Please elaborate

1. Business process owners give approval to make use of ERP via governance risk compliance (GRC). Giving that approval shows stakeholders are in agreement.
2. Yes, because we set rules with them, we make good buy-in from stakeholders.
3. To do their job, employees for example have to apply rules and regulation, everything we do is mostly rules based.
4. They have to respect rules to work in a manageable work place.
5. It is part of their work, definitely yes.
6. To have access to SAP employees have to provide their login details, this is the application of rules.
7. Rules are attached to user portfolio; nobody is able to do what he wants to do. There is user restriction by using the system we agree and apply rule.
8. Rules are set in presence of stakeholder, for water, electricity, rates and so on they take part of discussion and contribute to the elaboration of rules, it was they agree with that is implemented.
9. I have just explained stakeholders, for example; employees cannot work if they do not follow rule, they have to follow or agree to rules in order to access the system. Rules are built on the systems there is strong control on who has access to the system. Stakeholders are sent for training, are assessed and have to pass the training in order to have access.

10. First of all, we work with money, statutory obligations cannot be skipped. There is a culture of applying and implementing rules. There is a right culture in the organisation.
11. It is compulsory for every individual to follow rules and regulations.
12. Yes, they have to, to avoid disciplinary hearing.
13. They perceive the importance of rules and receive appreciation as well when work is well done.
14. Rules were established in their presence and were in accordance to the rules.
15. Stakeholders have no choice than respecting the rule, to avoid disciplinary action. But first there are counselling sessions held where a copy of the rules is given, in case they were not aware. After that there is a disciplinary hearing.
16. The only way is follow the proper procedure that are provided, because is an open system everyone is able see what is being done.
17. Rules are built into the systems, users of the systems get trained to have access to the systems; once they access to the systems they can do their work.
18. Rules and regulations have to be abided, it makes the workplace governable.
19. Rules need to be applied before someone can have access to the ERP.
20. Rules were set in presence of stakeholders where they also gave input, proving input shows their agreement.
21. Although soft rules might be skipped, stakeholder apply and respect the rules.

6 How do organisational standards enforce/ impact business process? Please elaborate

1. Policies are incorporated into business processes during process design, if we do not incorporate policies to the system; processes may produce outputs which do not align to the organisational policies.
2. We ensure our system is designed according to policies. The system is very much governed by policies.
3. IT enforces policies in the system and incorporated in business processes.
4. We do business process analysis, process analysis where we remove unnecessary blockages, delays and have unnecessary steps in process execution, as it is part of the organisation culture.
5. Processes are performed in accordance to policies that are included in the systems.
6. The city is regulated by many policies among department which are taken into account when processes are designed.
7. Rules are taken into consideration during process design. Policies are integrated processes.

8. Policies enforce process execution. Regulations are incorporated into systems during process design to ensure systems deliver proper output.
9. For example, time and attendance - the system is built around that policy. In other words, performance management must be implemented around the systems. We align the systems to our rules and policies in terms of the systems' act.
10. IT team integrates regulations into the systems when business processes are developed.
11. Policies and regulations are built on the systems by IT team.
12. Process execution is performed in accordance to policies which are built onto the systems.
13. To prevent chaos from happening, policies are taken into consideration when processes are designed.
14. Business processes are developed based on rules and framework (external framework)
15. Policies for instance municipal laws and design our systems accordingly. Everything we do check against policies; therefore, systems are governed by policies.
16. Rules and restrictions are built into the system, to ensure the work we produce is correct.
17. Rules and policies are act in business processes.
18. Processes are designed in accordance with organisation policies, to ensure work we produce is regulated.
19. We specify to IT what we want, and they are responsible for implementing policies or restrictions in the systems.
20. We have needs that are presented to the IT team so that they can deliver a product that satisfies us. IT is then responsible for implementing or taking into consideration policy and regulations.
21. We work on policy of zero tolerance of error margin, we need to do certain task in a certain time, and the system enforces that.

7 What organisational or structural change did management implement to maintain the nature of business process activities? Please elaborate

1. Some managers are more progressive than others, some are more process centric than others. Those that are process centred believe that we build value change.

2. As part of change management, we send our staff for training when necessary to equip them with the required skills to operate or execute processes.

3. Our SAP team support is part of information system and technology (IST) corporate service.

4. We ensure business processes are effective and efficient by removing unnecessary step delays, as I mentioned earlier.
5. Well, what we basically do here in finance is to clearly stipulate our need in a specific process before it get developed by other the other team.
6. If we look at our workflow built into SAP, all workflows do not take to level of a person that has no influence. In terms of workflow you either accept or reject it; if it suits your requirement you can continue with the function, if it does not meet requirement you reject the workflow.
7. It is complex to make changes to organisational structure to meet best practices structure, actions are being put in place at the telecommunication side of the IT department.
8. SAP is process driven and enables good process flow.
9. Workflow are built to SAP, all roles players have workflow attached.
10. We do business process analysis, process analysis where we remove unnecessary blockages, delays, unnecessary steps in process execution, as it is part of the organisation culture.
11. Efforts are put into place to ensure proper structure and environment, example is change management.
12. Best efforts are put, this includes change management.
13. ERP is built around workflow, we implement inner modules for approved structure, for example, leave application in the inner process if it is not well structure. If your structure is not right. We must align the systems to the structure and vice versa.
14. It is difficult to make changes to organisation structure that meet best practice structure. However, actions are being put in place to change it.
15. Every time we implement a system we ensure there is proper structure in the instance of having unique user name and password; also when a task is executed it needs to flow to a different person for approval; there will be structure to sustain that. Before we implement any system we organisation structure analysis associated as part of change management.
16. We rely on good process flow.
17. We are services and focus driven, in order to get job done we ensure there is good process flow.

18. Only necessary steps are included in business processes, to ensure efficiency and effectiveness of processes.
19. Workflow are built into SAP, this enables good process flow.
20. Visual flowcharts are made available to our staff to understand the business processes.
21. For all processes we have there is visual flowchart which gives us a clear understanding of processes workflow; which we work with accordingly during processes and are available to all our staff.

8 What resources' transformations motivate process entrenchment when changes are implemented? Please elaborate.

1. Processes are clearly analysed and documented.
2. We clearly do business process design and before users start using the system they get trained to encourage their enthusiasm.
3. We do good process analysis, we improve processes when we do solution design and optimise the business processes.
4. Users receive training to use SAP, they become aware of what to do and are willing to properly use the system.
5. Users are assigned specific role.
6. Each user of the system has a system portfolio that determines what role to play.
7. Employees roles and responsibilities are properly defined, they know what is expected from them in the institution.
8. Users are guided during training on their roles in the institution.
9. We allocate roles to users on the system, each employee has a role that he will fulfil after receiving training. This encourages employees to work.
10. It is our only system, user receive right training and guidance in their role.
11. Business processes are well designed to ensure process optimisation, to ease process execution and promote acceptance from employees.
12. Each employee role is well defined and is in accordance with the assigned portfolio.
13. If responsibilities and roles were not clearly defined, people would be complaining about them not being paid for example.
14. Employees are aware of their duties, and responsibilities to do what has been assigned to them. They get audited on the job that they have performed.

15. If we do not define properly what we do, in HR people will not be able to pay salaries and overtime. Each month employees are activated to receive a salary, however for overtime is has to captured for it to be paid, SAP does it.
16. Employees know what is expected from them, they get trained and get guidance before they can start using SAP systems.
17. Roles and responsibilities are very well defined otherwise we would not be able to work, hence we would not know what to do in the organisation.
18. Good process design and user training.
19. Duties are performed according to user portfolio, we have user restriction in the systems and only have access to relevant information.
20. Roles are well defined what you can see and maintain is system driven.
21. Roles are clearly defined and assigned to everyone in the institution.

9 Do you think stakeholders support the change and entrench business processes? Please elaborate

1. Definitely yes because it is their rules that we implemented. Business created the rules, no one owns the ERP system.
2. Rules are set in presence of stakeholders to ensure we get buy-in from their side.
3. We set the rules in the presence of stakeholders, and get buy-in from them.
4. Rules are set in presence of stakeholders, they provide their input as well.
5. Employees for instance do not need to physically acknowledge rules, they respect rules as it is integrated in processes.
6. Sometimes it is not necessary to acknowledge; rules or updates to rules are sent to management through email.
7. Minutes are set when decisions are taken, once rules are accepted it must be implemented.
8. Like any chance management it takes time to agree to rules. In terms of soft rules, sometimes simple are not followed.
9. Stakeholders, for example employees, cannot work if they do not follow rules. They have to follow or agree to rules to access the system. Rules are built on the systems and there is strong control on who has access to the system. Stakeholders are sent for training, are assessed, and have to pass the training in order to have access.
10. Stakeholders do not necessary acknowledge rules, they do not send email saying we will respect rules. They do it as part of their duty.
11. Rules and policies are included in the systems, by doing their work employee agree to rules such as access control.

12. Not really, we just follow what the systems wants.
13. Yes, we get stakeholders buy-in when we set rules because they take part of those sessions.
14. We set all policies, rules in presence of all stakeholders, we take decisions, what is accepted by stakeholders is communicated to each directorate when they are in agreement then rules are implemented.
15. Yes, in performing work on the systems they somehow agree to rules.
16. Yes, as part of their work.
17. Rules are set in presence of stakeholders when they agree to a certain rule then the rule is implemented.
18. Yes, by following instructions included in the system.
19. Yes, rules are integrated in the system after stakeholders' agreement because they are present when rules are established.
20. The city of Cape Town has policies and procedures that are very important, stakeholders show their agreement by biding to them.
21. Rules are set in presence of stakeholders they give their input and we have buy-in from them.

10 How does technology influence entrenchment of processes? Please elaborate

1. Well, with SAP ERP, we have good vision of what is happing in the organisation; I can statistically prove and show on report what I get from systems to compare with previous year for example.
2. Sometimes it improves, sometimes it does not. ERP is just a tool that they provide us to perform our task. I say that because we of course do most of our work with SAP, in the instance it malfunctions, or it is slow, our work will be negatively affected.
3. Audit process becomes easy, as ERP provide trails for each and every transaction, in that case ERP definitely improves process execution.
4. ERP improves business processes, for example in the human resource department, SAP made it possible to execute all the personnel and payroll required operations. I cannot imagine what it would have been without SAP.
5. We do not need to remember certain things to perform duties, the system does it automatically.
6. Accuracy and timeliness in accomplishing task through SAP system improves processes.
7. System improves without doubt, reporting becomes very easy with SAP, it is possible for us to draw report any time and address any anomaly that could be identified.

8. Through SAP organisation the process to recover billing revenue form clients has become easier.
9. Reporting with SAP becomes easy, it just a click away and it is done instantly.
10. ERP saves time during process execution, for example in store when goods are ordered less time is spent.
11. Activities are conducted on the systems on workflow basis which makes them easy to perform and accurate.
12. SAP improves business process execution; we have access to information in real time and can elaborate a report on what is happening with the city budget for example.
13. We have management information available to us, entire administration and running of HR all operations are very effective. Work becomes more efficient.
14. With the system, information required for business process execution is accessible easily.
15. SAP improves business process, it enables us to activate fields, and avoids errors.
16. Through SAP, transactions we perform are accurate. When goods are ordered we are sure the right amount is ordered, the system provides records easily.
17. Report writing for managers become very easy, information is available in real time through SAP.
18. This institution counts about 27000 people as employees; SAP makes payment of salary, pension and medical aid easy.
19. Making payment to suppliers and receiving payment from customers are executed at finger tips.
20. Payment to suppliers are performed on time.
21. ERP contributes to reach target in each branch (it ensures that branch can verify their assets). We can have warning on expenditure indicating bad debt., if a certain is viable or cost more than what was intended.

11 What makes you integrate system in your work?

1. We have to make use of ERP to get our work done.
2. I will be difficult to work without SAP; the institution counts many people.
3. We cannot work if we do not use SAP.
4. I am forced to use SAP systems, I use it to generate payment for 27 000 employees.
5. It what the organisation requires us to work with and also the integration the system provides.
6. Corporate approved systems, the system gives important information on time.

7. SAP is there and needs to be used, the IT telecommunication was created lately to provide communication among the city but lately it has decided to have its own telecommunication line to provide low cost communication to citizen.
8. Benefits flow from the utilisation of the system; it integrates all disparate municipalities, as an example.
9. There was a decision at the time that the city goes ERP, also SAP makes the human resources administration easy.
10. It was a central decision that the city goes ERP also there is plenty benefits in using the system.
11. It was a corporate decision to make use of SAP, it provides uniformity of activities.
12. SAP is the corporate approved system of the institution, we do not have other choice than using it.
13. ERP is a widely used solution and it offers us all functionalities needed for our administration
14. SAP is our corporate tool. We have to use it.
15. We are really SAP focus. SAP drives organisation, we want more automated organisation to save on labour costs.
16. It is the systems we have to work with it and integrates all sections of the city.
17. Everything we do revenue is on SAP, and it our payroll, changes on employee's administration is on SAP.
18. When we have new product, it is added onto the system, the systems us perform our work.
19. After needs of all departments were identified and documented, tenders were developed and given to ERP solution suppliers SAP was the chosen solution as the one that served best.
20. SAP integrate so many different components of the institutions.
21. Everything we do is on SAP, and we are recommended to use SAP.

12 What measures did management implement to materialise the initiative? Please elaborate

1. Once business have strategy in the implementation of ERP, we then go through leadership to implement rule.
2. I personally check that we meet all legislations compliance. We have audit department we also have audit in general.
3. For us governance is very important.
4. The city of Cape Town has policies and procedures that must be abided.

5. There is processes in place to log incidents and processes to achieve organisation mission to stakeholders namely: user support.
6. IDP is for 5 years and also policies and procedures bylaws.
7. Business rules.
8. Policies and regulation regulate everyone in the institution, and everybody must abide to.
9. There are policies, as well as internal policies for each department. There is also refreshers or amendment (which can be renewed) which are revised when necessary.
10. Rules, which are important.
11. Everything done is rule based, employees must align to statutory framework.
12. Government legislation, organisation policies need to abide to meet mission of institution and align with governmental requirements.
13. Everything we do is rules based both from IT perspective for security reason and local government; a lot of it is statutory framework - we have no option but to meet the rules.
14. Within IT we have about 20 policies; for example, email, data security, internet usage. We are guided by municipal financial act, council policy in general standard operating procedure, governance structures around project tenders and finances with a support office, change management in term of behaviour. There is a governance triangle within information communication technology.
15. During our planning sessions and discussions, all these rules and regulations are clearly defined.
16. Rules are well defined during planning.
17. We define and implement business rules.
18. Organisational policies and rules.
19. We implement business rules.
20. Business rules.
21. During our planning sessions and discussions, all these rules and regulations are clearly defined.

13 Do you think management has implemented procedures to enforce institutionalisation of processes? Please specify

1. User right provisions are implemented to ensure we do not skip rules. There is always a log to what you are doing.

2. Management cannot do their job without SAP system, there is key measurement. You must do certain percentage on your systems to be paid accordingly.
3. Yes, by using workflow process, there are many rules we adhere to.
4. An email is frequently sent from management with updated policies; once it is done, there is an automated update to the system.
5. Workflow process is a rule that enforce how processes need to be executed.
6. Governance procedures as well as processes regarding ERP were enforced to support and maintain objectives.
7. Making use of workflow processes is an automated rule.
8. Yes, I believe IT department does it.
9. Change in policies or rules are communicated and automatically integrated in the system.
10. Yes, I believe IT department does it.
11. Regarding SAP, the system provides us with a trail and log in details, which enforce rules.
12. Right for every user is provided, it is an automated rule that was put in place.
13. SAP has built-in functionality that enforces rules in the organisation.
14. SAP for the city of Cape Town was customised according to what our objectives are, and there is a different interface for each user in a given position. Access to information is limited, which somehow enforces rules.
15. Notifications are sent to us, specifying new rules or updates to rules - those updates are automatically updated to the work we do.
16. New rules or updates to existing rules are inserted into the system.
17. User restrictions are automated procedures to enforce rules and policies.
18. Change in policies or rules are automatically integrated to the system.
19. The system for example logs you off automatically when we are way from the computer.
20. The SAP system requires to enter our logging details in order to access every time.
21. IT specialists deal with the technical side of system implementation.

14 Do you think management made use of proper techniques to encourage institutionalisation business processes?

1. There was a dedicated unit that took care of procedures to ensure we were in line with policies. We needed to ensure we transformed the organisation and respected the rules and policies.

2. Yes, performance measurement is used.
3. At managerial level we may receive once, twice or three time a month an email containing policies and or their update.
4. Yes, we communicate through email.
5. Rules are included in the organisation central directory.
6. Rules are communicated to staff and citizens on website.
7. Yes, through communication over internet, email and also sent all over the organisation.
8. For example, people were trained on how to use ERP and also some of the rules introduced during training.
9. IT service management as well as governance at the ERP floor are used.
10. Rules are communicated to staff in written document.
11. Management receives from time to time email on new rules and procedures.
12. We make sure people know about rules, statutory framework. It can be done via email to staff.
13. A specific unit is charge of rules to ensure organisation is in line with policies.
14. All policies in instance of user policies, email policies are documented.
15. Policies are communicated to everyone,
16. Rules are documented and made available to everyone.
17. Rules and policies are documented and made available to everyone on the organisation website, we also send newsletter to staff sent across organisation and security awareness.
18. Rules are available on the website and are accessible to employees.
19. Rules and their importance are explained during training.
20. ERP runs the rules.
21. All our business processes work procedures are well documented and mapped in a central directory.

15 How do organisational standards sustain goals and objectives? Please elaborate

1. Rules and regulations create uniformity, we make use of rules because there are many people in the organisation.
2. Rules and regulation help to govern all 27000 employees in this institution and sustain processes.
3. Rules and regulations have to be in place to support city IDP.
4. Rules were set to drive organisation towards a right direction, so we can achieve our objectives.
5. Business rules keep us accountable for what we do.

6. Rules make work place favourable.
7. Rules sustain the five pillars of the city IDP.
8. We have to apply the rules to align to the strategy and sustain processes.
9. Without rules there will certainly chaos and productivity at the organisation would be low.
10. Rules create uniformity in the working environment.
11. Rules keep everyone accountable for what we do.
12. Our work becomes easier, auditing for instance becomes much easier because of rules.
13. Business rules for instance create uniformity in the work we do.
14. We are accountable for everything we do in the organisation.
15. The aim of setting those rule, to sustain the strategy. Applying the business rules keeps a proper working atmosphere, also to do the work we are supposed to accomplish.
16. Business rules guide all of us, otherwise everyone will be doing what he wants.
17. Without the rules and policies, the work place will be ungovernable, not capable of supporting objectives. Therefore, rules and regulations sustain the strategy.
18. Organisation rules and policies prevent chaos from happening. It keeps everyone responsible for what we do.
19. Rules are established to govern behaviour that could affect objectives and rules sustain objectives.
20. There are many people in the organisation and rules govern all of us.
21. Business rules assure clear audit.

16 Do you think technology influences the consistency of business processes? Please elaborate

1. Yes, an example is collecting rates; processes sit in the ERP system to enable good quality. The system oversees rendering services and makes things easier to citizens.
2. This institution counts about 27000 employees, for which we processed payment every month, from that number of employees we only receive a little number of complaints - in that sense there is quality.
3. Unnecessary steps are removed during process design to assure quality.
4. Workflow are developed in the sense that work flows to eligible people and transactions are executed effectively and efficiently.
5. Yes, system does most calculations on your behalf, avoid errors and deliver quantity when making payment.

6. SAP is process driven, when business comes to us we implement it to the system, we configure SAP to provide quality.
7. Our work quality depends on two factors, internal and external. Internal factors in terms of business processes may provide quality, however external parties may either improve or affect the quality.
8. Our main duties are to support, maintain and implement project. We provide service to the rest of the organisation. Workflow are developed and implemented to optimise processes and deliver output of quality.
9. I think so, but this is subjective when we referred to delivering services to citizens with SAP. However, if I was to see how we pay for salaries to our staff where there few complains I can say that there is service quality.
10. I agree, there transparency in what we do, hence we deal with many and information is accessible you can see who is doing what to assure accountability.
11. If the business processes and master data is accurate then it will deliver a quality service. The master data input is very important, incorrect data will result in incorrect reports. What you put in is what you get in.
12. We are able to make payment to supplier on time and take advantage of early discount the systems.
13. Citizens can register for most services online. I get invoice and, make payment done online; service request can be done online, as citizen and manager employees and management self-service done online.
14. Business processes are based on best practices - if well executed it will help to achieve targets. However, there can be external bodies that affect business processes (dependence from outside); if dependent parties are doing their work, there will be good service.
15. We ensure the system we deliver to other department enable them to provide quality, however this is according to what they requested.
16. Work we do is subject to minimal or no errors. Working through SAP makes it easier for us. For example, reports we do are up to date with amounts up to date.
17. Yes, SAP ERP human resource management provide top performance staff and staff management.
18. In our department, for example, SAP drives our business processes. We are responsible for attendance; ERP has given us a tool to do time attendance and leave, that drive efficiency - there is no application form. No application form can get lost, as it used to be the case.
19. Yes, in term of the systems all information is available. You can divide things into logical components; we have our budget on fingertip, where you can check to see for example what has been done and still needs to be done in Mitchells Plain or Khayelitsha based

on remaining budget eventing is transparent; someone from outside can call to enquire about specific matter and it will resolved straight away.

20. Processes are executed through SAP, which makes work faster and errors free.
21. Statically it enables me to prove that I have achieved my target in term of making payment in terms of the act; I'm able to make outstanding payment on monthly basis, SAP ensure my ability to prove.

17 What factors encourage the quality of business processes?

1. There is internal rules and regulation, these rules are incorporated into the systems.
2. Quality is regulated by certain rules, service level agreement but also auditing.
3. Internal rules are built onto the system, workflows are developed taking into account rules and policies.
4. Audit is performed to assure the quality of our work.
5. The system we use has rules built onto it, to ensure security and quality at the same time.
6. Workflow that are executed have to comply with the parameters of the rules.
7. We provide support to other units in the organisation. Based on their demands we include rules and policies during process design.
8. Rules are taken into consideration during processes design, which means output of our processes is regulated.
9. I will say quality is mostly audited.
10. We consider rules during process design.
11. We stick to service level agreement.
12. Rules are integrated in the system.
13. I am sure services is regulated by rules and service level agreement.
14. In our branches, we are regulated by ICASA (Independent Communications Authority of South Africa), it is also regulated by the given budget.
15. Audit is performed to assure work is qualitative.
16. We are regulated by service level agreement.
17. Rules are directly built onto the systems.
18. We are audited.
19. Certain rules and act specify how to perform work, what we do is restricted and controlled by SAP system. In that way I can say quality is regulated by rules.
20. Rules and regulations on SAP but also general rules broader policies.

21. For instance, there is an act that says we pay 100 percent of vendor with 30 days of receipt of statement, except for those my services are not satisfied, or I'm not supposed to pay.

18 How do people and or technology impact integration of business processes? Please elaborate

1. We rely on SAP for most of our activities; we ensure we give departments the business processes that meet their requirements and quality standards.
2. Well, the system helps us to correctly manage a large workforce in a short time, and reduce the amount of complaints we receive after salary payments were processed. It definitely improves on quality.
3. SAP might improve or affect the quality in the sense that if SAP is down we cannot work, if SAP is slow we do not get response to and from our clients.
4. SAP ERP changes us from paper based to electronic environment for employee's management and self-services, that result in cost saving and efficient execution of business processes and improve governance, less audit, less queries and accurate reporting and information analysis for decision making.
5. It is true, the system equips us with tools to provide better services. However, the system does not do the job alone. When people in charge of doing a certain task do not do their job, we can no longer expect the same quality. This applies to people inside and outside of the organisation.
6. 70 percent of our business are built into SAP; it drives our business performance to high level.
7. Executing of business processes through workflow reduces chances of error and promotes accuracy, which have positive impact on quality.
8. ERP definitely improves the quality. Work is performed through workflow that were carefully built onto SAP which basically automates business process and saves in cost and time.
9. We have changed the workforce management, hiring and recruiting processes. We create high performance with capital management through SAP ERP capital management. At the time we have to all seven municipalities, SAP changed our administration of the large workforce that the city of Cape Town counted. We unified manual and disparate processes, transformed the local government.
10. There is record on each and every transaction we do, which is good because we deal with money and with ERP we are more transparent. You are able to prove what you do. We also have more control on our budget we do not just spend money for the sake of spending which is also good.

11. I can say the system highly improves quality. For instance, producing bills and settling creditors and debtors account in a short period of time. To add to that we monitor our performance and provide remedy when necessary.
12. SAP has improved our analysis, reporting, budgeting, and budgeting control. We are able to track all our past transactions, log into computer and see what is left on the budget. Remedy to situation before it too late and make decision in real time based on realistic figures.
13. All we do is built onto SAP, it makes our work easier. We align SAP to the city HR requirements to achieve HR objectives. I must also add that SAP ensures financial prudence with audits that performed by auditors.
14. Internal customers can see what they are being billed for; SAP enables to provide services.
15. SAP has tremendously improved our activities, for instance it improved our staff retention, development and attraction. It also improved our change in behaviour process.
16. SAP ERP provides transparency in what we are doing. It helps to prove how we spend on budget. We can log into SAP and see how much we have left, for example, Khayelitsha.
17. We improve our business performance and somehow quality as well. I said that because we do recruitment, we plan, reward staff, develop our staff through ERP which make these processes faster and effective.
18. I do not have much time left as I told you earlier. I will email you a document about the city you could read on to respond to this question.
19. Compared to doing work manually, working with SAP becomes faster and less errors are to occur.
20. The ERP system helps us to keep control, but there are still people that need to do the job; if they do not do what they are supposed to do there will not be quality.
21. Without SAP, we would not be able to work, from the time everything was done by hand and there was no integration, with this volume it would be impossible.