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The redesign of quality control processes in the implementation of energy supply projects

by

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Declaration

I, **Bongekile Dolo**, declare that the entire body of work contained in this research assignment is my own, original work; that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by the **Cape Peninsula University of Technology** will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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Abstract

The goals of enterprises are to improve product and service quality, including cost reduction and on time delivery and, in so doing, meeting customer requirements. The research problem is that the implementation of an Enterprise Resource Planning system without conventional (standard) Quality Control Processes results in non-delivery of the expected benefits of the system, thus creating an unstable environment for businesses to operate in. The context is within South Africa using Escom (the sole energy supplier in south Africa) as case. The research questions for this study, therefore, are:

i) How can Quality Control Processes be used to lower the risk of non-delivery of the promised benefits of an Enterprise Resource Planning system; and
ii) Why are Quality Control Processes not being used after the implementation of the Enterprise Resource Planning system?

These questions are asked with the aim of understanding and explaining the complexities around Quality Control Processes, after the implementation of an Enterprise Resource Planning system within energy supply projects.

A case study method was used to conduct this research and data collection was done using in-depth interviews (12). Data was analysed by coding, summarisation, categorisation and then a thematic analsysis was done. The results from the analysed data revealed that strategic management needed to be involved in redesigning Quality Control Processes, after the implementation of the Enterprise Resource Planning system. In addition, there is a need to train staff in order for them to understand the system; this, in turn, can lead to the optimisation of the system, which will then enable the organisation to reap the benefits of the implemented Enterprise Resource Planning system. A framework was proposed, which could be used to ensure the continuous maintenance of Quality Control Processes after the projects go live.

Key words

Business Process Redesign

Change Management

Enterprise Resource Planning

ISO9001 and Six Sigma

PMBOK

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List of acronyms and abbreviations

BPMS	Business Process Management Software
CPUT	Cape Peninsula University of Technology
ERP	Enterprise Resource Planning
ESCOM	Electricity Supply Commision
ICT	Information Communication Technology
PCM	Process Control Module
PCMBP	Project change management best practice
PMBOK	Project Management Body of Knowledge
PQM	Project Quality Management
QCP	Quality Control Processes
QMP	Quality Management Processes
PIR	Post-Implementation Review
ROI	return on investment
SOA	services-oriented architecture

CHAPTER ONE
INTRODUCTION

1.1 INTRODUCTION

The goals of enterprises are to improve product and service quality, including cost reduction and on time delivery and, in so doing meeting customer requirements (Chinvigai *et al*., 2010). According to Juran & Godfrey (1998), the term "control of quality" emerged early in the twentieth century. The concept was used to broaden the approach to achieving quality, from the then-prevailing after-the-fact inspection, to what is referred to as "defect prevention" (Kumaresh, 2010). For a few decades, the word "control" had a broad meaning, including the concept of quality planning (Littauer, 1950; Shewhart, 1931; Radford, 1917). Then, in the late 1950s, quality control was been defined as a popular way of reducing time and cost whilst producing good quality products (Newchurch et al., 1956).

The Quality Control Process (QCP) is a universal managerial process for conducting operations, so as to provide stability, prevent adverse change, and to limit risk (Shimizu et al., 2014). The management audit of QCP should include assurances that the quality information system meets the needs of the various stakeholders. Managers - as part of the audit - should ensure that the processes for making product conformance decisions are appropriate to company needs (Chen et al., 2013). It is imperative for managers to ensure that training in any projects related to Enterprise Resource Planning (ERP) do not become an end in and of itself. Training needs to be incorporated during the implementation phase of ERP systems, in order to achieve the expected quality outcomes (Evans & Mahanti, 2012; Tarhini et al., 2015).

This research assignment was undertaken within an asset creation department in an energy distribution organisation in South Africa. The organisation acquires assets in the form of electrical substations and overhead lines - which carries electricity - that is distributed nationally and in the Southern region of Africa. This initiative was rolled out through many different projects and, when management realised that projects were not being completed, a turnaround plan was formed for the implementation of an ERP system throughout the overall organisation. The organisation was also ISO9001:2008 quality management standard certified and was working towards ISO 9001:2015 re-certification. After all the time, money, and technology invested in improving quality, energy supply projects still failed. QCP has not changed, and the organisation was not reaping the expected benefits from the ERP system.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

QCPs are ongoing processes, even after ERP projects go live (Gallager et al., 2012). Saatçioglu (2009) stated that the conducting of post-implementation reviews was required in order to understand the effects of Information Communication Technology (ICT) projects on the organisation. The implementation of ERP systems requires an alignment with business processes - with specific emphasis on quality processes - for maximum benefits to be reaped (Salmeron & Lopez, 2010). Saatcioglu (2009) carried on by saying that, not only is it necessary to evaluate user satisfaction during the implementation, but also after the implementation of the project. With the implementation of ERP systems, top management must be involved in not only setting the and strategy but also during after the implementation of the project (Nicolaou, 2004; Evans & Mahanti, Tarhini *et al*., 2015).

The use of QCPs - in combination with quality assurance and change management processes - increase the effectiveness and efficiencies of the implemented systems (Capocci 2009; Saxena 2013; Altamony e*t al*., 2016). The lack of QCPs (after the successful implementation of the ERP system) increases the risk of project failure (Hakim & Hakim 2010; Sammon & Adam, 2010). Besseris (2013) - as well as Ram *et al*. (2013) - support both Sammon & Adam (2010) and Hakim & Hakim (2010) in asserting that QCPs reduce some of the risks during, and after, the implementation of the ERP systems. Unfortunately, even with the knowledge available on QCP and ERP project implementations, many projects still do not deliver the expected benefits. As a result, the implementations of ERP systems do not bring quality improvements within the enterprise which could eventually lead to business failure. Very little attention has been given to QCP after the implementation of projects in ICT (Ifinedo *et al*., 2010; Lopez & Salmeron, 2014; Hsu *et al*., 2015).

1.3 PROBLEM STATEMENT

The lack of QCP after the implementation of ERP systems results in the non-delivery of the promised benefits of the ERP system, thus creating an unstable environment for businesses to operate in.

1.4 RESEARCH QUESTIONS

The research questions, sub-research questions, the methodology and objectives of the questions are provided in Table 1.1:

Table 1.1: Research questions, sub-research questions, methodology, and objectives

	Questions	Methodology	Objectives
RQ1	How can QCPs be used to lower the risk of the non-delivery of the promised benefits of ERP systems?	Case study, interviews, semi-structured questionnaires.	The objective of this question was to determine the QCPs needed to be able to contribute towards project success.
SRQ1.1	What complexities were experienced with the QCPs after the implementation of the ERP system?	Case study, interviews, semi-structured questionnaires.	The objective of this question was to get the impressions of the stakeholders about the complexities around QCPs, post-implementation of the ERP system.
SRQ1.2	How were the stakeholders involved in the implementation of the ERP System?	Case study, interviews, semi-structured questionnaires.	The objective of this question was to examine if users took ownership of the system or if they were resistant.
RQ2	Why are implemented QCPs not being used after the implementation of the ERP system?	Case study, interviews, semi-structured questionnaires.	The question's objective was to determine the factors that hindered the adherence to QCP processes after the implementation of the ERP system.
SRQ2.1	How effective are the QCPs after the implementation of the ERP system?	Case study, interviews, semi-structured questionnaires.	The aim of the question was to find out if stakeholders were aware of effectiveness as one of the reasons to implement the ERP system.
SRQ2.2	How can the QCPs be redesigned in order to assist in achieving success in energy supply projects?	Case study, interviews, semi-structured questionnaires.	The objective of the researcher in the above questions was to observe if there was a need for a change.

Source: Author, 2018.

1.5 THE AIM OF THE RESEARCH

The aim of the research was to understand the complexities of QCP, after the implementation of an ERP system within energy supply projects. A further aim was to propose a model as to how to ensure the continuous maintenance of QCP after the projects go live.

1.6 RESEARCH METHODOLOGY

This research followed a case study methodology, and employed a qualitative research approach. Subjectivist, interpretivistic, ontological, and epistemological stances were taken. Data collection was done through interviews with semi-structured questionnaires as interview guides. Twelve participants were purposefully, non-randomly, and conveniently selected in order to gain the information that was necessary to complete this study. Data was analysed by firstly transcribing all the interviews, then validating the transcriptions by giving the transcribed interview to the interviewee to confirm the

correctness of the transcription. Once that was done, key words and key phrases were identified. These key words and phrases were then summarised and findings deduced. The findings were further summarised and categorised. From these categories, themes were created.

1.7 ETHICAL CONSIDERATIONS

It is important for the researcher to adhere to ethical considerations when conducting research. Clark and Creswell (2014) mentioned that research cannot simply be conducted by anyone, anywhere. The research undertaken in this study was done in a manner which ensured that participants were confident that their privacy and confidentiality would be protected. No unethical behaviour was involved in the research. All the participants who were involved gave informed consent. Participants took part in this research with their knowledge and written consent. Permission was also sought to record the interviews, which did not involve discussion of sensitive topics that could be contentious. Materials or processes used in conducting the research cannot damage the environment and the research method used did not have any negative impacts on the participants, all whom were given a brief summary of the research and data collection methods, for a better understanding of the research. Even though the researcher is an employee of the organisation, in order to gain access to the resources of the company, the procedure to get permission had to be followed. Using company property without being given the necessary approval would be unethical.

1.8 HEADLINE FINDINGS

Findings from the interviewees proved that QCPs have become burdensome, lengthy, and unclear. It has been mentioned that there is a disconnect in the understanding of the link between QCPs and the ERP system. Lastly, there is little training and no clear guidelines on how to utilise an ERP system to improve quality. In addition, quality, time, and money are compromised by duplicating processes.

1.9 CONCLUSIONS

It is recommended that, for the organisation to reap the benefits of the implemented ERP system, there must be an integrated approach to all systems within the organisation. The implementation of a complete training strategy is required in order to support the principle of continuous improvement and better quality outcomes.

1.10 **THESIS STRUCTURE**

This study is divided into six Chapters:

Chapter One presents the introduction, the background to the research problem, the research questions and aims and objectives of the research.

Chapter Two presents the literature review on the key words relevant to the study. The key words researched are as follows: Project Implementation, Project Management Body of Knowledge (PMBOK), ISO9001:2008 and six sigma, Business process redesign, Enterprise Resource Planning, Quality processes post implementation of ERP system, Change management and Quality Control Process.

Chapter Three discusses the research design, methodologies, and approaches used. Data collection methods, sampling techniques, analysis methods and the ethical consideration of the study are also discussed in this Chapter.

Chapter Four examines and presents the results from the interviews with the respondents.

Chapter Five presents a discussion of the findings on complexities around QCPs, after the implementation of the ERP system, and the proposed model that that could be utilised to ensure quality (so that the organisation could reap the benefits of the implemented ERP system).

Chapter Six presents the conclusion and recommendations of the study, based on the findings.

1.11 SUMMARY

This Chapter gives an over-arching introduction to the research and describes what is covered in this study. The researcher demonstrated the gap that exists in coverage of the subject area and the specific focus area in the problem statement, the main objective of the study and the research questions.

A subjective stance with an interpretivistic approach was followed. A case study strategy was used with the units of analysis being three departments in asset creation, a distribution functional unit within the Western Cape operating unit in the energy distribution organisation.

The next Chapter discusses the literature applicable to the research problem and research questions.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The lack of quality QCP - after the implementation of an ERP system - results in the non-delivery of the promised benefits of the ERP system, which in turn creates an unstable environment for businesses to operate in. This literature review helps to define the two research questions that are asked in this study:

i) How can QCPs be used to lower the risk of non-delivery of the promised benefits of ERP systems? and
ii) Why are implemented QCPs not being used after the implementation of the ERP system?

The aim was to understand the complexities of QCP - after the implementation of an ERP system - within energy supply projects.

In this Chapter the literature is reviewed using keywords derived from the problem statement, research questions and sub-research questions, as well as the aim of the study. Literature databases from the Cape Peninsula University of Technology's (CPUT) online library were used. Databases such as Google Scholar, Scopus, EBSCOhost, Emerald, and Proguest were searched for the relevant articles. The Chapter is structured in the following way:

i) Project Management Body of Knowledge (PMBOK);
ii) ISO9001and Six Sigma;
iii) Business Process Redesign;
iv) Enterprise Resource Planning;
v) Quality Processes post Implementation of an ERP system;
vi) Quality Control Process;
vii) Change Management; and
viii) QCP risk post-ERP implementation.

ERP system projects, according to Saadé *et al*. (2017), fail as a result of a lack of strategic direction from management and the exclusion of the end-user from the functional requirements engineering process. This is a very interesting angle for an organisation to look at, when ensuring that they reap the benefits of the implemented ERP system. The main focus of this study, however, is on QCP as a system, and its role in ensuring that a return on investment (ROI) in ERP implementation can be seen.

Many projects fail due to non-compliance to QCPs. There is an abundance of literature on project management and the importance of QCP, in relation to project implementation (Ram e*t al*., 2013; Chang 2016; Kerzner & Kerzner, 2017). However, as stated earlier, very little attention has been given to QCP after the implementation of projects in ICT (Ifinedo, Rapp *et al*., 2010; Lopez & Salmeron, 2014). In this literature review, the following will be discussed: Project Management Body of Knowledge, ISO9001and Six Sigma, Business Process Redesign, Enterprise Resource Planning, Quality Processes post Implementation of an ERP system, Quality Control Process, Change Management, and QCP risk post-ERP implementation**.**

2.1.1 PMBOK

Project Management Body of Knowledge (PMBOK) is generally accepted in the project management environment and there is widespread consensus regarding the value and usefulness of its nine knowledge areas - including Project Quality Management (PQM) - which this study focuses on (Birkinshaw et al., 2008; Burger & Zulch, 2018). However, leeway is allowed so that the knowledge and practices described in the PMBOK can be applied to meet the specifications of a certain project.

PQM - as one of the knowledge areas of PMBOK - is important towards contributing to the success of projects (PMI, 2008). PQM is comprised of the processes and activities of the organisation that regulates quality policies, objectives, and responsibilities in order for the project to satisfy the needs for which it was commenced (Koh & Low, 2009). According to Koh *et al*. (2009), PQM puts into effect the quality management system through policies and procedures, with continuous process improvement activities conducted throughout, as and when befitting.

Quality Management Processes (QMP) have three different stages, according to Juran *et al*. (1998):

i) quality planning;
ii) quality assurance; and
iii) quality control .

Executing all QMP stages is imperative for the success of the project (Kerzner & Kerzner 2017). A consistent QMP - one that is founded on the principle of continuous improvement in the production or service environment - is occasionally found, hence the need to harness quality process uncertainty (Besseris, 2013).

For continuous improvement to be maintained and achieved in energy distribution organisations, this research examined the QCP, broadly, of these organisations. According to Hines and Rich

(2004), quality control activities identify causes of poor processes and recommend and/or take action to eliminate them. Hoyle (2017) supports Hines *et al*. (2004), emphasising the importance for an organisation to have - and adhere to - organisational process assets such as quality standards and policies, work guidelines, issue and defect reporting procedures, and communication policies that can influence the performance of quality control process.

2.1.2 ISO9001 and Six Sigma

ISO9001 and Six Sigma are the most popular quality management standards, and best practices, that are implemented in many enterprises (Karthi *et al*., 2011). These are methods that provide benefits on project execution, quality of products and services as well as customer satisfaction. ISO9001 is a standard requirement for quality management systems, whilst Six Sigma is a best practice for the development, maintenance and improvement of processes (Chinvigai *et al*., 2010). According to Yun (2016), both approaches give a description of the requirement, rather than how to perform the requirement. Instead of focusing on one method, it is beneficial to integrate both methods as the initiative adds value to the performance process improvement.

For processes to be beneficial in the organisation, QCP has to be managed and monitored (Giannetti *et al*., 2014; Kerzner & Kerzner, 2017). Existing QCP requires improvements (especially post-implementation) of an ERP system. According to Kumaresh (2010), there needs to be an implementation of preventative actions - with emphasis on rewriting the existing quality manuals and tweaking the software development lifecycle processes - in order to come out with improved processes and documents. If the preventative actions process is implemented properly, the projects with which the organisation will embark on in the future should follow the revised QCP, thereby effectively following the preventative actions meticulously. Kumaresh (2010) went on to say that the implementation of defect preventative actions not only result in a quality project, but is also a valuable investment for the business. Kumaresh (2010) believed that proper management of the implemented defect preventative action would ideally provide ROI, hence the need to introduce defect preventative action methods such as ISO9001 and Six Sigma, in order to standardise and manage the QCP. Hoyle (2017) attested to QMS ISO9001 as a means of improving the efficiency and effectiveness of processes, instead of spending time “fighting fires”.

2.1.3 Business Process Redesign

The literature on business process redesign, continuous improvement and many other approaches to modern management is abundant. Zairi (1997:65) defines the word “process” as:

> *An approach for converting inputs into outputs. It is the way in which all the resources of an organisation are used in a reliable, repeatable and consistent way to achieve its goals.*

Zairi (1997) supports Hammer and Champy (1993), in that activities (when designing the business process) must be cross-functional, naturally -connected and continuous, in order for the desired outcome to be achieved. Properly designed business processes seem to effectively interconnect their activities and flow of work, thereby producing efficient results (Bititci *et al*., 2011).

According to Balasubramanian and Gupta (2005), the redesign of a process - if not properly analysed - can cause the process to diverge from its intended cause which, in turn, limits the capability of the process to deliver the required performance. Process redesign, using modern information technology, can improve business performance dramatically (Subramoniam, 2009; Razalli *et al*., 2017). These performance goals are usually, however, evaluated by process output measurements like cost, cycle time, throughput, and reliability (Albert *et al*., 2011).

In order to have effective and efficient business processes, an analysis of business objectives and strategy is paramount (Vergidis *et al*., 2008). The intention of the business objectives and strategy analysis is to purposefully collect and evaluate relevant information in preparation for the next step of the process. Vergidis *et al*. (2008) asserted that such analysis should include existing descriptions of business processes, current process specifications, measurements, and analysis of key performance indicators, or other documentation for quality assurance.

Stakeholder involvement - from process analysis to the process redesign stage - is critical (Niehaves & Plattfaut, 2010; Rosemann, 2018). It is important to involve different stakeholders with a specific emphasis on actors (work performers), as actors have a clear idea of the unnecessary burden in the existing process and how they wish the process could favour their requirements (Matzner *et al*., 2018).

Balasubramanian and Gupta (2005) suggested that the complexity of available objective and formal analysis techniques of business processes resulted in many process designers using industry experience - or intuition - during pre-process design and evaluation. Deviating from the formal analysis techniques by the process designers may out process performance at risk, and cause the organisation not to reap the expected benefits of the process redesign.

Davenport (2005), Bititci *et al*. (2011) and Mendling *et al*. (2017) argued that the configuration and management of business processes within the organisation is the enabler of the organisation's flexibility and liveliness. In other words, the maturity and usability of business processes are seen as key determining factors of an organisation’s ability to adapt and respond to rising threats and opportunities,

thus influencing its sustainability. Brocke (2015) and Davenport (2005) also added that that management of business processes enabled innovation. Bititci *et al*. (2011) stated that the literature suggested that organisations with well-developed, mature processes that enable horizon scanning, monitoring, control and continuous improvement - as well as evolution - are more likely to outsmart their competitors and carry on the organisation's performance.

According to Cater-steel and Toleman (2009) and Brocke (2015), factors which govern an organisation's ability to yield the desired benefits of the implemented ERP system include a properly analysed, evaluated and redesigned QCP with fully committed governors (management and executives), and the continuous involvement of all other stakeholders pre-, during- and post-implementation of the system.

2.1.4 Enterprise Resource Planning

ERP systems are set up to integrate the information needed to support administrative processes and provide this information for decision-making (Andersson & Wilson, 2011). Business decisions need to be well thought of and have as much reliable information available; therefore, organisations require a well-researched, properly planned and implemented ERP system - with good QCP – in order to be successful (Ram *et al*., 2013). An international study conducted in companies that have implemented ERP between 2006 and 2010, shows that dissatisfaction may have been as high as 86.5 percent. It has been found that 51 percent of the ERP projects exceeded budget, with 35.5 percent having time overruns (Ansarinejad *et al*., 2011). This statement is supported by Sun *et al*. (2015) with the statistics showing 72 percent time overruns and 54 percent cost overruns.

A properly planned ERP project yields desirable results. Identification of stakeholders, their roles and time in the planning phase is of great importance to the success of an ERP project (Soffer *et al*., 2005). Setbacks can be seen throughout the project lifecycle, if preparation at the planning stage of the ERP project is insufficient (Ingason, 2015). Soffer *et al*. (2005) further states that, even though management display a high level of awareness of what is involved, failure to translate knowledge and awareness into proper preparation for the project may lead to non-realisation of the expected results and, hence, may cause confusion amongst the end-users.

Gargeya and Brady (2005) noted that (according to literature) a successfully implemented ERP system will be able to improve the organisation's overall effectiveness. This is achieved by organising processes, while providing a method to externally enhance competitive advantage, increase positive reaction to

customers and support strategic initiatives. Magal and Word (2011) show the structure of the ideal integration of business processes with the SAP ERP solution:

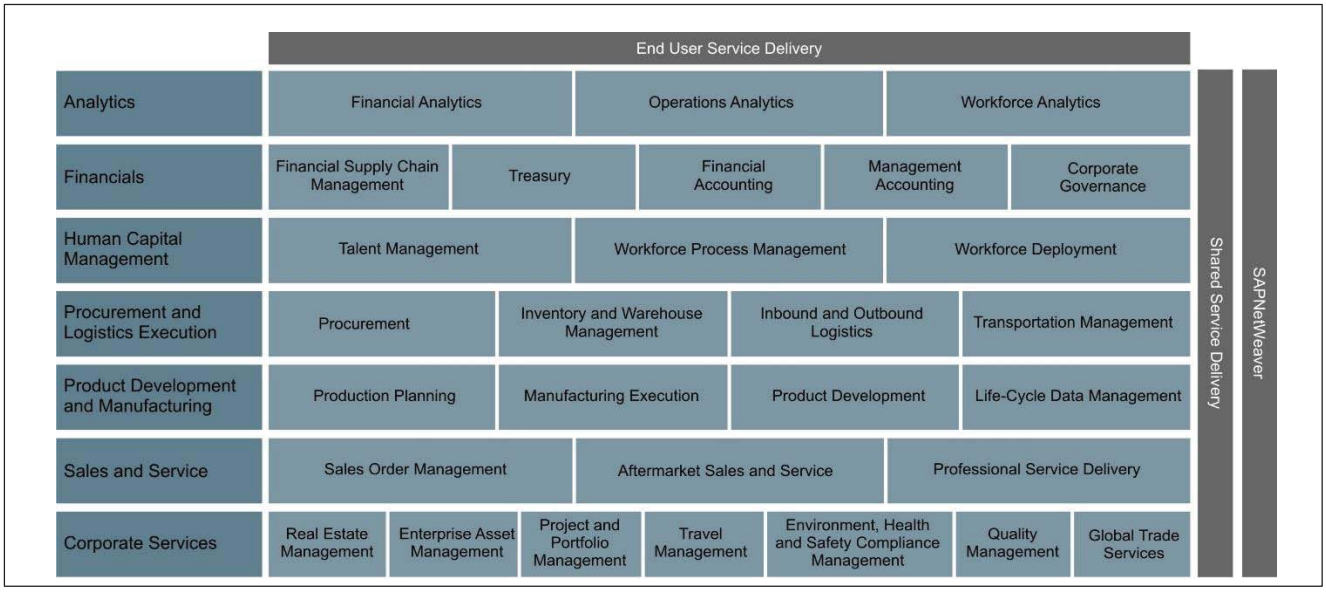

Figure 2.1: Integrated Business Process with an ERP system

(Source: Magal & Word, 2011)

Garg and Garg (2013) argued that organisations face problems in implementing ERP because of the organisational culture and lack of readiness of the organisation to change - usually caused by inexperienced and unskilled staff - and as a result, the implementation of an ERP system usually runs beyond schedule and exceeds the budget for a particular project. Garg and Garg (2013), as well as Ali and Miller (2017) support Haouzi and Thomas (2009) in stating that the lack of top management involvement and support is considered as the main reason for the failure of the ERP projects. The vision and the scope of the project - if not clearly defined by top management - can create problems in the implementation of an ERP system at a later stage and, especially, at the post-implementation stage. The implementation of an ERP system contains various and major changes, which may instigate conflicts in different departments; hence, the intervention of senior management is imperative so that no one will compromise the rearrangement of the ERP system implementation (Boonstra & Govers, 2009). It is, therefore, vital for management to use clear but firm statements in explaining the reason for a change during the ERP system implementation process, as a means of convincing stakeholders to ensure the success of the project. Carton *et al*. (2008), Haouzi and Thomas (2009) and Harwood (2017) all assert that the implementation of an ERP project in an organisation is synonymous with the management of changes.

According to Chaffey (2009) and Nguyen (2017), organisations focused on the internal processes when adopting an ERP systems; however, customer and supplier functionality should be included (with e-commerce functionality) to reach the organisation's full potential. Bearing in mind that an organisation's customers and suppliers statuses are not the same, Boonstra and Govers (2009) suggest that - in the ERP implementation planning phase - the organisation must cater for inter-organisational integration by including both the high-end and low-end solution.

Bailey *et al*. (2017) further argued that ERP implementation has a disruptive impact on the quality of work life of the end-user in the Southern region of Africa, as a result of cultural differences.

These two angles (e-commerce and cultural differences) are very interesting for an organisation to look at, in order to ensure that they reap the benefits of the implemented ERP system. This study, however, focused on QCP as a system to ensure that ROI in ERP implementation can be seen.

2.1.5 Quality Processes Post-implementation of an ERP System

As the organisation evolves, the systems utilised by the organisation - and line functions within the organisation - should evolve too (Chou *et al*., 2014). ERPs are designed to help manage organisational resources in an integrated manner. The benefits that are expected to result from ERP system implementation are dependent on the level of integration that is promoted across functions in an enterprise (Lee *et al*., 2003). Dmaithani *et al*. (2016) alluded to what Nicolaou (2004) said in that a successful adoption of an ERP system to support business strategy can help organisations become better-performing organisations, as compared to their competitors. Awa and Ojiabo, (2016) cited Nicolaou (2004), in stating that the adoption of an ERP system was a big commitment of resources and may affect almost all business processes. It is, therefore, important to note - in the pre-planning stage - that organisations adopting ERP systems present higher differential performances only after two years of continued use; hence, the need for continuous improvement of processes post-implementation of the ERP system. ERP systems promise integration on many levels, including system, interface, global, data, and business integration (Sethi *et al*., 2017).

Generally, the aim of any organisation that implements an ERP system is to have all these integrations for the continuous improvement of productivity, quality and the realisation of large profit margins (in a simplified manner) (Garg & Garg, 2013; Sethi *et al*., 2017). An integrated ERP system with all business departments (as shown in Figure 2.1) is ideal for the success of the implemented ERP system.

The literature has been proactive in determining the types of benefits that companies might anticipate from their ERP systems and to what extent organisations had actually attained those benefits on a post-

implementation basis (Tarn & Beaumont 2002; Rouhani & Mehri, 2018). Expectations for improved business performance, after adoption, may result from both operational and strategic benefits.

It is also widely recognised that mandatory training of end-users, lack of or incorrect timing of training (accompanied by the inability to understand changes in business processes as a result of ERP applications) are important factors of failure (Haouzi & Thomas 2009; Mamonov & Koufaris, 2018; Sumner, 2018). Garg *et al*. (2013) researched critical factors for the failure of ERP implementation, and have identified possible reasons for ERP system failure during- and post-implementation. These include inadequate resources, poor user involvement, and a user's resistance to change.

Conducting extensive research during the planning stage of the ERP system implementation can close the knowledge gap between the training employed and what people need to work effectively with the new ERP system (Saxena, 2013). A lot of information during training overwhelms some users, whilst others would be confused by the lack of training in terms of the context - of the new capabilities - from a business standpoint.

A Post-Implementation Review (PIR) process should consider a number of important dimensions to mitigate implementation risks and contribute to a successful implementation (Saatçioglu, 2009). The quality of PIR that is carried out by an organisation should, therefore, be closely related to the actual level of achievement of expected outcomes (Zhu *et al*., 2010). In order for the PIR to achieve expected outcomes from an ERP system, the PIR and QCP should be evaluated simultaneously (Mahendrawathi *et al*., 2017).

As is the case with knowledge management systems, post-implementation designs are likely influenced by other factors such as culture, market characteristics, size of the institution and political dynamics within the institution (Gallagher & Gallagher 2012).

2.1.6 Quality Control Process

The lack of any basis to prioritise and direct the improvement activities are a hindrance to the drivers of quality improvement (Vergidis, *et al*., 2008). In global organisations, these problems are accentuated due to other conflicts in terms of code responsibility, legacy code, variations in the tools and techniques used within each project, etc. Therefore, the organisations need procedures not only at individual project level but at organisational level, so as to direct and control the quality of their own delivery (Biggs, 2011).

A permanent, real-time monitoring of process efficiency in the key dimensions of quality, time, and cost can help to identify opportunities for improvement (Karsak & Özogul, 2007). Process indicators need to be relevant for achieving process goals, economically determinable, comprehensible for all involved, and influenceable in terms of control, in order to achieve quality (Lee *et al*., 2013). According to Lopez & Salmeron (2014; Göhrig *et al*., 2017), little attention has been paid to QCP post-implementation of an RP system.

2.1.7 Change Management

Beer & Nohria (2000) described organisational change management as the term that:

> *…covers a collection of concepts and methods that together look at the question of how organisational change can be managed successfully.*

For the individuals, team or organisation at large to embrace change, the mediation from change management is required; that, then, should influence the task-related behaviour and associated results (Barends *et al*., 2013).

According to Crawford & Nahmias (2010) - in the project management field - change management has been made a separate project all together. Crawford & Nahmias (2010) pointed out that there was evidence of a degree of rivalry between Project Managers and Change Managers concerning who should be managing business change, even though the change management field describes organisational change initiatives as projects or programs and make reference to the use of project management skills, tools and techniques; they also state that in the marketplace. Altamony *et al*. (2016) stated that corporate executives and senior managers are generally the change owners and, although they may engage the assistance of both Project Managers and Change Managers, they generally see themselves as taking the leading roles in major organisational changes and transformations, all of which could cause complications in successfully implementing change management strategy.

Project change management best practice (PCMBP) is described as one of the significant best practices which could impact project schedule and cost performance, more than any other best practice in ERP projects (Zou & Lee, 2009). Planning and executing change management practices properly and positively can allow, amongst others, a smooth running of a high-quality business that would facilitate greater business sustainability over time, which would have positive effects on economic growth and employment (Avila *et al*., 2016).

According to Aladwani (2001), improvement strategies such as ERP implementations frequently involve change. It is therefore important to create awareness and a buy-in from internal customers, for an organisation to avoid resistance related to this change. (Chou *et al*., 2014) agreed with Aladwani (2001): most ERP-implemented organisations that do not reap the benefits of the system have been as a result of user resistance, which is caused by various factors.

It is, therefore, advisable for top management to deal with the complex organisational problem of an end-user's resistance to ERP implementation, by integrating process-oriented conceptual frameworks which recognise and consider the attitudes of users and identify influential groups, with the aim of buying them in (Haddara & Moen, 2017). Figure 2.2 suggests a framework for managing change associated with ERP (Aladwani, 2001):

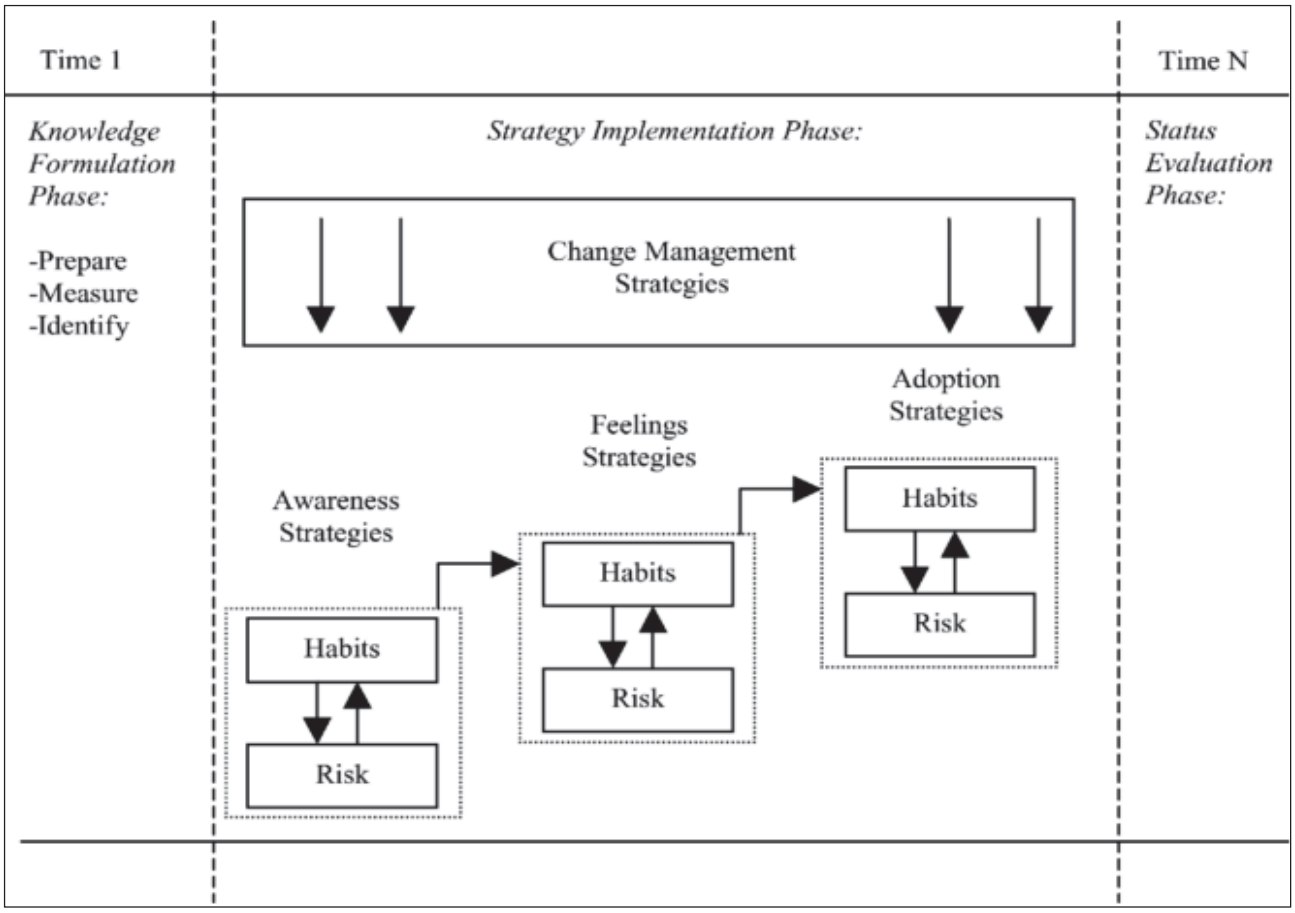

Figure 2.2: Suggested framework for managing change associated with ERP

(Source: Aladwani, 2001)

In the implementation of an ERP system processes are re-engineered, which mostly affects roles and job descriptions. Yu (2005) is supported by Cho *et al*. (2017) as they lay down the importance of

instantiating methodology to help identify the need for change, as change means people stepping out of the comfort zone to a newly described position with may be added or with reduced responsibilities. Saxena (2013) mentioned that it is important for a change management team to look carefully into these emotional times, and keep feeding employees with information at every step of the way, assuring stability within the company and offering training. This would engage employees in the change management process, enable them to own the process, be accountable for their responsibilities and positively work towards the success of the implemented system (Petrou *et al*., 2018).

Riccò and Guerci (2014) claimed that diversity management is an important part in managing change. They further describe diversity management as the means used by the organisation, strategically aimed at achieving better organisational results by creating an all-inclusive workplace where peoples' outstanding qualities and needs are managed in a diversified, effective, efficient, and equitable way .

Ash and Burn (2003) were cited in Mdima *et al*. (2017), emphasising organisational cultural readiness as an important factor in ensuring successful change management before, during and after the implementation of an ERP system in the organisation.

According to Ram *et al*. (2013), system quality had a significant influence on the implementation success of an ERP by organisations. It also influenced several other antecedents to adoption. Therefore, an assessment of the system quality of a proposed ERP system is important for achieving successful adoption and implementation. They are stressing an important fact of quality of the selected ERP system; however, this research focused on quality processes, especially after the implementation of the system.

2.1.8 QCP Risk Post-ERP Implementation

Peng & Nunes (2005) identify 40 potential ERP post-implementation risks. These are related to diverse operational, ERP policy, analytical, organisation-wide and technical aspects. These risks affect quality control processes in one way or the other. Operational staff are daily users of ERP systems. Risk in this area may occur as operational staff use ERPs to perform daily business activities, which may have a huge impact on quality. On the other side, analytical risk may occur when front-line managers use ERP systems to generate plans and forecasts, to predict and better manage the uncertainty of the future (Ali & Miller, 2017). A set of system and technical factors may result in risk events that can hinder the ERP system from meeting its intended functions and performance requirements. Post-ERP implementation risks needs to be identified, mitigated or minimised in the planning stage. In fact, the pre-implementation stage should be about mitigating all the possible risks that may occur; in that way, one can have a better

control of quality processes post-ERP implementation. Effective and continuous risk management is also crucial, even when redesigning quality control processes (Singh, *et a*l., 2010; Chiarini, 2017).

2.2 SUMMARY

This Chapter has explored the literature related to the complexities around QCP after the implementation of an ERP system. It shows that quality has been spoken about within organisations since circa 1917. The literature also revealed that organisations embarking on the implementation of an ERP system found that the benefits were not as expected. Studies have been conducted around the causes of failure in the implemented ERP system, though not much literature is available on QCP as a contributing factor in the success of the implemented ERP system.

Chapter Three will describe the research methodology of this study, explain the steps for the specific method of data collection and to provide an explanation on how the methods were used to address the research questions of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This Chapter describes the research methodology used in this study. It explains the steps for the specific methods of data collection employed and provides an explanation of how the methods were used to address the research questions. This Chapter includes:

i) Why the particular research methodology structure was used with respect to the research background;
ii) A review of the case study approach;
iii) The research method and the research questions;
iv) The research approach and sampling;
v) Ethical considerations;
vi) Data collection and analysis;
vii) Transcription and coding;
viii) Unit of analysis and observation; and
ix) Delineation and Contribution.

The topic of this study is the redesign of QCP in the implementation of energy supply projects. This is a case study research methodology, meaning that the entire study was completed within a specific energy distribution company. According to Yin (2009), case study research addresses questions like "How" and "Why". Case study research, in addition, involves answering selections or options like "which is the best out of the others" (Lovett *et al*., 2000).

The two research questions for this study are:

i) How can QCPs be used to lower the risk of the non-delivery of the promised benefits of the ERP system?
ii) Why are the implemented QCPs not being used after the implementation of the ERP system?

It deals only with the process involved, not with any technical part of the system. This task would necessarily entail many more years of study and could be done on a doctoral level.

3.2 RESEARCH APPROACH

Research approaches can be distinguished in many ways. One such feature used to distinguish research is by classifying it as either quantitative or qualitative (Myers & Newman, 2007). This study employed a qualitative research approach, using semi-structured interviews. The main reason why this study was based on semi-structured interviews was to facilitate a personal interaction with the participants, in order to understand the questions correctly and provide more information than the participant would ordinarily provide in written questionnaires. Interviews are useful as the researcher can ask detailed questions which can be rephrased, should a person not easily understand the question asked - it also enables follow-up questions in order to get more information on the topic (Wohlin & Aurum, 2014).

Figure 3.1 illustrates the structural design of Chapter Three. According to Wohlin and Aurum (2014), the structure has a process that each step follows and is divided into three levels: strategic (research outcome, research logic, and research purpose), tactical (a look at the research approach), and operational (where the operational research work is done). This structure is derived from the authors Wohlin and Aurum (2014) to help researchers understand what needs to be done when someone looks at research methodology. This study is adopted by the researcher as it is relevant to the methodology the researcher wanted to follow, giving a clear understanding of the way the researcher wanted to operationalise the study.

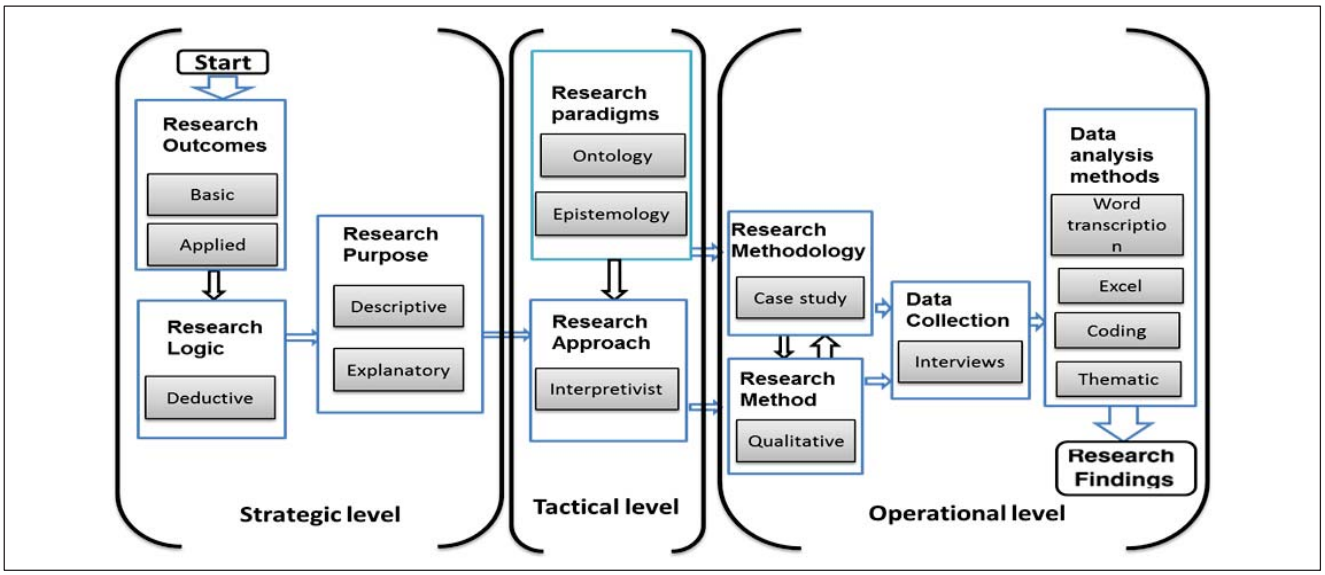

Figure 3.1: Research Methodology

(Source: Wohlin & Aurum, 2014)

3.2.1 Case Study

This is a case study about an asset creation department in an energy distribution organisation in South Africa (Section 4.2). The organisation acquires assets - in the form of electrical substations and overhead lines - which carries electricity for both national distribution and to the Southern region of Africa. This initiative was rolled out in different projects. Management realised that projects were not getting completed and, therefore, devised a turnaround plan which involved the implementation of an ERP system across the overall organisation. The organisation is also ISO9001:2008 Quality Management Standard Certified. After all the time and money invested in improving quality and technology, energy supply projects still fail. QCPs have not changed, and the organisation has not reaped the expected benefits of the ERP system. The advantages and disadvantages are now discussed (Creswell, 2013; Saunders et al., 2009):

i) Advantages of a case study:

In case study research, the advantages include getting real information in terms of what is happening in the organisation that the researcher is studying. It is useful as the researcher is able to learn more about the particular organisation (in a particular field of work), and as such is able to provide a direct solution for the relevant problem. It uses an inductive approach that makes it easy for management to interpret information from the study. If the study uses two cases, it helps to identify problems throughout organisation operations and provide proper solutions.

ii) Disadvantages of a case study:

One disadvantage is that the researcher will only get information about a specific industry. The analysis is sometimes relevant to the specific case study, while not being relevant to the other. The researcher may not obtain information that is relevant to the study only, but about other issues in the organisation.

3.2.2 Research Population and Sampling

Sampling is the process of choosing a group of people who can give a clear representation of the different levels within a population (Johnson *et al*., 2004). The participants were selected by the researcher in order to gain the information that was necessary to complete this study. 15 participants were purposefully selected; however only 12 were available throughout the scope of this study.

The research participants are outlined in Table 3.1. The interview guide was designed using Microsoft Office Word 2013. All the participants were briefed about the study as part of the ethical considerations involved.

Table 3.1: Interview Participants

Interviewee	Position	Department	Years of experience
1	Program manager	Project execution	18
2	Program manager	Project execution	10
3	Program manager	Project engineering	5
4	Program manager	Business improvement	6
5	Project manager	Project execution	3
6	Systems controller	Project execution	5
7	Systems controller	Project execution	32
8	Project services manager	Project execution	16
9	Project accountant	Project execution	10
10	Project services officer	Project execution	5
11	Quality controller	Quality management	7
12	Consultant	Project execution	16

This table was also used in the transcription and coding process to allocate themes. It also helped towards the data interpretation of the research findings (see Chapter Four). The total sample size was 12. This study focussed on the asset creation department of the distribution functional unit in the Western Cape operating unit. The study excluded other operating units and functional units (like generation and transmission operating units).

3.3 RELIABILITY AND VALIDITY OF CASE STUDIES

This study is an interpretative study that will be of benefit to the energy distribution organisation in South Africa, by proposing a model that will assist in implementing QCP (that will see the organisation reaping the benefits of the ERP system). It can also contribute to the organisation by saving the huge amount of money that is spent in the implementation of projects with a cumbersome QCP. This study will contribute to the body of knowledge by introducing a model of a QCP that will benefit the energy distribution organisation, and other organisations implementing ERP systems worldwide.

3.4 DATA COLLECTION

The use of case study meant that data was collected from interviewees by means of semi-structured questions (Maxwell, 2012). Since the purpose of the interview was to narrow down the level of knowledge in order to obtain real information from each respondent, the focus was the identification and

determination of detailed information about the complexity around QCP, post the implementation of the ERP system. The data collection method depended on the research questions (Bryman, 2004).

3.4.1 Interview Guide

An interview guide was created to guide the researcher towards the information that was needed (Kane *et al*., 2006). Wohlin and Aurum (2014) argued that data collection methods may involve qualitative or quantitative data. Some commonly used qualitative data collection methods in research include interviews, group discussions and observation (Creswell, 2013). Qualitative data commonly used as data collection methods include interviews, group discussions and others, such as meetings, observations, etc. (Maxwell, 2012). More information regarding data collection methods can also be obtained from Silverman, (2013), Rubin and Rubin (2012), Wohlin *et al*. (2012), Munyua and Stilwell (2010), Wallace *et al*. (2010) and Lethbridge *et al*. (2005). In this study, the researcher provided a brief summary of the interview guide as one of the data collection methods that the researcher believed most relevant to the study (see Appendix A).

3.4.2 Data Collection Instruments

The data collection is categorised into primary collections, which are interviews, and secondary collections, which includes reports, books, and articles that contain information generated for other purposes other than the original one (Cohen *et al*., 2013). Primary data was collected for the first time by the researcher for the purpose of finding answers to the research objectives (Creswell, 2013), as per Chapter Three of the study. As such, this study collected primary data through interviews only. In Chapter Four, the use of interviews, books, articles, and journals are also employed to answer the research questions (leading to the recommendations and conclusion in the final Chapter).

An interview is a data collection method that provides a picture of a participant's or individual's viewpoint on a specific topic. It involves a series of questions that are asked directly by the researcher in a face-to face-meeting. This method is useful, as the researcher can ask detailed questions that can be rephrased if there is a lack of understanding about the question asked, and the use of follow-up questions to get more information on the topic. Other than face-to-face interviews, phone interviews and interviews through network connectivity like video conferencing, Google Talk and Skype, are other ways of interviewing participants.

3.5 DATA COLLECTION PROCESS

This process took almost two months to finish before coding. The researcher had to go to each department, and each interview took between twenty to thirty minutes. Interviews were conducted during the day, so the researcher had to make appointments for a time that would best suit the interviewees. The researcher transcribed the interviews by typing the conversation into Microsoft Word. After transcription, coding was done and themes were allocated for the interpretation of data (as per Chapter Four). There was a variety of software available in the market (such as Nvivo for data analysis) but the researcher wanted to use word processing and Excel to analyse the qualitative data (Barry, 2009).

3.6 DATA PROCESSING AND ANALYSIS

The data was analysed using a manual method i.e. transcription from recording to word processing, without the use of any computer software for analysis. Byrne (2001) stated that "qualitative data analysis consists of identifying, coding, and categorising patterns found in the data". According to Taylor-Powell & Renner (2003) the analysis process involves the following steps:

- Need to know your data;
- Analyse it;
- Put themes in your information; and
- Interpretation using your themes.

There is no way that the raw data can be interpreted without first transcribing the audio records to a word processing programme, and then coding the information in order to identify themes from the study so that the primary data collected would make sense for interpretation. The next section deals with transcription and coding as part of data analysis.

3.6.1 Thematic Analysis

Thematic analysis is widely used as a qualitative data analysis technique in many research studies, as it provides a deeper understanding about the data content. The authors Braun and Klarke (2006) described thematic analysis as a method for identifying, analysing, and reporting themes within data. They identified phases of thematic analysis i.e. familiarising yourself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing a report. Codes in the thematic method are used to organise themes and also involve open coding. Braun and Clarke (2006), classified thematic analysis as having "semantic" or "latent" themes. Semantic themes are identified

based on explicit meaning contained in the data. The researcher searched for patterns using semantic themes.

On the other hand - in latent themes - the researcher searched for underlying ideas within the data that were then theorised. Braun and Clarke (2006) suggested that semantic themes tended to be used in a positivist research approach paradigm, whereas latent themes tended to be used in an interpretivist research approach. The researcher identified themes and assigned codes to themes manually. A guideline for thematic analysis can be found in Braun and Clarke (2006). Ideally, the thematic analysis involves several studies, with themes being developed using interview subjects or the researcher capturing many ideas from various participants.

3.7 ETHICAL CONSIDERATIONS

Even though the researcher is an employee of the organisation and has access to the resources in the company, the researcher still had to follow the process of getting permission, and not just using company property without been given the necessary approval (as this would have been unethical). The procedure followed was in accordance with the principles of the company. The company has a research office in Pretoria, to which the application for data collection was submitted. The process was as follows:

i) The researcher's supervisor, together with the researcher, had to write a letter to the executive of the asset creation department, stating the topic along with the research proposal;

ii) The department would look at the application letter and forward it to the executive manager in order to get the go ahead for data to be collected from the employees;

iii) The executive manager would write a letter of consent to the researcher so that it could be sent to the institution for approval by the ethics committee (see Appendix C); and

iv) The research office would issue a confidentiality form for the researcher to complete.

v) Confidentiality was obtained by coding the interviewers names and to securely save the data obtained from the participants. Participants were given surety in the consent letter that no names will be divulge and all data will be kept secure.

vi) Anonymity was given by using codes for all the participants.

vii) Freedom of choice was given. To the participants by means of written commitments and the participants were also made aware of the choice to withdraw at any time during the interview and thereafter.

3.8 DELINEATION

The study will exclude other operating and functional units within the business. This study will only focus on the distribution functional unit of the Western Cape operating unit.

3.9 CONTRIBUTION

This study will contribute to the energy distribution organisation in South Africa by proposing a model that will assist in the redesigning of QCP, post- implementation of the ERP system. This study will, in addition, contribute to research for the improvement of business processes post- implementation of an ERP system.

3.10 SUMMARY

This Chapter described the research methodology that was employed in the study, the way in which the field work was conducted and the processes that were followed in the study, in order to achieve the extraction of the appropriate data. This was done through interviews - in the form of an interview guide - on a selected sample of people from the case study organisation. The Chapter showed how the data was collected, the instruments used in the study, the method used to transcribe the date, and the identification of themes from the collected data.

In the next Chapter, the data will be analysed, the data themes created and the findings derived.

CHAPTER FOUR

DATA ANALYSIS, RESEARCH FINDINGS AND THEMES

4.1 INTRODUCTION

Chapter Four reports on the results of the interviews conducted with the participants on the redesign of QCP in the implementation of energy supply projects. The research builds from a case study using an energy distribution organisation as the unit of analysis. In-depth interviews - using semi-structured questionnaires - as well as data collected from literature and documents were used for the data analysis.

For the benefit of the reader, the problem statement, research questions and the aim are provided here.

4.1.1 Problem Statement

The lack of QCP after the implementation of ERP systems results in the non-delivery of the promised benefits of the ERP system creating an unstable environment for businesses to operate in.

4.1.2 Research Questions

i) Research Question 1:

How can QCPs be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

ii) Research Question 2:

Why are the implemented QCPs not being used after the implementation of the ERP system?

4.1.3 Research Sub-Questions

i) Sub-Question 1a:

What complexities were experienced with the QCPs after the implementation of the ERP system?

ii) Sub-Question 1b:

How were the stakeholders involved in the implementation of the ERP System?

iii) Sub-Question 2a:

How effective are the QCPs after the implementation of the ERP system?

iv) Sub-Question 2b:

How can the QCPs be redesigned in order to assist in achieving success in energy supply projects?

4.1.4 Research Aim

The aim of the research was to understand the complexities around QCP post-implementation of an ERP system within energy supply projects. Another aim was to propose a model as to how to ensure the continuous maintenance of QCP after the projects went live.

4.2 CASE STUDY

The case study was conducted in the capital program management department, distribution business unit within the Western Cape operating unit of an energy distribution organisation in South Africa.

4.2.1 Company Background

The energy distribution organisation employed in this study was established in South Africa in 1923 as the Electricity Supply Commission (ESCOM). In July 2002, it was converted into a public, limited liability company, wholly owned by government. The organisation is one of the top 20 utilities in the world, when measured by generation capacity (net maximum self-generated capacity: 41 194MW). The organisation generates approximately 95 percent of the electricity used in South Africa and approximately 45 percent of the electricity used in Africa. The organisation directly provides electricity to 45 percent of all end-users in South Africa. The other 55 percent is resold by redistributors (including municipalities). The organisation's line of work is generating electricity using different power stations like coal, nuclear, water and other means. Electricity will then be transmitted via the power lines and eventually distributed to households and businesses, to keep South African lights burning.

i) Capital Programme Management:

Additional power stations and major power lines are being built to meet South Africa's rising demand for electricity. In 2005, the organisation embarked on a capacity expansion programme, the largest in its history, with the aim to increase its generation capacity by 17 120MW and its transmission lines by 4 700MW (in 2018). The total cost of the programme - to completion in 2018 - is estimated to be R340 billion (excluding capitalised interest).

The organisation has approved and committed to building two coal-fired power stations, two new gas-turbine plants and one pumped storage plant. Decommissioning mothballed plants and upgrading the existing ones are part of the plan. The organisation has approved the building of new infrastructure, including the renewable energy plants.

Completion of one of the coal-fired power stations in 2017/18 would constitute the last stage of the committed capacity expansion programme; however, the organisation is facing challenges, one being the issue of compliance and processes.

Both coal-fired power stations are behind schedule and over budget, which puts a lot of pressure on the current load, leading the organisation to resort to load shedding which, according to Faranda *et al*. (2007), is the interruption of energy supply when that supply cannot meet the demand.

According to SA Info Reporter (2015), one of the coal-fired power stations is estimated to be completed in 2019, with the forecast showing that the total project cost will be over budgeted by R195 billion. These are some of the challenges facing the energy distribution organisation as a result of improper planning, lack of business and QCP, and that of the ERP system not being utilised to its full capacity.

ii) Quality Management Department:

The organisation operates nationally, with five different line functions: generation, transmission, distribution, group customer services and integrated demand management. This study will zoom in on the Western Cape operating regions of the energy supply projects in the distribution line function.

The organisation has been faced with load shedding on a national level and all the company has been focusing on was recovery and problem solving and, now, the executive saw the need to operate towards the vision of "Setting the foundation for the next 25 years of the development of our country."

The Quality Management Department's aim is to provide a good quality journey for the next 25 years. The department is there to make sure the organisation is keeping South African lights burning, with zero harm to the organisation and society at large.

One of the company's strategies is "from recovery to vision." According to Budgeting (2009), each organisation evolves in four different phases, from the pioneering phase to the differentiation phase, then from the integration phase to the associative phase.

According to Budgeting (2009), the organisation is transitioning from the differentiation phase to the integration phase. This is done through radical evolution and functional integration, hence the implementation of an ERP system with the aim of integrating all line functions.

The organisation moved successfully from the pioneering to the differentiation phase. In order for the organisation to move from the differentiation phase to integration, they had to look for a system that would integrate all business modules; an ERP system, namely SAP, was identified. Figure 4.2 shows the integrated business modules in SAP:

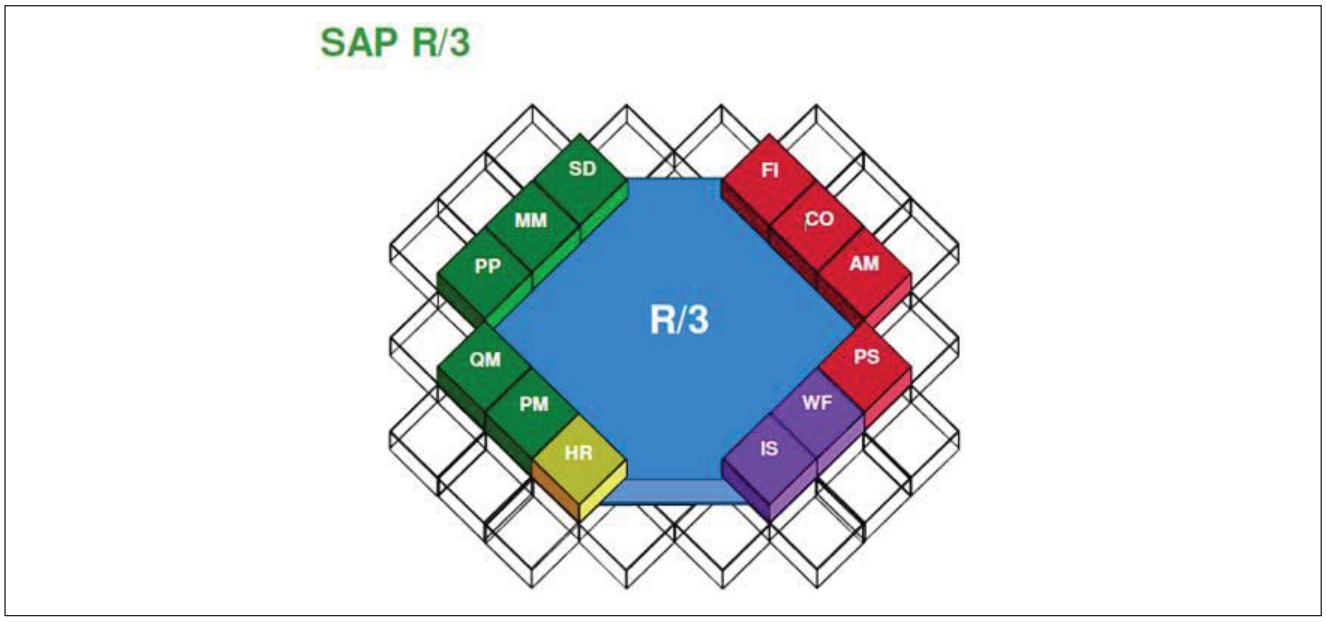

Figure 4.1 Service Oriented Architecture in SAP

(Source: Abhishekar, 2014)

The project to implement the system took off and was completed but the systems were still in silos, and not integrated as planned (Figure 4.1 shows that anything in the organisation can be integrated). Four years post-implementation of the ERP system, the organisation has not fully transitioned from the differentiation to the integration phase: the organisation is stuck between the phases. In order for the organisation to reap the benefits of the implemented system, the process needs to be redesigned to integrate the systems and business processes currently in silos to the ERP system.

iii) Organisation geographic organogram:

The capital program is a department in the distribution line function and is overseen by a general manager, who has an asset creation manager reporting to him. The asset creation manager has two portfolio managers responsible for the execution of capital projects, and takes on responsibilities from a geographic location point of view. One geographic location is on the Atlantic side of the Western Cape and the second on what is called the Protea side of the Western Cape. Both portfolio managers have four program managers reporting to them, who take on projects within the regions. Each program manager has at least four project managers, who execute between twenty to forty projects each to a scale of about R1 million.

The project managers are supported by a Project Support Services department that consists of accountants, project controllers, contracts management, procurement, systems controllers and others. Figure 4.2 sets out the organogram:

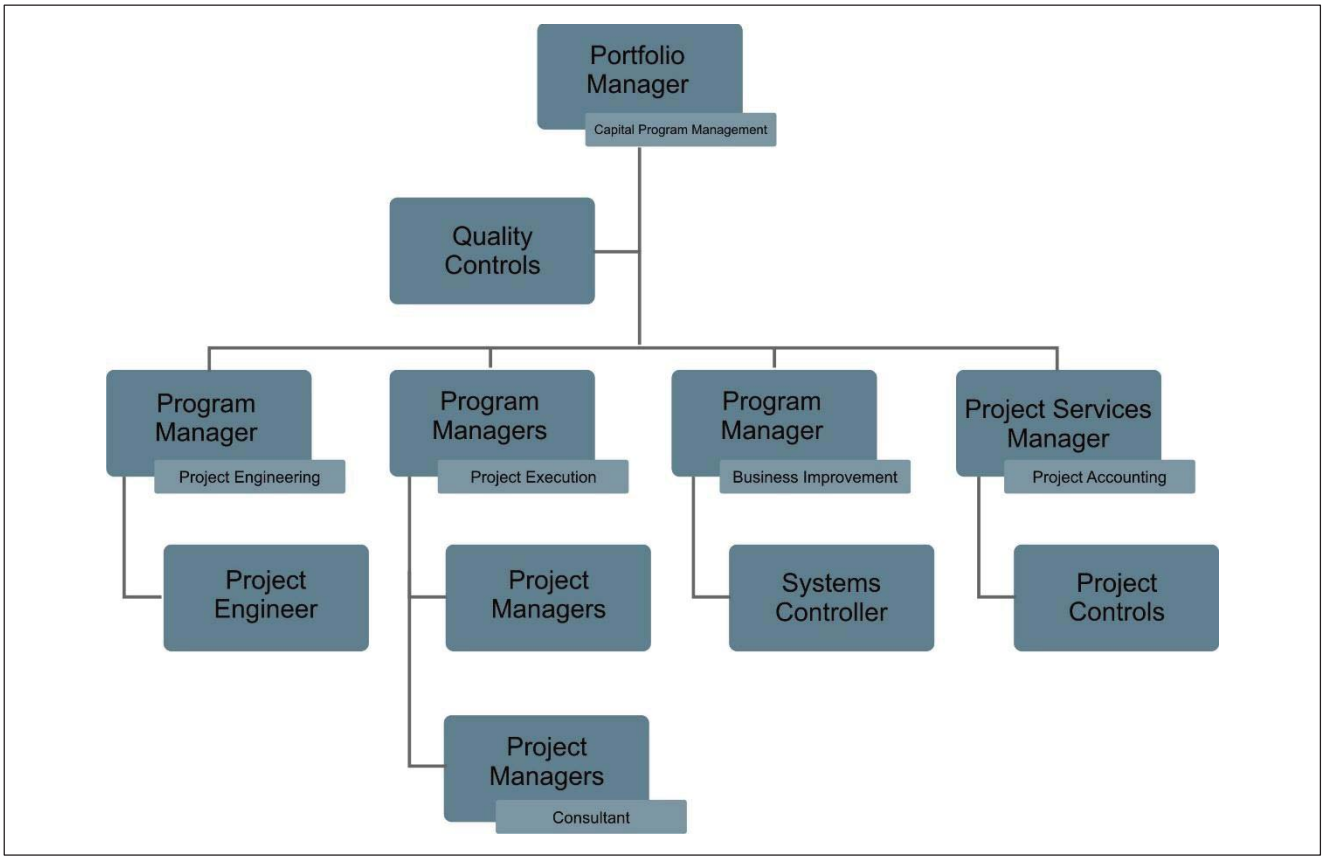

Figure 4.2: Western Cape Region organogram of the Capital Program Management

This research focuses on the distribution line function in the project execution, project support services and quality management departments within the capital program in the Western Cape operating unit.

4.2.2 Current quality control process at capital program management

The overall process in capital program management is analysed as follows: CQP begins in the initiation stage of the project. After quality planning has been documented, it is performed in project designs - which is the critical stage - to maintain a good quality standard. If the design is not of a good quality, it will then be sent back to planning for quality checks. If the design meets the documented quality requirements then it proceeds to the next stage of procurement. At this stage, the Quality Management Department works on making sure the contractors and consultants comply with all the required quality requirements, meeting the set world organisational standards to produce good quality products and services. If that is assured, the contractor starts working and products are verified for quality as the work progresses up to the end of the project. Once the product or service is finalised, quality is again measured on the finished product or service.

4.3 BACKGROUND AND RESPONSIBILITIES OF THE INTERVIEWEES

Table 4.1 below shows the participants interviewed.

Table 4.1: The participants, job positions, departments and number of years in service

Interviewee	Position	Department	Years of experience
1	Program manager	Project execution	18
2	Program manager	Project execution	10
3	Program manager	Project engineering	5
4	Program manager	Business improvement	6
5	Project manager	Project execution	3
6	Systems controller	Project execution	5
7	Systems controller	Project execution	32
8	Project services manager	Project execution	16
9	Project accountant	Project execution	10
10	Project services officer	Project execution	5
11	Quality controller	Quality management	7
12	Consultant	Project execution	16

Twelve interviewees are interviewed in this study. Eleven are from the Eskom Capital Program Western operating unit, and one interviewee is a consultant within the same department. Four of the interviewees are program managers. One program manager is from project engineering department and is responsible for the designs, scope of work, and bill of material. The project execution teams - which consist of program managers and project managers - oversee the execution of projects from start to completion. After completion, the project is handed over to the maintenance department where the asset is energised and ready for use as intended by management.

A specific project manager is allocated to manage the contractors and coordinate all the necessary skills, tools and resources needed to execute the project successfully. A project manager has at least forty projects being simultaneously executed. This is the area where quality can easily be compromised because of the number of projects, the complexity of the projects and other factors.

Two system controllers are responsible for integrating the systems used by the organisation. Project support services are responsible for the projects plans, budgets, and timelines. Support services assist the technical team in the execution of the projects. The Quality Control Department is responsible for ensuring that every project adheres to the quality management standard (ISO 9001:2008).

4.4 CODING AND CATEGORIES OF THEMES

Categories and themes were identified in the raw data (Beach *et al*., 2001), by first identifying keywords. The keywords were then categorised and the number of times the keywords were used by the interviewees counted. These keywords were then used as the basis for the theme development, as shown in Table 4.2:

Table 4.2: Coding and categories of themes

Interviewees	Business Process redesign	Systems Integration	Change management	Systems bottleneck	Stakeholder involvement	Training	Continuous improvement	Quality
Program Manager West coast_R1	4		6	5	1	1	2	3
Program Manager Minors_C1	1	1	5		1	2	1	
Program Manager Project engineering _M1		1	1			1		
Program manager Business improvement _S1	6	3	4		3	2		
Project Manager_ T1	1		2	1	1			2
Systems controller_M1	3	4	5			1		
Systems controller_H1		4	3			3	4	
Project services manager_ R1	1	1	1	1	3	8		2
Project Accountant_D1	1	1	4		1	2	1	2
Project Services officer_Y1	1	1	6		2	1	1	
Quality controller_M1		1	1					2
Consultant_R1	2		1			2	4	
Totals	**20**	**18**	**39**	**7**	**12**	**23**	**13**	**8**

Source: Author, 2018.

Categorised in Table 4.2 are the number of times each theme has been used by each interviewee in the in the transcription of raw data. Change management, training and business process redesign came through as the strongest themes and seem to be important to the interviewees.

In the next section the findings of the interviews are discussed. The findings are directly linked to the Research questions, and sub-research questions.

4.5 FINDINGS

The interview guide consisted of two parts. The first part of the interview guide aimed to answer Research Question 1 on lowering or mitigating the risk of non-delivery of the promised benefits of the ERP systems, while the second part of the interview guide aimed to understand the reason why implemented QCPs were not being used after the implementation of the ERP system (see the Interview guide in Appendix A).

The following sections outlines the research and sub-research questions, and the interview questions relating to these. It also discusses the findings based on these questions.

4.5.1 RQ 1: How can QCP be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

The following sub-research question was asked, in relation to RQ 1: RSQ 1.1 - What complexities were experienced with the QCPs after the implementation of the ERP system?

i) IQ 1.1.1: What is your understanding of QCP that the organisation is using?

This question is asked to determine if the interviewees understood QCPs in the organisation.

All participants understood the QCPs in the organisation. They were aware of the QCPs and were using them in their day-to-day business. Out of the 12 interviewees, four (33 percent) were program managers (as well as the two project managers); they understood the QCPs in the organisation. They were of the opinion that the way the ERP system was implemented made it impossible for the QCPs to be followed and utilised for the benefit of the organisation. Interviewee Four stated that:

> *When we went to the new SAP, we were supposed to roll-out project control manuals for our new process and - in the new process - they were supposed to be simultaneous, the system was rolled out without proper training, because new SAP was different and part of the Process Control Modules (PCM) were rolled out and not all the PCMs. We never had an*

integrated PCM. So people struggled to follow the quality control points because they did not have process control manuals to guide them (Appendix D: 98).

Contrary to the programme managers in project support services, three interviewees (25 percent), one interviewee (eight percent) from the quality control department and two systems controllers (17 percent) were aware of the QCPs in the organisation and were - in fact - using the processes.

The findings from this section of the interviews were:

- Finding One: The management understood the QCPs but did not believe that the QCPs could be utilised and benefit the company; and
- Finding Two: The operational employees were aware of the QCPs and used the processes in their daily business operations.

ii) IQ 1.1.2: Has the standard of quality in energy supply projects improved after the implementation of the ERP system?

The aim of the researcher on this question was to get an impression from the interviewees about the complexities around QCPs, post-implementation of the ERP system.

Figure 4.3 is a graphic representation of the results obtained from the interviews.

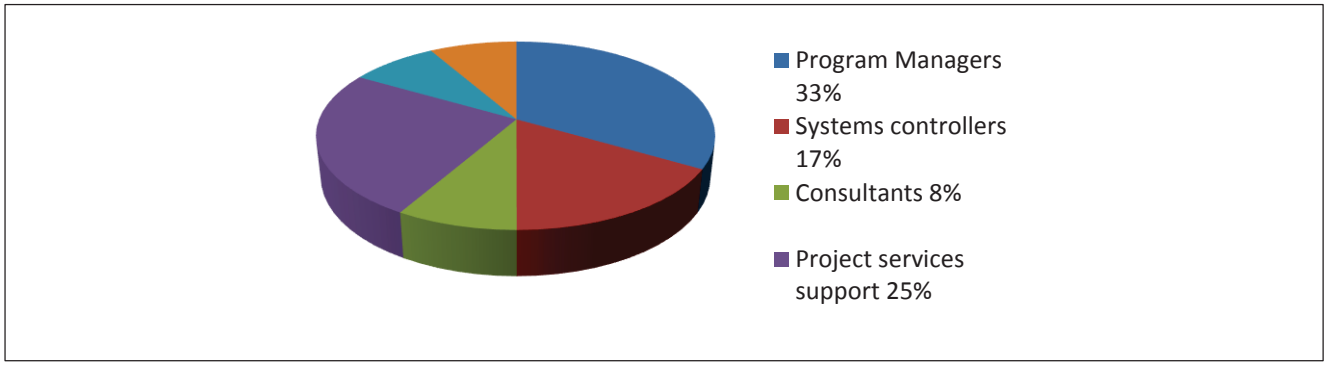

Figure 4.3: The complexity of QCP post ERP implementation

Interviewee 12 stated that:

I would say the processes have become cumbersome, as results delivery of the intended outcome has been hampered because of those layers that are now included in the delivery process and to me that will be a bit of a process. It has racksaw… backward instead of being the real time improvement that was intended (Appendix D: 127).

However, Interviewee Six - a systems controller - was of the opinion that the way in which the ERP system was implemented improved quality control processes in many ways.

Four (33 percent) of the program managers referred to the quick implementation of the ERP system, the lack of a change plan and the lack of structure during the implementation as part of the reasons why QCPs were so complex and impossible to utilise (in order to benefit the organisation).

They were of the opinion that the implementation process of the ERP system was done hastily and that no proper training had been offered. The communication during the implementation process was also described as minimal, which resulted in a lack of direction and increased resistance. According to Interviewee One, the organisation did not have any QCPs because, in Interviewee 12s observation, the level of effectiveness of the quality produced by the organisation has gone backwards:

> *I could be getting emotional and I have no justification for felling this way it has nothing to do with the two projects but I see it countrywide it has gone backward (Appendix D: 127).*

The findings from this section of the interviews were:

- Finding 3: QCPs had become burdensome, lengthy and unclear;
- Finding 4: Manual quality checklist utilised was not reliable; and
- Finding 5: After the implementation of the ERP system, no improvements had materialised.

iii) IQ 1.1.3: Do users understand that the use of the ERP system is to improve QCP?

This question was asked in order to find out if the interviewees understood that ERP could be used to improve quality, and if they were utilising it for that purpose.

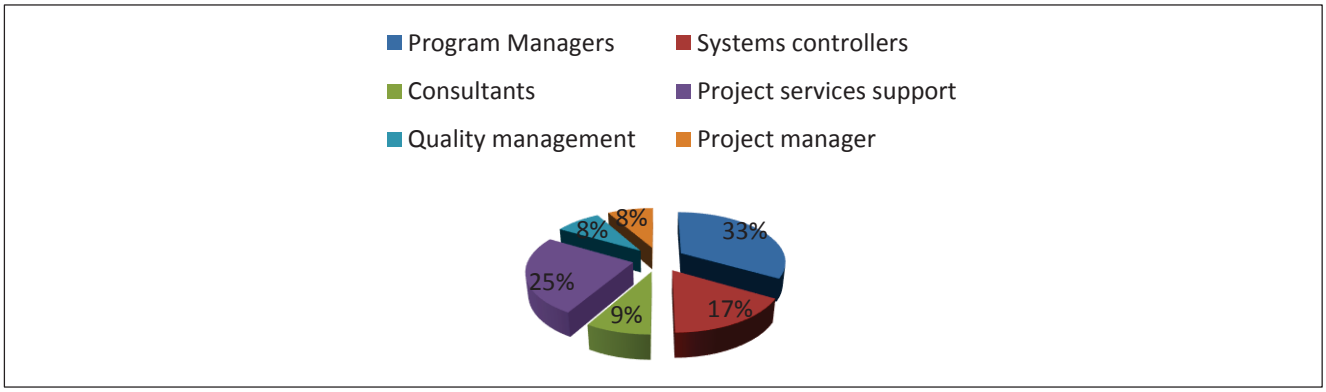

Figure 4.5: Use of ERP to improve quality

45 percent of the interviewees consisted of program managers and consultants; they were of the opinion that there was a lack of understanding and awareness of what the ERP system could do. They believed

that people viewed the ERP system as a finance tool, and not a tool that integrated all the departments within the organisation. It was also believed that - since the implementation of the system - there was a lack of continuous assistance for people towards understanding the system and seeing it as a quality-improvement tool. It was said that the system was as good as its users; if the users were not comfortable enough to interrogate the system, they might never utilise it to improve quality.

Interviewee One agreed with this assertion by stating that:

> *I do not think that understanding exists. SAP is seen more like….look a quality system - if it is part of the culture you input what you need but right now I think it is the other way around. SAP is driving the way we work and it does not address what we need. The system is driving us and we do not see the benefit of the system (Appendix D: 87).*

This was strongly supported by Interviewee Two, who stated:

> *I do not think so at the moment because we are not using it. We already built a new MS Access data base to assist us with the quality of information that we need (Appendix D: 93).*

Interviewee Ten supported Interviewees One and Two by saying that:

> *I think there is still a disconnection because people understand SAP to be a tool used to process journals and service entry. The QCP system that we have, they kind of separate the two…they do not understand that they should go hand in hand in trying to have right processes flowing and speaking to each other (Appendix D: 124).*

However, the systems controllers (which made up 22 percent of the interviewees) and 25 percent of project services support, were of the opinion that people understood that the ERP system was a quality-improvement tool. Project service support prides themselves in that, as a finance department, the ERP system was the only system utilised and it provided good quality output. According to them, since the implementation of the ERP system, the time it took to complete projects had improved. It was also believed that continuous improvement like training, appointment of SAP champions to make learning fun and effective and I-tutorials could improve quality outputs in the asset creation environment.

The Project Support Services Manager thought that people understood and were utilising the ERP system to improve quality. It was said in the Project Service Manager Eight's statement that:

> *We do understand that and it does work for us if you looking on the accounting side it is the system that…how can I put that..there is no other financial system in our company. So it works (Appendix D: 115).*

This was supported by Interviewee Six, who said that:

> *I do think that they do understand because I can say - based on the turnaround - of how we would work on our projects and period wise, the time that we spend on our projects has really decreased. It has improved in that it means that we are being effective and the feedback that we normally give both internally and to external stakeholders has really improved (Appendix D: 109).*

The findings from this section of the interviews were:

- Finding 6: There was a lack of awareness that ERP can be used to improve QCP;
- Finding 7: Business processes were in silos, each department had its own process;
- Finding 8: There was a disconnect in the understanding of the link between QCPs and the ERP system; and
- Finding 9: There was little training or no clear guidelines on how to utilise the ERP to improve quality.

Table 4.3: Findings on complexities experienced with the QCP's after the implementation of the ERP system

Number	**Findings**
RSQ 1.1:	**What complexities were experienced with the QCP's after the implementation of the ERP system?**
Finding 1	The management understands the QCPs but do not believe that the QCPs can be utilised and benefit the company.
Finding 2	The operational employees are aware of the QCPs and use the processes in their daily business operations.
Finding 3	QCP's have become burdensome, lengthy and unclear.
Finding 4	Manual quality check list that is used is not reliable.
Finding 5	After the implementation of ERP system no improvements have materialised.
Finding 6	There is a lack of awareness that ERP can be used to improve QCP.
Finding 7	Business processes are in silos, each department has its own process.
Finding 8	There is a disconnect in the understanding of the link between QCP's and the ERP system.
Finding 9	There are little training or no clear guide lines on how to utilise ERP to improve quality.

The following sub-research question was asked, in relation to RQ 1: RSQ 1.2 - How were the stakeholders involved in the implementation of the ERP System?

i) IQ 1.2.1: In your opinion, were all the stakeholders involved?

This question was asked to understand if users took ownership of the system or if they were resistant. Figure 4.6 is a graphic representation of the results obtained from the interviews.

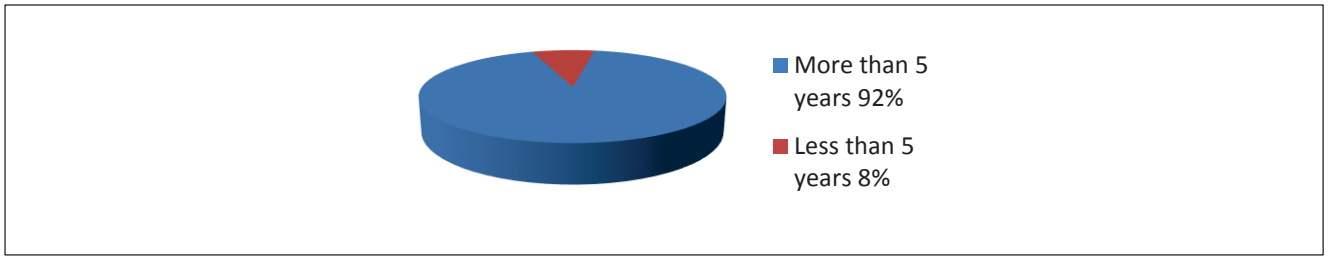

Figure 4.6: Stakeholder involvement in the implementation of the ERP System

Eleven (92 percent) of the interviewees had more than five years of experience in the organisation and the asset creation department; they were of the opinion that the whole implementation process was a top-down approach. No input from the relevant stakeholders was requested or taken into consideration. It was believed that - if the systems were implemented with a proper plan - stakeholder involvement, and training, would be accepted and utilised better than the implementation of an ERP system which had a shorter life cycle, a big project scope, improper training, and no stakeholder involvement. A project of this nature requires proper and thorough change management.

Interviewee One, who had eighteen years in the organisation and more than eight years in capital program management, expressed that:

> *For us it was a top-down approach, so the bottom section is the implementation phase but people implementing it are not involved in setting up the specification for the system. Stakeholder involvement was not across the board (Appendix D: 88).*

This strong expression is supported by Interviewee Nine, who had more than ten years of experience in the organisation, with experience in both the generations business unit and distribution business unit. Interviewee Nine stated that:

> *I see IT was more of being told this is what we are gonna achieve and so forth. They did not think of the implications that changing the reports and minimising cost centres will have on the person (Appendix D: 121).*

Interviewee Two, who had been with the organisation for more than ten years in the capital program management department, attested to the top-down implementation approach (as stated by Interviewees One and Nine), by saying that:

> *I don't think they were officially involved. There was a call six months before implementation from some people to assist. That was not enough time, not for the size of the transformation they were expecting. Getting people to Joburg for a two day workshop, trying to get them to give you input of something they are not aware of. They get some information, it did not work (Appendix D: 93).*

Those interviewees with less than five years of experience did not feel strongly about the top-down approach as, at the time, they were new in the organisation, still in the learning phase and not concerned or focused on being involved in the change management process.

Interviewee Five, with three years in the organisation, indicated that by the time the project went live the interviewee had just joined the organisation and had no knowledge of organisational culture but, having said that, the interviewee believed that the relevant stakeholders who were supposed to be involved were the clerks of work. These are people who supervise material and contractors on site. Their access to SAP would assist with making sure that the correct material, at the correct time, with correct labour, were on site when required. That process would eliminate many an error and work could be done timeously and effectively.

The findings from this section of the interviews were:

- Finding 10: Stakeholder involvement was not prioritised as being important;
- Finding 11: There was a top-down approach for the implementation of the system;
- Finding 12: Time spent in the planning phase was minimal;
- Finding 13: Business and systems integration were overlooked;
- Finding 14: The system was not customised to meet the needs of the business;
- Finding 15: Training was not effective; and
- Finding 16: Quality was compromised by the fear of management.

ii) IQ 1.2.2: Who are the relevant stakeholders that should have been involved in the implementation of the ERP system?

The researchers aim was to understand if all stakeholders shared the same vision, goals and objectives, and at which stage of the implementation of the project were they involved in, if at all.

Interviewees believed that all stakeholders - internal and external - should have been involved. Interviewee One stated that:

> *Senior management knew certain things were not working on SAP, was not working, but no one wanted to tell the Financial Director that it is not working because of fear. That is why I am commenting on the leadership style and management style which contributed to this whole thing (Appendix D: 88).*

Interviewee Ten came with an interesting fact, in that if the initiative to involve stakeholders was taken, the onus would lie with those selected to do a championship job:

> *The project leader and people who were selected to be champions from their department and the onus would lie with them to go back to the department to train people (Appendix D: 124).*

The findings from this section of the interviews were:

- Finding 17: Users were informed of the system but their input was not utilised during implementation.

Table 4.4: Findings on stakeholder involvement in the implementation of the ERP System

Number	**Findings**
RSQ1.2	**How were the stakeholders involved in the implementation of the ERP System?**
Finding 10	Stakeholder involvement was not prioritized as being important.
Finding 11	There was a top down approach for the implementation of the system.
Finding 12	Time spent in the planning phase was minimal.
Finding 13	Business and systems integration was overlooked.
Finding 14	The system was not customised to meet the needs of the business.
Finding 15	Training was not effective.
Finding 16	Quality is compromised by the fear for management.
Finding 17	Users were informed of the system but their input was not utilised during implementation.

4.5.2 RQ 2: Why are the implemented QCP's not being used after the implementation of the ERP system?

The following sub-research question was asked, in relation to RQ 2: RSQ 2.1 - How effective are the QCPs after the implementation of the ERP system?

i) IQ 2.1.1: How was the implementation of the ERP system supposed to address ineffectiveness?

The aim of the researcher in this question was to find out if stakeholders were aware of effectiveness as one of the reasons to implement the ERP system.

Interviewee Eight, with 16 years of experience in the organisation, was of the opinion that centralising an organisation that was decentralised - and integrating business and systems - was supposed to improve effectiveness. She is quoted as saying:

> *I think because we were sitting as a decentralised organisation, a lot of information required from the regions of the OU required by the head office had to be populated, consolidated and submitted. It was ineffective because we did not have a system that the head office can draw information from the entire region. New SAP came into implementation with the idea that information can be drawn by head office but it is not happening (Appendix D: 115).*

Interviewee Ten confirmed that the ERP was meant to integrate departments and make process flow easier:

> *I believe ERP is supposed to facilitate the flow of info between departments; in our department we deal with projects and we have other stakeholders like procurement and contracts, so we need that conformation for each stakeholder to get information when they need it (Appendix D: 123).*

This is strongly supported by Interviewee 12, stating that:

> *There must be more cohesion between departments, such that the cross-functional relationships are easily accessible rather than the parallel way we work like (Appendix D: 128).*

The findings from this section of the interviews were:

- Finding 18: There was no link between the QCP and the implemented ERP system.

ii) IQ 2.1.2: How do you regard the level of effectiveness of QCP's?

This interview question was asked to determine the gap between the implemented ERP system and business processes. Figure 4.7 is a graphic representation of the results obtained from the interviews.

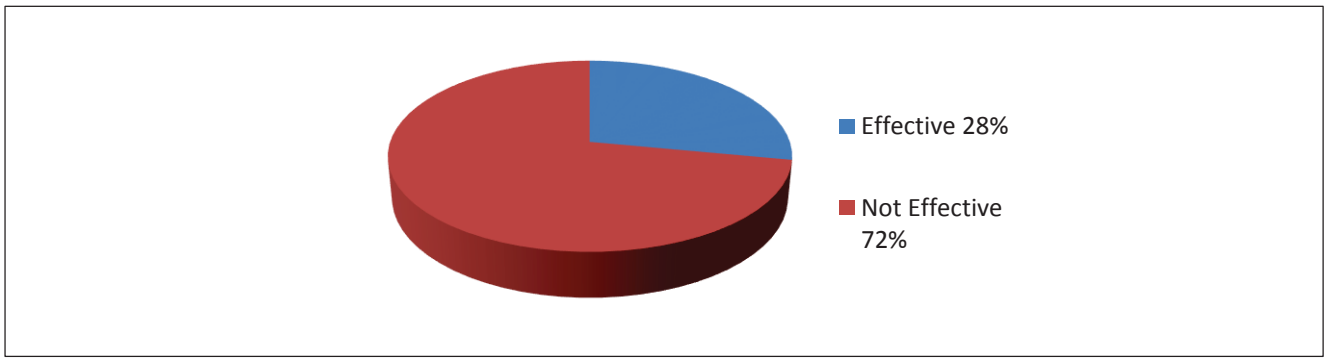

Figure 4.7 Level of effectiveness of QCP's post ERP implementation

72 percent of interviewees (consisting of program managers, project managers, consultants and the project accounting department) are of the opinion that the level of QCPs post-implementation of the ERP system is low.

Program managers advocated that the implementation of the ERP system brought about complex processes, which were the opposite of the simplicity that the ERP implementation was meant to provide. Interviewee One states that:

> *The level of effectiveness is low and I do not think we should have gone for certification (Appendix D: 87).*

This is supported by Interviewee Two, who stated that:

> *Yes, there were gaps in the process, there were inefficiencies. I won't advocate that we had a perfect process but we were closer to getting it right than where we are now. What the re-implementation brought about were complex processes, but we were told with back to basics that we are going to standardise and things are going to be much simpler. That was part of our SOS rules: Standardise, Optimise and Simplify. The simplify rule flew out the window, this is not simpler: it's in fact more complex. And I think that is part of the reasons why it is not effective (Appendix D: 92).*

Interviewee 12 stated that:

> *Because of the way things are so fuzzy, the processes quality has taken a knock. Between me and you, from the project management environment, quality is not just compliance to the spec, it's about timeous delivery (Appendix D: 127).*

Project Support Services were of the opinion that the implementation of the ERP system brought about confusion, and that there was no reporting structure. For example, the ERP database is fed by information but no reports could be drawn out of the system. People reverted to what they knew and were comfortable with, or found a way to work around the system. Interviewee Eight stated that:

> *Like we say, new SAP does not have a reporting structure. The major problem that we have as a business is that we are running a lot of QCPs on MS Excel, so for us new SAP is not working and the important thing that the business must do to improve effectiveness is to work on the reporting structure (Appendix D: 115).*

This is supported by Interviewee Nine, who stated that:

> *I just think the implementation just confuses people, considering that with the older version training was thorough and this new implementation was just a monkey-see-monkey-do exercise (Appendix D: 120).*

28 percent of the interviewees (made up of system and quality controllers) alleged that the system had made some improvements, such as deadlines that were now met as people had all the required information available to them. Management could get consolidated reports in real-time and would be able to make reliable, relevant and timeous business decisions.

Interviewee Six stated that:

> *It has really improved. If we compare the way we did business and the way we carried our task prior to the implementation it was um!!! My grandmother's time you know where you still have to fill in the form and literally walk, ok walking is part of the exercise but still it is time consuming in this day and age (Appendix D: 108).*

The findings from this section of the interviews were:

- Finding 19: Business processes were complex and led to confusion;
- Finding 20: End-users were not clear on how to utilise the system to measure quality; and
- Finding 21: There was no cohesion between departments, they were working in parallel.

iii) IQ 2.1.3: Which areas need to be worked on to improve effectiveness?

The aim of this question was to understand the practicality of the QCPs and the required areas of improvement. There were different views amongst the interviewees, based on their position within the company.

There was clearly a need to go back to the drawing board and relook things. Interviewee One, the program manager with 18 years of experience in the organisation, stated that:

> *I would look more at efficiency in terms of what can we do shorter instead of compliance. The second thing is over processing: we process documentations which lead to duplications. Duplication only comes into an organisation where responsibilities are not clearly defined. There will be overleaps that one can understand but I believe there is a lot of duplication in the organisation. Time is really the issue which is over processing and over productivity which costs a company a lot of money and time (Appendix D: 87).*

Interviewee Ten, a Project Services Officer and also a Quality Control Representative, added another angle, which was training*:*

> *Training, I guess people need to be trained more on these systems so that they understand and I guess they need to be taken through Change management as this is something new (Appendix D: 123).*

Interviewee Nine, a project accountant, agreed with interviewee Ten:

> *I think it needs to be training and discipline. But you cannot force one on discipline (Appendix D: 120).*

Interviewee Six, a systems controller, was of the opinion that real improvement that had taken place, though continuous improvement was vital:

> *Obviously there still needs to be continuous improvement to maintain the system, which is basically I would say that most importantly the users need to adapt and to be flexible when it comes to change because it is always difficult when introducing a new system to the users. Especially if they have been working for the organisation for ages and then they coming with the new system and now we need to learn, you know. Especially the older ones you know, who have been working with the organisation for quite some time, they tend to be resistant to the system (Appendix D: 108).*

Interviewee Eight, a project services manager, stated that an important area in the project service line of work was the reporting structure. This is evident in the response to the above question:

> *The important thing that the business must do to improve effectiveness is to work on reporting structure (Appendix D: 115).*

The findings from this section of the interviews were:

- Finding 22: Quality, time and money were compromised by duplicating processes;
- Finding 23: There was a lack of continuous improvement processes in the business;
- Finding 24: The real-time reporting was not achievable as the reporting structure was not clear; and
- Finding 25: Lack of effectiveness due to QCPs not aligning to the ERP system.

Table 4.5: Findings on effectiveness of QCPs post-implementation

Number	**Findings**
RSQ 2.1	**How effective are the QCP's after the implementation of the ERP system?**
Finding 18	There is no link between the QCP and the implemented ERP system.
Finding 19	Business processes are complex and lead to confusion.
Finding 20	End users are not clear on how to utilize the system to measure quality.
Finding 21	There is no cohesion between departments, they are working in parallel.
Finding 22	Quality, time and money are compromised by duplicating processes.
Finding 23	There is a lack of continuous improvement processes in the business.
Finding 24	The real time reporting is not achievable as the reporting structure is not clear.
Finding 25	Lack of effectiveness due to QCP's not aligning to the ERP system.

The following sub-research question was asked, in relation to RQ 2: SRQ 2.2**:** How can the QCPs be redesigned in order to assist in achieving success in energy supply projects**?**

i) IQ 2.2.1: What are the issues that could lead to redesigning QCPs post-ERP implementation?

The aim of the researcher in the above questions was to observe if there was a need for a change.

The interviewees were excited by this question, as it came as an opportunity to raise issues that had been frustrating them. There were departments who were important stakeholders and that had not been integrated into the system, and who still utilised the system that worked for them, thereby leaving a gap for things to go wrong (which further increased the need to redesign the QCP).

Interviewee One's concern was the fact that the organisation had a lot of processes in place but that the customer was not receiving the quality product (as promised) which could lead to redesigning the QCP:

> *If I can't provide a customer with service because of a system and processes that I must follow then there is something wrong. I must start questioning my processes (Appendix D: 89).*

The findings from this section of the interviews were:

- Finding 26: The system was not customised to meet the needs of capital programme management.

ii) IQ 2.2.2: In your opinion, what are the risks involved in the redesigning of QCPs, post-implementation of the ERP system?

The above question was asked so that, when proposing the framework, the risks in the particular organisation are looked at ways are found to mitigate them.

Answering the question relating to risk factors in the redesign of QCP post-implementation of the ERP system, Interviewee Ten suggested that not involving stake holders in the planning phase could be a huge risk. Interviewee Ten added that the gap between the roll-out of the ERP system and the quality management plan was a risk, as the components may not speak to each other.

Interviewee Four pointed out that it would be a risk to redesign the QCP and still do things the same way (as previously done). Referring to the data warehouse, Interviewee Ten stated:

> *They can set up resources to fix the data warehouse with data tubes, it would make a huge difference. Which cannot cost as much (Appendix D: 102).*

Interviewee Four believed that part of the redesign of QCP must ensure that the system works as per the scope, so that it can link well to the QCPs and "that could be better".

The findings from this section of the interviews were:

- Finding 27: ERP implementation project was not executed according to the specification.

iii) IQ 2.2.3: What can be done to mitigate the risks?

The aim of the researcher was to obtain possible inputs for the framework to be proposed for QCPs, in order to reap the benefits of the implemented ERP system.

Program managers with more than 15 years of experience in the organisation believed that the system must work for people, not the other way round. Interviewee One stated that:

> *I would still start by doing the needs analysis, with end-uses, and look at what is needed from the system instead of you working for the system (Appendix D: 89).*

They also believed that change management and stakeholder involvement were key to reaping the benefits of the system. Some program managers added that the implementation process was not complete; there were certain packages within the warehouse that were still not utilisable and that that would defeat the purpose of the whole ERP package. Interviewee Four stated that:

> *Especially the new sides of the system like SAP PPM, there is no proper reporting to it. You cannot feed the system and not get anything out. What they promised us was a business warehouse, we would have tubes in this warehouse with SAP modules like SAP PS, SAP PPM, SAP ER will be in the warehouse and from the warehouse you will be able to extract reports and do pivot tables and do all sort of things (Appendix D: 99).*

Project service support saw a definite need to re-design QCPs, as they deal with many governance issues in their environment and must always be updated and on time. The processes to achieving good quality output were important to them and therefore should be clearly defined. This is supported by Interviewee Eight, the project services manager, saying that:

> *Can I suggest, this is definitely my opinion: QCP is most important in project services, governance is what we run our business on and if we do not have a system that supports that we are not adhering to what we should be doing? (Appendix D: 117).*

The systems and quality controllers saw no need to re-design QCPs, as these processes were already there. They suggested continuous improvement - in terms of training stakeholders to become comfortable with the system and reduce user resistance - instead.

Interviewee Two, a program manager with more than ten years of experience in the organisation, came from a different angle, in that redesigning QCP might not solve the problem. She strongly believes that the problem lay with the implementation of the ERP system:

> *I would not say redesign QCP if we refer back to ISO, I think that is good, I think we had more success in ISO implementation than we had in SAP implementation. I would say redesign implementation of SAP (Appendix D: 94).*

The findings from this section of the interviews were:

- Finding 28: The need analysis was not done across the organisation during the planning phase;
- Finding 29: Business integration within the departments was not done;

- Finding 30: Change management during ERP system project implement needed to be properly executed; and
- Finding 31: The system was abandoned after implementation.

Table 4.6: Findings on redesigning of QCPs in order to assist in achieving success in energy supply projects

Number	**Findings**
RSQ 2.2	**How can the QCPs be redesigned in order to assist in achieving success in energy supply projects?**
Finding 26	The system is not customised to meet the needs of capital programme management.
Finding 27	ERP implementation project was not executed according to the specifications.
Finding 28	The need analysis was not done across the organisation during the planning phase.
Finding 29	Business integration within the departments was not done.
Finding 30	Change management during ERP system project implement was not properly executed.
Finding 31	ERP system was abandoned after implementation.

Table 4.7: Themes linked to the findings

Themes	**Findings number**	**Findings**
Business process redesign	Finding 1	The management understands the QCPs but do not believe that the QCPs can be utilised and benefit the company.
	Finding 2	The operational employees are aware of the QCPs and use the processes in their daily business operations.
	Finding 3	QCPs have become burdensome, lengthy and unclear.
	Finding 4	Manual quality check list that is used is not reliable.
	Finding 9	There are little training or no clear guide lines on how to utilise ERP to improve quality.
	Finding 13	Business and systems integration were overlooked.
	Finding 18	There is no link between the QCP and the implemented ERP system.
	Finding 19	Business processes are complex and lead to confusion.
	Finding 24	The real time reporting is not achievable as the reporting structure is not clear.
	Finding 22	Quality, time and money are compromised by duplicating processes.
	Finding 21	There is no cohesion between departments, they are working in parallel.
	Finding 27	ERP implementation project was not executed according to the specification.
	Finding 29	Business integration within the departments was not done.

Themes	Findings number	Findings
System Integration	Finding 7	Business processes are in silos, each department has its own process.
	Finding 13	Business and systems integration was overlooked.
	Finding 24	The real time reporting is not achievable as the reporting structure is not clear.
	Finding 21	There is no cohesion between departments, they are working in parallel.
	Finding 29	Business integration within the departments was not done.
Change management	Finding 6	There is a lack of awareness that ERP can be used to improve QCP.
	Finding 7	Business processes are in silos, each department has its own process.
	Finding 11	There was a top down approach for the implementation of the system.
	Finding 28	The need analysis was not done across the organisation during the planning phase.
	Finding 29	Business integration within the departments was not done.
	Finding 30	Change management during ERP system project implement was not properly executed.
Systems bottleneck	Finding 26	The system was not customised to meet the needs of the business.
Stakeholder involvement	Finding 10	Stakeholder involvement was not prioritized as being important.
	Finding 12	Time spent in the planning phase was minimal.
	Finding 17	Users were informed of the system but their input was not utilised during implementation.
	Finding 16	Quality is compromised by the fear for management.
Training	Finding 9	There are little training or no clear guide lines on how to utilise ERP to improve quality.
	Finding 15	Training was not effective.
	Finding 20	End users are not clear on how to utilize the system to measure quality.
Continuous improvement	Finding 5	After the implementation of ERP system no improvements have materialised.
	Finding 23	There is a lack of continuous improvement processes in the business.
	Finding 31	ERP system was abandoned after implementation.
Quality	Finding 4	Manual quality check list that is used is not reliable.
	Finding 5	After the implementation of ERP system no improvements have materialised.
	Finding 16	Quality is compromised by the fear for management.
	Finding 20	End users are not clear how to utilize the system to measure quality.
	Finding 22	Compromising quality, time and money by duplicating processes.
	Finding 25	Lack of effectiveness due to QCPs not aligning to the ERP system.

The QCPs, after the implementation of the ERP system, had become burdensome and lengthy, hence the need to redesign QCPs. Systems were working in silos, which defeated the aim of implementing the

ERP system. There was a need to integrate systems while redesigning QCPs, for the promised benefit of the ERP system to be reaped. Properly executing change management strategies during the redesign process - and training stakeholders - would bring a positive response to the system and processes. Continuous improvement would ensure good quality services whilst customising processes to meet the needs of the public.

4.6 SUMMARY

13 interview questions were asked to 12 interviewees. As a result, 31 findings were recorded. These findings were then linked to themes (as categorised in Table 4.2). Once again, for the benefit of the reader, the themes are system integration, change management, systems bottleneck, stakeholder involvement, training, continuous improvement and quality.

These findings and themes are summarised in Table 4.7 and discussed in conjunction with secondary data (as discussed in Chapter Two).

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

Chapter Five presents the discussion of the research findings, as reported in Chapter Four. The study was aimed at understanding the complexities around QCP, after the implementation of an ERP system within energy supply projects. The discussion revolves around the findings from the data - and literature analysis - that answers the problem statement and research questions (as described in Chapter One). This Chapter is presented as follows: the problem statement, research questions and the research aim are once again provided for the convenience of the reader. This is followed by a discussion of the themes in alignment with the research questions.

5.2 PROBLEM STATEMENT

The lack of QCP after the implementation of ERP systems results in the non-delivery of the promised benefits of the ERP system, creating an unstable environment for businesses to operate in.

5.2.1 Research Questions

i) Research Question 1: How can QCPs be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

ii) Research Question 2: Why are implemented QCPs not being used after the implementation of the ERP system?

5.2.2 Research Aim

The aim of the research is to understand the complexities around QCP, after the implementation of an ERP system within energy supply projects.

5.3 THEMES DISCUSSED

Through the data collected, eight themes were identified which could form the basis of a guide to control the quality of projects after the implementation of an ERP system in the energy supply company. The themes are discussed in order to provide meaning to the findings, with reference to the study objectives. Coding and transcriptions used as a guide to understanding the objectives. The themes are:

- business process redesign and continuous improvement
- system integration

- change management
- system bottlenecks
- stakeholder involvement
- training
- quality

For the discussion process redesign and continuous improvement are combined. Stakeholder involvement, training and quality are grouped together.

5.3.1 Process Redesign and Continuous Improvement

The objectives of business process reengineering are to improve business processes and reduce costs (Vergidis *et al*., 2008). When a system (or systems) are implemented in an organisation - and the business processes are still not as effective as expected and costs are not reduced - then there is a need to reengineer even the new business processes. In this research, the need for process redesign has been mentioned often by all interviewees. The interviewees indicated that the business processes are not effective and that they cannot see any cost reductions. They see the reengineering of the process as an important step to increase productivity and quality of the projects. The need to re-engineer the current QCP is evident out of the discussions. The interviewees expressed concern over the QCP and saw it as important for successfully implementing projects.

5.3.2 System Integration

The vendors of ERP systems promise integration on many levels such as system, interface, global, data and business integration. Generally, the aim of any organisation that implements an ERP system is to have all these integration layers in order to continuously improve productivity and quality, and to realise large profit margins in a simplified manner (Garg & Garg, 2013). For all these promised benefits of the ERP system to be met, top management must show commitment before, during and after implementation. Garg *et al*. (2013) point out that the lack of commitment from top management is one of the outstanding reasons for the organisation to never reap the benefits of the implemented ERP system.

The energy distribution organisation is facing the post-implementation challenges pointed out in literature review (Chapter Two). Program managers - in this case study - have emphasised the lack of top management commitment post-ERP implementation as a reality in the organisation. The program manager for business improvement pointed out that the project scope had not been completed during the implementation and data integration had not done to the point of satisfaction of the users, making it

difficult for the business to consolidate and interpret reports in real-time, as they had expected to. Because of the lack of top management's continuous support post-implementation of the system, the issues were not dealt with. This left end-users with no choice but to lean on what worked better, still utilising different systems for reporting purposes and not reaping one of the main integration benefits of the ERP system.

Some program managers confirmed that they did not use the implemented ERP system in their department, as the department functioned well with those systems that were currently in use. Those managers viewed the ERP system as a budgeting and reporting tool that had nothing to do with their technical department. This created an overall problem, as the benefits realisation of the ERP system lay within the overall usage of the system. This, again, opened the gap in the project processes which in turn affected QCP.

From the data collected through the interviews, it showed that business integration had not been done successfully. If there was no proper integration, the chances of improved business processes, QCP, simplicity and standardisation were minimal. Reaping the benefits of the implemented ERP system was possible only with the full commitment of top management and all employees.

5.3.3 System Bottlenecks

If customisation is not carefully considered before the ERP system implementation, the organisation might find itself in a complicated situation. Understanding how the ERP platform is hosted and how it might influence personalisation options will reduce the risk of complications - and delays - during the implementation process and post-implementation (Carton *et al*., 2008).

Program managers with more than ten years of experience in the organisation (especially in the capital program) mention system bottlenecks as a challenge. It is believed that - during the centralisation of three independent business units which work differently - the ERP system was customised to meet the needs of two business units (generations and transmission) which left distribution in a position to adapt their processes to cooperate with the system:

> *We have three divisions: Generation, transmission and distribution. Our SAP was set up predominantly to cater for generation and transmission type of processes and small amount of distribution (Interviewee One, Appendix D: 88).*

This system bottleneck is felt throughout distribution, as even data integration did not meet the needs of the distribution business unit. A project accountant with more than ten years of experience in both

generation and distribution agreed that many reporting codes had been removed, making it difficult to draw and interpret data. Interviewee 10 stated:

> *We are still doing a lot of clean up as far as I'm concerned because you are not as effective as you were because some of the reports were taken away. Because it was true when they said we customise a lot of reports but they should have tried to use those reports to their advantage instead of taking them away (Appendix D: 121).*

This became an issue in the asset creation department because there is a lack of confidence in the reliability of reports and, instead of having a simplified, standardised and real-time reporting, it became a tedious job that was done in bits and pieces, thereby taking very long to consolidate.

Planning and understanding that an ERP system implementation is a long term project, along with allocating resources and continuous improvement is a key to avoiding system bottlenecks. Careful customisation of the ERP system during the planning phase can lead to clearly defined business processes and QCP. This research showed that the energy distribution organisation did not spend time on these key elements, towards a successful utilisation of the ERP system post-implementation. It is evident from the discussion that QCP needed to be redesigned, taking into consideration system customisation to avoid system bottlenecks.

5.3.4 Change Management

According to Aladwani (2001), improvement strategies such as ERP implementation commonly involve change. Hence, responsiveness to internal customers is critical for an organisation to avoid the difficulties associated with change. Top management should, therefore, deal with the complex organisational problem of end-users' resistance to ERP implementation, by using (for example) a process-oriented conceptual framework (Hiatt, 2009).

Supporting the view that change management is the key success factor before, during and after implementation of am ERP system, the interviewees were all of the opinion that change management was the most important aspect of a successful implementation. The researcher also wished to verify that ADKAR - a model for change management in business - was utilised during the implementation process. Figure 5.1 illustrates the ADKAR model for change management.

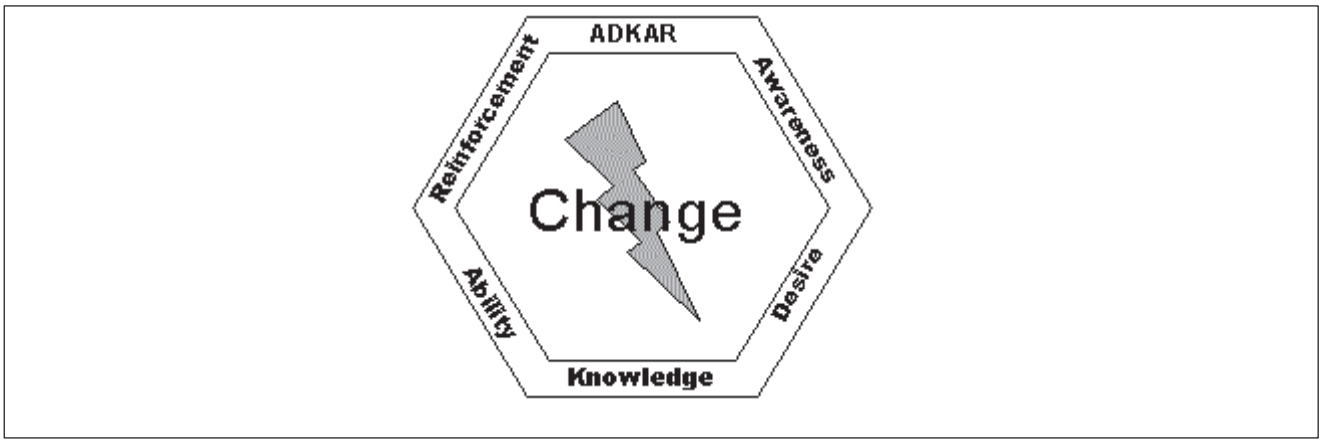

Figure 5.1: Model for change management

(Source: Hiatt, 2009)

Three program managers, one in business improvement, a project services manager and an accountant, respectively emphasised that the ERP implementation process was a very quick project with very limited deadlines, which had an impact on the change process. Interviewees were of the opinion that there was a general lack of awareness about the reason behind the implementation of such a costly system. The employees saw no need to centralise the organisation as, during the ERP implementation period, it consisted of three business units (Generations, Distribution and Transmission) which operated independently and were doing well.

There was no desire to change, as there was no understanding of the reason behind the implementation. Because of the time constraints of the project; the desire to change had not been stimulated in the employees.

Negativity entered the organisation and the need to acquire knowledge became minimal; as a result, when the project went live, people realised that they had to utilise the new system. This process of learning to operate and utilise the new system became a tedious exercise and people did not perform as expected.

Like anything that is unfamiliar for a human being, reinforcement assists with familiarisation. From the strategic planning of the ERP system implementation, and although top management seemed to understand what the organisation needed to accomplish, they did not share the vision, goals, and objectives of implementing the new ERP system. The lack of information created resistance from the end-user side. The commitment to support staff, reinforcing the utilisation of the system until it is fully utilised, is important. Lack of that commitment from top management causes a business never to reap the promised benefits (Cater-steel & Toleman, 2009).

The findings of this study calls for visible support and commitment from top management in the execution of change management, in order to see the organisation reaping the promised benefits of the implemented ERP system.

5.3.5 Stakeholder (users) Involvement and Training

According to Aloini *et al*. (2012), user involvement is important to meeting expectations. Key users should be convinced of the system utility and, moreover, they must be confident and expert so that they can aid future users in training sessions. User commitment and a "project champion" (who has the vision to get the project going and pushes for the project to be accepted where there are competing priorities) are useful in the early stages of the project and during the implementation phase (Carton *et al*., 2008).

Stakeholder involvement has been mentioned many times during interviews, especially by program managers and project support services. The interviewees agreed that - during the implementation process - top management chose an autocratic leadership style and, as such, communication was a one way street (top-down approach). Top management, despite their clear strategic plan, did not have an idea of what was going on at the end-user level and did not encourage sessions where knowledge should be shared, along with ideas on how to customise the ERP to suit not only the needs of the organisation, but the everyday users of the system.

Project champions were not visible, so that when the ERP project went live user resistance was encountered. End-users felt they were not part of the change, the system was dumped on their desktop, no one cared to listen about the system constraints the end-users experienced and the confusion that the change had brought into the daily activities of the users. Interviewee Two stated:

> *It was just a new system; it was dumped on you and you were given x amount of days to do desktop training that was not even properly designed. You basically had to find your way (Appendix D: 92).*

Negativity in an organisation kills productivity (Griffiths, 2009). The findings of this research showed that productivity levels had dropped and frustrations had risen; this impacted the quality of the overall projects of the organisation and, as a result, they were not reaping the promised benefits of the ERP system.

5.4 ANSWERING THE RESEARCH QUESTIONS

The findings of this study showed that the problem with the organisation was in the implementation of the ERP system. The case study was limited to the Western Cape operating unit, though the identified

issues affected the entire organisation. Therefore, the findings focus on the Western Cape operating unit and the analysis on the entire organisation will be left for further research. The study consisted of two research questions with two research sub-questions for each. The findings answering the research questions will be categorised and discussed in this section.

5.4.1 How can QCPs be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

i) Sub-research question 1.1: What complexities were experienced with the QCPs after the implementation of the ERP system?

The findings showed that there was some awareness of the organisation's QCP but that the implementation of the ERP made it impossible for the organisation to reap the benefits of the implemented system. One of the complexities experienced was that QCPs - after the implementation of the ERP system - had become burdensome, lengthy, and unclear (Chapter Four: Finding 3). The business processes were in silos, meaning that each department had its own processes and used different systems, though with the aim to accomplish one goal. The literature concured that a successful ERP system will streamline processes within a company and improve its overall effectiveness (Gargeya & Brady, 2005).

The findings furthermore pointed out that there was no clear guidance for the end-users on the utilisation of the ERP system, to formulate QCPs to improve productivity. A disconnect in the understanding of the link between QCPs and the ERP system, the lack of training and clear guidelines on the utilisation of the ERP system to improve quality, were contributing factors in making the QCPs complex. It was therefore vital for management to use clear and unambiguous statements regarding why the ERP system was being pursued, thereby ensuring the success of the project (Carton *et al*., 2008).

ii) Sub-Research question 1.2: How were the stakeholders involved in the implementation of the ERP System?

Further findings showed that stakeholders' involvement was not prioritised as being important during the implementation of the ERP system. There was a top-down approach for the implementation where end-users were given an order, in terms of what was required from them. This autocratic culture from top management resulted in end-users being resistant. The literature spoke a lot about prioritising stakeholder involvement when changes like implementing a new system takes place. According to Aladwani (2001), improvement strategies such as an ERP implementation often involves change. Hence, awareness and acceptance for internal customers is critical for an organisation to avoid the difficulties related to this change.

The findings also indicated that time spent in the planning phase was minimal. Users were informed of the system but their input was not utilised during implementation; as a result, the system was not customised to meet the needs of the entire business. Training provided was not effective. Quality was compromised by fear of protocol. Saxena (2013) emphasised the importance of feeding information about the changes to the end-users throughout the project, so as to avoid negativity and resistance. According to the above findings, the organisation did not play this role well.

5.4.2 How can QCPs be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

i) Sub-research question 2.1: How effective are the QCPs after the implementation of the ERP system?

Peng and Nunes (2005), in their research, identified potential risks in ERP post-implementation, related to diverse operational, analytical, organisation-wide and technical aspects. These risks affect QCPs in one way or the other. Peng and Nunes (2005) went on to say that effective and continuous risk management was crucial, even when redesigning QCP.

Findings from the interviewees ascertained that, due to the above aspects not being looked at pre-implementation of the system, the following issues were experienced by the organisation:

- There was no link between the QCP and the implemented ERP system;
- Business processes were complex and led to confusion;
- End-users were not clear on how to utilise the system to measure quality;
- Real-time reporting was not achievable, as the reporting structure was not clear;
- Quality, time, and money were being compromised by duplicating processes;
- Continuous improvement was not always be applied; and
- There was no cohesion between departments, as they were working in parallel.

As a result of these, the risks were never mitigated pre-implementation of the ERP system.

ii) Sub-research question 2.2: How can the QCPs be redesigned in order to assist in achieving success in energy supply projects?

Findings from the analysed data showed that the needs analysis was not done across the organisation during the planning phase. It was mentioned during the interviews that the organisation was decentralised, and part of the strategic plan was to centralise the organisation so that reporting to the executive management could be done in real-time.

The findings showed that change management during the ERP system implementation was not properly executed. One of the reasons for this could be the minimal implementation period. The literature referred to properly planned and positive change management practices as being advantageous, since they make it easy to promote high-quality entrepreneurship that would facilitate greater business sustainability over time and provide desirable results of the implemented system (Avila *et al*., 2012).

The findings clearly showed that strategic management involvement pre-implementation, during and post-implementation is the pillar in the successful delivery of the promised benefits of an ERP system. Proper planning pre-implementation of the system - and a thorough change management strategy with training rolled out timeously - will also ensure utilisation of QCPs after the implementation of the ERP system.

Once more, the findings of the study showed that the ERP system was abandoned after the implementation. This led to end-users resorting to familiar methods, as learning the system proved impossible; there was no one dedicated to dealing with issues faced by end-users. This resulted in many QCPs being created by end-users in order to get the job done. More confusion was created as processes were different for different projects. During customisation of the system, not all the needs of the different line functions were met and business integration within the departments was not done. There was a gap in the standardisation of QCP, as there was no flow of business systems and processes from one department to the other.

The above findings are supported by Ram *et al*., (2013), when they articulated that business decisions need to be well thought of and that organisations require a well-researched, properly implemented ERP system - with good QCP - to be successful.

5.5 THE “AS-IS” PROJECT PROCESS

The research findings showed that the organisation relied on a manual checklist (Chapter Four: Finding Four) as a tool utilised to perform QCP. There are different quality checklists that are customised for each department. During the energy supply project, three departments will be involved: planning, project engineering and project execution. Departments will sequentially perform their task on the project and hand over to the other department. It is during the hand-over period (see Figure 5.2) where the quality checklist is utilised.

Management can authorise changes from time to time on the quality checklist to meet the specification of different projects. The shortfall from these changes is a lack of consistency in the QCP. The findings also showed that the mentioned quality checklist was mostly utilised to ensure that the department had

performed the task(s) as per the specification. The checklist did not verify the quality of the work performed, which hindered the objective of QCP.

The purpose of implementing the ERP system included the integration of processes, the minimising of manual or paper documents and controls over actions. The findings showed that poorly developed and controlled QCP resulted in many human and system errors, which delayed and hindered a successful project implementation. The findings further indicated that the QCP could be integrated in the ERP system, ensuring the smooth implementation of projects.

The project process in the energy supply projects was analysed in a business process model notation (Figure 5.2) which is explained as a suite of well-understood, integrated technologies which permit businesses, governments and organisations to create applications that combine models of new or existing functions, applications and human (or people) tasks into an automation of core business functions. Business Process Management Software (BPMS) creates end-to-end applications in areas such as product manufacturing, customer order processing or insurance policy underwriting. The best BPMS support and implement the concepts of a services-oriented architecture (SOA), an environment for the modelling, design, development, and deployment of business process applications. Figure 5.2 is the illustration of current project processes with manual check list as a QCP.

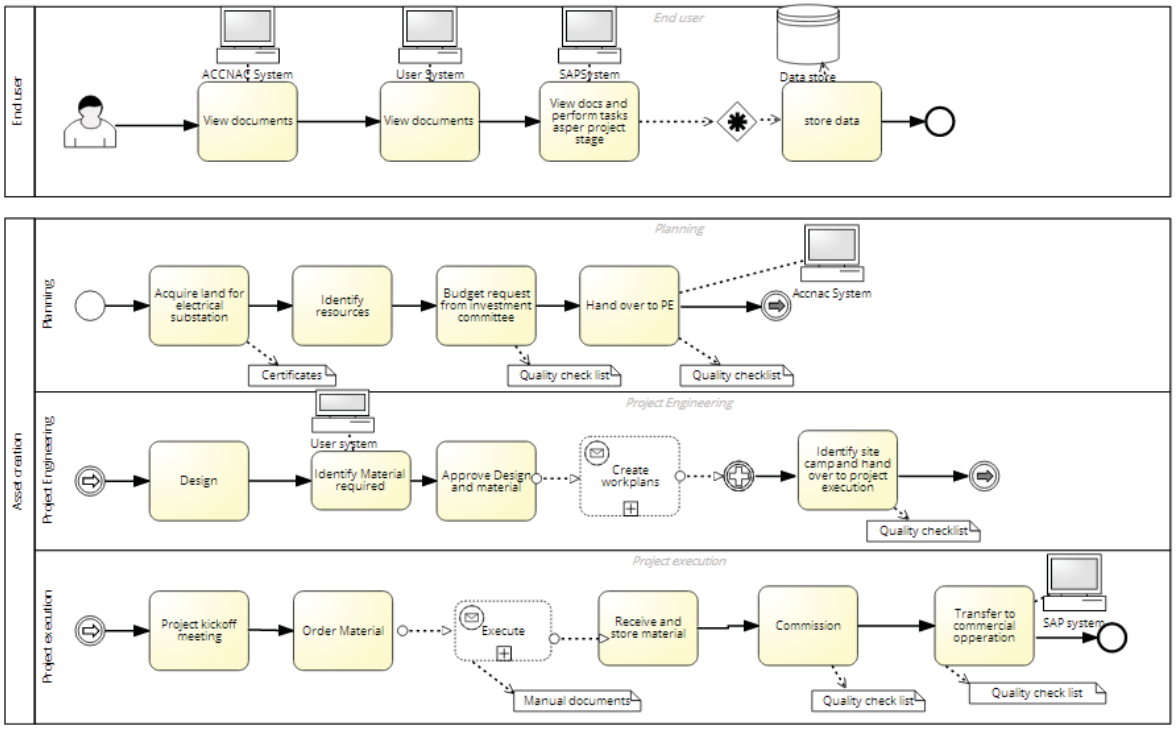

Figure 5.2: The "As-is" project processes model with manual checklists as a QCP

Table 5.1: List of shape repositories utilised in the BPMN

Shape Repository	Meaning	Shape Repository	Meaning
	Task		Catching link event
	Sub process		Throwing link event
	Complex gateway		Start event
	Pool/Lane		End event
	Participant		IT system
	Manual document		
	Data storage		

The BPMN above has 2 pools: the End-user pool and Asset creation (or department) pool. (Shapiro *et al*., 2011) describes a pool as a container for partitioning a process from other pools or participants. The asset creation pool has three lanes, which are described as a partition that is used to organise and categorise activities within a pool. Lanesare is often used for internal roles. The meaning of these pools and lanes for the purpose of this study are explained below.

i) End-user pool:

The end-user in the asset creation department can log in to the ACCNAC system, and are able to view project documents from the planning phase. The end-user must login to another system (SAP) to access the budget and log in to a personal system (MS Access and Excel) to see other project related information. This pool has a complex gateway () because information is stored in different systems. This complex process compromises quality. A new user will have to familiarise themselves with a different system in order to understand project-related issues. This can take time and create confusion.

ii) Asset creation pool:

Planning, project engineering and project execution departments are not working together. The current QCPs uses a checklist that changes per project. These checklists are difficult and complicated, making the transfer to the new department vulnerable to risks.

The planner in the first lane (Figure 5.2) uploads information in the ACCNAC system as the acquisition of land and resources allocation progresses. Progress on the project is reported using the personal system (MS Excel). Once completed, the manual quality checklist is compiled as the planner hands over to the

project engineering department. The shortfall of using different systems is that - if the end-user does not have access to one system - tracking the project's progress is not possible.

The project engineer in the second lane (Figure 5.2), who is dependent on the planner to start their task, receives the handed over documents and performs the relevant tasks. Progress in this stage is also reported using a personal system (MS Excel). The project engineer identifies material using a personal system and this material is ordered in the project execution department using the SAP system. The issue of price variance from different systems arise and can lead to an inaccurate project budget. Quality is compromised, as there is a possibility of human error during material order in different systems. Once the design task is completed, the project engineer will compile the manual quality checklist and hand it over to project execution.

The project manager in the third lane (Figure 5.2) - on receipt of the handed-over document - will start execution. SAP, combined with personal systems, is utilised to upload project and budget-related information. Manual or hard copy documents are utilised a lot in this department. The manual quality checklist is compiled on completion of the project and handed over to the maintenance department. At the end of the project, records are scattered across different systems and manual documents. It is unsafe for the information to be stored in a personal system as the information can easily disappear if the relevant person leaves the organisation. An audit trail is difficult in such a situation. QCPs are not standardised, are cumbersome and the organisation does not reap the benefits of the implemented ERP system.

5.6 PROPOSED PROJECT PROCESS MODEL WITH EMBEDDED QCP

It is important to note that QCP is embedded in the entire project process, as demonstrated in the proposed project process model (Figure 5.3). Properly integrating ISO 9001:2008 as a tool will ensure QCP at every stage of the project process. This will create a controlled environment where the desired results can be achieved, ensuring that the organisation can reap the benefit of the implemented ERP system. The proposed model aims to provide guidelines during the redesigning of QCP, to ensure that processes are standardised, simplicity is prioritised and cumbersome processes are not an issue anymore.

The process begins in the planning phase and quality should be controlled from this phase till the end of the project. After quality planning of the electricity substation design has been documented, it is performed in project designs - which is the critical stage - to maintain a good quality standard. If the design is not of a good quality, it will then be sent back to planning for quality checks. If the design meets the documented quality requirements then it will proceed to the next stage of procurement.

Currently, the organisation is using a different system to perform this task; this is an opening for things to go wrong. To close this gap, project engineering (in the proposed process model in Figure 5.3) can perform quality checks using the SAP Audit option (application) in the ERP system.

At this stage, the quality management department works on making sure that the contractors and consultants appointed to build an asset comply with all the required quality requirements that meet world organisational standards and will actually produce good quality products and services. Currently, this is a huge paper exercise through which an error can occur, whereby the quality hold-point can be overlooked as a result of human error.

In the proposed model (Figure 5.3), the whole contractor registration process can be done online and be kept in the ERP system database once the contractor meets all the required quality hold-points. This could ensure that the information is available in real-time and the process is quicker, more accurate and reliable.

Once that is assured, project execution will take over and manage the contractor as they start working, continuously verifying the quality of products and services provided as the execution stage progresses. In the project execution department, projects are executed; assets are constructed and placed into commercial operation once they are in the condition that is intended by management. There are many people involved and governance and processes are important. Red tape grew as the organisation evolved. This is where the system bottleneck starts. The aim was to secure information but it ended up hindering people from doing their job and caused frustration and resistance. More procedure and governance processes were implemented and more systems were introduced with the hope of improving quality.

The proposed model in Figure 5.3 could eliminate some steps in the process, emphasise on quality verification, and integrate different systems into an ERP system, making sure that QCP are no longer cumbersome and are easy to utilise. The diagram in Figure 5.3 is the proposed process.

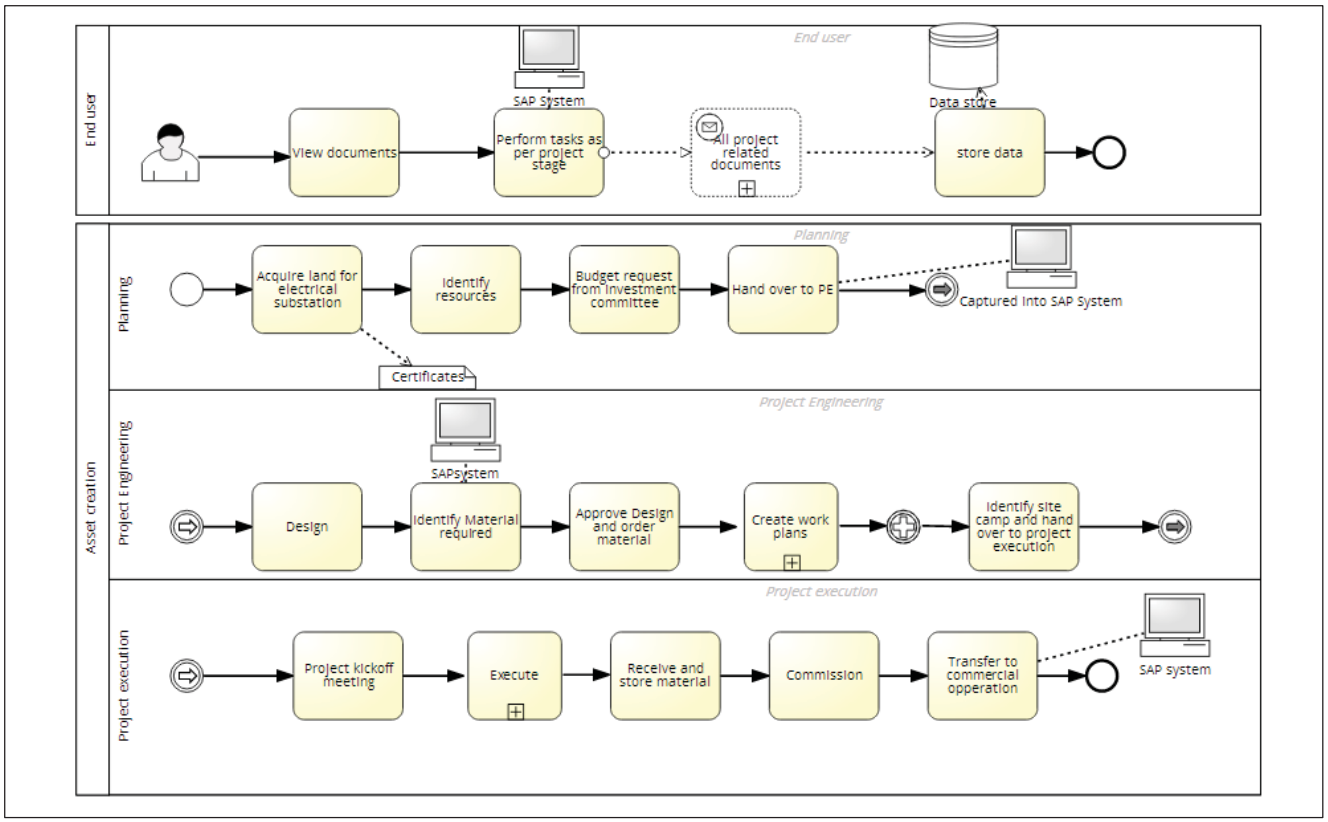

Figure 5.3: The proposed project processes model with embedded QCP

The salient changes in this process, as compared to the current process model in Figure 5.3, are as follows:

i) End-user pool:

The end-user in the asset creation department can log in to the ACCNAC system; they are, as before, able to view project documents from the planning phase. Now, however, all documents will be saved in one ERP system. A new user can view the project documentation for learning purposes, which is an easy method of knowledge transfer. Someone who has a similar project can use these documents as a benchmark for their project. The lessons learnt from projects can be documented and saved in the data warehouse. Users can be given different access rights for security reasons but they all can view the documents. This way, it can eliminate time spent looking for information in different systems, including some documents filed as a hard copy.

ii) Asset creation pool:

Planning, project engineering and project execution departments can now work together. The planner in the first lane (Figure 5.3) can upload to the ERP system quality hold-points with everything that is

expected from their side, including the time it will take to complete the job. As they progress they will check what is completed and move on. The project engineer in the second lane (Figure 5.3) - who is depended on the planner to start their task - will be able to log onto the system and view the stage of the project and prepare accordingly. The project manager in the third lane (Figure 5.4) is also able to view the project status. Since they are all working in the project, they should be allowed rights to perform some tasks. Emails can be sent among the planner, project engineer and project manager, reminding each other of certain tasks, suggestions or simple questioning whatever is not clear.

This involvement from the early stages of the project can eliminate back and forth communication and counter the subsequent, unnecessary delays. The whole project team can be informed of the project progress in real-time, instead of waiting for a monthly or third monthly project meeting to report on the progress. Secondly, uploading information to the system will eliminate the risk of loss of project information, should a team member leave the organisation or other unforeseen circumstances occur. Project documents can be saved in one data warehouse and be readily accessible. An audit trail can be easily traced from one system, which creates reliable information and reduces red tape. On completion of the project, documents can be filed in the data warehouse and be safe for as long as they are required.

5.7 STEPS ELIMINATED BY THE PROPOSED MODEL

i) Step One: storing information in different systems

Information can now be captured into the SAP system and become available throughout the life cycle of the project. This will save time, eliminate errors and enable real-time reporting to be possible, as data will be drawn from one storage.

ii) Step Two: manual quality checklist

QCP will be embedded on the ERP system. The ERP system will be programmed so that - if quality is not verified - the system will not allow progress to another stage.

iii) Step Three: ordering of material

Material will be directly ordered by the project engineer using the SAP system. This will eliminate human errors and price variances, as a result of utilising different systems and different personnel.

5.8 SUMMARY

The purpose of this Chapter was to find answers for each research question, through research sub-questions. The themes developed in Chapter Four are discussed. The findings of this research

demonstrates that, for the organisation to reap the benefits of the implemented ERP system there must be a link between the QCP and the ERP. However, the findings also show that there is a gap between the utilisation of the implemented ERP system and QCP. Some of the interviewees mentioned that several end-users do not understand that the ERP system can be utilised to improve QCP. Findings further indicated that - whilst management understood the QCP - they did not believe that the QCP could be utilised to benefit the organisation. This finding showed that, while QCP needed to be redesigned, it was important for management to believe and support the initiative, by incorporating proper change management strategies, providing training and having a proper optimisation process in place.

The proposed model to be followed - when redesigning QCP - is then provided in Figure 5.3 as a recommendation, to assist in eliminating and adding steps (as deemed necessary), and also in closing the gap between the utilisation of the implemented ERP system and QCP.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

Chapter Six presents the highlights of the main research findings, the recommendations and conclusions which were drawn from the study. The main objective of this study was to understand the complexities around QCPs and to explore a model that may assist an energy distribution organisation in the redesign of the QCP after the implementation of an ERP system. The Chapter is structured in the following way: problem statement and research questions are answered, and then recommendations are given. This is followed by a brief discussion of the limitations. Some proposed future research is suggested and the Chapter ends with concluding remarks.

6.1.1 Problem Statement

The lack of QCP after the implementation of ERP systems results in the non-delivery of the promised benefits of the ERP system, creating an unstable environment for businesses to operate in.

6.1.2 Research Questions

i) Research question 1: How can QCP's be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

If QCP is clear and straight forward, it will be easy to implement and execute. The "As-Is" project process - with manual quality checklists to control quality - shows that the QCP was unclear and cumbersome. The findings further pointed out that there was no clear guidance for end-users on the utilisation of the ERP system, for good QCPs to improve productivity. A disconnect in the understanding of the link between QCPs and the ERP system, the lack of training and clear guidelines on the utilisation of the ERP system (to improve quality) were contributing factors in making the QCPs complex. The project process model - with embedded QCP - was proposed, which aimsed to provide clarity and a user-friendly way of controlling quality.

ii) Research question 2: Why are the implemented QCPs not being used after the implementation of the ERP system?

Business processes and system integration are important and prioritised steps when implementing an ERP system. Proper integration leads to a clear process of controlling quality. The findings showed that business processes were working in silos, and there was no cohesion between departments. In the

proposed project process with imbedded QCPs, systems are integrated and the transition from one department to the other is clear. Quality can now be verified, not only in paper, but the system will not allow the move to the next stage without physical quality verification. Implementation of proper change management with management supporting the business initiative is strongly recommended.

6.2 RECOMMENDATIONS

There is a need for an integrated approach to all systems within the organisation. Systems and departments working in silos is negatively effecting the organisation. Although the ERP system has moved the organisation towards an integrated strategy, it is recommended that the organisation implement the proposed project process with embedded QCP (Figure 5.3) in order to reap the benefits of the ERP system. Improving the QCP should reduce human and system errors, enhancing the delivery of projects.

The delivery rate of projects is low and the organisation struggles to meet customer demands. The lack of customisation and /or the over-customisation of some modules of the ERP system is hindering the effective management of business processes. The processes for QCP are not well developed, resulting in many errors hampering the execution of projects. It is recommended that, together with the proposed QCP, a strategy of continuous improvement is followed. This needs to be done by regular re-engineering of the systems, as well as management and user engagement.

A complete training strategy needs to be implemented to support the principle of continuous improvement and better quality outcomes.

The management of change throughout the process of continuous improvement is critical for the success of project delivery.

6.3 LIMITATION OF THE STUDY

The major limitation of this study is the fact that it was conducted in the distribution functional unit of the Western Cape operating unit in one organisation. The study adopted a case study approach, where 12 interviewees were purposefully selected; this is a small sample. Consequently, the results cannot be generalised or seen as representative of the whole organisation. The sample of the study was limited by cost, time and employees' willingness to participate in the study.

6.4 FUTURE RESEARCH

The aim of the research is to understand the complexities around QCP after the implementation of an ERP system within energy supply projects. The findings showed that manual QCP, cumbersome

processes, lack of support from management after the implementation of ERP system, a lack of change management and continuous improvement were the contributing factors in the complexities around QCP. The project process model - with an embedded QCP - is proposed. The study focused on one operating unit in the organisation, with a small sample size. It is recommended that the proposed project process model be tested in a larger research project for its usefulness in improving project procesess in the organisation.

6.5 AIM OF THE STUDY

The aim of the research was to understand the complexities around QCP after the implementation of an ERP system within energy supply projects. Throughout the discussion, references were made towards the complexities encountered when dealing with poorly designed QCPs. As highlighted above, the lack of management involvement, poorly implemented change management processes, the lack of training of the users and the speed of implementation of the ERP system led to the poor delivery of projects. The guidelines are proposed in the format of a model. The proposed model needs to be tested for generalisation within the organisation.

This study focused on the need to think differently about QCP, especially after the implementation of the ERP system. Embedding QCP within the project processes and not taking QCP as a separate entity has been recommended, in order to have a good quality project within a specified time and budget. Understanding that the implemented ERP system can be utilised to control quality, utilising QCP effectively will drive the organisation towards reaping the benefits of the ERP system. It is important to implement a proper change management strategy when a new system is implemented, ensuring that users buy in; becoming part of the change reduces user resistance. Top management visibility and support of the business initiative leads to success of the initiative. Training and continuous improvement are seen as the key to successful implementation, leading to the organisation reaping the benefits of the implemented ERP system.

6.6 REFLECTION ON THE STUDY

The inspiration of this study comes from the researcher’s educational background in the field of Business Information Systems and the realisation that businesses do implement very sophisticated and costly systems with the aim of enhancing day-to-day business operations and maximising profit. However, most of the time businesses never achieve the desired outcome from these systems, which creates an unstable environment for operation. The researcher hadobserved the organisation in the case study implementing the ERP system as a turn-around management strategy, with the aim to improve quality,

effectiveness and efficiency of services while reducing costs. Post-implementation of the ERP system, the organisation has not reaped the benefits.

The researcher decided to explore this area in order to understand the complexities around QCP after the implementation of an ERP system within energy supply projects. Another aim was to propose guidelines to ensure the continuous maintenance of QCP after the projects go live.

Different methods were used in this study in order to investigate the problem. A case study strategy was utilised to analyse QCPs in the organisation. The study collected primary data using semi-structured interviews with respondents (which included program managers, project managers, project support services like project accountants and systems support in three departments). The researcher had the privilege of interviewing people with many years of experience in the organisation and the department, as well as people who have just joined the organisation, whom in conjunction gave insightful information. The interviews were scheduled three weeks in advance but, because of the busy schedule of some interviewees, some were interviewed telephonically and some were not available at all.

The study used a number of documents, including books, journal articles, published thesis/dissertations, and the Internet as sources of secondary data. Information collected from these sources was put together in order to compile a literature review. Data collected from interviews were analysed using content analysis (whereby data were coded by looking for specific words and meanings that were relevant to the topic) and from which themes could be identified in the text provided for analysis. The study used manual qualitative data analysis to transcribe the interviews.

The researcher developed a model using BPMN, proposing a project process with embedded QCP and recommended the urgent implementation of this model in the organisation. The researcher recommended that while, implementing this process:

i) Change management strategy be deployed properly;
ii) Management to be visible and support the implementation as a business initiative; and
iii) Training and continuous improvement be prioritised, as long as the ERP system is utilised.

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APPENDIX A:

INTERVIEW GUIDE

Demographic Information

Name:

Age:

Position:

Responsibilities:

Number of years of service:

Research question 1: How can QCP be used to lower the risk of the non-delivery of the promised benefits of ERP systems?

1.1 What complexities were experienced with the QCP's after the implementation of the ERP system?

i) What is your understanding of QCP that the organisation is using?

ii) Has the standard of quality in energy supply projects improved after the implementation of ERP system? If yes, why?

iii) If no, why not?

iv) Do users understand that the use of ERP system is to improve QCP?

1.2 Who were the stakeholders involved in the implementation of ERP System?

i) Were all the stakeholders involved? Yes why no why not?

ii) Who are the relevant stakeholders that need should have been involved in the implementation of ERP system?

SRQ2.1 How effective are the QCP's after the implementation of the ERP system?

2.1 How effective are the QCP after the implementation of the ERP system?

i) How was the implementation of ERP system supposed to address ineffectiveness?

ii) How do you regard the level of effectiveness of QCP?

iii) Which areas need to be worked on to improve effectiveness?

2.2 How did the implementation of the ERP system affect the need for the redesign of the QCP?

i) What are the issues that could lead to redesigning QCP post ERP implementation?

ii) In your opinion, what are the risks involved in redesigning of QCP post implementation of ERP system?

iii) Why do you regard these risks as important?

iv) What can be done to mitigate the risk?

APPENDIX B:

CODING TABLE

Table B.1: Coding Table

Participants	Business Process redesign	Systems Integration	Change management	Systems bottleneck	Stakeholder involvement	Training	Continuous improvement	Quality
Program Manager West coast_R1	4		6	5	1	1	2	3
Program Manager Minors_C1	1	1	5		1	2	1	
Program Manager Project engineering _M1		1	1			1		
Program manager Business improvement _S1	6	3	4		3	2		
Project Manager_ T1	1		2	1	1			2
Systems controller_M1	3	4	5			1		
Systems controller_H1		4	3			3	4	
Project services manager_ R1	1	1	1	1	3	8		2
Project Accountant_D1	1	1	4		1	2	1	2
Project Services officer_Y1	1	1	6		2	1	1	
Quality controller_M1		1	1					2
Consultant_R1	2		1			2	4	
Totals	**20**	**18**	**39**	**7**	**12**	**23**	**13**	**8**

Source: Author, 2018.

APPENDIX C:

CONSENT FORM

Eskom

Mr Andre de la harpe
Cape Peninsula University of Technology

Date: 04 June 2014

Enquiries: Mr John Barter
Tel +27 21 9152973

Dear Andre de la harpe

ETHICS CLEARANCE: CONFIRMATION OF ESKOM INTELLECTUAL PROPERTY RIGHTS AND SECURITY CLEARANCE FOR M Tech (IT) RESEARCH – Bongekile Dolo

This memorandum serves as an ethics clearance; confirmation of Eskom intellectual property rights and security clearance for the continuation of M Tech level research and write-up by Bongelike Dolo. The research topic is "Redesign of quality control processes in the implementation of energy supply projects."

Bongekile has followed due internal processes in terms of gaining permission for this research.

It must be noted that this general clearance is for a limited period only, which will be for the period June 2014 to end of August 2014 and in no way waives Eskom's Intellectual Property Rights.

In addition, the company's name may not be used in the thesis.

Yours Sincerely

Philip Wahl
Senior Manager
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Western Cape Operating Unit

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APPENDIX D:

INTERVIEW TRANSCRIPTIONS

Interviewee 1: Program Manager, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: Look, Quality Management is a new focus area in the organisation. The drive is more towards getting certification. I do not think we have embraced the culture. In my understanding, we are just following the process now what I see developing is just creating that culture by introducing systems like SAP and all these other nice safety. However my concern about quality it is at the expense of our customer. If we only gonna focus on the process of quality, it might not suit the end user, things are taking longer. The price of quality is inefficiency. Because it is not part of our culture yet. It is in the developing stages and during the developing stages it is at the expense of the customer because we are learning new processes, new sap initiatives new holding point to improve the quality of the document and sometimes we blame quality. But I do not think processes are bad I think the focus on it. Its good processes but I do not think it should be process driven, I think we should learn from what we've been doing in safety. Safety processes have become culture and second nature in the business we look statistically in safety stats you can see the effect. But from the quality perspective we are not there yet.

BD: Question 2: Has the standard of quality in energy supply projects improved after the implementation of ERP system?

RES: I do not think so in energy supply projects no our projects are taking linger, the life cycle of the projects are longer. Whether its finance or build environment they are longer.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness?

RES: First of all did it address the ineffectiveness? Not yet. We went about it by audits. And the way audits was done was to correct certain things, I do not think we were there yet. We should have done a gap analysis of where we are, what we have in place and then address the short fall but not from an audit perspective. A good audit will only be beneficial if it was part of the business culture.

It just becomes paper exercise if u audit something you do not have or something that does not run smoothly. I do not think it was an effective tool to use as part of the implementation drive.

BD: Question 2: How do you regard the level of effectiveness of QCP?

RES: The level of effectiveness is low and I do not think we should have gone for certification, maybe I blame the bodies that certified us. You cannot certify a company that has just been implementing quality processes and standards within 2 years. ISO certification should be part of the development strategy rather than get this in place so we can certify you. So I do not think we were there yet.

BD: Question 3: Which areas need to be worked on to improve effectiveness?

RES: The areas that I would, if I look at time as it is money. I would look more at efficiency in terms of what can we do shorter instead of compliance. Sometimes in our organisation you gonna have to look at what suit you and then change. Look a process is a 2 way street somebody drafted something and said implement this. You apply it, you realize there are things that do not fit my organisation, is there a feedback loop to whoever drafted the document and say look this needs to be changed. In our case we have lost efficiency, we might be effective in implementing policies and standards but at the cost of efficiency and we are waiting. The second thing is over processing, we process documentations which leads to duplications. Duplication only comes into an organisation where responsibilities are not clearly defined. There will be overleaps that one can understand but I believe there is a lot of duplication in the organisation. Time is really the issue which is over processing and over productivity which costs a company a lot of money and time.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: No I do not think that understanding exists. SAP is seen more like….look a quality system if it is part of the culture you input what you need but right now I think it is the other way around. SAP is driving the way we work and it does not address what we need. The system is driving us and we do not see the benefit if the system. I can give an example something in SAP like shopping card is lying in a staff inbox, only that staff member can approve it. It cannot be diverted to the manager. If it should be diverted the whole process must be followed. It is effective as one person approves it, but it is not flexible which means there is a risk of inefficient. When it comes to inefficiency and linking it to time is one aspect. The other thing productivity in the workplace as a lot of time

and money wasted in duplication and too much administration which leads to poor decision making.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 1: Which are the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: For us it was a top down approach, so the bottom section is the implementation phase nut people implementing it are not involved in setting up the specification for the system. Stakeholder involvement was not across the board. I do not know if you want me to be organisational specific or …..For example we have 3 divisions Generation, transmission and distribution. Our SAP was set up predominantly to cater for generation and transmission type of processes and small amount of distribution. When you have implemented it was a matter of how do we adjust this we do not do things like this. And from capital program perspective, distribution has got the most effective capital processes which does not exist in transmission and generation but yet we have a system catering for their need and not our needs. Hence it is not giving the benefits.

There was a lot of training I think if you have training before system was working your training is not effective. No trial runs, it was just a huge implementation drive. With the implantation problems were picked up the issue I have with that it takes longer to resolve those issues and if you do not have someone sorting out those issues ASAP you will feed people with a work around but I have. A workaround is a threat to quality as there is no feet back loop.

There was a platform to blog and share information but there were no resources to resolve the issues. The issues were known but nothing was done for 2 reasons being the resource constraints from the consultants implementing SAP, time it took to rectify things, it could take 6 months to a year.

Senior management knew certain things were not working on SAP was not working but no one wanted to tell the Financial Director that it is not working because of fear. That is why I am commenting on the leadership style and management style which contributed to this whole thing.

BD: Question 2: Was this frustrating to the users?

RES: Yes it was, not only frustration but they could see that why is no body telling the FD that SAP was not working. No one wanted to tell him so he was under the impression everything was ok. That had a huge impact.

Few months before FD resigned certain parts of SAP was still not working and it is still not working, we are how ever getting there slowly but surely but there is still the feeling that it still does not suit our needs at distribution.

The other thing everything is nationalised, which makes regions to lose control. The process takes longer i.e. simple thing like paying of suppliers takes longer and customers do not know who to speak to. At the end of the day the customer sees all of this as Eskom. The life cycle of a project takes about 5 to 7 years while the customer could do it over 2 years.

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: Do you see the need to redesign the QCP?

RES: I would still start by doing the need analysis, with end uses and look at what is needed from the system instead of you working for the system. Time is very important when you address the new system before people get caught up in ineffective ways of doing things that becomes a norm. Maybe more parallel events than series of events. Because the system has been implemented already you need to address the need in parallel as the system is currently not working. That in its self is a risk, in the redesigning phase, will you still continue with knowing that it is inefficient and address these needs in parallel. Or the timing and cost involved becomes a risk. The designers do not know your business they need your input like a specification, they only do what you tell them to do. If you give wrong or different info, they will only process what you have given them. I cannot blame SAP and implementers I blame people that gave them the specification. Stake holder involvement where u develop your specification, that gap analysis was not done. The designers were given the process and did not know the business and how to integrate.

BD: Any other comments?

RES: I am not sure if I have not drifted a lot from your topic. I do not think quality to me… some things cannot have a stamp of approval if it is not effective and efficient. Quality's price must not be the end user. I am here for the customer out there, irrespective of what I'm doing. There is a customer that I must provide service to. If I can't provide a customer with service because of a system and processes that I must follow then there is something wrong. I must start questioning my processes. In our organisation we are governed by processes like PFMA which also comes in as part of quality. We also have got procurement system policies which will affect our duration. I still think we interpret policies and rules that the government laid on us incorrect. From a procurement perspective we must help BEE organisation but we should have done that parallel parts. Not at the

expense of the business, develop the contractors on the side and integrate them to the normal business but do not interrupt business to accommodate a contractor.

We should introduce quality with effectiveness and efficiency. I think it's a huge gap. I do not think it's just the organisation I think it's the whole country suffering from this. The clients do not understand that the quality of the job provided depends on whether the customer will come back or not. It is the whole culture, we are not there yet. We have a long way to go. I still believe we have introduce this thing incorrectly by introducing audit and it becomes a paper exercise. It's something we can learn from safety. Safety has become our culture.

BD: So, safety started somewhere to get the culture going so quality can be done.

RES: The safety's price was high, price was life taken so a rigorous approach was taken. The price of unsatisfied customers is not enough. Therefore the focus on quality is lacking, because we do not immediately see the impact.

BD: Do you think if we can use the same rigorous approach that was used in safety it can work?

RES: Yes and no, my concern is this rigorous approach should not come at the expense of the customer, implement it in such a way that we do not loose efficiency. The big bang theory approach is not working. It's not about the organisation. It must come from the customer's perspective into the organisation and this is where the mind set in the whole country must start. You can have brilliant processes but go ask the customer out there what do you think of Eskom? They will tell you I have applied 2 years ago and I have not been assisted. With our brilliant processes and we are ISO 9001 certified. We are doing the paper exercise. If we have not reached the customer satisfaction then you have not achieved quality. If the customer comes one should drop everything and serve the customer. What services you render plays a big part in quality.

BD: So what management needs to do to get staff's mind set to quality?

RES: They must put the angle, and this is the irony with quality you must start at the end and then move your way up to certification, do not just start with certification.

I do not see our customers benefit to quality. Simple things must chance because we are here for the customer.

(End of interview transcription)

Interviewee 2: Program Manager, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: Like you have mentioned we have implemented ISO 9001 so that came with various processes and procedures in order to standardise the way that we do things so that everybody does it the same everywhere that you go within the organisation. It is a good theory, however, so that is my understanding of how we should use it. The way we implemented it and the way use it is not successful. We have various templates that we should use and processes that guide us but the way that we interpreted these processes I think it's different so that there is no common understanding exactly which causes deviations from the standard. So will still find that because we deal with Northern Cape OU we can see the differences from there. I deal specifically with minor projects and the way that we allocate WBS number to a project is very different they do.

BD: So for the aim of standardisation?

RES: I don't think it's the same and that is just two OU's and if you go to other OU's you would find that they interpreted it differently and therefore implemented it differently.

BD: So would you say the standard of quality has improved after SAP implementation?

RES: I don't. The reason why I say that I cannot see the benefit yet post implementation Vs what we had pre implementation infect if I look back before 2011 before we did the implementation I would say we were better off pre implementation.

BD: So what do you think is the reason?

RES: Change management, it was too quickly, not enough consultation from the business, I think it was high up strategic decision that was just implemented without proper consultation from tectical and operational level not understanding the issues that exist in different OU's. The decision that was taken high up to standardize across the business regardless of divisions. This business is too complex to have one set of rules.

BD: Very interesting you have already answered most of the questions.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness? For you with so much experience in the organisation, you were here before and after implementation was there any effectiveness before the implementation of new SAP?

RES: Yes there were gaps in the process there were inefficiencies. I won't advocate that we had a perfect process but we were closer to getting it right than where we are now. What the re implementation brought about were complex processes, but we were told with back to basics that we are going to standardise and things are going to be much simpler. That was part of our sos rules, Standardise, simplify and optimise. The simplify rule flew out the window, this is not simpler it's in fact more complex. And I think that is part of the reasons why it is not effective. Like I said there was not enough time spent on change management. People were not properly informed or given enough time to adjust to the change because it was big change. Maybe they thought we already have something in place it would not be big an adjustment but in my mind it was big an adjustment than 1998/1999 when we implemented SAP for the first time from MSDOS.

BD: So would you say in 1998/99 change management was better?

RES: It was much better there was a proper consultation, and it took about 2-3 years to design the system to suit Eskom's needs. Before the change management we went thru an extensive program of class room training, where people were shown differences. This is something I found was not explained this time, is this is the system and these are the benefits. It was just a new system it was dumped on you and you were given x amount of days to do a desktop training that was not even properly design. You basically had to find your way, one or two EXCO visits to explain what was going to happen and the system was lying in your desktop. Like I say that desktop training I went through it because I was the big advocate SAP and I wanted to learn the system but the training was just a click-click and sometimes even the click did not work. So it's frustrating, you were interrupted in your daily jobs. It's not a properly scheduled training that you went thru and you find there is no one around. So what people do they left it. So we implemented without track which is a biggest mistake.

I still say it today there was no proper change management and people when they make decisions to change they disregard the importance of proper change management. You must remember you are not working with machinery where you can do setting adjustment; you are working with people

with different back ground with a certain way of doing things. You must put positive change in people's minds to have an effective implementation.

BD: What areas need to be improved in the organisation to reap the benefits of the system?

RES: In our environment specifically we had an implementation of SAP PPM that is not working for us, we are working for the system that is not providing information that is not beneficial for us. First of all the system must be address so that it works for us provides information so that we can be able to make effective decision. Second of all people must go to proper training system with a qualified trainer that understand our environment and can change people's minds so that when people go back to their working station they know what to do.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: I do not think so at the moment because we are not using it. We already built new access data base to assist us with the quality of information that we need disregarding SAP.

BD: The organisation has spent a lot of money to get the system right.

RES: Really and the organisation is getting awards from SA, the FD received an award from SAP for successful implementation. If you listen from what is happening in project services and Project accounting people are still converting information that they get from SAP into excel spreadsheet and manipulating data and that only lead to one thing human errors and faults. And again back where we were pre implementation but with a lot of money wasted.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 1: So stakeholders that needed to be involved were not involved in the implementation of ERP system?

RES: I don't think they were officially involved. There was a call six months before implementation from some people to assist. That was not enough time not for the size of the transformation they were expecting. Getting people to Joburg for a 2 day workshop trying to get them give you input of something they are not aware of. They get some information, it did not work.

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: Do you see the need to redesign QCP?

RES: I would not say redesign QCP if we refer back to ISO, I think that is good, I think we had more success in ISO implementation than we had in SAP implementation. I would say redesign implementation of SAP.

BD: If you were given an opportunity to change three things what would it be?

RES: I would relook at the implementation of SAP, this is my very uninformed opinion and from the OU's point of view. I think people who implemented the system did not understand it, it they do then they do not understand the business. There is a misalignment with the system that is wonderful and world renowned and the business. The decision must be taken whether we work for the system or the system work for us, once that is properly understood then the business must take the decision of which way we are gonna go and then implement proper change control . Inform people and train them well in advance as to how the system will work. If you want us to work for the system and its work best practice which is part of the back to basics, then you must get a buy in from people that are working with the system. But if you need people to work for the system people who are going to make use of the system in terms of reports you need to train them as well because that's another thing I found we have this new system that gives us new way of thinking and look at report but people who look at the report and need it at a strategic decision making still look at it the old way they still want to see the way we presented it pre implementation. So I would say the biggest thing is relook at implementation of SAP.

BD: Thank you very much, wonderful I hope got enough and that you are satisfied.

(End of interview transcription)

Interviewee 3: Program Manager, Project Engineering

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: My understanding of QCP in Eskom as such generally its putting measures in place and ensuring that the end product meets our own requirements and it also serve mainly as a control gate so that we do not deviate much from requirements especially on the technical side by having certain hold points thru out the project life cycle.

BD: In your opinion just by observing would you say the quality control process has improved after the implementation of SAP?

RES: From the environment where I'm in I have not seen much improvement especially with the implementation of ERP mainly because our own involvement is on the technical side of it and Sap as a system does not give us support inn terms of achieving the required quality requirement. I do understand that SAP does assist mainly on the financial side of it in addressing certain gaps in the business but not necessarily addressing the quality related one on the technical side of the business.

BD: You have already answered some of the questions that are still coming.

RES: That's fine. I saw this word ERP and I kind of panicked.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness?

RES: To me I think the main aim of implementing SAP was to address gaps around finance aspect of managing projects probably with managing budget related issues. We do not really work with it as I have already said but probably that is the main benefit I would see would have lightly been achieved if the system was implemented effectively.

BD: Would you say the level of effectiveness has improved or not?

RES: I think in terms of the information that we get around the finances for the project has not really changed as it was before. Maybe it has to do with the type of information that we require. Because we require like how much is on the budget, how much is inception to date, and whether there are budget or not and we feel that other SAP was providing that, but maybe on the finance aspect there are other improvements but it's not really visible to us.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 1: So stakeholders that needed to be involved were not involved in the implementation of ERP system?

RES: I do not think so, I think SAP is viewed as a finance tool and generally there is a little bit of frustration in the staff in the use of SAP. Maybe that has to do with the way it was introduced as a system and also I think there maybe problems or limitation in terms of training as well to understand what more SAP as a tool can offer but it is not viewed as a quality control tool and it was not introduced as such.

BD: If I may deviate a bit which system do you work with daily?

RES: We do use ERP under SAP and GRC but is mainly approvals. We use engineering systems.

BD: The reason why I'm asking is SAP can be used for engineering purpose as well.

RES: I think you are coming to my point that there is not training regarding SAP in such a manner that you can see it as a tool that addresses of gaps in the business and the way we use it I think is fairly limited to approvals and requisitions but from engineering point of view we are not doing much on it.

BD: Do you think from engineering point of view do you think things will work better in terms of integrating it with other departments?

RES: It will probably do with better training and understanding of what we can get from SAP. To be honest it was only introduced not so long ago that we can view our budget and we did not have to request information from finance in terms our budget to make sure we are not over spent. That point to one thing training. As you mentioned as well that in terms of integrating with other tools that we are using that is something we need to be exposed to via training, then we can reap the benefits more than we do now.

BD: So quality with the systems that you are using now that not ERP systems, would you say it is working for you, you are ok with it?

RES: I can certainly say yes we are ok with it they are giving us what we want but having one tool that can do all might be more beneficial it might limit eliminate some of the risks.

BD: So if you were given an opportunity to change or to improve quality what would it be?

RES: With regard to the use of SAP?

BD: With regard to the use or not use of SAP for you guys, would you jump into an opportunity to use SAP?

RES: I think I would use SAP, because fortunately for us we did not have those concerns that SAP does not do this or that we were never really exposed to that. But as more and more I get told what I can get on SAP, the report which I can pool, I kind of realise it is a useful tool. I think we need to get more training and get more understanding of what we can get out of it. I think upfront as well the only problem was with the roll out of the tool as well. Which I think it was done before training and sensitising the business of the benefits of using it but as a system I think it's useful and it should remain in the business.

BD: Thank you very much for your time. It was well worth it.

(End of interview transcription)

Interviewee 4: Program Manager, Business Improvement

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: Is it only system related that you are talking with?

BD: Its general the system will be on the SAP side but of course anything else that you think is related.

RES: I think what we had in place with the old SAP was the, we took asset creation value chain (ACVC) working together with SAP. So you had your value chain, and quality control points in the value chain and the functions were performed in SAP. When we went to the new SAP, we were supposed to role out project control manuals suppose our new process and in the new process we were supposed to be simultaneously, the system was rolled out without proper training, because new SAP was different and part of the PCM's were rolled out and not all the PCM's. We never had an integrated PCM's. So people struggled to follow the quality control points because they did not have process control Manuals to guide them.

BD: So there were a lot of questions and what happened then people sort of made up their own QCP, it's like finding the way but the aim of implementation of SAP is to improve efficiency. Would you say the level of quality has improved?

RES: So with this whole program they said standardise, simplify and optimise. My understanding was…. To answer the question this whole thing was to standardise. It was not to simplify or optimise but even with the standardisation I think there were gaps. They wanted Eskom to be one business they wanted Eskom Generation, transmission and distribution to work together. And all the other smaller projects to work in the same way, but because there were no proper process rolled out and control points rolled out I don't even think we standardise properly. They always told us some things were more complex to do. This exercise was to first standardise then simplify and optimise.

BD: But standardisation was not done the way it is supposed to?

RES: Yha! because the PCM's weren't rolled out properly, and the change of the FD because the FD was the main driver and a lot of people did not agree to his way, some of the initiatives were stopped or sort of kept on ICE so things went slower and now because of ISO and the rolled out of ISO the control that they received will continue to roll out those manuals as well.

BD: But it sounds to me like this was a rush job, was it? Did they sit and plan it properly because you now say it was a complex job?)

RES: It was definitely a rush job, the timeline the FD gave was impractical and because of those timelines some of the things were overlooked and some were no migrated properly and because you did not do plan upfront properly you created a situation that afterwards to fix the data and to know how to use the system….its 3 years now after the implementation. So my understanding was as a change driver he had to do things within a certain time frame as well that's why he did it quickly and had to leave the organisation.

BD: So the organisation did not follow him or did not follow his pace rather? And that led up to a mess.

RES: Mh!mh!

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: I think people know that but I think there is a lack of national assistance to assist the operating units with more tools to use the system. I think our knowledge of SAP is so limited to such an extent …. Look at companies like Shoprite what they used SAP for and what we use SAP for and Cecilia would have told you what we find out is when the older generation retire the knowledge is not transferred to the younger generation. You will get somebody like Nandelwa coming from another region to teach us all sorts of things, just common knowledge. I would say we do not have the in depth possibilities of what the system can do, we do not have proper training manuals, proper training structures to be able to give to people, knowledge is not transferred. Some of the…. Especially the new sides of the system like SAP PPM, there is no proper reporting to it. You cannot feed the system and not get anything out. What they promised us was a business warehouse, we would have tubes in this warehouse with SAP modules like SAP PS, SAP PPM, SAP ER will be in the warehouse and from the warehouse you will be able to extract reports and do pivot tables and do all sort of things. It was never developed, was there someone to develop it and is still not developed.

BD: Is that the vendor who is supposed to develop the warehouse?

RES: Yes there were 3 consultants who were supposed to develop it, they tried and it did not work. I do not even know where it is now in the process. As a user I firmly believe that we can use SAP to

standardize, simplify and optimize but without the national support to give us a proper warehouse and proper training, an in-depth training it is difficult to do that as a loose standing unit.

BD: So it leaves the organisation really with nothing not really reaping the benefits of the system?

RES: Yha!

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: Do you see the need to redesign QCP?

RES: Yes definitely to work the QCP into the PCMs. Another important thing was the old sap had specific roles; the processes were linked to a specific role, myself as a program manager I would have known where exactly in the process I am involved. I would know what my control points are and I would know how to use the system. I would go for training specifically for my role. And you know it's not like that you have a generic training of everything which becomes so big and loose because it's too big and too much information as well.

So I would say continue relinking at PCM but to ensure that you have training for specific roles, and the system as well to have more in-depth training and in-depth understanding of how the system relink to PCM and QCP in the control manuals. For the system as well to have role based training that you train a specific role on specific functionality within the system.

BD: Someone would argue that we are ISO certified which means our quality is good or at least producing good quality output. What is your take on that?

RES: I think it was parts of the business that were audited for ISO certification, it was not all. Even the land development when they did the ISO certification when they did the certification it was certain area. I they passed it……. I don't think its something that they took thru to all business.

BD: So that certification does not necessarily mean our quality output is good?

RES: As a business I do not think that. What people did for ISO certification is..they learnt from the finance people that did certification before project execution. So I think there was a lot knowledge transfer as to what is needed to get the certification. Somehow I think it was a paper exercise I do not think we learnt mh!!! By the things that were certainly audited. You cannot involve everyone in the Audit but because of the limited involvement I am not convinced that it is a sustainable thing to get the accreditation. It is not something that is entranced in each and every one to say I must do this because it is an ISO way to do it.

BD: So what do you think is a way forward for you, I mean that will be you point of view now? At the present moment 3 years after SAP implementation it's still chaotic and everything, what do you think we can do right to get to where the business is supposed to be?

RES: What we are trying to do is to work with the national people, because that is the only way. Its fairly difficult because we have done this for 3 years now with no change.

Mh!! Its like someone somewhere is not listening

Yes initially we had 2 monthly meetings now we have quarterly meetings where they will talk about SAP roll out version 2 SAP PPM, the first version is not working as there are so many things ti resolve. But as if the push they get from the executives does not allow them to go back to resolve what we had initially, they must deliver more and more. So their outputs are to do new things for us and we say but the first thing you have given us is not working anymore.

BD: In your opinion does the executive understand what is going on the ground?

RES: No I do not think so

BD: Because if they want to push version 2 while version 1 is a mess why?

RES: We have asked as well, we had a guy like Adlec Daniell was a driver of this. We gave feedback but we are not sure that what we gave at National User Group was reported to the executive. It's difficult as the gap is big, apparently I do not see a national solution to this, I do not mind working with National and continue to say things that we say but I don't see short term solution that why Mariet and Henri had to do a database, so a data base is not really a database but a warehouse it will take

BD: So you are actually setting up a warehouse that SAP was supposed to have?

RES: Yes setting up a warehouse and from that warehouse we need to do certain things to ensure that quality is controlled like there are no late ERA no late FRA's so that everything stays within mandate in our own small warehouse. And even when we talk to other units they are interested in our warehouse. It's just sad because I firmly believe SAP is solution but because of people from national, their lack of understanding and a lack of drive to give Operating Units what they need to have. With this whole BPP programs that was rolled to save money, some of the SAP support were moved to the BPP program. We did not have any support for 3 to 4 months from the system. It's not even a priority to support us.

BD: Do you know if at executive level are there IT representatives? Because it sounds like the executives are not aware of what is going on in the ground?

RES: I am not sure, it could be people like Desell… but I'm not sure if he is informed but there will be IT but is just like for us to get our message to that level…

Yes because I would think that someone with knowledge of IT would have a strong message.

Yes I just think they protect their own territories because if someone comes forward to say their project is not working….I understand this project cost something like a billion rands. So to come to the executive and say this project is not working….

But the issue is it is going down the drain…..

There is something that still can be done, if they can set up resources to fix data warehouse with data tubes, it would make a huge difference. Which cannot cost as much. It just makes you think what is so difficult to get SAP PPM working, what is it that people are not getting? with the resources that are available, because you would think that if it's a vendor that must come do it they can still come and get it done. But someone somewhere is not listening or they are just turning blind eye on it. Yha yha yha!!!!!

(End of interview transcription)

Interviewee 5: Project Manager, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: what is your understanding of QCP that the organisation is using?

RES: In terms of project management we look more into governance where things are done in terms of certain procedures. For example in construction if you want to build a room there are certain quality requirements that need to be achieved. In order for that then you need to set up a procedure like your check list and quality plan. Those things need to be in place that will guide to get to the end product.

BD: Question 2: Has the standard of quality in energy supply projects improved after the implementation of ERP system?

RES: For me it's going to be a bit difficult because I started here at Eskom they had just adopted this ERP, but people who were here say they had problems before but now with this system they are comfortable and things have become easy for them in terms of working.

BD: What kind of problems?

RES: Look it was like things were not running smoothly in terms of processes, there were hiccups for example when you approve an invoice, the supplier would not know if it is approved but not with the new SAP the supplier will see immediately if it is approved. The supplier is now linked to the system.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness?

RES: It will be difficult for me to answer that question as I was not here before. You have already touched on it about the hiccups that were there.

BD: Now that you are in the organisation, how do you regard the level of effectiveness?

RES: Even for me this was a new system I have never used it before. But in terms of work it is a user friendly system. But I do not go in detail in terms of drilling down. There are specialized people that work with the system. What we do from our side is to check if all is in order and approve and check if all your material is there. In terms of effectiveness I would say it works very well there are no complaints from us but those people who were here are still complaining that the system is does not do this or that. So you'll find those kind of things that still creeps around.

BD: Quality side generally would you say the level of quality of projects?

RES: The level of quality has improved hearing from the other people who were here before my time.

BD: Which areas need to be worked on to improve effectiveness?

RES: I would say some of the things you cannot run away from. When you have got your controller loading material, some things are measured in Kilometres or meters and when they drill down on the unit of measure they did not see the KM and then puts a meter. When material is delivered you have a meter and you needed a Km and then it will take time to get back to stores and the project delay. There is that conversion of numbers which will stop people from working.

BD: So it is not that information is not there but it is not visible?

RES: One it could be training or just that a person did not pay attention to what they were doing. A human error that sound small but affect the project hugely.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: Not at this level because SAP is used to look for expenditure or your budget, in terms of quality we do not see that as a tool unless there may be new things to come that will concentrate on that section.

BD: This is now interesting we have started the conversation saying that QCP and ERP improved visibly from old to new and yet your experiences that users do not understand that users do not understand. Why is that?

RES: I think the training or awareness is not in detail. One goes to the classroom and do a click clik without being told what will happen when you click where you click.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 1: Which are the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: You see in our environment we've got clerk of works, which is people that are on site that receives material on site. They look at the specification they do not know what has been ordered. If they had specification that could be useful in terms of…

What is interesting for me is that if the supervisors can't have a say in what in is needed on site. If he had also…. Before orders been place could check it, that would assist you massively. That's really interesting mh!!!!

So what happens is you find out that stock has been ordered and is a wrong spec… and we had numerous problems.

BD: I can understand that…

RES: Stock has been ordered then it must be sent back to Germany or to Turkey. Cost also is involved. But this whole thing becomes one man's responsibility which I find it unfair.

Oh! This is really a QCP that could assist as there is a bit of a crack in process… Mh! Interesting.

BD: So in your opinion who are the stakeholders that should be involved?

RES: Clerk of works should also be introduced to the system of SAP even if it's not in details just certain rights, so that they can see this is the material that has been loaded for my project. Then they can now check in advance. We also do that but we do not understand the actual of material we just look at the item. If it is a transformer… but the guys have a clear understanding of what it is, they can even say (absolutely, absolutely) for this job we don't need this. The way to understand it should be something else but not this specific.

BD: To expect the clerk understand engineering staff is not fair on them…

RES: Yes it is not fair but these jobs are similar to one another so they get something that they have done last year and it's still the same. We don't do something new every day. Now and then where there is a new job.

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: What are the issues that lead to redesigning QCP post implementation of ERP system?

RES: Sorry Bongi I can't help you.

Perhaps we need to ask you the problem with the system was one, remember the one that can't assist. The one that you are asking now is…If I understand correctly it seems that there is a QCP lacking, once they have captured the data, the process then is not sharp. So one could start focusing on that if you agree. Whether it's a smart phone or whatever the case may be the fact is there is a lack of QCP there.

I understand his problem of people putting the wrong thing, whether it's a mistake or… there is no catch the next case when they say probably the understanding of material controllers not understanding what they are doing. It all goes back to training.

BD: So in this case…

RES: This is very difficult for me like what do you mean by post implementation

BD: Well you have answered that by saying…

RES: But another thing that I must just add on. On SAP my projects can be opened by someone else, they can do anything they want.

BD: So there is security risk…

RES: Yes, Even though Bongi is not my controller, but if she has the number of the project she can go on and open the project.

BD: And create havoc, has it happened already or…?

RES: Ah! I don't have proof I don't know. It's a risk. I'm not sure if now….there is a tractability you can log in and see who did what but to prevent someone from doing that.

Now if I'm right your guys are sitting here and they get instruction to order material. These orders will be coming from engineers or what?

Then you order and captured to be executed on a certain day so that you can be ready to work. So that process from the engineer to your office, is there process that can go wrong there?

Look there is another system called power office, the engineers load material on that power office and the controllers have access to that power office.

(End of interview transcription)

Interviewee 6: Systems Controller, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: There is quite a number of them that we are using, governed by the standardization of the organisation in the engineering sector, and throughout the structure. Finance will be gorvened by their standards in the finance sector. Under group information technology they are governed by the standard as well. All in all as an organisation we also know that we are focusing on ISO but when it comes to departmental ones they will then develop the process control manuals. Those are the ones that we mostly use as per that specific section.

BD: Question 2: Has the standard of quality in energy supply projects improved after the implementation of ERP system?

RES: It has in many ways improved. The effectiveness of how we do business in the organisation. In a manner that we have streamlined processes and workflows and integrated systems use in SAP. If you remember we had this big project Back to Basics, where we actually combining or intergrating all these other modules with in SAP, that are used throughout Eskom not only our division which is distribution including enterprise and generations. So they wanted to combine them all to be in warehouse or one system which is obviously SAP. So um!!! It has changed the quality, it has decreased inventer pricing by taking the advantage of quantity grades. It has reduced inventory costs because remember we as project services would have our own mini system that is done and then we had to create contractors all those people that we are supporting but now we only making payment to one vendor, so that's how we reduced costs. Also have improved customer satisfaction based on the time delivery. And most importantly within our section is the improvement of the work flow and efficiency. If you remember sometime you had to take a hardcopy of a form, go to submit it to project engineering for approval, which might happen that the person is not even there and the form is gonna sit there for days. But with the latest one where we have the work flow you can scan the form and send it for the signature. Where ever that person is they have got internet or access to intranet they can be able to approved the form . Yha! There's quite a lot of improvement especially on quality. Ok that's great.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness?

Perhaps the question would be was there any effectiveness before the implementation of new SAP?

RES: Obviously the very same structure that the organisation ended up having to decide on integration or developing other modules in SAP in order to align with the business strategy and the decision made by the executives. The lack of integration between different applications was one of the reasons because as I mentioned to you we would have as western operating unit project execution we would have our own mini system that we use to capture out data. The Limpopo operating unit would have at the project execution they would have their own. And then when it comes to integrating or rather reporting on a national level now you will have to combine all those mini reports that you received from various OU's to make one standard but because of…. I can imagine it could take forever…. Yes obviously that was one thing and also the some commonly reported would be data error and the accuracy of information from the system that does not make sense because you get am!!! Various people working on one file, you do an update on e one version and save the previous version and it all make that 'deurmekar' stuff happens. I would say so far it was mainly the data my concern as always would be the data and the security of the information and accurate reporting of information.

BD: Question 2: How do you regard the level of effectiveness of QCP?

RES: It has improved yes because yha! It has really improved. If we compare the way we did business and the way we carried our task prior to the implementation it was um!!! My grandmother's time you know where you still have to fill in the form and literally walk, ok walking is part of the exercise but still it is time consuming and in this day and age…

BD: What would you say still needs to be worked on currently?

RES: Worked on? Mh! To improve or make things even better… ok it has improved but just to better it in a way on the system.

Um! Prior we had issues which resulted to business integrating to one system. Although the other system integrated to one big system um! That was the population of back to basics and then the improvement, obviously there still needs to be continuous improvement to maintain the system, which is basically I would say that most importantly the users needs to adapt and to be flexible when it comes to change because it is always difficult when introducing a new system to the users. Especially if they ha ve been working for the organisation for quiet ages and then they coming with the new system and now we need to learn you know. Especially the older ones you know, who have been working with the organisation for quite some time, they turn to be resistant to the

system. It does not matter whether its going to be beneficial to them. You must always have a way because people are refusing; they are resistant into adapting to the new system.

BD: Would you say people are using the new sap into their advantage, are they reaping the benefits of the system?

RES: Yes they are and I say it because in the past when I leave the office, that would be like past 5 O'clock and office hours are between 08:45 and 04:30, and you get half past 5 people are still working because of the slowness of the system if everybody is using the system and everybody is consolidating the report that is required from national, but now it's very seldom that I get someone sitting here after hours which means the system has played its role and what I like is that when I do the training or facilitating the system is that I normally tell them that when you have a problem do not hesitate but ask and most people do ask and obviously if I see a person sitting I would normally go to a person and ask are you ok how things are with the system, even if it's not my section and then a person will obviously say I do not have access in certain area or I'm struggling in certain things, I would make means to ensure that person is assisted but when it comes to utilization of the system to users benefits they definitely are using it.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: Yes I do think that they do understand because I can say based on the turnaround of how would work on our projects and period wise, the time that we spend on our projects has really decreased. It has improved that it means that we are being effective and the feedback that we normally give both internally and external stakeholders has really improved. The integration of systems from various be it planning, inventory material, be it engineering , be it human resources what so ever, it has been of a good cause like I said SAP implementation was an integration of various functions so it really has… we do see the benefits if it. As much as when we go for training and there is still a bit of resistant but when it comes to using it…. People are getting there? I mean as much as people are resistant but they are using the system. YES

For example: Let's say you just got hired within the organisation, its HR and if they wanna run a report they want to see how many people are in a section. It's easy for them to pull that information from the system especially when we talking about the executive, but when it comes to in the past they would not you would have to contact the western OU one of the HR consultant or one of the

managers to say please send me a list of people this and this and this but they can pull it from their side. Based on that receive quality information timeously.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 1: which are the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: This is a huge organisation, it is very big and when you talking of implementing a system for the business especially the system that is going to integrate all the mini systems that we had section wide. It needs everybody, every relevant person must be involved, both technical and non-technical. When I say technical I mean Engineers, project managers, planners project co coordinators including clerk of works those who go to site because somewhere somehow they will be putting information on the system and also u need to put in data on the system to be able to report on. Non-technical be the project service officers, project services managers, all those people who do not go to site. So all of them have to be included throughout the process as per the module that they will be utilizing, be it HR be it project financial to administer the funds be it all relevant stakeholders needs to be involved.

BD: Were they involved with the implementation of SAP?

RES: Besides the training where everybody is trained each and every section one person will be selected to represent the section and that person would be used as a super user when time comes for training. Most importantly u need to gather requirements during the implementation you are obviously gonna need those relevant people.

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: Do you see the need to redesign QCP?

RES: Yes it depends, it's got its own factors, if for example we see that the organisation strategy due to economic constraints or the law because we are state owned. We need to align IT with the business strategy because remember the systems are supposed to support or provide or assist the executives when making the business. So if the business strategy is changing so is the need to re-design the processes. Yes the other factor that might involve the need to redesign the ERP might be to maintain your competitive advantage, to mitigate the down sides of flexibility for modern ERP, best practice are…..but lean six sigma… And then also to avoid… like for example as I mentioned to you, there was a need that the organisation decided that no let's integrate. In order to avoid

that… they could foresee that somewhere somehow this is not going to work so let's just unify. So those are the main things that might lead to redesigning the ERP system.

BD: If you're given a chance to change anything, what would it be? Just the comment if you see something that is not working for you. If you were given a chance to rectify what will it is?

RES: My main problem is that yes all the phases of development of the system were followed but we then said here is the system done, side and everyone was like yeahhh!!!! But then what then happens to the receiver, that's what is important and that's one thing the organisation is lacking when it comes to training people, involving people to get their buy in to using the system that is the continuous process from even before you decide on implementing. You need to consult with people and this is what we planning to do, do some workshop, let people know. Don't do the workshop after back to basics has…. Basically you are telling them this is what you have decided on,,, and that actually causes resistance. One would say you are not gonna give me something that I was never involved in, but if you get a buy in, if you preach that this is what is going to happen we are going through this as an organisation this and this is happening please bear with us. People will just follow and they understand so I would say when it comes to the introduction and the flexibility and most importantly to monitor the adaptation to the system within the users that is what is most important and that is one thing that we still need to look at as an organisation. Make sure it is utilized to the full. Remember we need to make sure that if the system is provided by the organisation and the users are adding value to the users. We have got this system that is working perfectly but is not really adding value to the users or the users are not using it so it is a waste of money. You need to find a way into getting a buy in from users so that it is utilized in a proper manner or to add value to some business.

BD: And thank you…or do you have anything else to say because I have skipped the risk as we have spoken about most of the things already. I can talk about anything…You have really assisted, it was really worth it.

(End of interview transcription)

Interviewee 7: Systems Controller, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: Quality statements;

From planning to FRA;

Quality hold points;

SAP is on the finance side not quality;

Indirectly came up with better way of doing things;

Check the commercial side (procurement);

Cost control was better and still good;

Reporting changed to flexibility;

Make simpler, optimal and standardise;

CARAT status has been achieved; and

Training and @ ground level there has not been much change.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question1: Do users understand that the use of ERP system is to improve QCP?

RES: Human factor;

People need to be aware of garbage in, garbage out effect;

Reporting;

Awareness and training needs to kick in;

Change of reporting from time to time; and

Users should know and understand the system i.e. IDC's

Section D: Stakeholder involvement in the implementation of ERP System.

RES: End users, consultants;

End users brought in late. A lot of top down approach was used;

Testing;

Scheduling;

System integration between suppliers and end-users;

Integration problems were not resolved. Quality impact on schedule;

SAP is a continuous process just optimisation;

There is a work group on Sap PPM present the issues and they will be reworked;

SAP PPM incurred practical reporting issues to get a lot of manual work to get consolidated report;

Data warehousing is being developed;

3 TOP PROBLEMS;

Consolidated view of PPM. Data base that's developed to upload; and

Human issues errors/Data integrity and quality needed to be worked on.

(End of interview transcription)

Interviewee 8: Project Services Manager, Project Execution

RES: I just wanna say to you because of my long time being here, you refer to new SAP, I do not see new SAP I just see SAP okay. So when I started working here SAP was the best system ever. It was the best Enterprise Resource Planning system, it was new, it was international, and it was a pleasure to work with. With SAP there's different modules that we work with. We work mostly on the project environment, I have done a little bit of financials in SAP. New SAP as you refer to is the addition to a module called SAP PPM. The base line of old SAP and from the base line of old SAP you will get your scheduling, you will get your project accounting. Project accounting the PS model is the same as old SAP there is not much difference there.

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: QCP that we use is SAP to help us with quality control, and we use ACNAC, there is another system that we use. QCP for me is to ensure the output at the end of the day is of standard that the client is requesting. We need to ensure that the product as it moves along the value chain that each stakeholder within the value chain has an input to that product without the quality being compromised and obviously there is no conflict. Referring to the financials we need to ensure we have a system that does not contradict on conflict. So basically what you put in payment you cannot approve it.

BD: Oh! Which is a good thing about the system. Yes? If you ask me has the standard of quality improved after the implementation of new SAP?

RES: If you talking SAP as a whole, yes, but if you talking new SAP, .no. New SAP was implemented without the end users being considered. You are one of the stakeholders that uses SAP and you are not using it 100%. Not to the best that it can give you.

BD: So in your opinion it was a top down-approach where they tell you do this and that?

RES: Yes definitely a top down approach and it does not work for the business; the requirements were not taken into consideration. We have a system where NEW SAP does not allow us to do reporting and with any quality control system the data that you put in must be the data that you can draw out, if you cannot draw out information then that is not the quality control system that you can utilise.

BD: That is interesting, you have already answered most of the questions that are still coming.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness? Or with you having an experience of before and after were there any ineffectiveness on the system, on quality?

RES: I think because we were sitting as a decentralised organisation, a lot of information required from the regions of the OU required by the head office had to be populated, consolidated and submitted. It was ineffective because we did not have a system that the head office can draw information from all the region. New sap came into implementation with the idea that information can be drawn by head office but it is not happening. Like we say new SAP does not have a reporting structure. Mh! Which is important. And you know like they say in any business you always go in circles like you will centralize and decentralise. With us we were de-centralised, we are now centralised give us a few years we will de-centralise again. That is unfortunately how it works.

BD: Question 2: How do you regard the level of effectiveness of QCP?

RES: Well I don't think there is much of a level of effectiveness because a lot of quality control that we are running now are on SAP PS and ACNAC and the major problem that we have as business is that we are running a lot of quality control process on Excel, so for us new SAP is not working and the important thing that the business must do to improve effectiveness is to work on reporting structure.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: Yes we do understand that and it does work for us if you looking on the accounting side it is the system that … how can I put that… there is no other financial system in our company. So it works to improve quality.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: You have already answered the stake holder involvement which I think is an important issue. Question 1: which are the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: Very important, I think the guys that are actually doing the work need to be involved to understand how the system should work.

BD: So you would say they don't fully understand how the system should work?

RES: From the top, they don't understand. So they implement a system based on the qualifications of the systems engineers but whether a high level system is working for the end users in the energy sector is something to be questioned.

Bongi I am going to… I don't know how to say this but I may not be answering all your questions you can put in a question that will be more relevant, as a parastatal business we have very good quality control processes, SAP does work for us, it's the only system we have in terms of running our own business. It controls the workflow and at some point when we are fully trained and fully informed of what the system can do for us we will use the system to the maximum that it has available for us. There is a workflow system in there that available there which we will eventually start using. It's a brilliant system it just takes a mind-set, a change in the mind-set of the end users to use the system. It can also be that we have this brilliant system that is designed to make our business most efficient but the implementation of the system did not take place correctly. In terms of was there sufficient training, did we get manuals were we on board working training with proper examples on how the system works. There might be this wonderful system but the interaction in terms of training is lacking. If you look at SAP PS is a brilliant system, you can get whatever you want, and you can get any figure depending on how you put in information. And I think with quality control on the ERP it definitely has a very high level of effectiveness, no doubt about that. But the opinion or the feeling is that new SAP is not working for us and its because we have not been trained on how to use it. If you know how to work a system you will reap the maximum benefits but when you have not been trained you will avoid using it.

BD: So would you suggest that with more training and informing people about using the system?

RES: I think we need to be trained, we need to be informed but we should also be limited from using anything else as well because when you are forced to use SAP you will learn how to use it. But the moment you have a scape boat of using something else you will lean on what you know best.

It is a good system definitely I was a SAP champion in OLD SAP that is why I understood old SAP much better and also I don't use SAP all the time and my access to SAP on other transaction has been taken away.

BD: Maybe how did you get to that point of championship, if we can use that strategy in the new SAP as well?

RES: That is a brilliant idea, we had champions in each department, Cecilia was a champion in our department, I got involved as well so that when there was an issue or training we did it. So it helped and it was sort of walk in centre within the department.

BD: Maybe if that example can be used because it worked in old SAP, to make people understand and informed and I guess if you know what you are doing you will even explore more than now you get frustrated and kind of leave it

RES: Yes definitely if we are involved more into SAP all of us we will work better. I think training is important people understanding it and changing the mind-set.

BD: So you have just answered the redesigning of QCP so what needs to be focused on in your opinion is training that needs to be worked on not the process itself. The process is fine.

RES: The way I work with the system in my environment it works for me, it can work even better if people can be well trained. There's definitely risks like in any other system and the only way to mitigate these risks is to be more involved.

Can I suggest this is definitely my opinion QCP is most important in project services, governance is what we run our business on and if we do not have a system that support that we are not adhering to what we should be doing. My suggestion is please do an interview with Sarita, she is a business improvement manager and she is a highly qualified systems person. What you will get from her will be very important for your research. Her opinion as she has worked on the system, she's involved with provincial user group in head office where they get together to discuss the ineffectiveness of the system. She will tell you offhand this is what the system does not do for us and this is what the system does. As I have said it's the system that was given to me and we work with what we know, and because of the lack of funds we do not have the luxury of doing the training. We utilize the system to the best of our knowledge but if we were aware of more it would be even better for us. But speak to her, she will give you insight because her opinion because she knows the system, she knows new SAP.

BD: Thank you very much for you time

RES: Well its my pleasure Bongi, I looked at your questions and it made me think even more about what am I using and how does it help me. And if I think about this more I'm gonna say to you maybe it does address quality and maybe it does not. But because we are so involved with the work that we are doing and for the first time after a long time I was made to think. If I took time I would go to

Sarita and tell her this is where my issues are and this is what is not working an look at how we can address it.

BD: I think the aim of the research itself is to get to that. At the end of the day give some recommendation, it's true that from day to day we do not think about this but now that I am here forcing you to think about this I am forcing someone else and someone else and at the end of the day I will share my recommendation.

RES: One thing that I like what you have done is that this is the most important thing in my business at project services, I need a fully flagged system and if I do not have a fully flagged system I am not gonna work to the maximum and only when you look at this you ask your self have I thought about what my risks are have I thought about where the short coming is. I appreciate that you have done this.

BD: Thank you very much for your time and the interview was well worth it.

(End of Interview Transcription)

Interviewee 9: Project Accountant, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: what is your understanding of QCP that the organisation is using?

RES: From a finance point of view, being in project accounting our controls will be to have a proper documentation in place. Should be ISO compliant of which we are, for every action taken or activity that we do, there is a check point for it. So we check to ensure that it is in line with our policies and procedures because we have those guiding us in our activities. Making sure that it is authorized properly by the responsible people at all times and also checking the type of information that you give if it is under stable to the next person and for reference.

BD: Question 2: Would you say the process of documentation is done properly at the end of the day you are getting good quality output?

RES: Yes because you have your guide lines that guides you. And the policies in place telling you of the responsibilities and the start and end of the activities. Who is accountable and who needs to be informed. I do think it is a good process.

BD: Would you say the standard of quality has improved?

RES: Yes it has improved and also keep in mind that Eskom is split into 3 Generation, transmission and distribution. Things are done differently and because it's a project environment and each division projects won't be the same. Koeberg might be more in cost while distribution more in quality so it is 2 different environments. But distribution I can say its more like red tape more like government which is not a bad thing because there is a lot of people involved in different projects. I think for quality to be maintained it's truly dependant on people and a lot of discipline is needed within the organisation.

BD: Have you worked on both generations and distribution so you have a view of both sides and comparing both sides which one is better in terms of quality level?

RES: You know things have changed with the new SAP but I found that Generations was much better than distribution because of attitudes when it comes to people and obviously with distribution I have a sense that technical people overpower finance while at generation it's a partnership. So it goes back to discipline.

BD: So discipline in distribution is not so good which then impacts quality?

RES: Because even when people know what to do they will still do what they do and still get backing from their managers. You find a lot of things that should not take place they do take place.

BD: What do you suggest should be done to change/improve this?

RES: It all goes back to the management, even though how urgent things are, it's like a child you can't tell a child not to have sweets during the week and give that child sweets. If management stand firm things will change as I said it goes with people's attitude. And they find that finance is a red tape while we are not a red tape we are more of a guardian at the end of the day.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness?

RES: If you should compare the old SAP and a new SAP I just think the implementation just confuses people considering the older version training was thorough and this new implementation was just a monkey see monkey do exercise so I just think newer people within the organisation are the ones suffering.

BD: Wow! You have mentioned training so old SAP was thorough and now people are not trained properly so they do not know what they are doing?

RES: I think they know what they are doing but more the understanding, and obviously that impact quality.

BD: Question 3: How do you regard the level of effectiveness of QCP?

RES: I think it needs to be training and discipline. But you cannot force one on discipline.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: I think to an extent they do but again it goes with an attitude of people and also management if they enforce people to use SAP correctly it will have an impact because if you put garbage in you get garbage out.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 1: which are the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: I think it should have been people on the ground, because they know much more of the system even though management takes decisions they have a vision of what they want to achieve with the sap system but changing things to have an impact on people that use it is not a clever thing if they struggle while you sitting on top because they are gonna give you garbage.

BD: So in your view people were not involved as much as they should have been or were they involved at all?

RES: I can't say whether they were involved or not because at the time I was very pregnant and I did not take note of things, but from what I see IT was more of being told this is what we are gonna achieve and so forth. They did not think of the implications that changing the reports and minimizing cost centres will have on the person. Yes it was a good idea to centralize but I think they had the attitude that we will see afterwards what happens. We are still doing a lot of clean up as far as I'm concerned, because you are not as effective as you were because some of the reports were taken away. Because it was true when they said we customize a lot of reports but they should have tried to use those reports to their advantage instead of taking them away.

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: Do you see the need to redesign QCP?

RES: No I think proper training should be done. You might have people working on the system but are you sure they understand the system. Are they just use what they now instead of… you need things like did you know pop ups on SAP. Those type of things you might know how to do an activity but there might be a wiser way. That's what banks do. You need to do that with the system. I stand to be corrected I think in old SAP we had things like that. You also find out that people are not using the system properly, you should have super users showing people other ways because people cannot use the system when they are not sure of.

BD: Maybe something like blog?

RES: Back in the days with old SAP in the intranet they use to have an I-tutor. That was good thing because if I wanted to learn something I would go on to that I-tutor and it will show me the steps. If they bring that back it would help people. Maybe it should be incorporated within SAP. Those are the types of interventions we should have.

BD: If you were given an opportunity to change something just 3 things to make things better and give good quality output?

RES: I think supporting staff. Implementing a system and not supporting staff is not a clever move.

(End of interview transcription)

Interviewee 10: Project Services Officer, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: I understand that the QCP that we use is supposed to increase value of activities within the organisation as well as improve the performances of the business.

BD: Question 2: Has the standard of quality in energy supply projects improved after the implementation of ERP system?

RES: I would say yes because with ERP systems as well as QCP we have tools where you can check the performance that has been provided by the service provide and if you are not happy you can always issue an NCR.

Section B: Effectiveness of QCP post implementation of ERP system in the organisation.

BD: Question 1: How was the implementation of ERP system supposed to address ineffectiveness?

RES: I believe ERP is supposed to facilitate the flow of info between departments, in our department we deal with projects and we have other stakeholders like procurement and contracts so we need that information for each stakeholder to get information when they need it. I would then say the system has addressed the ineffectiveness.

BD: Question 2: How do you regard the level of effectiveness of QCP?

RES: It has slightly improved when you look back from when we did not have the systems.

BD: Which areas need to be worked on to improve effectiveness?

RES: Training, I guess people need to be trained more on these systems so that they understand and I guess they need to be taken through Change management as this is something new.

BD: Do you think change management is not dealt with the way it is supposed to?

RES: It is not really dealt with, people still do not understand of what the business is doing. I guess those people were not part of the group that was taken through to change management. I think they should revisit and try to communicate with staff as to whether they really do understand the QCP.

BD: Do you think people were not taken thru change management or they are just resistant?

RES: People are resistant to change because there were awareness's communicating change but because people are comfortable with what they know they did not part take and that is an issue that has to be dealt with in order to be successful.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: I think there is still a disconnection because people understand SAP to be a tool used to process journals and service entry. The QCP system that we have, they kind of separate the 2 they do not understand that they should go hand in hand in trying to have right processes flowing and speaking to each other.

BD: Question 2: What do you think can be done about that?

RES: It goes back to change management, it goes back to training and more communication to provide clarity.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Question 3: Which are the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: The project leader and people who were selected to be champions from their department and the onus would lie with them to go back to the department to train people. Functional managers, consultants and vendors should be involved.

If they were not involved the resistance could be coming from there. The fact that people do not understand the implications of what they are doing.

Section E: Redesign of QCP after the implementation of the ERP system in the organisation.

BD: Question 1: Do you see the need to redesign QCP?

RES: Currently I think they are working well but under general it I think you should not have too much gap between the ERP implementation and QCP. The components might not speak to each other and enable QCP.

BD: Question 2: In your opinion, what are the risks involved in redesigning of QCP post implementation of ERP system?

RES: The ERP might not have the components that do not speak to QCP but the system to make it work it for you.

Not involving the stakeholders could be a huge risk. Our QCP is working well but we need training as there were slight glitches but that again goes back to human error.

BD: Any other comments? What I have peaked from you is change management, how do we go forward to make sure the system works to the best of its ability?

RES: I think to get it to work we need to make sure that the functional managers are involved and that every staff in their department undergoes training so they understand what the QCP is and what is its impact on the business.

Emphasis is on training.

(End of interview transcription)

Interviewee 11: Project Quality Controller, Quality Management

Telephonic Interview

Section A. Complexity of QCP after ERP system has been implemented.

RES: Documents are authorised and have a unique identifier;

Record incidents on SAP;

90% busy managing incidents;

Deadline year recommendation; and

Process delays because of dependencies.

Section B. Effectiveness of QCP post implementation of ERP system in the organisation.

RES: Quality has improved;

Load incidents on SAP and Hyperwave;

Documents kept in one doc which is SAP;

Easy to access, controlled; and

Quality has improved.

Section C. Use of ERP system to improve QCP in the organisation.

RES: Trying to use Hyperwave; and

The drive is here.

(End of interview transcription)

Interviewee 12: Consultant, Project Execution

Section A: Complexity of QCP after ERP system has been implemented.

BD: Question 1: What is your understanding of QCP that the organisation is using?

RES: My understanding is that you want to improve your processes particularly in the build environment such that the clearer steps to be followed, logical steps in the execution of a project. I think the process itself is very well documented and it's very well defined but I think the human element of it is the one that is destroying the system.

BD: So you would say the level of effectiveness has not improved or has it improved? Since 1996 that you started with Eskom and in 2011 they have implemented ERP system…

RES: I want to avoid being emotional. That is the emotional part that I want. I would say the processes have become cumbersome, as a results delivery of the intended outcome has been hampered because of those layers that are now included in the delivery process and to me that will be a bit of a process. It has racksaw… backward instead of being the real time improvement that was intended.

BD: So the effectiveness of Quality Control Processes post the implementation of ERP system…I think you have already answered that. The aim was to improve the quality control system but it's like we have gone a step back.

RES: That's it that's my view. Like I said I could be getting emotional and I have no justification for felling this way it has nothing to do with the 2 projects but I see it countrywide it has gone backward.

BD: That's why I have asked you because I know you are involved and I want that emotional part.

RES: Yhah! It has gone backwards.

BD: How would you regard the level of effectiveness of quality post implementation of the ERP?

RES: Because of the way things are so fuzzy within the processes quality has taken a knock. Between me and you from the project management environment quality is not just compliance to the spec, it's about timeous delivery. As we sit here I can use the project that you and I has, there could be other issues but effectively we were unable to deliver the project. The reasons are nothing else other than the inside, inside simple being one has to go to survey they are supposed to do their work and they find nothing wrong with postponing and procrastinating, delay so there is no

accountability some want to say I am going to get things done. It's like in perpetuity you can wait and say I am waiting for… a good example you went away for maternity and you came back and we were exactly where you left us. Which means we can effectively say for 4 months we were exactly in the same place. What is happening is... Remember processes are an issue when you… Because you can go into an analysis a systems analysis of what is currently the situation. Things have been broken down to the point where they have now created barriers around each of the items. Where survey use to be accountable to project engineering they are a free standing unit that does what they want they can shrug their shoulders and not be accountable and that is part of the problem. Quality has to be measured not only with the specification but delivery must be timeous. It does not help to finish the stadium 10 years late. Soccer world cup would have been gone. Yes you have finished the stadium 100% right 4 years later but the stadium was wanted 4 years back. That is my view for that particular question.

BD: Which areas need to be worked on to improve effectiveness?

RES: There must be more cohesion between departments such that the cross functional relationships are easily accessible rather than the parallel way we work like.

BD: So currently we are not integrated you would say?

RES: We are not integrated. It's like the more you try to be everything to everybody the more you are bound to disappoint them.

Section C: Use of ERP system to improve QCP in the organisation.

BD: Question 1: Do users understand that the use of ERP system is to improve QCP?

RES: A system is as good as its users. I do not think it's clearly understood by all the users. I also think the whole thing is too hyped for what is really worth. I have my doubts. I think it was good for the sales man that sold it. Remember the problem with that SAP is understood by a few people if you go in here now people are still not able to access some of the things they want to access. And my view is people like you from project services have a very cross cutting function. You have a very good handle from procurement to delivery but in between there are players that are lost in the mist.

Section D: Stakeholder involvement in the implementation of ERP System.

BD: Would you say it's a stakeholder involvement? Did they involve the relevant stakeholders that need to be involved in the implementation of ERP system?

RES: That would be after the fact. Maybe we should ask the question what was the need because if we ask the stakeholder involvement we have already gone past the question what was the need.

BD: Well the FD at the time. His need was to… as Eskom was decentralised so the need was to integrate the functions so that when information is required it is there real-time.

RES: Look my view is he must have been right by doing so. There is no harm in paper but I still think you are still looking in the rear view mirror. There was a need to integrate that is clear from paper but if you look at the difference in sections generations, distribution, and transmission you cannot actually just.. There should have been a report, request could be collected differently. Integrating them...The measurement are different in different places so you cannot.. I think the question that should have been asked in the beginning was not properly understood because what generations wants is not the same as what distribution wants. Having a system that is trying to be jack of all trades for everyone, you can get some relevant information getting muggled up and information that is key getting swept way and the result is exactly what Eskom is finding itself in. How can you centralize the payment of every one to service provider and you make it... It was effective when it was done because you had a very good feel for the importance at your level where you can fast track things to keep them going. There was an issue there, I think the whole thing… the whole idea behind implementation should have been better debated or workshoped. Because quite clearly what you needed was report that needed to be collected from different sections. Generations has its own issues, transmission has its own issues and distribution has its own challenges and if you had kept them separate and you just take the appropriate reports from the overview that each must give you it's a different story rather than trying to get the system to work for you, it cannot do that.

BD: So from an external point of view do you think Eskom must redesign the QCP, what do you think needs to be done for Eskom to get back on track?

RES: They must not start with the preferred system, they must first identify what needs to be done. Don't go already blinkered by what you want SAP to do for you. The minute you talk SAP the solution is already limited.

BD: Do you as an external person get the information that you need from Eskom on time or as it is supposed to?

RES: In a way you know very well because it comes via yourself. Some of it is delayed some of it gets mixed up with other irrelevant things. That's why I said for the sales man of SAP it was a good deal. For you and me some of the information is irrelevant, it's not considerate. Yes real time real

that it's a lot of garbage because it does not really work like that. How do you imagine that you get information when you want it provided that you get it from someone who knows? The minute you step in there I think there is a lady who took over from you, as good as she is you know… That is a problem with the system, if you get a person who understand it will work for you. Half the users do not understand the system and are not comfortable with it and therefore do not extract the most out of it.

BD: So you would say training still needs to be done?

RES: Yes, training needs to be done.

(End of interview transcription)