

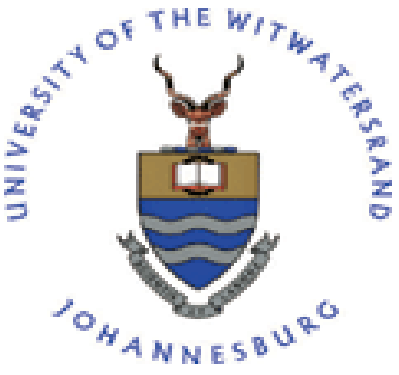
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Programme management principles as critical success factors for the realisation of post-implementation benefits from an ERP implementation

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Programme management principles as critical success factors for the realisation of post-implementation benefits from an ERP implementation

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Masters of Science, Industrial Engineering.

31 March 2015

ABSTRACT

The purpose of this research was to determine whether principles promoted by a programme management discipline be defined as critical success factors (CSFs) for the realisation of post-implementation benefits from an ERP investment in an organisation.

The research method consists of a single case study with three embedded cases. The main source of data was the use of semi-structured interviews, and business documentation was used to corroborate findings.

It was concluded that of the eleven CSFs proposed, three were highly likely CSFs, seven were likely but had certain conditions attached, and one is most likely not a CSF.

It was also discovered that four additional CSFs proposed in interviews conducted may be relevant, and that four themes exist within the case data analysed. These may form part of future work.

DECLARATION

I declare that this research report is my own unaided work. It is being submitted to the Degree of Master of Science to the University of the Witwatersrand, Johannesburg.

It has not been submitted before for any degree or examination to any other University.

……

Signature of Candidate

On the …….. day of …….., ……

(day) *(month)* *(year)*

DEDICATION

I dedicate this research to

My grandmother, who taught me to never quit

&

My father, who stood by me from the beginning to the end

ACKNOWLEDGEMENTS

I would like to acknowledge my supervisor, Ms Bernadette Sunjka, for all the support she has given me both during my research and during my undergraduate years.

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NOMENCLATURE

Term	Definition
ERP	Enterprise Resource Planning
BRM	Benefits Realisation Management
BU	Business Unit
POTI	Processes, Organisational factors, Technology, Information
RDS	Rapid Deployment Solution
PMO	Programme Management Office
Benefit	A positive outcome as perceived by a stakeholder
Disbenefit	A negative outcome as perceived by a stakeholder
ERP client	ERP system backbone or server
ERP module	Software application or suit designed for a specific purpose
Benefit Plan	A plan identifying benefits and how they will be realised
Go-Live	ERP system is switched on and ready to use

CHAPTER 1

1. INTRODUCTION

At the end of 2011 the Company, the organisation on which this case study is based, completed the first phase of a sequential three-phase ERP system re-implementation. The re-implementation had a number of strategic objectives, mainly (Company, 2011):

1. Consolidate four segregated ERP systems into one –'4-to1'.
2. Upgrade the ERP system to the latest version that is supported by the vendor.
3. Add additional ERP functionality to support existing business processes.
4. Deepen existing functionality.
5. Enable operational efficiencies with the ERP re-implementation through a number of other initiatives.

The re-implementation is not a 'green field' ERP implementation. Rather, it is an extensive upgrade.

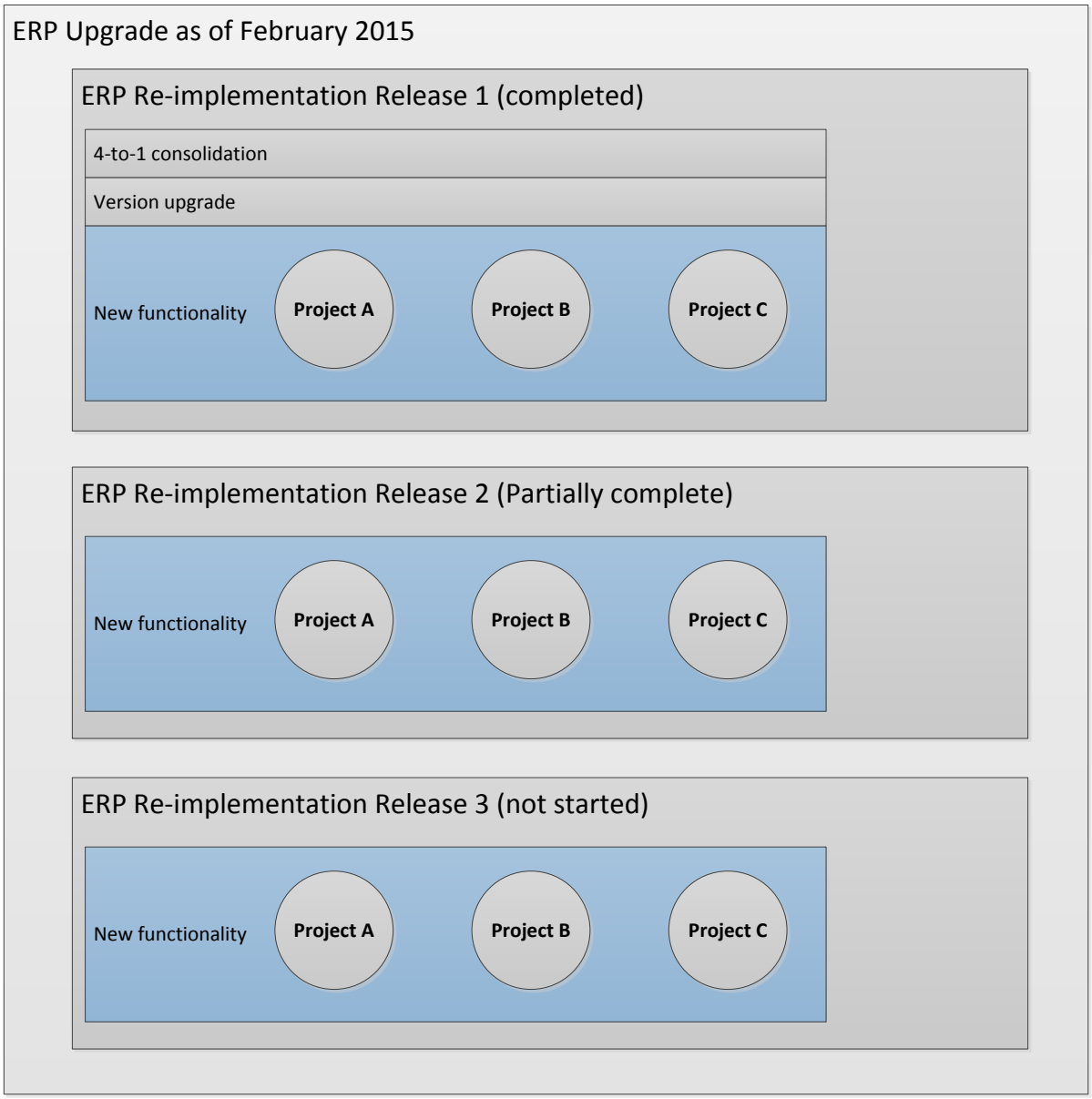


Figure 1: ERP Re-implementation Structure (Developed by author)

ERP Re-implementation Release 1

The strategic benefits of the Release 1 consolidation and upgrade are clear. It is cheaper to maintain and upgrade one system as opposed to four. An example is the Real Estate project (Company, 2011). If the Company had not consolidated the existing systems, this project would have been repeated four times instead of once and licence fees for four systems would have been maintained. In another example, a shared HR function could only be implemented once this consolidation happened. Lastly, the software needs to be kept up to date to be supported by the vendor and therefore an upgrade to the latest version was required.

Release 1 aimed to standardise, simplify and optimise capabilities, processes, policies, procedures, internal controls, and tools covering the following scope (Company, 2011):

- Record to report
- Supplier Relationship Management (Procure to Pay)
- Capital and outage project cost control and cost monitoring
- Plant maintenance
- Fleet management
- Recruit to retire/ terminate
- Master data governance
- Integrated Business Planning and Consolidation capability
- Standardised reporting

ERP Re-implementation Release 2

Release 2 was envisioned to add new, and deepen existing, functionality.

The scope for release 2 includes (Company, 2011):

- Real Estate Property Management
- Post-Release 1 Detailed Design Capability
- Business Warehousing – Standard Reporting
- Dashboard and Analytics
- BPC Tariff Modelling-Financial Planning
- E-Recruitment
- Multi-resource Scheduling
- Primary Energy Logistics and Water Management
- Governance, Risk, and Compliance
- Supplier relationship management (SRM) enhancements
- Supplier Life Cycle Management
- Mobility
- Project and Portfolio Management
- Energy Trading
- Master Data Management Enterprise-wide
- Treasury

1.1 Problem Statement

Two issues motivated this research. The first is the low success rate of ERP system implementations in general. A survey performed by Panorama Consulting (2014) reveals that in 2013 approximately 54% of ERP projects exceeded their budgets, 72% exceeded their planned durations, and over 66% realised less than half of measurable benefit expected, as outlined by Table 1 below.

Table 1: 2010 - 2013 ERP Success Rate adapted from 'Data Summary by Year' (Panorama Consulting, 2014)

Year	Average Cost	% of Cost Overruns	Duration	% of duration overruns	% receiving 50% or less benefits
2013	$2.8m	54%	16.3 months	72%	66%
2012	$7.1m	53%	17.8 months	61%	60%
2011	$10.5m	56%	16 months	54%	48%
2010	$5.5m	74%	14.3 months	61%	48%

From the data captured in Table 1 it can be deduced that in recent years ERP investments have not been delivering the value expected by investors.

The issue seems to be perpetual in nature. Estimates from the 1970s suggest that only 20% of projects realised a satisfactory level of expected benefits, and that by the late 1980s up to 70% of projects were classified as unsuccessful (Ashurst, Doherty, & Peppard, 2012). Benchmarks of ERP benefits from the late 90s and the early 2000s reveal a similar pattern (Nicolaou, 2004). Fast forward to 2013 and businesses still cannot consistently realise value from these investments.

The second issue is the apparent lack of benefits realised from the first release of the Company's ERP re-implementation (R1). It is known from within the Company that end-user sentiment was largely negative post programme. Examples of issues that arose in the Company were known, but are confirmed by interview data collected:

1. After a Supplier Relationship Management (SRM) software module implemented, a backlog of almost fifty thousand unprocessed purchase requisitions formed. This effectively paralysed the purchasing function of the Company for a number of months, see APPENDIX A: SRM Evidence and Analysis.

2. The Master Data Management (MDM) software module was implemented, but only a few hundred out of a potential twenty thousand services were catalogued three years after its implementation. This has a large impact on the efficiency of the purchasing function, see APPENDIX B: MDM Evidence and Analysis

Although evidence had not been collected to the extent it has been here, the wave of unhappiness and negative sentiment following the R1 projects was a catalyst to this research.

1.2 Programme Management Principles and ERP Success

Existing literature does not refer to programme management principles as CSFs for ERP systems, and few researchers such as Ashurst et al (2012) and Frederic & Sammon (2008) mention CSFs in a purely ERP benefits realisation context.

Programme management encompasses a set of principles (MSP, 2011); some of these principles may have been identified as CSFs in the past.

This is a unique contribution to the field of ERP CSFs, albeit in a niche. The author hopes this work will at the very least open doors to future research on the impact of the portfolio/programme/project management disciplines on ERP implementations, and that this leads to the development of better ERP implementation methods.

1.3 Central research question

Can the principles promoted by a programme management discipline be defined as critical success factors (CSFs) for the realisation of post- implementation benefits from an ERP investment?

1.4 Research Objectives

The objectives of the research are as follows:

1. Select three projects from the ERP implementation.
2. Derive a list of CSFs that are related to the MSP programme management principles, using a conceptual framework created from existing literature.
3. Gather data through semi-structured interviews and company documentation relevant to each project.
4. Determine the degree of benefits realised post-project.
5. Determine whether each CSF affected benefits post-project, by analysing the CSFs against:

-Interview data for each project

-Business documentation for each project

6. Draw conclusions on a case level, i.e. the ERP implementation.

1.5 Brief summary of Research method

The research method consists of a single case study with three embedded cases. The research methodology is followed as outlined by Yin (2014).

1.6 Ethical considerations

- Ethics clearance was obtained through the School Ethics Committee, as per clearance number MIAEC 035/14.
- The company has given formal permission for the study to be completed.
- Informed consent will be obtained via letters of consent and participation information sheets.
- Participant identities will be protected.
- All interview data and business documentation will be kept in a secure location.

1.7 Limitations and Constraints

Possible limitations and constraints of the research are:

- Six interviewees participated. A higher number would have improved the confidence of the results, and lessoned the effect of personal bias.
- Interviewing stakeholders from multiple stakeholder groups would have increased certainty of results dramatically, as each group could perceive the project from a unique reference point.
- R1 related projects (SRM, MDM) were completed three years before the interviews took place and therefore the interviewees may not recall all the details of what transpired. This in contrast with the R2 project (RE) that was completed 6 months before the interview took place.
- Business documents could have omitted important details relevant to this case, since they were produced for a different audience.

- Although care was taken to collect as many business documents as was possible, there is always a possibility that some relevant documents were missed.

1.8 Chapter Outline

The following chapters follow the introduction:

Chapter 2: Literature review

Outlines relevant literature that leads into to the creation of a conceptual framework.

Chapter 3: Research Method

Outlines the research method used for this study, define the unit of analysis, define the data collection method, and define the method of analysis.

Chapter 4: Case Evidence and Analysis

Presents relevant data collected from both the interviews and business documents. The data is analysed to determine whether proposed critical success factors (CSFs) impacted the benefits realised post-project after each embedded unit. The results of all three projects are then presented.

Chapter 5: Discussion of Results

Results from the embedded cases (projects) are discussed on a case level.

Chapter 6: Conclusion

Conclusions are drawn and the central research question (CRQ) is answered.

CHAPTER 2

2. LITERATURE REVIEW

The purpose of this chapter is to explore the key theoretical concepts used in this research.

2.1 Enterprise Resource Planning (ERP) Systems

2.1.1 Overview

An ERP system is essentially an enterprise-wide information system that collects and provides information to relevant stakeholders, where the information is used to track and monitor progress of different business processes (Ganesh, 2014).

These systems can be defined as 'highly integrated enterprise-wide information systems that automate core business processes' (Light, 1999, p. 1) and are derived from earlier Materials Requirement Planning (MRP) systems (Chung, 2007). ERP systems attempt to "unify all systems of departments together into a single, integrated software program based on a single database so that various departments can more easily share information and communicate with each other" (Chung, 2007, p. 12).

The purpose of an ERP system is to efficiently integrate and automate a set of process activities in order to make it faster and more transparent (Ganesh, 2014). Logically this would result in a competitive advantage over organisations that are unable to match the resultant efficiencies.

An ERP system consists of different modules. Each module usually provides specific functionality that is relevant to a value chain or business unit an organisation. ERP vendors can also provide specific solutions for different industries (Ganesh, 2014).

2.1.2 Evaluating ERP Investments

ERP projects have dominated IT investment for a number of years, but there has been a deteriorating trend in the ability of companies to perform evaluations of these investments (Frederic & Sammon, 2008). Organisations seemingly regard these evaluations as difficult to perform. (Frederic & Sammon, 2008)

Discontent amongst companies is also prevalent. Frederic & Sammon (2008) suggest that the main driver of this discontent is the unrealistic expectations held by business managers, which in itself is a result of the appealing "rhetoric" (Frederic & Sammon, p. 3) that is spread by software vendors.

Frederic & Sammon (2008) suggest that "scant reasoning and mindlessness" are often characteristics of the approach to implementing ERP packages within organisations.

Understanding CSFs of ERP investments and the benefits they should enable post-implementation is therefore integral to the evaluation of ERP investments.

2.2 ERP Critical Success Factors (CSFs)

2.2.1 Definition

The first step toward understanding ERP CSFs is to define the term. Numerous definitions of a CSF are documented in literature:

Rockart (1979)defines a CSF as "…the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. They are the few key areas where things must go right for the business to flourish. If results in these areas are not adequate, the organization's efforts for the period will be less than desired". (Rockart, 1979)

Leidecker and Bruno (1984) state that CSFs are "those characteristics, conditions or variables that, when properly sustained, maintained, or managed, can have a significant impact on the success of a firm competing in particular industry" (Bruno & Leidecker, 1984).

Haft and Umble (2002, p. 244) suggest CSFs are "factors that, to a great extent, determine whether the implementation will be successful"

Chung (2007) implies that CSFs are factors which can significantly improve project implementation chances.

2.2.2 Importance of ERP CSFs

ERP systems are perceived as drivers of enterprise value. They integrate business processes of department functions and departments into a single system, and allow the progress of these processes to be monitored, enabling the automation of key business processes yields significant benefits to stakeholders (Ganesh, 2014).

However, ERP systems implementations are large investments for firms in terms of money, time, and energy. There have been several reports of unsuccessful ERP implementations. Hershey, Nike, and Foxmeyer are examples of companies that have experienced ERP implementation failures (Cotteleer, 2002). There have even been accounts of companies that struggle to survive the post-implementation changes. (Nicolaou, 2004)

Independent surveys provide similar conclusions. Panorama Consulting (2014) conducts an annual ERP Report, to 'gauge ERP software selection, implementation, and satisfaction trends across industries, company sizes, and geographic locations'. Of the participants surveyed in 2013 approximately 54% of ERP projects exceeded their budgets, 72% exceeded their planned durations, and over 66% realised less than half of measurable benefit expected, and success rates do not improve from year to year. Table 1: 2010 - 2013 ERP Success Rate adapted from 'Data Summary by Year'

In light of these challenges, the study of ERP success factors is confirmed as an important field. The next section will highlight CSFs that have been uncovered in previous cases.

2.2.2.1 ERP CSFs in Literature

The following section looks at existing CSF literature.

Chung (2007) empirically validated the following CSFs for both ERP system implementation and user adoption in Engineering and Construction firms:

Table 2: User Related Variables (Chung, 2007)

Critical Success Factor	Elaboration
Output Quality	The degree of output quality from the ERP system
Job Relevance	How relevant usage of the ERP system is in an employee's job
Image	The resultant social image or status of those who use the ERP system
Result Demonstrability	How easily users can explain the consequences and results of using the ERP system
Compatibility	The capability of the ERP system in importing and exporting data from / to other systems or software currently used
System Reliability	data loss and system errors as well as the overall reliability of the ERP system
Reporting Capability	How useful management and measurement reports are

Table 3: Project Related Variables (Chung, 2007)

Critical Success Factor	Elaboration
Internal Support	The degree of top-management support, planning, training, and team contributions with respect to ERP implementation projects
Software Selection	How well the ERP software that a company is using can support its business processes as well as the functionality of the software
Consultant Support	Consultant capability and the degree of consultant support during the ERP implementation project
Information Systems Area Participation	How well the functions of the ERP system are defined and how well these are matched with a company's necessary business functions.

Table 4: Intermediate Variables (Chung, 2007)

Critical Success Factor	Elaboration
Subjective Norm	Identifying the impact of work group on ERP system use, and senior management's impact on use.
Perceived Ease of Use	How easily users can use their ERP systems.

Nicolaou (2004) documented ERP CSFs as presented in academic and professional literature, and then identified the corresponding post-implementation CSFs

Table 5: CSFs of ERP Implementation and Critical Dimensions of Success in Post Implementation Stage (Nicolaou, 2004)

Critical Success Factor	Critical Dimensions of Success in Post Implementation Stage
Top management support and commitment to project; fit to business strategy.	• Evaluation of fit with strategic vision. • Review of project planning effectiveness. • Evaluation of infrastructure development
Alignment of people, process, technology.	• Review of fit resolution strategies. • Evaluation of system integration attainment and reporting flexibility.
Anticipated Benefits from ERP implementation project	• Evaluation of level of attainment of expected system benefits.
Motivation behind ERP implementation (business- vs. system led).	• Review of driving principles for project. • Review of project justification practices.
Scope of user training	• Review of user learning. • Evaluation of effective knowledge transfer (among project team members and other users).

Wong et al (2005) identified fourteen CSFs via four separate case studies. Three of the fourteen CSFs were deemed common amongst the cases, highlighted in

Table 6. The cases analysed manufacturing companies from the electronic, furniture, and sound equipment industries. Sales turnover of these companies ranged from 10 million to 400 million US Dollars.

Table 6: ERP CSFs through Multiple Case Studies (Wong, 2005)

Critical Success Factor	Occurrence of Factor across cases
ERP system misfit	3
High turnover rate of project team members	1
Over-reliance on heavy customization	2
Poor consultant effectiveness	**4**
Poor IT infrastructure	1
Poor knowledge transfer	2
Poor project management effectiveness	**4**
Poor quality of Business Process Reengineering (BPR)	**4**
Poor quality of testing	3
Poor top management support	3
Too tight project schedule	3
Unclear concept of the nature and use of ERP system from the users' perspective	3
Unrealistic expectations from top management concerning the ERP System	1
Users' resistance to change	2

Table 7: ERP CSFs Common to Multiple Case Studies (Wong, 2005)

(Common) Critical Success Factor	Elaboration across all four cases
Poor consultant effectiveness	• Inexperienced with ERP systems • Poor communication • 'Copy-paste' tactics • Poor quality training • Poor business process re-engineering (BPR) • Poor management reports • Unprofessional service • Abandoning formal implementation methodologies • Poor user requirements document
Poor quality of BPR	• Project team members had unclear vision of how and why to conduct BPR • Mismatch between ERP and business processes • Process mapping rushed • Users and business processes were not ready for the ERP implementation
Poor project management effectiveness	• Project managers had limted ERP knowledge and poor project management skills • Failure to plan, lead, manage, and monitor the project was identified as a core failure factor • ERP project was considered complex as it involved the management of systems, people, and business process re-design • Unrealistic project time-schedule and insufficient human resource exhausted project team members and users • Phases were rushed • Users could not understand the new system or adapt to new business processes within the short timelines • Ineffective project management control, especially over management consultants • Poor reporting to top management

2.2.2.2 CSFs in a Post-implementation Benefits Context

The CSFs below are used to create the conceptual framework in Section 3.2. The framework guides the collection of data.

Ashurst et al (2012) are critical of existing research on ERP CSFs. They point out not only the high failure rate of ERP systems over the past 30 years, but also the lack of improvement over the past decade since ERP CSFs have been identified and acted upon.

The premise of the study is that ERP implementations have been defining success as delivering an IT system within time, cost, and specification, and that the bulk of known success factors are addressing this version of success. The contribution of their study is therefore the identification of CSFs that address the problem of realising business benefits post-implementation Ashurst et al (2012). These are presented in Table 8.

Table 8: CSFs for ERP benefits realisation (Ashurst, Doherty, & Peppard, 2012)

Critical Success Factor	Elaboration
From Identifying Goals and Objectives to Detailed Benefits Planning	It is not enough to merely identify goals and objectives in a business case. Techniques such as benefits mapping, or benefit dependency networks, have to be employed to identify what exactly should happen in order to realise these goals and objectives. Specific changes to business processes and working practices should be identified and acted upon, for example.
From Project Management to the Management of Transformation	Whilst recognising the need for and value of project management, a greater emphasis is placed on the need to effectively manage organisational change so that business processes and working practices can be changed to fit with the new ERP system. There is also a need to extend this transformation over the working life of the system, rather than to the end of the system implementation. To quote: *"The management of a software development project simply becomes part of the management of a broader program of organisational change".*

From Well Balanced Project Team to Coherent Governance Structures	It is recognised and accepted that assembling good project teams will go a long way towards project success. This is not sufficient to guarantee the effectiveness of the project team, however. The project teams must be integrated into governance structures that allow them to facilitate the realisation of benefits. An employee from one of the companies in the case observed: *"we have moved from asking is X a suitable project manager for this project to how can we best shape the project management role on this team so that X can succeed in this role*".
From Senior Management Support and Commitment to Active Business Leadership	Senior management is often seen as playing a 'passive and reactive role' in the ERP implementation process. This role includes providing resources, encouraging stakeholders, and accepting accountability for risks. Ashurst et al (2012) believe senior managers should actively lead and take personal responsibility for organisation change and the delivery of benefits.
From User Participation to Stakeholder-Enabled Benefits Realization	Too often IT projects impose changes upon end users and other stakeholders. This leads to issues with user acceptance, and consequently, the achievement of benefits post-implementation. The contrasting method is to encourage stakeholders to engage with and participate in the implementation process. Traditionally this engagement would involve the capturing of user requirements specifications (URS) and attempt to influence attitudes towards the system. The authors believe that stakeholders should be given broader powers, such as the responsibility of specifying the benefits during the ERP system development phase, and by playing a significant role in the achievement of benefits post-implementation.
From Rigorous Software Testing to On-going Benefits Review	Past literature stresses the need for quality assurance processes and rigorous software testing. The rationale behind this is clear: inadequate software testing can cause downtime, disruption,

	and rework, all potentially costing significant amounts of money. It is suggested, however, that *"reliability primarily arises from paying close attention to the way in which work is undertaken, once a system is operational".* This ties in to the idea of benefits reviews. Organisations should be reviewing benefits on an on-going basis to improve the reliability and ultimately the value of their software implementations.

Nicolaou (2004) takes a similar view of defining ERP success as a post-implementation issue. Nicolaou (2004) documented existing ERP CSFs from literature, and created a set of corresponding post-implementation 'review dimensions' which are effectively a new set of CSFs.

Table 9: CSFs of ERP Post-implementation (Nicolaou, 2004)

Traditional ERP CSF	CSF Post Implementation Stage
Top management support and commitment to project; fit to business strategy	• Evaluation of fit with strategic vision. • Review of project planning effectiveness. • Evaluation of infrastructure development.
Alignment of people, process and technology	• Review of fit resolution strategies • Evaluation of system integration attainment and reporting flexibility
Anticipated Benefits from ERP implementation project	• Evaluation of level of attainment of expected system benefits.
Motivation behind ERP implementation (business- vs. system led)	• Review of driving principles for project. • Review of project justification practices.
Scope of user training	• Review of user learning. • Evaluation of effective knowledge transfer (among project team members and other users).

2.3 Programme Management

2.3.1 Definitions

Programmes

According to the MSP Best Management Practice standards (2011), a programme is defined as 'a temporary, flexible organisation created to coordinate, direct, and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organisation's strategic objectives' (MSP, 2011).

Projects

In contrast a project is defined as '…a temporary organisation, usually existing for a much shorter duration (*than a programme)*, which will deliver one or more outputs in accordance with an agreed business case. A particular project may or may not be part of a programme' (MSP, 2011).

Programme Management

The MSP Programme Management standard (2011) defines programme management as '...the action of carrying out a coordinated organisation, direction, and implementation of a dossier of projects and transformation activities to achieve outcomes and realise benefits of strategic importance to the business' (MSP, 2011). One could view project management as a subset of programme management, but both disciplines function in a complementary manner. Projects deliver *outputs* and programmes deliver *outcomes.* (MSP, 2011).

The landscape of project and programme management disciplines is described Table 10 below:

Table 10: Various project and programme management disciplines (developed by author)

Discipline	Standard/Methodology (Certification)	Association	Country of origin
Project Management	Projects in Controlled Environments 2 (Prince 2)	APMG	UK
	PMBOK (PMP)	PMI	USA
Programme Management	Managing Successful Programmes (MSP)	APMG	UK
	Programme Management Standard (PgMP)	PMI	USA

2.3.2 Programme Management Principles

Successful programme management or transformational change is underpinned by a set of common factors. These were derived from the lessons learned from both successful and unsuccessful programmes (MSP, 2011):

1. Remaining aligned with corporate strategy
2. Leading change
3. Envisioning and communicating a better future
4. Focussing on the benefits and threats to them
5. Adding value
6. Designing and delivering a coherent capability
7. Learning from experience

The MSP standard (2011) defines a programme as a 'temporary, flexible organisation created to coordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organisations strategic objectives' (MSP, 2011).

Programmes provides an 'umbrella' under which projects can be initiated, executed, and closed as well as coordinated and integrated. A Project is also defined as a temporary organisation, may or may not form part of a programme, and usually exists for a much shorter duration. Programmes deal with outcomes, and projects deal with outputs (MSP, 2011).

Subsequently programme management can be defined as 'the action of carrying out the coordinated organisation, direction and implementation of a dossier of projects and transformational activities to achieve outcomes and realise benefits of strategic importance to the business.' A programme aligns interconnected and competing projects with desired outcomes (MSP, 2011).

2.3.3 Benefits Realisation Management

Benefits Realisation Management (BRM) is a relatively new branch of management that was developed in the 1980s and 1990s because of a need to understand the return on investment from IT spend (Bradley, 2010). The discipline is recognised as forming part of the larger Programme Management discipline (MSP, 2011).

BRM can be defined as 'the process of organising and managing, so that potential benefits, arising from investment in change, are actually achieved' (Bradley, 2010).

Bradley (2010) defines a benefit as 'an outcome of change which is perceived as positive by a stakeholder'. Conversely, a disbenefit is defined as outcomes of change perceived as negative.

Similarly, the MSP Programme Management standard defines a benefit as 'the measurable improvement resulting from an outcome perceived as an advantage by one or more stakeholders, which contributes towards one or more organisational objective(s)'. A disbenefit is defined as 'the measureable decline resulting from an outcome perceived as negative by one or more stakeholders, which detracts from one or more organisational objective(s)' (MSP, 2011).

Recalling the MSP definition of a programme, one can confidently infer that BRM is central to Programme management since programmes exist 'in order to deliver outcomes and benefits related to the organisations strategic objectives' (MSP, 2011).

2.4 Conceptual Framework

Table 11 below outlines the following conceptual framework:

MSP programme management principles are compared to literature presented. Propositions are made. These are proposed CSFs linked to the programme management principles. This comparison allowed the formulation of data collection topics. The data collection topics are used to create a set of questions used in the semi-structured interviews, see APPENDIX E: Semi-structured Interview Questions.

Table 11: Linking MSP principles to data collection topics

MSP Programme Management Principles (MSP, 2011)	**Table 10** (Nicolaou, 2004)	**Table 9** (Ashurst et al, 2012)	**Associated Proposition (proposed CSF)**	**Data collection topics**
Remaining aligned with corporate strategy	Evaluation of fit with strategic vision	From Rigorous Software Testing to On-going Benefits Review	The alignment between corporate strategy, the benefits, and the project	Alignment to corporate goals
	Review of project planning effectiveness			
	Evaluation of infrastructure development			
	Review of driving principles for project.			
	Review of project justification practices.			
Leading change		From Well Balanced Project Team to Coherent Governance Structures	Effective change management	Change management
		From Senior Management Support and Commitment to Active Business Leadership	Strong leadership	Stakeholder opinion of leadership
Envisioning and communicating a better future		From User Participation to Stakeholder-Enabled Benefits Realization	Stakeholders must buy into a common vision	Definitions of success, and vision buy-in
		Appropriate Training	Awareness of unique definitions of success held by different stakeholders	
Focussing on the benefits and threats to them	Evaluation of level of attainment of expected system benefits.	From Rigorous Software Testing to On-going Benefits Review	Ensuring the project led by the business unit, as opposed to the IT department	Business led vs. systems led implementation
			The funding of benefits as opposed to project outputs	Funding model

MSP Programme Management Principles (MSP, 2011)	**Table 10** (Nicolaou, 2004)	**Table 9** (Ashurst et al, 2012)	**Associated Proposition (proposed CSF)**	**Data collection topics**
Adding value	Evaluation of level of attainment of expected system benefits.	From Rigorous Software Testing to On-going Benefits Review	Managing projects and their interdependencies within a programme, rather than managing projects individually	Management of project interdependencies
Designing and delivering a coherent capability	Review of fit resolution strategies	From Rigorous Software Testing to On-going Benefits Review	Delivering a complete business solution (POTI) as opposed to a working IT system delivered in isolation	Completeness of solution, as related to the desired benefit(s)
	Evaluation of system integration attainment and reporting flexibility	From identifying Goals and Objectives to detailed Benefits Planning	A plan to manage benefits beyond the project end date	Path to success
Learning from experience	Review of user learning	From Rigorous Software Testing to On-going Benefits Review	Leveraging lessons learned to improve post-implementation success	Lessons learned activities post-implementation (both projects and benefits)
	Evaluation of effective knowledge transfer			

CHAPTER 3

3. RESEARCH METHOD

The purpose of this section is to:

- Outline the research method used for this study
- Define the unit of analysis
- Define the data collection method
- Define the method of analysis.

The research method used is a case study approach. This method is preferable in situations when the following three conditions hold true (Yin, 2014):

1. The main research question is a 'how' or 'why' type;
2. The researcher has little or no control over events
3. The area of focus is a contemporary, as opposed to historical

Table 12 below shows how these three conditions relate to other research methods.

Table 12: Research methods applicable to different research methods, adapted from Yin (2014), 'Figure 1.2,'Chapter 1, p9

Method	Form of research question	Requires control over behavioural events?	Focus on contemporary events?
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival Analysis	Who, what, where, how many, how much	No	Yes/No
History	How, why	No	No
Case Study	How, why	No	Yes

This research undertaking meets all three case study conditions:

1. The central research question described in Section 3.1 is of the how or why variety.
2. The projects under scrutiny were not controlled by this researcher.
3. The events transpired within the past three years, and continue to evolve in a way that is of interest.

While case study research is recognised as an acceptable research method, a standard catalogue of research designs for case study methods does not yet exist (Yin, 2014). Yin (2014) offers guidance on how to design case studies and his methods are adhered to in this research. He describes research design as "a logical plan for getting from here to there".

Yin (2014) advocates a case study protocol that outlines and describes the research process for case studies (see page 79 of Yin). This protocol is used in this research.

3.1 Central Research Question

Can the principles promoted by a programme management discipline be defined as critical success factors (CSFs) for the realisation of post-implementation benefits from an ERP investment?

3.2 Propositions

A proposition is a statement that 'directs attention to something that should be examined within the scope of the study' (Yin, 2014).

A research question alone is not specific enough to indicate the boundaries of the study, and propositions are therefore useful (Yin, 2014). Programme management principles and relevant literature are used to derive propositions, and these form the basis for data collection.

Referring to the conceptual framework presented in Section 2.4, propositions were created by comparing the programme management principles to two key pieces of literature, namely that of Nicolaou (2004) and Ashurst et al (2012). These sources were chosen due to their focus on CSFs related to benefits realisation specifically. The result is a set of propositions that has:

1. Been linked to the principles of the programme management discipline (MSP)
2. Considered existing literature on ERP CSFs
3. Considered the Release 1 and Release 2 context

Each proposition is then linked to a data collection topic, which will guide the formation of interview questions, refer to section 3.4 Data Collection

3.3 Unit of Analysis

Yin (2014) suggests there are various ways to define a particular case, and the final product ultimately depends on the judgement of the researcher. Yin (2014) provides guidance, and this case is largely structured according to the framework he has designed. He states a case should be chosen on the basis that it is a real life phenomenon and not simply an abstraction such as hypothesis or claim.

This particular case is based on a real programme, executed by a company. Its ERP implementation success depended on a set of critical success factors, across all three areas of budget, duration, and benefits. It is known from business sentiment and observations that the expected benefits were not always fully realised, and that the ERP re-implementation was not always well received by stakeholders. Therefore the 'phenomenon' of links between critical success factors and ERP success will be present here; the study itself will shed light on which critical success factors are important and to what degree they influenced the benefits realised.

3.3.1 Case Definition

The case definition is illustrated in Figure 2 below.

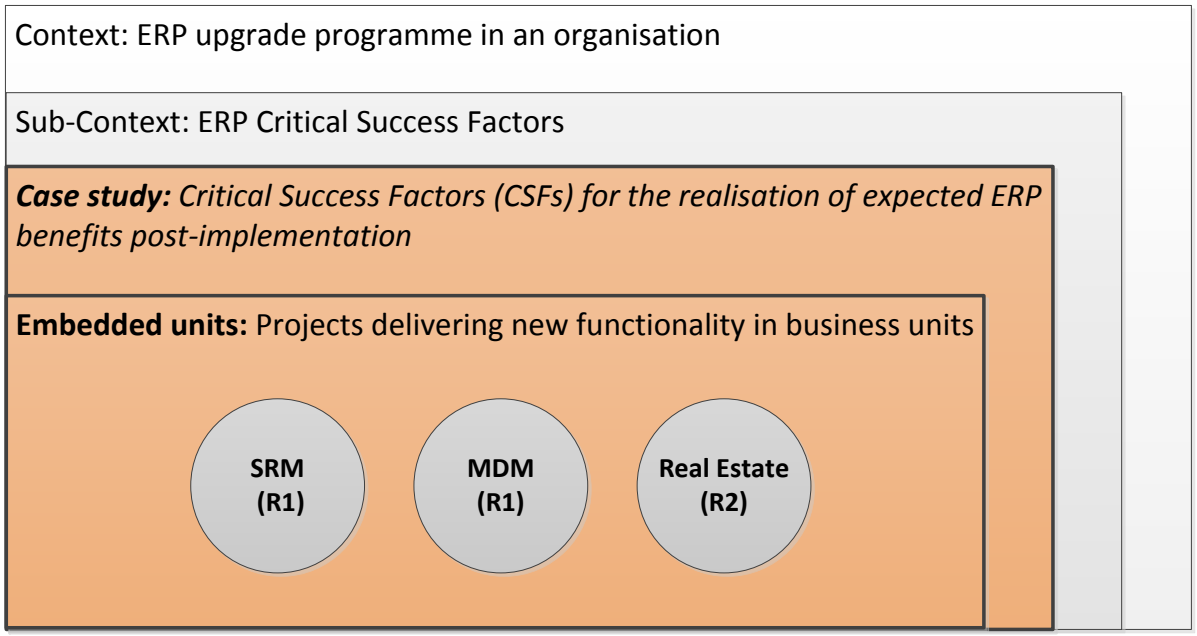


Figure 2: Visual description of case study (Developed by author)

The case includes embedded units of analysis. These are individual projects within the ERP re-implementation programme: Supplier Relationship Management (SRM, Release 1), Master Data Management (MDM, Release 1), and Real Estate (RE, Release 2).

Project Selection Logic

The SRM, MDM, and Real Estate projects were selected from the R1 and R2 pools as they were known to have experienced issues with benefits post-project. Other factors that influenced the selection process:

- The availability of research participants
- The documentation that could be sourced

Case Focus: CSFs that affect benefits post-project

The study of ERP critical success factors for ERP is the case sub-context. It is suggested these success factors can be relevant to several definitions of success, for example:

- Delivering the ERP system within time
- Delivering the ERP system within budget
- Delivering the ERP system within specification, or quality.
- Delivering desired organisational changes.
- Realisation of strategic objectives.
- The realisation of benefits, both tangible and intangible.

In this case success will be defined as the realisation of benefits post-project. The case is concerned with CSFs that are relevant to the realisation of these benefits. Other CSFs that influence the successful delivery project outputs such as delivering the system within time, cost, and specification are relevant as long as they can be linked to the realisation of benefits.

The reason for this delineation is that benefits are realised through the repeated application of fit for purpose business capabilities that are built, *but exclusively realised by,* the delivery of an ERP solution within the right time, cost, and quality (MSP, 2011). In other words, a well-built system is a project output that forms part of a new 'ability' that must be repeatedly used in the correct so that benefits can be realised (MSP, 2011). Therefore it is suggested that the *true success* of an ERP investment are measured via benefits post-implementation, and that project outputs, including the delivery of ERP software, are preceding successes leading to this point.

Out of scope assumptions

The case will not consider:

- Projects, initiatives, changes, and issues unrelated to the benefits expected from the ERP re-implementation.
- Programme standards other than the MSP Programme Management Standard. The MSP standard is utilised with the case organisation.

3.4 Data Collection

3.4.1 Semi-structured Interviews

The data collect during interviews serve as the primary source of data collection. The data will be validated by documentation made available by the company. The questions asked during the interviews can be found in APPENDIX E: Semi-structured Interview Questions.

Interview questions are derived from the data collection topics shown in Table 11. The propositions are statements that are thought to be critical success factors. The collection topics are used to gather data in a structured manner, which are subsequently used to confirm whether each proposition is indeed a critical success factor.

Notes regarding the data collection process

- A total of six in-depth interviews were conducted, two per embedded case (project).
- Respondents were selected on the basis that they were members of the project implementation team, staff within the corresponding business unit, and according to availability. Staff members from the IT department and Project Management Office were not interviewed.
- The interviews were recorded and saved as electronic audio files.
- Notes were typed on an Excel spreadsheet during the interviews.
- The audio files were listened to again to clarify notes.
- The notes presented in the appendices were edited to ensure confidentiality of the company, the software vendor, and the interviewees. See APPENDICES A,B AND C.
- The ethics process followed is outlined in APPENDIX F: Ethics Process for Interviews.
- Business documents are cited using a code. The (generic) document title and corresponding code can be found in APPENDIX D: Business Documentation Register.

- Data gathered from R1 related documentation is often applicable to both MDM and SRM projects. The business documentation available for R1 projects (MDM and SRM) are presented at the ERP Re-implementation level. For example, the business case [BD1] was written to request funding for all R1 projects under the ERP re-implementation umbrella.
- Business documentation specific to the RE project is available. The RE project fell under the second release of the ERP re-implementation programme. One of the governance changes made during this period was the requirement to complete a business case for each project falling under R2. [BD1, BD6].

3.4.2 Company Documentation

Company documentation serves as the the secondary source of in data collection, and is used to either support or refute data collected from the interviews. The register of documentation can be found in APPENDIX D: Business Documentation Register.

Business documentation that contributed significantly to the research data:

- ERP Re-implementation Business Case (R1, R2, R3 combined)
- Benefits Realisation Pilot Progress Report (R1)
- Real Estate Project Business Case (R2)
- Real Estate Project Benefit Realisation Plan (R2)
- Real Estate Project Close-Out Report (R2)

3.5 Research Validity

The following section explains research validity concepts, and how this is applicable to the research conducted. The concepts herein are derived from and advocated by Yin (2014).

3.5.1 Construct validity

Subjective judgements were avoided when collecting data. This was done by defining a set of question topics that were derived from the objectives of the study. Multiple sources of evidence were used, two interviewees per project, and business documentation.

3.5.2 Internal validity

Linking CSFs to benefits realised post-project is an attempt at establishing causal relationships. CSFs described by interviewees will be presented as potential alternative variables that may have affected the benefits realised.

3.5.3 External validity

This is the problem of knowing whether a study's findings are repeatable beyond the immediate study, regardless of research method used Yin (2014). External validity was improved by sampling projects that:

- Use a large and popular ERP software vendor. The vendor is a common variable in projects at other companies.
- Selecting participants that were part of business units within the company. The profiles of the participants do not vary wildly from those that would be expected to partake in an ERP implementation project. In contrast if participants have been selected from niche consulting housed, or occupied other uncommon roles, the results might not be as repeatable.

3.5.4 Reliability

Yin (2014) describes this as the test whether a researcher can repeat a specific case study and arrive at the same results. Reliability was improved by:

- Using a case study protocol, see APPENDIX E: Semi-structured Interview Questions.
- Keeping a case study database, of both interview data and business documentation.

3.6 Data Analysis

Figure 3 below shows the process used to analyse each case.

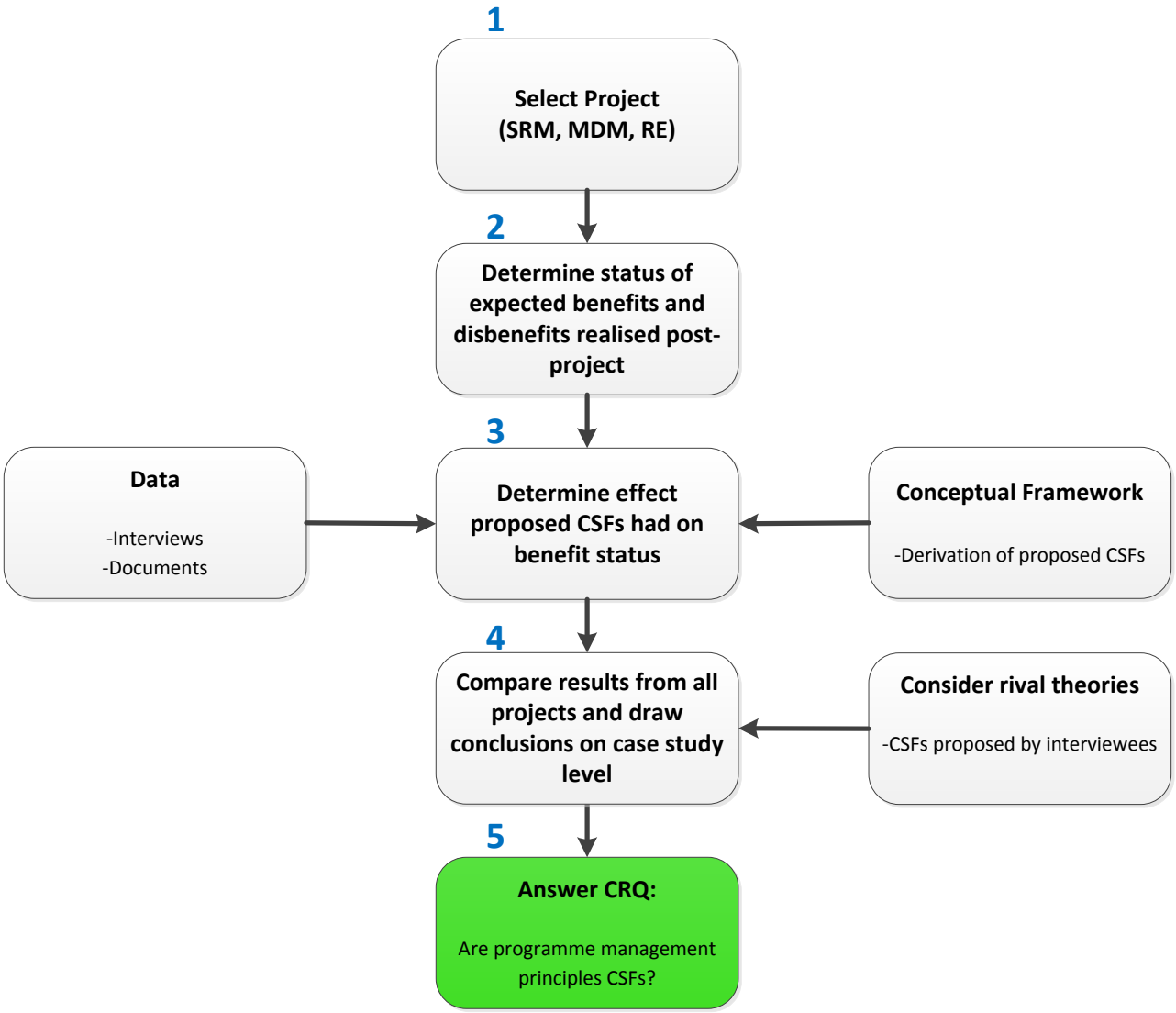


Figure 3: Case Analysis Logic Diagram

The process is explained as follows:

Step 1

A project is selected - SRM/MDM/RE.

Step 2

A set of questions is asked to determine the status of post-project benefits. These questions can be found in APPENDIX E: Semi-structured Interview Questions and are required to determine:

- What benefits the business unit expected from the project
- What benefits materialised
- What disbenefits materialised

Step 3

A crucial step is to determine whether a proposed CSF could have affected the status of post-project benefits. The general analytic strategy is the use of theoretical propositions, as proposed by Yin (2014). This has been dealt with via the creation of a conceptual framework in Section 2.4, and the resultant question categories and questions were designed to guide the interviews so that conversations do not drift off the topic at hand.

Two more specific strategies are used: pattern matching, and explanation building.

Pattern matching

A prediction was made that each proposed CSFs would have an effect on benefits realised post-project. The strategy then requires searching through the available data for patterns that support these predictions empirically. Yin (2014) states that the pattern matching procedure does not involve any precise comparisons, and this allows for some interpretive discretion by the researcher. Yin (2014) suggests that subtle patterns be overlooked and stronger patterns highlighted.

Explanation building

This strategy and involves building a narrative that attempts to explain causal links, or 'how' and 'why' something happened (Yin, 2014). Again this is not precise, and care must be taken to work within the conceptual framework.

Degrees of certainty

Due to the qualitative nature of case study research and the relatively small number of data points, it is suggested that classifications are used to deal with degrees of uncertainty. Table 13 below uses colour coding to show degrees of uncertainty. The conclusions drawn of whether a CSF has had a high impact on benefits post project, and the conclusions drawn on a case level will both be according to these classifications.

Table 13: Degrees of certainty

High impact on post-implementation benefits	
Some impact on post-implementation benefits	
Low or no impact on post-implementation benefits	
Inconclusive	

CHAPTER 4

4. CASE EVIDENCE AND ANALYSIS

This section introduces the evidence and subsequent analysis for each project. Each project will be analysed in terms of the propositions stated in Section 2.4: Conceptual Framework

Table 11 below outlines the following conceptual framework:

MSP programme management principles are compared to literature presented. Propositions are made. These are proposed CSFs linked to the programme management principles. This comparison allowed the formulation of data collection topics. The data collection topics are used to create a set of questions used in the semi-structured interviews, see APPENDIX E: Semi-structured Interview Questions.

Table 11: Linking MSP principles to data collection topics

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Envisioning and communicating a better future		From User Participation to Stakeholder-Enabled Benefits Realization	Stakeholders must buy into a common vision	Definitions of success, and vision buy-in
		Appropriate Training	Awareness of unique definitions of success held by different stakeholders	
Focussing on the benefits and threats to them	Evaluation of level of attainment of expected system benefits.	From Rigorous Software Testing to On-going Benefits Review	Ensuring the project led by the business unit, as opposed to the IT department	Business led vs. systems led implementation
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	Evaluation of system integration attainment and reporting flexibility	From identifying Goals and Objectives to detailed Benefits Planning	A plan to manage benefits beyond the project end date	Path to success
Learning from experience	Review of user learning	From Rigorous Software Testing to On-going Benefits Review	Leveraging lessons learned to improve post-implementation success	Lessons learned activities post-implementation (both projects and benefits)
	Evaluation of effective knowledge transfer			

CHAPTER 3

RESEARCH METHOD and illustrated in Table 11.

4.1 Project 1: Supplier Relationship (SRM)

4.1.1 Introduction to Business Unit

The procurement business unit is responsible for the procurement of project, strategic, and tactical items. The focus area for this case is the tactical purchasing business unit which generally focusses on buying a wide array of everyday items that are not directly used to produce goods and services. Examples include passenger vehicles, furniture, and disposable goods such as cleaning materials. These goods are typically low-value, but some exceptions exist. Refer to APPENDIX A: SRM Evidence and Analysis.

4.1.2 Introduction to SRM Project

The project did not affect project and strategic sourcing, and had the following objectives:

- Automate the purchase requisition to purchase order (PR-PO) sub-process used to source tactical goods. PR-PO is a sub-process of procure to pay (P2P).
- The purpose of the project was to allow suppliers to enter their own prices into the system, online.

Two interviewees participated; the first will be referred to as 'N' and the second as 'K'. During the SRM project N was a procurement subject matter expert and part of the project team, and K was tasked with developing the specifications and was also a member of the project team. N worked in the project sourcing business unit of the procurement department and K worked in the tactical sourcing business unit. The data collected during the interviews can be found in APPENDIX A: SRM Evidence and Analysis. Note that this interview took place approximately three years after the project was completed.

4.1.3 Success in terms of Post-implementation Benefits

The following is concluded from the interview data gathered, see APPENDIX A: SRM Evidence and Analysis.

The following benefits were expected:

- Faster closing out of purchase orders (PRs)

- Faster delivery of goods
- Faster PR-PO process overall
- Enhanced purchasing function reputation among end users
- Automation of procurement
- Moving the process fully into E-Procurement (online procurement)
- Less paperwork, less intervention by the buyer
- One source of information credible information
- Standardised reports

The following benefits materialised:

- Work on an individual level was completed faster due to automation of tasks
- Faster interactions between end user and the procurement business units
- Speed to market (purchase order to delivery) was faster
- Reputational damage was partially repaired
- Overall end user experience improved somewhat but still not satisfactory

The following benefits did not materialise

- Automation and moving to E-procurement benefit did not materialise
- Faster PR-PO turnaround times did not materialise - had opposite effect
- Reports are standardised and info is credible, but do not have all the reports required.

The following disbenefits materialised:

- Staff fatigue and confusion
- A significant decrease in the PR-PO process speed, three years after the implementation it is slower than before the project.
- A large backlog of unprocessed purchase requisitions that formed suddenly after go-live and persisted for about three years.
- Significant negative impacts on the company's operations.
- The loss of information regarded as important.
- The loss of report configurations.

- The inability to report at the required levels, leading to the loss of individual accountability with regards to spending.
- The new system has less functionality than the old

Conclusion

The project did provide some benefits. Parts of the PR-PO process has been improved and individual work can be completed faster due to automation. The end user sentiment has also improved to a degree.

However both respondents describe an array of disbenefits that greatly outweigh benefits. N implies the project was not as successful as hoped, but K likens it to a disaster. The performance of the tactical sourcing business unit and the corresponding PR-PO process decreased significantly and this state persisted for approximately three years after the project ended. The various efficiencies achieved seem to be isolated within parts of the PR-PO process, negated by bottlenecks that have seriously impacted the overall turnaround times.

Note that K works in the tactical sourcing function, and has therefore directly experienced the business performance post-implementation. K believes the project had potential to add value, if the external online portal had been implemented as was originally requested.

It is therefore concluded that this project did deliver some benefits, but it was not a success from a post-implementation benefits point of view due to the incapacitating disbenefits that materialised.

4.1.4 Critical Success Factors

A. The alignment between corporate strategy, the benefits, and the project

Evidence from interviews:

N believes that:

- During the project it was assumed there was alignment, but there was not
- There was a lack of formally communicated decisions made mid-project, especially between the core project team and the technical team. Communication was often conducted in the hallways.
- The project team knew more or less what was expected in terms of rolling out the system
- The context and rationale behind the decision on the choice of system was not shared and thus not understood. There were lingering doubts about whether the system was a suitable fit for the business.

K believes that:

- There was alignment overall, but at the implementation stage the external portal was omitted

Evidence from business documentation:

- The business case was written *after* go-live [BD1].
- The business case does not mention benefits or needs of specific stakeholders [BD1].
- The business case does present a section demonstrating alignment between the ERP re-implementation and corporate objectives [BD1, p10].

Conclusion:

The interviewees believed there was alignment up to the point where the technical team (IT department) omitted a critical part of the project scope in the URS. However, it is suggested that the IT team was not aligned to realising any formally agreed upon benefits, and could not have been, since business case defining the benefits was developed after the projects were completed.

It is concluded that this proposition is a CSF and had a high impact on benefits since the omission of a critical functionality negated the realisation of the primary benefits expected from the system. This example also demonstrates that partial alignment does not necessarily result in the partial realisation of benefits.

B. Effective change management is a requirement for the realisation of benefits

Evidence from interviews:

N believes that:

- Change management was not conducted during the initial stages of the project.
- The project did not consider how changes would affect stakeholders.
- Changes were not communicated.
- The lack of change management led to:
    - Buyers developed negative attitudes.
    - End users had their negative view of the procurement function reinforced.
    - The creation of confusion.

K believes that:

1. On paper the change management was done correctly, and that change agents had been appointed.

2. The big-bang approach led to end users being ill prepared for the impending changes

Both K and N believe that change management was started late and performed after the project ended, as a retrofit.

Evidence from business documentation:

- The change management effort was cited as being flawed, in both design and execution [BD3, p6-8].
- The change management effort 'lost traction' in the early phases [BD3, P6].
- The business case cites change management as a critical success factor in the executive summary [BD1, p4].
- Change management is described as something that 'will ensure that work-stream stakeholders understand the need for change and ultimately adopt changes induced by the program' [BD1, p13].
- The ERP business case states that the change management effort does not include cultural changes in its scope [BD1, p15].
- The ERP business case states that there is a risk that the 'Organisation may not be prepared to accept the newly implemented solution'. The perceived impact is on the realisation of benefits. The mitigation strategy is 'strong change management and training'. This stance implies that change was being forced onto the business [BD1, p27].
- The business case later states that 'a change vision also creates a shared image and understanding of what success looks like and, when co-created by the business, can be used to generate shared understanding, guidance, commitment and enthusiasm for the change amongst sponsors and influencers' [BD1, P38].
- The business case states that 'Change management is a subtle and "soft" side to the training initiative but vital in ensuring its success' [BD1, P38].
- The R1 programme had a 'thou shalt' approach to change, and staff disengaged when their views were not taken into consideration [BD3, p6].

Conclusion:

Business documentation states that the change management effort failed, and lost traction early on. The interviewees confirm this view by stating that change management started late, started strongly, but ultimately didn't succeed.

The business case implies the programme planned to impose change in a top-down manner, which can be interpreted as a somewhat authoritarian move. This is confirmed by the concern shown in a report over the 'thou shalt' approach taken by the ERP re-implementation programme.

Later the business case takes on a softer tone, where change management is based on a shared vision 'co-created' by the business. These contradictions could suggest that a single definition of change management was neither shared by members of the team that compiled the business case, nor by the committee that approved it. The fact that change management was left until after the project was complete could suggest the principles who signed the document did not consider this a priority.

The interviewees note that the way change management was implemented had negative consequences, and that the business was not ready for the sudden changes introduced. The effort came only after the project ended. From the above it is clear change management has an impact on post implementation benefits. It is therefore concluded that change management had a high impact on benefits and was a CSF for the SRM project.

C. Strong Leadership

Evidence from interviews:

- The two respondents hold contradictory views.
- N believes:
    - Business unit leadership had the right intentions but did not receive good advice before making decisions
    - The programme management office (PMO) did not coordinate and integrate properly
    - Executive leadership also had the right intentions but were misled by the project team about issues and failures.
    - Overall, leaders lacked leadership skills
- K believes leadership on all levels did a good job; the project failures were not their fault.

Evidence from business documentation:

- A few months after the project was completed, a progress report was submitted to the investment committee that approved the ERP programme. The document does not shed light on the difficulties the business units were experiencing. For example, in the section named 'Benefits Realised to date' the submission states that 'Improved controls in the Procure-to-Pay process have dramatically increase governance in the Procurement processes'. No mention is made of the PR-PO backlog that was rapidly forming during this period. [BD2, p6]

Conclusion:

While the interviewees gave contradictory views, N's view is supported by the evidence found in available documentation. It seems that senior leadership may have been misled with regards to post-implementation success. Note that there is only one document available to support this viewpoint, and it involves a specific investment committee.

From direct observation within the company, it has been seen that leaders often 'shoot the messenger' when bad news is received. This could influence the willingness of subordinates to report information that may draw the ire of their seniors. Both respondents thought senior leadership had good intentions, however, and did not cite leadership as a reason for the lack of project benefits.

Lack of strong leadership was likely a factor that had an effect on the realisation of benefits, since the view of one interviewee is corroborated by a document, and is consistent with what is known about the company culture. The PR-PO backlog mentioned by K is an example that illustrates the point**.** The formation of a PR-PO backlog had a major impact on business, and it took almost three years before the situation improved markedly. Decisive leadership would have dealt with this issue much sooner. Therefore it is concluded that strong leadership had a high impact on benefits was a CSF for the SRM project.

D. Stakeholders must buy into a common vision

Evidence from interviews:

N and K hold contradictory views as to whether there was a clear vision of the business unit current state, and whether the desired future business state was communicated,

- N believes that:
    - There was no clear vision, and that a desired future state was not communicated.

    - There was no clarity on how KPIs were being measured.
    - Intentions with regards to change were not clearly communicated.
- K believes the vision was clear.

With regards to whether there was a common vision, and whether there was buy-in, the interview data suggests that:

- The system rollout was the only commonly understood deliverable and therefore it became the definition of success held by the project team.
- A common vision did exist at project inception.
- A lack of lower level stakeholder involvement led to the vision diverging during the creation of the URS.
- Decisions regarding the URS were made at an executive level.

Evidence from business documentation:

- A management consulting house performed a review of the ERP programme benefits, specifically for release 1. It was found the 'business was often unable to distinguish between issues directly related to the ERP implementation and other organisational changes that affect its day-to-day operations' [BD5, p15].
- The business case outlines a high-level vision, and this vision was most likely that understood and accepted at project inception as stated in the interviews [BD1, P2].
- The vision is not translated into tangible business unit measures and outcomes that are SMART (specific, measurable, assignable, realistic, time based), [BD1, p51 – p56]. In fact, the benefits listed are mostly generic.

Conclusion:

From the available data it is deduced that there was a common vision and that stakeholders did buy into it. A caveat is that this vision was never translated into tangible measures or outcomes that could be used by the business units and projects teams as yardsticks to measure success. The project team likely defaulted to measuring success by delivering the technical system specified by the URS on time and within budget.

The business units did not have a yardstick to measure themselves post implementation and therefore it is concluded that a high level vision was accepted but this could never have been tangibly translated to the end-user level and therefore how it was expected to affect the end-user was unknown.

The view that a common vision on lower levels did not exist is supported by the URS having omitted the external portal functionality which was key to the realisation of expected project benefits. It is therefore suggested that buy-in on of a high level alone is insufficient, and the proposition that stakeholders must buy into a common vision had a high impact on benefits and is a CSF for this project is supported.

E. Awareness of unique definitions of success held by different stakeholders

Evidence from interviews:

- N felt the business areas operated under different assumptions. This view is supported by K, who states that the final result was a disappointment from an end-user perspective. They had expected more system functionality than what was delivered.
- N believes the project team was not aware of the various assumptions held by the business areas.

Evidence from business documentation:

- The business case does not refer to successes or benefits per stakeholder level or group. [BD1]

Conclusion:

As mentioned earlier in this analysis, change management was not completed successfully. Stakeholder specific issues may have been identified during the change process. There is a sentiment that the business operated under different assumptions and an absence of any evidence that success was defined or acknowledged on more than one level. This ties back to the disappointment felt when the project was delivered: the end user was expecting something else, and the project team didn't know.

A stakeholder having their own unique definition of success seemingly contradicts the previous CSF: 'stakeholders must buy into a common vision'. However, these statements are not mutually exclusive. Stakeholders can all share a common vision on a high level, and yet possess unique needs and wants on a lower or more personal level. This could be the reason why the interviewees felt everyone was aligned, and yet somehow many did not get what they wanted. It is therefore concluded that this proposition had a high impact on benefits and is a CSF for the SRM project.

F. Ensuring the project is led by the business unit, as opposed to the IT department

Evidence from interviews:

The two respondents hold contradictory views when asked about whether the project was systems or business led:

- N believes:
    - The project was systems led and that the delivery of the system was given priority over business needs.
    - The IT module was more important than the business objectives.
    - Opinions of the business were not considered.
    - Business was instructed to accept the proposed system.
- K believes the project was business led, and cites the financial director as the executive sponsor.

Evidence from business documentation:

- The existence of a business case [BD1] shows that the ERP implementation was scrutinised by an investment committee, which is not an IT function.

Conclusion:

During the interview K had mentioned that the only advantage the new system offered was the online portal. Therefore the omission could not have been proposed by the business stakeholders. It is known that the ERP re-implementation was being led by the executive sponsor, but K did not answer whether the business unit was leading the project.

N strongly believes the business unit was not in control, and that the solution was forced upon them. It is concluded that the benefits of the project were limited by the omission, and that this omission was at least partly a result of the business unit not being in control of the project.

G. The funding of benefits as opposed to project outputs

Since the benefits are realised post-implementation, the rationale is that project would need funding to continue driving the changes that will result in benefits.

Evidence from interviews:

- The business unit did not have its own funding with regards to the project.
- N believes funding was required, mostly for travelling and research
- K did not believe any funding was required outside the project.
- K states the project was rolled out and funded on a company level

Evidence from business documentation:

- The ERP business case clearly shows that there was funding set aside for project outputs such as process design, hardware, software licencing, installation, environmental support, deployment and rollout, training/build/design/test, training, change management, and operations & maintenance [BD1, p25].
- The duration of the first ERP release (R1) is shown to stretch for approximately one and a half years. A period of approximately 6 months for support was included in the scope. Immediately after, the second release (R2) begins and the same can be said for this release, no funding is set aside to deal with potential issues that may arise after the project is complete [BD1, p16].
- Expected benefits were clearly stated in the business case, financial and non-financial [BD1, p29-34]. Those specific to procurement are also stated [BD1, p30].

Conclusion:

Funding was set aside for project outputs, and this was done with a view to realise certain benefits. Therefore one can state that the investment committee knew it was funding not just the project scope, but also the benefits associated with the delivery of this scope.

Unfortunately the business area did not realise the intended benefits, and these problems persisted for about three years after the project scope was delivered. So if the project was not funded beyond the scope described, it means the investment committee could not have approved funding for the embedding of benefits post-project.

The information from the interviews is inconclusive as the interviewees were answering whether the business unit required funding during the project, and not after. This is possibly due to the way the question was posed. More emphasis should have been placed on whether more funding was need to help the business deal with the issues that arose.

Fortunately it seems the business documentation provides enough evidence for the drawing of a conclusion. It is proposed that funding benefits as opposed project outputs had a high impact on benefits and is a CSF, for the following reasons:

- The scope of the projects contained in R1 was approved in order to receive benefits stated in the business case.
- The business most likely could have used extensive medium to long-term support and funding after the project ended, and this is illustrated by the persistence of problems mentioned in section 4.1.3.

H. Managing projects and their interdependencies within a programme, rather than managing projects individually

Evidence from interviews:

N and K hold contradictory views as to whether there were project interdependencies:

- N believes there were other projects that interfaced with the project in question and that these interfaces were not managed.
- K believes that no other projects interfaced with this project.

Evidence from business documentation:

- A progress report lists several interventions required in order to realise these benefits [BD4, p7-8]. Of these interventions two are SRM specific. 'Enhanced controls in the Procure to Pay process' and the 'Development of Standardised BI Reports based on the KPI model' – related to the reporting disbenefit stated in section 4.1.3.
- The ERP business case lists a set of projects that are associated with the ERP re-implementation. The purpose is to 'indicate the dependencies and contextualisation' between the ERP re-implementation programme and other initiatives within the company. [BD1, p36]
- No documentation was found indicating interdependencies on the SRM project level.

Conclusion:

The available data give no indication that project interdependencies had an effect on post-implementation benefits.

I. Delivering a complete business solution as opposed to a working IT system in isolation

Evidence from interviews:

The solution was incomplete mostly in terms of the system scope and configuration:

1. The external portal used to interact with suppliers online was omitted from the URS.
2. The system was configured in a way that was incompatible with the required governance processes. This fault was largely responsible for the large PR-PO backlog.

Evidence from business documentation:

- The business case states that the project scope is focussed on delivering the technical system [BD1, p14].
- The business case indicates that the project scope also includes activities other than the technical scope. These include:
    - Process development
    - Organisational structure design
    - Training
    - Change management

Conclusion:

It is concluded that the system was operational post-project, but it was not complete in terms of functionality and configuration. The latter was a major cause of disbenefits that severely crippled the procurement function of the company for a number of months.

J. A plan to manage benefits beyond the project end date

Evidence from interviews:

- Only N gave an opinion, and cited the absence of Benefits Realisation Management as a reason for not having a clear path to the benefits.

Evidence from business documentation:

- The business case does not include a benefit realisation plan [BD1].
- The duration of the first ERP release (R1) is shown to stretch for approximately one and a half years [BD1, p16] and the scope does not include the management of benefits beyond this point [BD1, p14].

Conclusion:

A plan outlining the management of benefits post-project did not exist. N and K did not give opinion of what the potential consequences could be. It is suggested that the absence of a plan to ensure the benefits materialise is an indication that the project did not focus on benefits, and that this would naturally have a negative impact on the realisation of these benefits. However there is not enough evidence available to gauge the impact of omitting this plan.

K. Leveraging lessons learned to improve post-implementation success

Evidence from interviews:

- Lessons learned were captured at the beginning of the next system rollout (R2) in the same business unit, and were specific to the implementation itself and not to post implementation benefits.
- When asked whether the capturing of lessons learned improved the post implementation situation, the two respondents held contradictory views:
    - N states lessons learned did not improve the post-implementation situation
    - K believes it did improve the situation. For example end users were not involved sufficiently during the project, but after go-live they were approached and therefore the speed of the system was improved.

Evidence from business documentation:

- A lessons learned report could not be sourced.

Conclusion:

Only K believes the lessons learned improved the post-implementation situation, and he gives one example. N could not think of any improvements. Therefore it is suggested that lessons learned did have an impact on benefits, but likely not to a great extent.

Summary of CSFs

In summary, Table 14 below shows which propositions were found to be CSFs for the SRM project.

Table 14: Identification of CSFs that had an effect on post-implementation benefits for the RE project

	Proposed CSF	CSF for project?
A	The alignment between corporate strategy, the benefits, and the project	
B	Effective change management	
C	Strong Leadership	
D	Stakeholders must buy-in into a common vision	
E	Awareness of unique definitions of success by different stakeholders	
F	Ensuring the project led by the business unit, as opposed to the IT department	
G	The funding of benefits as opposed to project outputs	
H	Managing projects and their interdependencies within a programme, rather than managing projects individually	
I	Delivering a complete business solution (POTI) as opposed to a working IT system in isolation	
J	A plan to manage benefits beyond the project end date	
K	Leveraging lessons learned to improve post-implementation success	

Key	
High impact on post-implementation benefits	
Some impact on post-implementation benefits	
Low or no impact on post-implementation benefits	
Inconclusive	

Alternative CSFs proposed by interviewees

The following critical success factors (CSF) themes were identified by N and K.

1. **How the project was planned**, specifically:
    - The lack of an end-end plan
    - Project phasing approach. 'Big bang' approach resulted in too many changes at once and some key stakeholders were never involved
    - Integration and continuity between phases was an issue
2. **Stability of the business unit pre-implementation**
    - Instability due to a recent re-structuring
3. **Training approach**
    - 'one size fits all'
4. **Stakeholder management and integration**
5. **Clear project roles and sufficient staffing of these roles**
6. **Use of lessons learned while the project is being executed**

4.2 Project 2: Master Data Management (MDM)

4.2.1 Introduction

4.2.2 Introduction to Business Unit

Two business units manage the cataloguing value chain. The Supply Chain an Operations (SCOPS) BU is responsible for the uploading and maintaining vendor (supplier) details on a central database. These are split into service and material vendors. The Master Data Management BU manages policy, quality, reporting and vetting. The system end-users who do the actual cataloguing are members of the SCOPS BU.

Any reference to BU at this point will refer to the SCOPS BU.

4.2.3 Introduction to MDM Project

The project mandate was to implement a standard Master Data Management software package, or module. The MDM module was built as an interface between another third party software package and the main ERP Client. Its intended purpose was to disperse information to other systems, and to use the module to upload services into the service master database. Material vendors were still uploaded into the materials master database using the third party software, and a link had been created between this software and the MDM module to allow for this. Refer to APPENDIX B: MDM Evidence and Analysis.

Two interviewees participated; the first will be referred to as 'R' and the second as 'M'. R fulfilled the role of a master data management subject matter expert and was part of the project team, and M was a member of senior leadership that set direction for the MDM project. R and M worked in the SCOPS and supplier management business units respectively. The data collected from interviews can be found in APPENDIX B: MDM Evidence and Analysis. Note that this interview took place approximately three years after the project was completed.

4.2.4 Success in terms of Post-implementation Benefits

The following benefits were expected:

- R did not foresee any benefits.
- The other noted the following expectations:
    - Information that was available over a longer period of time.

- Supplier information would be captured on the correct level of detail to enable business intelligence.

The following benefits materialised:

- Money was saved on a company level by consolidating systems.
- Increased system speed, but only for registering material vendors.
- Online registration for the vendor so information can be verified and there is less paperwork.
- Vendor information is now centralised.
- The system flags when supplier information is out of date.
- Reporting has been improved due to higher data quality.

The following disbenefits materialised:

- Not a single service has been catalogued since the project was completed four years ago.
- System is too difficult to use.
- Critical capabilities like archiving were turned off and lost, without the business giving consent.
- Instability in the business units for about 8 months.
- System unable to provide key intelligence on the supplier and the industry they operate in.
- New class codes used to capture supplier information are not detailed enough.

Conclusion

From the above it is clear that some benefits did materialise, especially those related to having 'one version of the truth'. Reporting is of a higher quality, there is less paperwork required, and some automatic notifications have assisted the business. The materials cataloguing process did see some speed increases, but cataloguing for services was completely disabled. Money was also saved on a company level due to the consolidation of the company ERP systems from four to one, but this is likely true for all three projects analysed **[BD1, p30]**

It is therefore suggested that this project did offer significant benefits through the centralisation of information and improved quality of reporting. The main disbenefit is without doubt the paralysis of vendor cataloguing, a situation that persisted for more than three years. Other critical abilities such as archiving, and the inability to provide information on the correct level of detail were also lost.

It is concluded that in term of benefits realised this project was a success in some respects, and a failure in others.

4.2.5 Critical Success Factors

A. The alignment between corporate strategy, the benefits, and the project

Evidence from interviews:

- M believes the project was aligned to corporate strategy
- R did not believe there was any alignment, and feels the new system was forced upon the business which had taken an opposing position.

Evidence from business documentation:

- The business case was written *after* go-live [BD1].
- The business case does not mention benefits or needs of specific stakeholders [BD1].
- The business case does present a section demonstrating alignment between the ERP re-implementation and corporate objectives [BD1, p10].

Conclusion:

R did not support into the project from the beginning, and has made it clear that from a technical point of view the project did not make sense. There may be other reasons why the project team went ahead without R's backing, but the end result does show the disbenefits significantly outweighed benefits. It is suggested that the failure to action R's suggestions and worries played a large part in the paralysis of the services cataloguing process.

In addition, the energy and willingness of the business to improve the post-project performance was certainly affected.

Again it is suggested that the project and IT teams were not aligned to realising any commonly agreed upon benefits, and could not have been, since business case defining the benefits was developed after the projects were completed.

Similarly to SRM, the business case was written after the R1 projects were completed. Therefore the projects could not have been aligned to benefits that had not yet been formally communicated and agreed upon. It is concluded that the alignment between corporate strategy, the benefits, and the project had a high impact on benefits and was a CSF for post-implementation benefits.

B. Effective change management is a requirement for the realisation of benefits

Evidence from interviews:

- R believes that:
    - Change management was poor overall.
    - The sheer amount of changes overwhelmed the business.
    - Insufficient communication regarding the system functionality, but an overemphasis on go-live dates and information quality.
- M believes that:
    - 'One can never get around to everything.
    - Change communications were useful.
    - Staff may not have read these change communications.
    - All relevant stakeholders were included.
    - Staff had been sufficiently informed but only involved themselves near the end of the project.
    - All the required change management subject matter experts were involved.
    - Staff incorrectly perceived they were not involved in change management, only because they are recipients of change and were not directly involved.
    - The change management plan was executed.

Evidence from business documentation:

- The change management effort was cited as being flawed, in both design and execution [BD3, p6-8].
- The change management effort 'lost traction' in the early phases [BD3, P6].

- The business case cites change management as a critical success factor in the executive summary [BD1, p4].
- Change management is described as something that 'will ensure that work-stream stakeholders understand the need for change and ultimately adopt changes induced by the program'. [BD1, p13]
- The ERP business case states that the change management effort does not include cultural changes in its scope [BD1, p15].
- The ERP business case states that there is a risk the 'Organisation may not be prepared to accept newly implemented solution'. The perceived impact is on the realisation of benefits. The mitigation strategy is 'strong change management and training'. This stance implies that change was being forced onto the business [BD1, p27].
- The business case later states that 'a change vision also creates a shared image and understanding of what success looks like and, when co-created by the business, can be used to generate shared understanding, guidance, commitment and enthusiasm for the change amongst sponsors and influencers' [BD1, P38].
- The business case states that 'Change management is a subtle and "soft" side to the training initiative but vital in ensuring its success' [BD1, P38].
- The R1 programme had a 'thou shalt' approach to change, and staff disengaged when their views were not taken into consideration [BD3, p6].

Conclusion:

The interview responses at first seem contradictory, but this is not the case. R perceived change management as being executed poorly, that it led to a poor result, and that it had little chance of success due to the amount of sudden changes in the business. M sees change management as having been performed well but it was let down by the business unit staff themselves and that the discontent is self-inflicted. It is suggested that both R and M imply that the change management was unsuccessful, but for different reasons.

Conclusions drawn around documentation relevant to change management was cited and interpreted in the SRM project analysis, (Section 4.1) and is again applicable here. To summarise the main points:

- Business documentation states that the change management effort failed, and lost traction early on.

- The interviewees confirmed this view.
- The business case definition of change management can be interpreted as a somewhat authoritarian, and is confirmed by business documentation. This is confirmed by the concern over a 'thou shalt' approach mentioned in a report.
- The business case contradicts itself by taking on a softer tone later in the document, and the contradiction implies that a single definition of change management was neither shared by members of the team that compiled the business case, nor by the committee that approved it.
- The fact that change management was left until after the project was complete could suggest the principles who signed the document did not consider this a priority.

From the above it is clear change management has an impact on potential post-implementation benefits of the MDM project. This is regardless of whether the business let itself down by being poor participants or whether the process itself was flawed. The end result is that change management was ineffective and had a negative impact on post-implementation benefits by:

- Failing to gain buy-in and support, and probably damaging relations between staff and the company. R is an example of this.
- Mistakes made, such as switching off archiving without asking for business consent.

It is therefore concluded that change management had a high impact on benefits and was a CSF for the MDM project.

C. Strong Leadership

Evidence from interviews:

With regard to business unit leadership:

- R believes consultants dictated proceedings to senior business unit leadership

With regard to project management office (PMO) leadership:

- R believes the PMO was aligned to executive leadership, and that the PMO drove the project through fear.

With regard to executive leadership:

- R perceived the executive leadership of the time as a dictatorship.
- M believes that:

- Too many changes were made to the business, and these changes seriously impacted strategic objectives.
- There was insufficient alignment between executives, especially when leadership changed hands.
- Slow speed of decision-making tripped up critical changes.
- (Executive) Leadership sometimes made decisions based on emotion.

Evidence from business documentation:

- R's view that the executive leadership and programme acted in an authoritarian manner is supported by the 'thou shalt' approach to change reflected upon [BD3, p6].
- The fact that change management was weak [BD3, p6-8] would have weakened any top-down messages from the executive.

Conclusion:

The words 'fear' and 'dictatorship' and the sentiment that the project was forced upon the business unit paint a picture of top-down decision making. It is suggested that strong leadership could involve listening as much as it would require instruction, perhaps even more so.

R had taken a strong view that the implementation would be a mistake in its proposed form. M highlighted leadership that didn't have a grasp on how much change staff could absorb in a defined period of time, was poorly aligned from within, indecisive, and swayed by emotion.

There is no doubt that if R had been given more time and perhaps a platform to explain why he held his belief that the project was a mistake, the business would have been in a significantly better position than it found itself in. A rich debate could have ensued, improving the chances of success.

Therefore 'strong leadership' had a high impact on benefits and is a CSF for the MDM project.

D. Stakeholders must buy into a common vision

Evidence from interviews:

R believes that:

- The business unit understood what it needed to do
- The misalignment existed between the project and the business unit

M believes that:

- There was a clear vision
- What was achieved in the project was not perfect but it was a start in the right direction
- Suggests the future is about continuous improvement

Evidence from business documentation:

- A management consulting house performed a review of the ERP programme benefits, specifically for release 1. It was found the 'business was often unable to distinguish between issues directly related to the ERP implementation and other organisational changes that affect its day-to-day operations' [BD5, p15].
- The business case outlines a high-level vision, and this vision was most likely that understood and accepted at project inception as stated in the interviews [BD1, P2].
- The vision is not translated into tangible business unit measures and outcomes that are SMART (specific, measurable, assignable, realistic, time based), [BD1, p51 – p56]. In fact, the benefits listed are mostly generic.

Conclusion:

The interview data shows the business unit believed it was aligned to a common vision. A misalignment definitely existed between the project and the business unit. It is unclear which was aligned to the common vision, but this can be explained by the lack defining project success using tangible measures such as SMART KPIs. It is suggested that if there was a common vision of tangible business improvements, then the misalignment would not have persisted for long.

A misalignment between the business unit and the project team most probably contributed to the single-minded execution of a solution that the business unit knew would lead to significant problems and add little value. This had a tangible effect on post-implementation benefits and a common vision amongst stakeholders is therefore a CSF for the MDM project.

E. Awareness of unique definitions of success held by different stakeholders

Evidence from interviews:

- R believes that MDM was a success in terms of a technical implementation, but not in functional terms.
- M believes that:
    - Some stakeholders only reacted once the project started to impact them.
    - The project focussed on the overall objective
    - The project was received warmly by end users, implying their needs were also considered

Evidence from business documentation:

- The business case does not refer to successes or benefits per stakeholder level or group. [BD1]

Conclusion:

R most likely interpreted the project as a failure, whereas a few saw it as a success. This does not change the earlier conclusion that the project failed to provide a net benefit. It means the few benefits that materialised, such as money saved by the company, increased speed when registering material vendors, less paperwork, etc. were all enjoyed by some stakeholders within the business. This is supported by M's view that 'the project was received warmly by end users'. It was certainly not received warmly by R. But some stakeholders could have seen the project in a positive light, leading to M forming this view.

A benefit can be defined as 'an outcome of change which is perceived as positive by a stakeholder' (Bradley, 2010). Therefore success can really only be defined 'in the eye of the beholder' and any undertaking should aim to achieve outcomes that are defined as benefits to the relevant stakeholders. This can of course become problematic, as not everyone can always benefit from change. But the net benefit a project delivers will always be judged by its 'customers'.

It is therefore proposed that 'awareness of unique definitions of success held by different stakeholders' had a high impact on benefits and is a CSF for the MDM project, and this can be proven from a purely logical viewpoint.

F. Ensuring the project is led by the business unit, as opposed to the IT department

Evidence from interviews:

The two interviewees hold contradictory views:

- R believes project was led by IT and was run as a technical upgrade
- M believes the business led the project, and that IT was in a support/guidance role.

Evidence from business documentation:

- The existence of a business case [BD1] shows that the ERP implementation was scrutinised by an investment committee, which is not an IT function.

Conclusion:

Different definitions of Business leadership may have led to the contradictory views. If defined as executive leadership, then the overall ERP programme was led by the executives of the company. This explanation is speculative in nature, however and M has not yet been asked to clarify his response.

Even though there is a contradiction in views, it is known that R represented the business unit on the project team, and he claims to have taken a strong stance against the project from the beginning but was ignored. It is therefore concluded that project could not have been business led.

R claims to have known the system would have resulted in overall disbenefits, especially with regards to the service cataloguing process, and these did materialise. Therefore the project being led by the IT department had a major impact on the benefits post-project.

G. The funding of benefits as opposed to project outputs

Since the benefits are realised post-implementation, the rationale is that project would need funding to continue driving the changes that will result in benefits.

Evidence from interviews:

R states that:

- Funding was controlled by the PMO
- Funding was not required by the business units, but the project was rushed due to funding constraints. Consequently activities like data purification were not completed.

M states that:

- All activities related to the project were funded under the ERP re-implementation.
- The business unit did need some funding, for the customisation of interfaces with the system.
- The business unit did not get receive this funding.

Evidence from business documentation:

- The ERP business case clearly shows that there was funding set aside for project outputs such as process design, hardware, software licencing, installation, environmental support, deployment and rollout, training/build/design/test, training, change management, and operations & maintenance [BD1, p25].
- The business case does specify the amount of money spent per expected benefit [BD1].
- The duration of the first ERP release (R1) is shown to stretch for approximately one and a half years. A period of approximately 6 months for support was included in the scope. Immediately after, the second release (R2) begins. No money or resources were dedicated to support the embedding of business changes and benefits post project, or to deal with potential issues that may arise after the project is complete [BD1, p16].
- The business case defined the savings benefits over a seven year period [BD1, p30].
- The business case clearly states that there are many other initiatives that are out of the ERP re-implementation scope, yet support the same strategic objective of 'operational excellence' that the ERP re-implementation supports [BD1, p15].
- Expected benefits were clearly stated in the business case, financial and non-financial [BD1, p29-34]. Those specific to procurement are also stated [BD1, p30].

Conclusion:

From the interviews two points stand out:

1. Critical activities such as data purification were left out in order to meet the project timelines.
2. The business unit needed funding apart from what was allocated, in order to customise certain interfaces.

Both of these issues can have an effect on the realisation of benefits. The potential benefits enabled by an ERP system or single module should be reliant on good data, and it is reasonable to assume the customisation of interfaces was driven by an operational need.

The business documentation illustrates the following:

1. The funding of the project scope/outputs was well defined, but one cannot attribute funding to any particular benefit.
2. The funding timelines show funding stopped less than six months after the IT system was implemented, yet benefits are expected to flow for seven years. The six month period is suggested to be too short for post-project change and benefits realisation support.
3. The business case shows the scope of the project, and therefore its funding, is clearly separated from other projects that exist to achieve the same objective.

From the above it is concluded that the ERP programme's funding structure did not support the funding of benefits, but rather the project scope. The consequences were that the business did not have additional funding beyond its own operational budgets to support it when major issues arose and performance began deteriorating, and that critical activities were omitted in order to chase project timelines.

Therefore it is concluded that 'the funding of benefits as opposed to project outputs' had a high impact on benefits and was a CSF for realisation of post-implementation benefits from the MDM project.

H. Managing projects and their interdependencies within a programme, rather than managing projects individually

Evidence from interviews:

- R states there were some data management interactions with other projects.
- Both R and M believe there were no other projects interfacing with the MDM project

Evidence from business documentation:

- The ERP business case lists a set of projects that are associated with the ERP re-implementation. The purpose is to 'indicate the dependencies and contextualisation' between the ERP re-implementation programme and other initiatives within the company. [BD1, p36]
- There is no documentation found indicating interdependencies on the MDM project level.

Conclusion:

In this case managing project interdependencies did not have an effect on benefits post project.

I. Delivering a complete business solution as opposed to a working IT system in isolation

Evidence from interviews:

R did not provide an opinion as he did not expect benefits from this project.

M cited the following,

- Information: After the start of the project realised there was room for improvement in terms of how supplier data is drawn from the system. A change request was denied on the grounds that it was too expensive.
- Tech/Processes: Interfacing processes and systems providing input data into SRM needed to be optimised in order to get the full benefit of MDM.
- Tech: The solution was not technically complete. The class codes need to be enhanced so that information could be captured on the right level of detail.

Evidence from business documentation:

- The business case states that the project scope is focussed on delivering the technical system [BD1, p14].
- The business case indicates that the project scope also includes activities other than the technical scope. These include:
    - Process development
    - Organisational structure design
    - Training
    - Change management

Conclusion:

The business unit realised after the project that there was more to be done to make the new system work. The R1 business case does mention process development and data as focus areas, but MDM project did not fully complete these activities. Not all the expected benefits could be realised as a result. The major service cataloguing disbenefit seems to not have stemmed from an incomplete system solution, rather R states that the new system was too difficult to use for service cataloguing. Therefore an incomplete solution had a partial impact on benefits realised.

J. A plan to manage benefits beyond the project end date

Evidence from interviews:

- R states that there was no defined path to the benefits.
- M states that:
    - The business wish list had all the intended outcomes
    - There was a plan of how benefits would materialise

Evidence from business documentation:

- The business case does not include a benefit realisation plan [BD1].
- The duration of the first ERP release (R1) is shown to stretch for approximately one and a half years [BD1, p16] and the scope does not include the management of benefits beyond this point [BD1, p14].

Conclusion:

A plan outlining the management of benefits post-project did not exist; R and M did not give opinion of what the potential consequences of this were. It is suggested that the absence of a plan to ensure the benefits materialise is an indication that the project did not focus on benefits, and that this would naturally have a negative impact on the realisation of these benefits. However there is not enough evidence available to gauge the impact of this omission on benefits.

K. Leveraging lessons learned to improve post-implementation success

Evidence from interviews:

- R cannot recall a formal lessons learned review
- M states that a formal lessons learned review was completed, by engaging both internal and external stakeholders
- M believes the lessons learned improved the post-implementation situation by helping stakeholders understand the vendor registration process, and by enabling continuous communication.

Evidence from business documentation:

- A lessons learned report could not be sourced.

Conclusion:

M believes the lessons learned improved the post-implementation situation and provides an example, while R could not recall whether the exercise had taken place at all. Therefore it is suggested that lessons learned did have an impact on benefits, but likely not to a great extent.

Table 15: Identification of CSFs that had an effect on post-implementation benefits for the MDM project

	Proposed CSF	CSF for project?
A	The alignment between corporate strategy, the benefits, and the project	
B	Effective change management	
C	Strong Leadership	
D	Stakeholders must buy-in into a common vision	
E	Awareness of unique definitions of success by different stakeholders	
F	Ensuring the project led by the business unit, as opposed to the IT department	
G	The funding of benefits as opposed to project outputs	
H	Managing projects and their interdependencies within a programme, rather than managing projects individually	
I	Delivering a complete business solution (POTI) as opposed to a working IT system in isolation	
J	A plan to manage benefits beyond the project end date	
K	Leveraging lessons learned to improve post-implementation success	

Key	
High impact on post-implementation benefits	
Some impact on post-implementation benefits	
Low or no impact on post-implementation benefits	
Inconclusive	

Alternative CSFs proposed by interviewees

1. **Ease of use of the system.**
2. **Communication with business end-users.**
3. **Training** (perceived as non-existent).
4. **Realistic implementation timelines.**
5. **Business driven vs. Consultant driven project**. The project was consultant driven.
6. **Willingness of consultants to include business and listen to business opinion**.
7. **Quality of consultants**. They lacked sufficient understanding.
8. **Data purification.**
9. **Opinion of leadership**. Staff members were afraid of leadership and withheld honest opinions.
10. **Relationship with the vendor**, namely:
    a. Allowing the vendor to become the only source of advice.
    b. Over reliance on the vendor when other consulting houses could implement the same system at a lower cost.
11. **Rigidity from project team.** The team not incorporate suggestions from other consulting houses other than the vendor.
12. **Ability to verify the information from suppliers.**

4.3 Project 3: Real Estate (RE)

4.3.1 Introduction to Business Unit

The function of the Real Estate BU is to manage the company property portfolio, and the entire value chain from procurement to disposal. Activities include:

- Refurbishments
- Fit-out
- Allocation
- Maintenance
- Property management
- Procurement and disposal.

Not long before the project was launched, the property portfolio was managed by an array of geographically scattered BUs. These BUs were all pulled into a brand new real estate business unit. The new BU had no existing processes, no ISO certification, and most managers were in acting positions.

4.3.2 Introduction to SRM Project

The project mandate was to deliver a standard Real Estate software package, or module. An off the shelf Rapid Deployment Solution (RDS) was chosen from the ERP vendor. This type of system has virtually no customisations. The vendor had been chosen as the strategic partner and was the same across all three projects. There was an urgent need for the project since the BU did not have any existing systems. The RE module supported the following business activities: Management of the property, capturing of notifications, dealing with reported defects or calls, executing of maintenance work and the costing thereof (reactive maintenance), planned maintenance where the life cycle management of equipment and plant is tracked, contract management (lease management).

Note that the interviews took place about seven months after the RE project ended.

The Real Estate project formed part of the second release of the ERP re-implementation (R2). A new governance requirement was introduced where all projects had to be approved on an individual basis via an investment committee. Consequently a separate business case exists for Real Estate, but not for MDM or SRM. The original programme business case and its approval remained applicable to both releases.

Two interviewees participated; the first will be referred to as 'J' and the second as 'T'. J's is a Land Management subject matter expert. T is a Commercial and Residential property subject matter expert.

Data collected from interviews can be found in APPENDIX C: RE Evidence and Analysis. Note that this interview took place approximately six months after the project was completed.

4.3.3 Success in terms of Post-implementation Benefits

The following benefits were expected:

- The ability to access and report on information when you need it, from a centralised real estate information database (most critical, immediate need).
- Consistency of reporting, since the data would be captured centrally and reports would be drawn from the same data all the time.
- Timely reporting.
- Accurate reporting.
- Optimisation of human resources. A lot of time was spent manually producing reports.
- Better strategic decision-making in the Real Estate BU.
- Ability to track the individual cost per unit of each individual building, being able to compare across different buildings and pick up on trends.
- Operational cost savings.
- Capital cost savings.
- Standardisation of systems and processes. The BU was previously split and different methods were being used by the various units, including Excel spread sheets.
- Needed a systematic approach to the life cycle management of assets.

The following benefits materialised:

- Real estate information has been centralised and reports can be drawn from this common database.
- Reporting is now timely, anyone that has system access can draw a report
- Standardisation of systems and processes because using a centralised system
- The system can automatically notify when debtor and creditor account payments are overdue, automatic and with correct checks and balanced. This is a huge benefit due to better management of residential properties being leased out.
- There is now a systematic approach to the life cycle management of assets

A note on the RE project scope reduction

Note that the new system was switched on +-5 months before the interview took place, but only part of the functionality installed can be utilised. There is a need for an operational (business unit driven) programme to upload operational data, and only then will the full benefits be realised. J states that the scope changed relative to the original URS due to time constraints, inherent risks, and the size of the property portfolio.

T mentions that two financial benefits are related to the life-cycle tool and this not operational due to Plant Maintenance functionality not being fully utilised. The original scope included standardised reports, and this was removed. Consequently, report related benefits could not be realised. For example, certain metrics such as occupancy rate cannot be automatically calculated. This compromises accuracy, and impacts the optimisation of resources benefits

The following expected benefits did not materialise

- Not yet able to track the individual cost per unit of each individual building / compare costs across different buildings / pick up on trends.
- Reporting is not yet consistent. T feels that if the original URS had not been reduced, the system would have been in line with the BU reporting requirements.
- Reporting not yet accurate due to data not being 100% clean.
- Human resource optimisation have not yet been realised

The following disbenefits materialised:

- Stress to employees due to the decision to not provide external resources
- The project negatively affected the quality of other outputs employees were accountable for, since they were not released from their daily jobs.
- The business unit is still struggling with some interfaces, especially with other financial modules. Causes tension due to the uncertainty in terms of the impact which a transaction might have.
- Erroneous payments to suppliers are made because the system does not have the necessary governance controls.
- Erroneous payroll deductions
- The IT department is often unable to determine root causes of these errors

Conclusion

The Real Estate project differed from the MDM and SRM equivalents in two ways. Firstly, this was the second release of the ERP re-implementation (R2), which occurred almost three years after the first (R1). Secondly, the business unit was brand new. This was essentially a 'green-fields' implementation, and the business unit did not have existing systems. In the benefits realisation context this is important for two reasons:

- The interviewees felt that even a reduced scope would beneficial to them and the definition of success can very often be dependent on perceptions, as per the definition of a benefit (See section 2.3.3).
- There was less potential for disbenefits to materialise, since the business unit did not have mature systems and processes before the implementation began.

This could be interpreted as the BU having lower expectations, but it can also be seen as having a realistic idea of what benefits are critically important and which are not. J stated that the most critical and immediate need was the ability to access and report on information when it is needed, from a centralised information database. In the context of a business unit that had been newly formed, from an array of geographically scattered units that were all running their own systems, databases, and generally doing things in their own way, a centralised system could be an exceptionally valuable asset. This benefit was met, and other benefits such as better management of debtors and creditors were perhaps seen as a bonus.

Certain expected benefits did not materialise, however. The central issue is reporting functionality and accuracy. Two critical activities were omitted from the project scope in order to save time and costs:

- The uploading of the full operational data set
- The creation of reports required by the business unit

This has resulted in crucial information such as the cost per square meter per building unavailable, and the need to create reports manually. These are unmet expectations, not disbenefits, since the business unit did not have these capabilities in the first place.

Some disbenefits did materialise. The two main themes are the excessive stresses on BU staff, and system errors. Stress on staff can be attributed to two factors:

- J mentioned that the BU org was not yet fully resourced, and many members were in acting positions
- A decision was made to not utilise external resources during the project

The result was an already understaffed BU having to take on project work over and above their daily duties. System errors have resulted in erroneous payments to suppliers and payroll deductions.

The benefits significantly outweighed the disappointments of unrealised benefits and realised disbenefits.

4.3.4 Critical Success Factors

A. The alignment between corporate strategy, the benefits, and the project

Evidence from interviews:

- Both J and T believe there was alignment.
- T states that the Real Estate BU carries a big piece of the balance sheet. Improving the quality of reporting was therefore in the interest of the business and its corporate strategy of accurate and timely reporting as it has an effect on funding and taxation.

Evidence from business documentation:

- The Real Estate business case was written and approved *before* the project was executed [BD6].

- The Real Estate business case does mention benefits specific to the Real Estate business unit [BD6, p2].
- The Real Estate business case does present a section demonstrating alignment between the ERP re-implementation and corporate objectives [BD6, p7].
- The Real Estate benefits realisation plan outlines how the achievement of the project scope and the resultant expected benefits will support the corporate objectives [BD7, p18].
- The benefits stated in benefits realisation plan are the expected benefits if the full URS had been implemented. Multiple functionalities, some of which were not implemented, are linked to benefits. This is confirmed by both J and T. [BD7, p18]

Conclusion:

Both interviewees believe there was alignment. Both stated that the business unit knew the project scope would be cut due to funding and time constraints. Although this was not ideal, the business unit adjusted its expectations. After the project most of these expected benefits were indeed realised.

This is in contrast to MDM and SRM where the business units were both surprised when they found out their desired scope had been changed, and were thus disappointed with the benefits they received. It is possible that the alignment between the project and the business unit could also be critical to the management of expectations.

It is known that in this company benefits realisation plans are submitted alongside the business case when investment committees evaluate projects. Therefore the alignment of the benefits to the corporate strategy was acknowledged when the project was given the go-ahead.

It is concluded that the alignment between corporate strategy, benefits, and the project had a high impact on benefits and is most likely a critical success factor.

B. Effective change management is a requirement for the realisation of benefits

Evidence from interviews:

J believes that:

- Change management 'didn't go down well'. But J does not want to fault change management team.
- The effect of the geographical displacement of real estate personal was underestimated in terms of a quality change management programme.
- Change management was seen by Real Estate as 'just another thing to do' since there was so much pressure to deliver.
- As stable business unit (org structure and resourcing) would have largely mitigated this issue.
- There was already a lot of change fatigue due to the BU being newly formed. Change management did not take into account the context of the business unit.

T believes that:

- A 'superb' change management plan was presented.
- The execution was lacking. The project leader (manager) raised concern several times that the change management function was not 'coming to the party'.
- Change management was identified as a critical success factor from the R1 programme, and the programme was planning to give it special attention.
- Change management after the project was non-existent. After the go-live, communication from the change management stream in the PMO stopped. Suspects this was due to the contract period of the external consultant expiring.
- After go live 'you need to make things exciting', and that the real benefits are realised after go-live.

Evidence from business documentation:

- It is confirmed that change management was cited as an issue during the R1 projects [BD3, p6-8].
- The change management strategy is explained as being unique to R2 [BD7, p26]

- Kotter's '8 steps to change' model was adopted as the change management framework. [BD7, p26] Note that this model advocates buy-in and is does not suggest a 'thou shalt' approach as adopted during R1 projects [BD3, p6].
- The Real Estate Business case promises a 'dedicated Change Management function' within the PMO [BD6, p27].
- The change management function was to be capacitated by internal resources, and supplemented by external resources where necessary [BD6, p27].
- Change management was conducted with minimal resources [BD9, p15].

Conclusion:

The change management effort started strongly but seemed to fade away as the project progressed. This is illustrated by the high regard J and T seem to have for the team and the plan they produced. T speculates that during that the change management resource was external and that the contract expired. This cannot be confirmed with the evidence presented. Regardless of why it happened, it is unfortunate that the resource was allowed to leave after change management was labelled as a critical function. It is also noted change management communication from the PMO stopped completely after the project was delivered.

In spite of change management being unsuccessful, the major benefits of the project were still realised. Benefits not delivered were mostly due to the omission of project scope, and disbenefits are mostly due to system errors.

Change management could have affected the optimisation of human resources post project as mentioned by T, and the stresses that employees have experienced mentioned by J. Although these benefits are important, they were not critical needs of the business with regards to the project.

It is suggested that change management was not as important to the RE project as to other projects, since it was a 'green fields' project in a new BU. The BU did not have mature systems and processes, and even the organisation structure was transient. Therefore the criticality of managing change, from one way of doing things to another, was diminished to an extent.

It is concluded that change management had a diminished impact on benefits and was most likely not a CSF for the realisation of the expected post-implementation benefits for this project.

C. Strong Leadership

Evidence from interviews:

With regard to business unit leadership:

J believes that:

- Employees were unhappy that resources were not fully dedicated to the project.
- Management of the BU did communicate the situation well; employees understood the situation regarding resources limitations. They were willing to work almost twice as long expected.

T believes that:

- Excellent support was given from BU senior management
- Lower level management struggled to give the same support, due to resources constraints.

With regard to project management office (PMO) leadership:

J was:

- Happy with the support given by the PMO during the project
- Concerned that the PMO support was not effective post-implementation, especially for a large system like this. The PMO disbanded the project after the system went live.

T felt:

- The PMO did not meet his expectations.
- The PMO pushed through their mandate, which he perceives as 'deliver within certain time constraints regardless of the quality'. This was at the expense of other stakeholder interests.
- The processes employed by the PMO were exceptional, and the project was run well in terms of cost, time, and tracking of activities.

With regard to executive leadership:

J states that:

- Executive leadership came from the Financial Director (FD), who made a good call by choosing an off the shelf product.

- He believes the project timelines given by the executive were difficult to meet, but the project did meet these dates.

T believes:

- The executive gave good support.
- The executive asked relevant questions, and commitment to the business unit was shown.
- The Chief Information Officer would not allow unnecessary scope creep, and the project team knew what had to deliver on time.
- That when risks were escalated, they were addressed in a decisive manner.

Evidence from business documentation:

- The requirement for an approved business case per R2 project can be seen as stronger executive control being exercised.

Conclusion:

Strong BU leadership is driving the operational programme required to realise benefits from the system. The PMO did not provide leadership outside their mandate, which was to deliver the project within time and budget, and this narrow focus had a negative impact on post-implementation benefits.

A strong PMO could have motivated for a focus on quality, as opposed to timelines. The omission of scope and the failure to purify data in order to meet deadlines resulted in some benefits not materialising. This also created huge stresses on Real Estate staff.

Finally, the Real Estate business unit management gave excellent support and recognised that in order to realise post-implementation benefits an operational programme had to be driven by the Real Estate BU (as cited by J). Therefore it is concluded that strong leadership is likely a CSF for the RE project as it has affected benefits in both a positive and negative manner.

D. Stakeholders must buy into a common vision

Evidence from interviews:

Both T and J believed there was a clear vision of the current and desired future states, and that a common vision was shared among stakeholders. Additionally J thought there was alignment between regional management (geographically scattered BUs) and head office senior management in terms of the current state and desired future state.

Evidence from business documentation:

- The benefit realisation plan describes benefits that are both tangible and intangible. The tangible benefits are specific, measurable, assignable, realistic, and time based, or 'SMART' [BD7, p32].
- The benefit realisation plan advocates a common vision through the visualisation of the relationship between the project, the benefits in the business unit, and the corporate objectives [BD7, p16-19].
- The Real Estate business case outlines a high-level vision [BD6, p2].
- The project close-out report states that the original assumption was that the solution would be implemented according to the URS, but that the solution implemented was according to the vendor and IT department scope.

Conclusion:

When the project was conceived, the intention was to implement the requirements outlined in the URS. This later changed due to financial and time constraints. This was not the decision of the business unit and the common vision that was originally communicated via the URS would not fully materialise.

The question is whether the purpose of the project was to deliver on the PMO and IT department mandates, or to bring about meaningful change within the business unit. There seemed to be a compromise in that the business unit did understand that the scope was going to be reduced, and accepted this due to the fact that their most critical benefits (such as a centralised database) would be still be realised.

In conclusion, the benefits realisable were diminished by the scope change but not completely. Therefore it may be a critical success factor, but a degree of uncertainty remains.

E. Awareness of unique definitions of success held by different stakeholders

Evidence from interviews:

J believes that:

- There were different definitions of success for different stakeholders:
    - **PMO and IT department** chased the go-live date and were somewhat inflexible, but because the solution was vanilla it did not affect the project.
    - **Senior management** expected a system that would enable good business and strategic decisions, and as you go further down the ranks this perspective is lost.
    - **Less senior staff** saw the new system as additional work while already being stressed and did not always see the strategic benefit.
    - The expectation from the **end users** is that the system will save time, after the full business transition is complete.
- PMO was aware of different needs of different stakeholders, especially the difficulties the stakeholders would be experiencing, but they still pushed their own project agenda.
- The PMO saw some of these difficulties and needs as business unit problems.

T believes that:

- There were different definitions of success for different stakeholders:
    - The **business units** that merged into one Real Estate business unit had common goals in terms of the benefits that the project would bring.
    - The **IT department** was more interested in building and activating the system, 'going live'.
    - The **executive** were aligned to the realisation of business benefits i.e. aligned to the BU.
    - The **PMO's** defined success as fulfilling their mandate, which was to deliver the system by a certain date, and were very rigid.

Evidence from business documentation:

- The Real Estate business case does mention benefits specific to the Real Estate business unit [BD6, p2].
- The PMO did deliver the system successfully, and spent significantly less than was originally budgeted for [BD8, p14]
- The project time management was well controlled by the project team. This however placed huge pressure on the business unit staff [BD8, p27].

Conclusion:

It is reasonable that the PMO and the IT department are concerned with the time and cost of the project as these factors determine whether investing in the benefits will be of net benefit or not. The PMO did deliver the system successfully, and spent significantly less than was originally budgeted for, and did so on time.

However the PMO and the IT department drove their definition of success to such an extent that the business unit could not realise all the benefits it required. The critical benefits were delivered, but much more could have been achieved if the project allowed for activities such as good data purification to take place.

It is therefore concluded that the being aware of unique definitions of success had some impact on benefits realised.

F. Ensuring the project is led by the business unit, as opposed to the IT department

Evidence from interviews:

J believes that:

- The project was a combined effort, and cites the example of IT resources allocated to the project going on courses to understand the Real Estate business.
- The plan of action was usually negotiated and no party dominated another, and the business unit was mostly dependent on the IT resources for advice.
- The equality felt in the project was due to the BU representatives having very strong personalities, and were not afraid of standing up for their needs in a positive way.

T holds the opposite view:

- The project was led by the IT department who would dictate terms of the engagement.
- Feels that in some meetings the BU reps were not active participants.
- The IT department had an obsession with delivering within time, and did not take everyone along on the journey.
- It was difficult to communicate and ask for information from the IT team.

Evidence from business documentation:

- The existence of a business case [BD6] shows that the ERP implementation was scrutinised by an investment committee, which is not an IT function.
- The close-out report is compiled by the PMO and the IT department. It focusses mostly on how the implementation went and is completed too early after the project to be able to gauge the benefits realised by the project. In fact, the close-out report does not mention the status of benefits at all.

Conclusion:

It is concluded that the RE BU managed to ensure the IT department and project deliver a system that meets its most critical needs. The BU was not able to get everything they needed, however.

J and T do not agree on who led the project, but the nature and content of the project close-out report shows the success of the project was not measured in terms of benefits to the BU.

If the project had been led by the Real Estate BU, it would have most likely retained the scope necessary to realise all the benefits required. Therefore it is concluded that 'ensuring the project is led by the business unit, as opposed to the IT department' had some impact on the benefits, as the project was led by the IT mandate but still managed to deliver critical benefits.

G. The funding of benefits as opposed to project outputs

Since the benefits are realised post-implementation, the rationale is that projects would need funding to continue driving the changes that will result in benefits.

Evidence from interviews:

J states that:

- The project was funded but a strategic decision was made to cut the scope in order to not delay the project and to get certain immediate benefits.
- When the decision was made to use internal RE personnel it was understood that the funding would come from within the RE business unit.
- No external costs to the company w.r.t. consultants.

T states that:

- Nothing additional was implemented, since the business unit did not know what would transpire post project and therefore did not know what additional work would be required.
- Once the project stopped, so did the funding related to the system
- Additional (IT related) projects are deemed change requests, and will be funded from the IT department budget.

Evidence from business documentation:

- The Real Estate business case shows that there was funding set aside for project outputs [BD6, p15].
- Funding support for the BU was cut after the project ended [BD8]
- Expected benefits were clearly stated in the business case [BD6, p16].
- The existence of a Benefit Realisation Plan that is a requirement for investment committee approval [BD7].

Conclusion:

It is clear from the business documentation that the investment committee were not merely approving a business case based on a project scope outline. The benefits formed an integral part of the approval process.

Funding support stopped as the project stopped. The lack of change management being absent post project may have been affected by this funding approach.

The critical issue that needs to be addressed is how the project could use the promise of expected business benefits as justification for its approval, but not include the actual delivery of these benefits within its scope.

The business case approval process ensured that the project delivered system functionality that would realise benefits to the BU. However the project stopped short of ensuring these benefits were realised, and therefore diminished the investment committee's control over the outcome. Both these considerations had a high impact on the realisation of benefits, one positive and one negative. This demonstrates that benefits should be funded and not merely project outputs.

H. Managing projects and their interdependencies within a programme, rather than managing projects individually

Evidence from interviews:

T does not believe there were any other projects related to this project.

J believes there were projects related to this project and cites various examples. One example is the implementation of an Adobe financial form that is required to enable a particular report required by the BU. J notes that this was missed and not included in the original URS.

Evidence from business documentation:

- The RE business case notes certain projects that are associated with the Real Estate project, and that interdependencies exist. [BD6, p25]

Conclusion:

There is at least one example of a benefit that is dependent on a project that does not fall with the Real Estate project scope. Therefore it is concluded that the management of project interdependencies has some impact on post-implementation benefits.

I. Delivering a complete business solution as opposed to a working IT system in isolation

Evidence from interviews:

J believes that:

- The BU was aware of the requirement for additional internal business / business as usual activities, but did not want to delay the rest of the project.
- A Cost saving decision was made to develop intellect within the company and that consultants would not be used extensively (this presumable made the implementation of the full project scope impossible).

T explained that:

1. Processes were complete.

2. Organisation: Change management was incomplete; end users are still resisting the system.

3. Technology: Still missing customised reports.

4. Information: Still cleansing and loading data after the project.

5. A request was raised for a post-implementation project to analyse the gap between the system implemented and the needs of the. T believes it would have been more efficient to extend the project to develop these reports.

6. T believes the IT team had a responsibility to ensure the business understood what was going to be delivered. The business reps were never given a demonstration of the system until the testing phase began.

Evidence from business documentation:

- The Real Estate business case states all the scope items related to it, and mentions dependencies on other projects. However it does not mention the missing scope that would be required to realise some of the expected benefits [BD6].
- The close-out report indicates what parts of the scope were not fully completed [BD8, p27].

Conclusion:

The project did not deliver the full solution that was required to realise all the benefits. However the project scope that was originally identified seemed to be sufficient to realise the expected benefits.

Due to the business unit being brand new, the processes and org structures were largely informed by the IT system being implemented. Therefore the original solution was in effect a holistic business solution and not just an isolated system implementation.

In the end a reduced scope was executed and the project ended up implementing a working system but not a solution that would realise the full set of expected benefits. The benefits deemed critical were still realised, however.

Therefore it is concluded that the failure to deliver a complete and holistic business solution had a partial impact on post-implementation benefits in the RE BU.

J. A plan to manage benefits beyond the project end date

Evidence from interviews:

- J noted that a formal plan is being developed post-implementation to roll out additional benefits from the new financial year.

T states that:

- There was a roadmap which clearly stipulated project outputs and milestones.
- There was a trajectory estimate of where the benefits should be after about 5 years.
- The BU does not know what projects will affect the benefits in future years.
- The BU is currently not tracking the benefits, since the system has not begun realising any measurable benefits; gaps need to be closed first.
- The benefits realisation plan looked at all the benefits that were possible if the full URS had been approved, but the URS was only partially approved so some of these benefits will not materialise.

Evidence from business documentation:

- The existence of a benefit realisation plan shows the intent to manage the benefits, and the plan shows benefit trajectories over the next five years [BD7, p32].
- The benefits realisation plan does not show whether any future activities may have an impact on the benefits trajectories [BD7, p32].

Conclusion:

The business unit knew how the performance of key measures had to improve over a five year period; therefore the path in terms of performance was determined. Since the Real Estate project has ended, there is a drive to roll out activities that would realise the remaining benefit. Without this drive the future benefits will not be realisable, and without path to the benefits, the drive may not have become a priority. Therefore the existence of a plan to manage benefits beyond the project end date will have a high impact on the realisation of future benefits.

K. Leveraging lessons learned to improve post-implementation success

Evidence from interviews:

Both J and T state that lessons learned were captured. T indicates that a template was sent to BU to provide inputs.

When asked whether the lessons learned would improve post-implementation success, both interviewees doubted whether it would make a difference:

- J believes the current policies of the company with regards to resources will diminish the value of lessons learned.
- T believes the lessons learned process only captured lessons that are related to the system implementation, and was intended to improve future implementations, not the operations of the business unit.
- However T indicates the business unit intends to leverage these lessons in order to fix the system issues being experience.

Evidence from business documentation:

- The close-out report captured a number of lessons learned. Most are intended to improve future projects, but some can be used for improving Real Estate operations in the near future [BD8, p27-32]. For example:

    - Some Real Estate resources are not as dedicated to the changes as they should be, due to workload stresses. This stems from a shortage of resources from within the BU.
    - The need to continue up skilling IT resources to understand the Real Estate business and system.
    - The need to improve senior BU management understanding of the system.
- The close-out report does refer to benefits, but these are not benefits that been defined by the BU. The majority are project outputs delivered. [BD8, p17-22].

Conclusion:

The lessons learned process should be expanded to capture more operational lessons learned, that may not be directly applicable to the project. The view that the lessons learned are entirely related to the technical aspects of the project is partly refuted by the close-out report. The majority are technical but many refer to softer issues such as BU resourcing constraints.

It is concluded that the lessons captured will most likely improve post-implementation success by highlighting shortcomings of the BU and the system recently implemented, even if the intention of the document is skewed towards improving future projects. If the lessons are applied then it should have a large impact on future benefits.

Table 16: Identification of CSFs that had an effect on post-implementation benefits for the RE project

	Proposed CSF	CSF for project?
A	The alignment between corporate strategy, the benefits, and the project	
B	Effective change management	
C	Strong Leadership	
D	Stakeholders must buy-in into a common vision	
E	Awareness of unique definitions of success by different stakeholders	
F	Ensuring the project led by the business unit, as opposed to the IT department	
G	The funding of benefits as opposed to project outputs	
H	Managing projects and their interdependencies within a programme, rather than managing projects individually	
I	Delivering a complete business solution (POTI) as opposed to a working IT system in isolation	
J	A plan to manage benefits beyond the project end date	
K	Leveraging lessons learned to improve post-implementation success	

Key	
High impact on post-implementation benefits	
Some impact on post-implementation benefits	
Low or no impact on post-implementation benefits	
Inconclusive	

Alternative CSFs suggested by interviewees

1. **A stable and properly resourced org structure pre-implementation.** The business area should have implemented the RE module only once structure was fully resourced. Most positions are acting, therefore did not get the compassion and commitment from people acting in key positions and this affected the quality of master data.
2. **Taking a vanilla off the shelf solution.** This was as a (good) strategic decision. Avoided huge delays on the project, benefits would have been delayed for 2-3 years.
3. **Post implementation support**. Sufficient and dedicated resources are needed to transition the business unit to its future business state, and to support a more complex system and business model. J sees this as a 'dismal' failure. The stress of the project has continued even after the project was finished.
4. **A phased approach of building competence over time.** This was a big advantage, feels a 'big-bang' approach would have been a fatal mistake in terms of success.
5. **Having equal strength personalities that are not dominated by any one party**. The RE business unit representatives were not afraid of stating RE needs.
6. **Understanding what benefits are under threat when scope changes occur**. A clear gap analysis was required between the initially proposed and the delivered product. Expected benefits were based on the original scope. The project did not look at which benefits were under threat by reducing the scope. In future this could lead to a 'blame situation' when having to report on realised benefits post-project.
7. **The emphasis of deadlines over quality**.
8. **Using majority internal resources as opposed to consultants**. This was a good decision since intellectual property is retained, which supports the positive execution of business processes after the project.
9. **Benefits were established before the project was approved**. As opposed to selling ideas without understanding what the benefits will be.
10. **A multi-disciplinary team was used to establish the project scope**.
11. **The business took ownership of the system and data**. IT was an enabler to delivering that product, and accountability of accurate data rested with the business.
12. **Training was implemented in a 'just-in-time' manner**. Staff better retained the knowledge as a result.

13. **Change management plan must be executed.** The plan was superb, but it didn't materialise.
14. **Data must be cleansed before it is loaded on the system**. In order to achieve accurate, timely reporting. T feels the IT team pushed to upload the data as soon as possible, whereas the emphasis should have been on data quality. The data should be informed by the end result required by the business, rather than the system field informing what data should be uploaded. This had an impact on the reporting, as the reports required could not be generated.

4.4 Analysis Summary

This section summarises:

- The status of benefits and disbenefits realised per project, see Table 17 below.
- CSFs and their impact on post implementation benefits per project, see Table 18 below.

4.4.1 Summary of benefits realised

Table 17: Status of expected benefits and disbenefits realised post-project for SRM/MDM/RE

Extent of:	SRM	MDM	RE
Expected benefits realised	**Partial**	**Significant**	**Significant**
Disbenefits realised	**Significant**	**Significant**	**Minor**

4.4.2 Summary of CSFs

Table 18: CSFs and their impact on post-implementation benefits for SRM/MDM/RE

	Proposed CSF	SRM	MDM	RE
A	The alignment between corporate strategy, the benefits, and the project			
B	Effective change management			
C	Strong Leadership			
D	Stakeholders must buy-in into a common vision			
E	Awareness of unique definitions of success by different stakeholders			
F	Ensuring the project led by the business unit, as opposed to the IT department			
G	The funding of benefits as opposed to project outputs			
H	Managing projects and their interdependencies within a programme, rather than managing projects individually			
I	Delivering a complete business solution (POTI) as opposed to a working IT system in isolation			
J	A plan to manage benefits beyond the project end date			
K	Leveraging lessons learned to improve post-implementation success			

Key	
High impact on post-implementation benefits	
Some impact on post-implementation benefits	
Low or no impact on post-implementation benefits	
Inconclusive	

4.4.3 Summary of CSFs proposed by interviewees

This section shows how the CSFs proposed by interviewees compared against those proposed in the conceptual framework.

Table 19: Alternative CSFs suggested by interviewees

	CSF suggested by interviewees	SRM	MDM	RE	Programme management CSF
1	Approach to project plan	x	x	x	J
2	Stability of the business unit pre-implementation	x		x	
3	Training approach	x	x	x	
4	Change management approach	x		x	B
5	Clear project roles and sufficient staffing of these roles	x			
6	Leveraging lessons learned during project execution	x			K
7	System ease of use		x		
9	Business driven vs. Consultant driven project		x		
11	Quality of consultants		x		
12	Data purification		x	x	I
13	Opinion of leadership		x		C
14	Relationship with ERP vendor		x		
15	Project team rigidity		x		E
16	Verification of vendor information		x		
17	Standard 'vanilla' vs. customised ERP solution			x	
18	Post implementation support			x	I, J
19	Balancing of stakeholder personalities			x	
20	Understanding relationship between scope and benefits			x	I, J
21	The emphasis of deadlines over quality.			x	

CHAPTER 5

5. DISCUSSION OF RESULTS

This section discusses the results from the analyses in CHAPTER 4.

5.1.1 Critical Success Factors

The following critical success factors are discussed.

A. The alignment between corporate strategy, the benefits, and the project

The alignment between corporate strategy, the benefits, and the project had a high impact on the realisation of benefits for three projects:

- In the SRM the misalignment between the business unit and the IT department resulted in critical functionality being omitted, leading to expected benefits being unrealised.
- In MDM the business unit never supported the project from the start, and the implementation resulted in significant disbenefits.
- In RE there was good alignment and consequently the BU's expectations were met.

Therefore it is concluded that this proposition is most likely a CSF for the realisation of post-implementation benefits from the ERP investment.

B. Effective change management is a requirement for the realisation of benefits

Change management had a high impact on benefits for MDM and SRM, and little impact for RE. It is suggested that:

- The SRM and MDM projects were established BUs that required a significant change management intervention in order to switch from old ways of doing things to new ways.
- The RE business unit was brand new, and consequently this current state / future state gap did not exist to a great extent.

Therefore it is concluded that this proposition can be a CSF for the realisation of post-implementation benefits from the ERP investments, but that degree of entrenchment of current processes and systems within the BU can affect its significance.

C. Strong Leadership

Leadership had a high impact on the realisation of benefits for all three projects:

- In SRM the main themes are that leadership can be misled, and that strong leadership after the project was lacking.
- In MDM the main theme was fear of executive leadership leading to poor buy-in.
- In RE the main theme was strong BU leadership that began driving the realisation of benefits post project, even when the expected project outcomes did not fully materialise.

Therefore it is concluded that this proposition is a CSF for the realisation of post-implementation benefits from the ERP investment.

D. Stakeholders must buy into a common vision

Stakeholder buy-in had a high impact on the realisation of benefits for MDM and SRM, but less so for RE:

- For both SRM and MDM the main theme is the need for buy-in from the project team, with regards to supporting functionality that will realise benefits. This prevented the realisation of key benefits.
- For RE the main theme was the BU buying into a diminished project scope, and still making the most of the situation. This was the BU aligning to the project team's desires, and not the other way around. This allowed the realisation of critical benefits.

Therefore it is concluded that this proposition can be CSF for the realisation of post-implementation benefits from the ERP investment, but the nature of the alignment can affect the total extent of benefits realised.

E. Awareness of unique definitions of success held by different stakeholders

Awareness of unique definitions of success held by different stakeholders had high impact on the realisation of benefits for MDM and SRM, but less so for RE:

- For SRM, end users had different expectations to the project team. This affected the specific benefits sought by end users.
- For MDM, the project team aimed to realise benefits that did not outweigh the major disbenefits for service cataloguing.

- For RE, the theme is that PMO and IT were aware of the full extent of benefits required by the BU, but limited the solution to provide only critical benefits. This was in order to meet their own needs of delivery within time and budget.

Therefore it is concluded that this proposition can be a CSF for the realisation of post-implementation benefits from the ERP investment, but having awareness of other stakeholder needs does not guarantee these needs will be given due attention.

F. Ensuring the project is led by the business unit, as opposed to the IT department

Ensuring the project is led by the business unit, as opposed to the IT department had a high impact on the realisation of benefits for MDM and SRM, but less so for RE:

- For SRM, the business unit was not leading the project, and therefore a critical scope omission was made. However, it is not clear that the scope changes were being led by the IT department.
- For MDM, the business representative knew the project would result in major disbenefits, and he states that IT drove the project in any case.
- For RE, the project was led by the business unit, but it had to compromise on some benefits in order to meet project deadlines.

Therefore it is concluded that this proposition can be a CSF for the realisation of post-implementation benefits from the ERP investment, but the BU can still be influenced away from achieving the full set of benefits by other competing stakeholder needs.

G. The funding of benefits as opposed to project outputs

Funding of benefits as opposed to project outputs had a high impact on the realisation of benefits for all three projects:

- For SRM and MDM, the BU most likely required funding support after the project ended. The lack of funding contributed to a negative operational state persisting for a long time.
- For RE, funding benefits ensured the correct system functionality was chosen as per what was outlined in the benefits realisation plan and business case, and the project not funding benefits beyond completion of the project scope had a negative impact.

Therefore it is concluded that this proposition is a CSF for the realisation of post-implementation benefits from the ERP investment.

H. Managing projects and their interdependencies within a programme, rather than managing projects individually

Managing projects and their interdependencies within a programme, rather than managing projects individually had a low impact on the realisation of benefits for MDM and SRM, and a partial impact on RE benefits:

- For both SRM and MDM, there was no indication that project interdependencies had an effect on post-implementation benefits.
- For RE, there is only one case of a benefit that is dependent on a project that did not fall with the Real Estate project scope

Therefore it is concluded that this proposition is likely not a CSF for the realisation of post-implementation benefits from the ERP investment.

I. Delivering a complete business solution as opposed to a working IT system in isolation

Delivering a complete business solution as opposed to a working IT system in isolation had a high impact on SRM, and a partial impact on MDM and RE benefits:

- For SRM, the system was incomplete in terms of functionality and configuration. This crippled the procurement function for a number of months.
- For MDM, incomplete process and data activities resulted in a partial impact on benefits, but the major disbenefits were not as a result of an incomplete solution.
- For RE, an incomplete scope had an impact on benefits, but not on those deemed critical.

Therefore it is concluded that this proposition can be CSF for the realisation of post-implementation benefits from the ERP investment, if critical benefits are affected by an incomplete solution.

J. A plan to manage benefits beyond the project end date

A plan to manage benefits beyond the project end date had a high impact on RE, but results for SRM and MDM are inconclusive.

- For SRM and MDM there is not enough data available to form an opinion.
- For RE, the existence of a benefit realisation plan ensured the business unit began formulating operational projects to begin realising the desired benefits.

Therefore it is concluded that this proposition can be a CSF for the realisation of post-implementation benefits from the ERP investment, but more data points are needed to confirm this view.

K. Leveraging lessons learned to improve post-implementation success

Leveraging lessons learned to improve post-implementation success had a partial impact on SRM, and MDM benefits, and a high impact on RE benefits:

- For SRM and MDM there is limited evidence to suggest that the proposition had an impact on benefits.
- For RE, lessons learned will improve the technical system in future, which will have a direct impact on benefits. However the lessons learned were focused on technical system issues, rather than a full range of issues that would include the business unit operations.

Therefore it is concluded that this proposition can be a CSF for the realisation of post-implementation benefits from the ERP investment, but lessons learned have to be expanded to cover the full range of business issue. More evidence would also need to be collected than is currently available.

Please refer to Table 20 below for the summary.

Table 20: Summary of CSFs for realising benefits post implementation

	Proposed CSF	CSF
A	The alignment between corporate strategy, the benefits, and the project	
B	Effective change management	
C	Strong Leadership	
D	Stakeholders must buy-in into a common vision	
E	Awareness of unique definitions of success by different stakeholders	
F	Ensuring the project led by the business unit, as opposed to the IT department	
G	The funding of benefits as opposed to project outputs	
H	Managing projects and their interdependencies within a programme, rather than managing projects individually	
I	Delivering a complete business solution (POTI) as opposed to a working IT system in isolation	
J	A plan to manage benefits beyond the project end date	
K	Leveraging lessons learned to improve post-implementation success	

Key	
Highly likely a CSF	
Can be a CSF under certain conditions	
Very unlikely a CSF	

5.2 Themes

The first theme that emerges from the comparative analysis is that the effect of the various CSFs on benefits was almost identical for the SRM and MDM projects, and both experienced significant disbenefits post-project. The following could explain why this occurred:

1. Both SRM and MDM were R1 projects and therefore were organised using the same governance processes. For example, they shared a business case, shared the same PMO, and did not have benefit realisation plans.
2. The projects were occurring at the same time
3. The projects had the same supporting stream staff.
4. Both projects were implemented in existing departments and had a stable organisation structure, processes and systems, as opposed to the RE BU that was a new.

The second primary theme is that the RE project benefits were not as heavily impacted by the proposed CSFs. This could be explained by the fact that the business unit was new and did not have stable organisation structure, processes and systems.

Other themes:

- The improvement of benefit when weak leadership becomes strong leadership, as can be seen by the contrast between R1 and R2 projects.
- Project team, PMO, and IT department mandate to deliver the project scope within time, cost, and quality often superseded the need for business benefits.
- The proposed CSF F ‘Ensuring the project led by the business unit, as opposed to the IT department’ must be updated to ‘The business unit must lead the project’. The IT team was not always the leader of the project when the BU was not leading.
- A benefit realisation plan is a good method of ensuring benefits are managed beyond the project end dates.

5.3 Rival theories: CSFs proposed by interviewees

According to Table 19:

- Approach to project plan is listed by three projects and is related to proposed CSF J: A plan to manage benefits beyond the project end date
- Training approach is listed by three projects and is note related to any proposed CSFs.
- Change management approach is listed twice and is related to proposed CSF B: Change Management.
- Data purification is listed twice and is related to proposed CSF I: Delivering a complete business solution as opposed to a working IT system in isolation.

CHAPTER 6

6. CONCLUSIONS

In conclusion, out of the eleven proposed CSFs derived from programme management principles:

1. Three are highly likely CSFs.
2. Seven could be CSFs, but under certain conditions.
3. One is most likely not a CSF.

To answer the central research question 'Can the principles promoted by a programme management discipline be defined as critical success factors (CSFs) for the realisation of post-implementation benefits from an ERP investment?', it is suggested that principles promoted by a programme management discipline can be defined as critical success factors, with the caveat that most of the propositions are conditional CSFs.

Other conclusions are that four rival CSFs suggested by interviewees are likely true CSFs for this ERP implementation, and four additional themes within the data were discovered. The evaluation of these CSFs and themes may form part of future work.

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8. APPENDIX A: SRM Evidence and Analysis

Corresp. CSF (A-K)	Business Unit and Project Context	Interviewee 'N'	Interviewee 'K'
1	Describe the relevant business unit and its function	1. Business unit is responsible for procurement within company. 2. Procurement is split up into project, strategic, and tactical sourcing. 3. Tactical sourcing is the procurement of everyday items that are not involved in the production of goods	1. Function is to perform low-value procurement for all corporate divisions. 2. Department also procures some higher value items / long term contracts.
2	Describe the ERP project	1. The new system is an online tool used to automate the PR-PO process used to source tactical goods 2. Project and strategic sourcing were not affected by this project. 3. The entire PR-PO process is a sub-process embedded within the Procure to Pay process. 4. The previous PR-PO process was performed manually 5. The new system involved the creation of a 'shopping basket' and was linked directly to vendors by either email or fax 6. Did not cover strategic or project related sourcing	1. First release was focussed on moving once-off purchases from one system to another. 2. The purpose of the project was to allow suppliers to enter their own prices into the system.

3	Describe the value chain relevant to this project	**PR-PO Process** 1. PR is raised (requesting need for item/service) 2. PR is captured on system 3. PR goes through approval steps 4. PO is created that commits a supplier to supply item/service 5. Item is received 6. Delivery note captured onto system 7. Invoice received 8. Payment made	1. Information requests to suppliers 2. Materials management in order to receive and store 3. PR-PO 4. Goods received orders 5. Payment
4	Was the ERP functionality (module) delivered according to the URS?	1. Yes, but the URS did not address key issues. The URS did not actually encompass the full range of user requirements.2. The IT division took a 'one size fits all' approach but this was not seen as ideal. Not all vendors had access to the technology required to interact with the system, for example.	1. Yes it was delivered according to the URS. 2. But the URS did not fully describe what was required. 3. The URS was done at an executive level, not at the 'nuts and bolts' level.
5	Your role	One of the procurement subject matter experts for the project worked in the procurement function but did not work in the tactical sourcing part of the procurement function.	Role was to provide the specification from the business, but started working near the end of this process.

	Expected benefits		
1	What benefits did the business unit expect from the project?	1. Faster turnaround times in terms of closing out purchase orders 2. Faster delivery 3. Faster PR-PO overall 4. Improvement of purchasing function reputation among end users who log purchase requests	1. Automation of procurement, moving fully into E-Procurement (online procurement). Less paper, less intervention by buyer 2. Faster turnaround times for transactions to be executed 3. Having standard reports, therefore one source of information that is credible
2	What benefit materialised?	1. Work on an individual level was completed faster due to automation of tasks 2. Faster interactions between end user and the procurement function 3. Speed to market (PO and delivery) was faster 4. Reputational damage was partially repaired due to speed increases, other process and interface problems had not been addressed. 5. Overall end user experience improved somewhat but still not satisfactory	1. Automation and moving to E-procurement benefit did not materialise 2. Faster turnaround times did not materialise - had opposite affect. Turnaround times are slower today, three years after the implementation. 3. Reports are standardised and info is credible, but do not have all the reports required.

3	What disbenefits materialised?	1. Staff became fed up with the system due to inadequate training and resourcing2. The project resulted in a lot of confusion3. A lot of energy and resources spent without perceived results4. Issues persist years after system go-live5. PR to PO lead times increased and created a large backlog	1. Almost doubled required time to executing purchase orders.2. Could no longer execute the workload required, and a backlog started forming - the PR backlog started growing. It grew to almost 50 000 PRs. The backlog was drastically improved near the end of the three year period after implementation.3.The consequences of the backlog were that materials on site could not be received on time.4. This lead to delays in work that needed to be done.5. Since spares were included in this process, maintenance suffered greatly.6. Information disappeared off the system.7. Certain reports were required and not included. The reports were lost during the transition from old system to new.8. Level of granularity of spend reporting was not granular enough, therefore spend can only be tracked on a high level, and you cannot hold employees accountable for the spend they authorise.9. The previous system could do everything the new system could do, but the new system could not match the functionality of the old. The only advantage the new system had was that it had an external online portal, which was never implemented.

	Critical Success Factors		
4	What were the critical success or failure factors for realising Post-Implementation benefits from the project in your business unit/Value chain.	1. The completeness of the system rollout, some areas of the business have not received the system.2. The need for an end-to-end project plan3. Making too many changes at the same time. The procurement function had just been re-structured and staff had not had time to settle4. Stakeholder management was not done very well5. Stakeholder integration was not done very well6. Integration between various phases of the project was absent due to a lack of staff continuity between these phases7. There was a need for a structured team with clear roles and responsibilities, and these roles needed to be staffed properly.8. Lessons learned were not pushed back into plan as it progressed, no follow up.	1. The type of project phasing chosen was a success factor. Went for a big-bang approach, which backfired. Few business people were at the design and testing phase, and after go-live it was expected that everyone would be on-board.2. Training was 'one size fits all'. 3. Should have involved the end users during the design phase, e.g. buyers.4. Post-implementation, the team did go back to the end users and engage them with their issues and tried to resolved them. 5. The main purpose was to have electronic procurement, and this was never done. The focus was not on the benefits.

A	**Alignment to corporate goals**		
1	Do you think there was alignment between your business unit, the project, the re-implementation, and corporate strategy?	1. At the time it was assumed there was alignment but there not 2. There was a lack of formally communicated decisions while the project was progressing, especially between the core project team and the technical team. Communication was often conducted in the hallways. 3. The project team knew more or less what was expected in terms of rolling out the system 4. The context and rationale behind the decision on the choice of system was not shared and thus not understood. There were lingering doubts about whether the system was a suitable fit for the business.	1. There was an overall alignment, but at the implementation stage the external portal was omitted (negated any potential benefits)
B	**Change management**		
1	What is your opinion on how change management was performed during and after the project?	1. Change management was not conducted during the initial stages of the project2. The project did not consider how changes would affect stakeholders3. Changes were not communicated4. This had a major impact, buyers developed negative attitudes, and end users had their negative view of the procurement function reinforced, and confusion was created.	1. On paper the change management was done correctly, had appointed the change agents.2. The big-bang approach lead to end users not being prepared for the changes3. Took time to do change management after go-live, it was a retrofit.

C	Stakeholder opinion of leadership		
1	What is your opinion of the leadership during the project?	1. Leaders were skilled in their various professions but not as project leaders.	In all these categories, the leadership was there. The leaders were supportive to the team. The failure of this project was contained in the URS from the beginning. (referring to the omission of the online portal)
a	Business unit	1. Business unit leadership did not receive the correct advice before making decisions. 2. Had the right intentions in general	
b	Programme Office (PMO)	1. Poor integration and coordination	
c	Executive	1. The executive leadership did 'not do anything wrong' 2. The executive was mislead by the project team about problems being experienced, and thought everything was going well.	

D, E	Definitions of success, and vision buy-in		
1	Was there a clear vision of the current state of the business unit, and was a desired future business state communicated?	1. No clear vision of the business unit current state.2. Desired future business state was not communicated.3. No clarity on how KPIs were being measured.4. Intentions with regards to change were not clearly communicated.	Yes, it was clear. Knew where they wanted to go.
2	Was there a common vision? And did you buy into it?	1. The only common vision was to rollout the system. 2. Personally did not buy into this vision, since it was not planned properly.	1. Yes there was a common vision for the project at inception 2.It diverged at the implementation phase when some of the 'nuts and bolts' were missing. 3. The communication broke down when the URS was being created. 4. The design of the URS was done at an executive level, and therefore the expectation of the executives was different to that of lower level management and end users.
3	Was success defined differently for different stakeholders, even when there is a common vision. Was the programme (PMO) aware of these different definitions?	1. Business areas operated under different assumptions 2. Business areas had their own opinions of what they wanted 3. Project was not aware of these differences.	1. Successfully delivered the project URS 2. From an end-user perspective, there were elements of disappointment since some functionalities expected did not materialise.

F	**Business led vs. systems led implementation**		
1	Was the project led by the systems (IT) team or by the business? Elaborate.	1. Project was led by IT 2. The IT module was more important than the business objectives 3. Opinions of the business were not considered 4. Business was instructed to accept the proposed system.	1. The project was led by the business, the executive sponsor was the FD.
G	**Funding Model**		
1	Was your business area funded with regards to the implementation?	1. Business unit did not have its own funding with regards to the project.	1. No funding specific to the business unit. 2. The project was rolled out at an Company level, and the project was funded at an Company level.
2	Did you require any funding outside the programme?	1. Required funding for travelling2. Required funding for research to help decide what system tools and processes to use.	No
H	**Management of project interdependencies**		
1	Were there any projects outside this programme that were related to the implementation, but not included in the project scope.	1. Yes, there were other projects that had an impact on the system rollout.	1. No other projects interfaced with this project
2	How were project interdependencies managed with regards to the implementation?	1. The interdependencies between these projects and this particular project were not managed. There was no integration role on the team.	N/A

I	**Completeness of solution, as related to the desired benefit(s)**		
1	When considering what it would take to achieve the benefits expected from the project, how complete was the solution? (were any other things needed in terms of POTI?)	1. Solution was not fully complete, since the system should have had a positive impact	1. Technology was not complete. The external portal suppliers would have used to interact online with the company was omitted from the project scope. 2. Process issue: Delegation of authority. The buyers had authority to approve anything below R250k, but the system was configured to require approval from the procurement manager at any amount. This contributed greatly to the PR-PO backlog since the procurement manager approval step became a bottleneck. Corrected approximately 6 months after go-live.
J	**Path to success**		
1	Did you have a defined and communicated path to the benefits?	1. Not at all 2. No Benefits Realisation Management was performed on this project	Declined to comment due to uncertainty.

K	Lessons learned activities post-implementation (both projects and benefits)		
1	Were lessons learned formally captured post-implementation? If so, how.	1. Some lessons learned were communicated years later in another systems rollout, but participant was not included and is unsure of what lessons learned activities took place. 2. No lessons learned were communicated during the post implementation period prior to the next system rollout in the same area.	1. Yes, at the beginning of a later system release, it was decided to capture lessons from this project.
2	If yes, has this improved the post-implementation situation.	1. No	1. Yes, some issues could be corrected before the next implementation began. For example, end users were not involved sufficiently, but after go-live they were approached and therefore the speed of the system was improved before the second release.

9. APPENDIX B: MDM Evidence and Analysis

Corresp. CSF (A-K)	Business Unit and Project Context	Interviewee 'R'	Interviewee 'M'
1	Describe the relevant business unit and its function	Originally Cataloguing was under exclusively under Group Commercial. Now it is functionally under shared services as 'Master Data Management' who manage policy, quality, reporting and vetting, and cataloguers in Group Commercial SCOPS do the Cataloguing. Actual end user is anybody who wants a new service or material.	Supplier Management, look at broader supplier involvement within the group. Has to do with the sourcing of suppliers, relationship, operational side of supplier, performance management of supplier. Strong influence on the policies that govern procurement, i.e. queries and success factor. All this information must be on a system, and that is where the system comes into play. The system is just the tip of the iceberg however.
2	Describe the ERP project	1. Did not request MDM, business was ordered to use MDM. Business did not support the project. 2. A standard MDM module was implemented 3. The MDM module was built as an interface between another third party software package and the main ERP Client. Its purpose was to disperse information to other systems. 4. The intention was to use MDM to upload services into the a service master database. 5. Material vendors were still uploaded into the materials master database using the third party software, and a link had been created between it and MDM to allow for this.	N/A
3	Describe the value chain relevant to this project	Cataloguing for Materials and services	When a vendor is catalogued, additional information needs to be captured in order to manage the relationship with the supplier.

4	Was the ERP functionality (module) delivered according to the URS?	1. The new system was delivered according to the user requirement specification 2. The business unit did not support the project	N/A
5	Your role	Master data management subject matter expert, part of MDM project team	Was not a part of the project implementation, part of senior leadership that set direction for the project. Works in supplier management business unit.
	Expected benefits		
1	What benefits did the business unit expect from the project?	1. The business unit did not foresee any benefits arising from the new system2. The business unit anticipated the new system would serve no purpose and increase complexity	1. Had a large wish list for URS, and a sizeable number of items on the wish list was rejected.2. Information needed to be available over a long period of time3. Wanted a system that could capture supplier information on the right levels to aid business intelligence
2	What benefit materialised?		1. The speed of the system has increased for registering material specific vendors, but not service vendors. 3. Supplier can registration online, therefore there is less paperwork and able to verify information. 4. Vendor information has been centralised. 5. The system can flag whether there is a need to update a supplier's profile. 6. Information is of a higher quality therefore reporting has improved, and requires less effort

3	What disbenefits materialised?	1. Not a single services has been catalogued since the new system went live four years ago 2. System is too difficult to use for the intended purpose 3. Critical capabilities like archiving were switched off without business unit consent 4. Business operations took 8 months to recover	1. System is not able to provide key intelligence on the supplier and the industry they operate in, and alternative systems are now used to store this information. This has resulted in a risk to the continuity of information 3. Class codes used to capture supplier information were very specific in the past, and the new codes are not detailed enough.
	Critical Success Factors		
4	What were the critical success or failure factors for realising Post-Implementation benefits from the project in your business unit/Value chain.	1. Ease of use of the system2. Communication to business end-users (insufficient communication)3. Training (perceived as non-existent)4. Realistic implementation timelines (were unrealistic)5. Business driven vs. Consultant driven project (The project was consultant driven).6. Willingness of consultants to include business and listen to business opinion. (not willing)7. Quality of consultants. (Lacked sufficient understanding)8. Data purification (was an issue)9. Perception of leadership. (Staff were afraid and withheld honest opinions)10. Communicating of major changes and decision. (Not communicated to business unit)	1. Should not have had a direct contract with the vendor, since functionality of the system is not sufficient to cover the needs of the business 2. Rigidity from project team did not allow suggestions from other consulting houses, other than the vendor, to be incorporated into the system configuration.3. Over reliance on the vendor when other consulting houses could implement the same system at a lower cost4. The ability to verify the information from suppliers5. The vendor had cart blanche and had monopoly over work and this impacted negatively

A	**Alignment to corporate goals**		
1	Do you think there was alignment between your business unit, the project, the re-implementation, and corporate strategy?	1. No alignment 2. Business unit felt the system was forced upon them. 3. An opposing position was taken by the business.	1. Everything that was done was in accordance with the corporate strategy
B	**Change management**		
1	What is your opinion on how change management was performed during and after the project?	1. Poor change management overall 2. Too many changes at once overwhelmed the business units 3. Little communication of expected system functionality 4. Communication centred around go-live dates and information quality	1. One can never be sure that all 'corners were touched' 2. Communication that went out was very useful 3. Doubts whether staff actually read change communications 4. Involvement of business was as good as was possible and all relevant stakeholders were included 5. Suggests that staff were kept in loop but only involved themselves right at the end of the project. 6. Had all the change management subject matter experts involved 7. Suggest staff incorrectly perceive they were not involved in change management, only because they are recipients of change and not directly involved. 8.The change management plan was executed.

C	Stakeholder opinion of leadership		
1	What is your opinion of the leadership during the project?		
a	Business unit	1. Respondent was the business unit leader for the project, cannot comment. 2. Senior business unit leadership were 'overrun' and overruled by consultants	Cannot comment, conflict of interest cited
b	Programme Office (PMO)	1. The PMO was aligned to the executive leadership 2. The PMO drove the project by fear	Does not comment
c	Executive	1. Executive leadership was perceived as a dictatorship	1. Too many changes were made to the business and these changes seriously impacted on strategic objectives 2. There is insufficient alignment between executives, especially when leadership changed hands. 3. Slow speed of decision-making tripped up critical changes. 4. Leadership sometimes made decisions based on emotion
D, E	**Definitions of success, and vision buy-in**		
1	Was there a clear vision of the current state of the business unit, and was a desired future business state communicated?	1. The business unit understood what it needed to do 2. There was a disjoint between the project and the business unit otherwise	1. There was a clear vision 2. What was achieved in the project was not perfect but it is a start in the right direction 2. Suggests the future is about continuous improvement
2	Was there a common vision? And did you buy into it?	1. The broader vision of having a consolidated client was understood and accepted by the business unit. 2. The specific project was not supported by the business unit	Yes

3	Was success defined differently for different stakeholders, even when there is a common vision. Was the programme (PMO) aware of these different definitions?	1. MDM was a success in terms of a technical implementation, but not in functional terms.	1. Some stakeholders only reacted once the project started to impact them. 2. The project focussed on the overall objective 3. The project was received warmly by end users, this implies that their needs were also looked at.
F	**Business led vs. systems led implementation**		
	Was the project led by the systems (IT) team or by the business? Elaborate.	1. The project was systems-led and run as a technical upgrade	1. IT was in a support/guidance role2. Business was leading the project
G	**Funding Model**		
1	Was your business area funded with regards to the implementation?	1. Funding was controlled by the PMO.	Did not spend money as a BU outside the programme. Everything was funded by the programme.
2	Did you require any funding outside the programme?	1. Funding was not required, but the project was rushed due to funding constraints. Consequently activities like data purification were not completed.	The BU did need some funding, for the customisation of interfaces with the system. Did not get this funding.
H	**Management of project interdependencies**		
1	Were there any projects outside this programme that were related to the implementation, but not included in the project scope.	1. All required activities were contained within the project.	No interfacing projects
2	How were project interdependencies managed with regards to the implementation?	1. There was some interactions with other project streams in terms of data management. 2. R was involved in data integration and system interfaces	N/A

I	**Completeness of solution, as related to the desired benefit(s)**		
1	When considering what it would take to achieve the benefits expected from the project, how complete was the solution? (were any other things needed in terms of POTI?)	1. No opinion as no benefits were ever expected from this project.	1. Information: After the start of the project realised there was room for improvement in terms of how supplier data is drawn from the system. Change request was denied on the grounds that it was too expensive. 2. Tech/Processes: Interfacing processes and systems providing input data into SRM needed to be optimised in order to get the full benefit of the MDM module. 3. Tech: The solution was not technically complete. The class codes need to be enhanced so that information can be captured on the right level of detail.
J	**Path to success**		
1	Did you have a defined and communicated path to the benefits?	1. No defined path	1. Wish list had all the intended outcomes 2. Had a plan of how benefits would materialise
K	**Lessons learned activities post-implementation (both projects and benefits)**		
1	Were lessons learned formally captured post-implementation? If so, how.	1. Cannot recall a formal lessons learned review (unsure)	Yes. Was done in two phases. Internal stakeholders were contacted, and then suppliers were contacted.
2	If yes, has this improved the post-implementation situation.	N/A	Yes. There is a better understanding of the changes within the registration process, by stakeholders involved. There is also continuous communication.

10. APPENDIX C: RE Evidence and Analysis

Corresp. CSF (A-K)	Business Unit and Project Context	Interviewee ' J '	Interviewee ' T '
1	Describe the relevant business unit and its function	1. Regional property sections working within each division, all were pulled into one new real estate business unit. 2. Function is to manage the property portfolio: refurb, fit-out, allocate, maintain, manage, accountability for procurement and disposal. Managing from procurement to disposal i.e. whole value chain. 3. What initiated the project was centralisation of all real-estate assets in the company, no common platform to manage portfolio. 4. Brand new business unit, no existing processes, no ISO certification. Most managers in acting positions within the business unit.	1. The business unit is called 'Real estate' 2. Its function is the acquisition, management, and disposal of property of fixed assets on behalf of the company.

2	Describe the ERP project	1. Could not be a standalone function, was told it will be a solution from the chosen ERP vendor because of the business-wide strategic integration of the vendor's modules. 2. Motivated for full solution. Investigated all relevant vendor modules. It was identified that only the RE module was critical right now, which is used to manage facilities and buildings.3. Need for a system was urgent since there were no systems.4. Went for an 'off the shelf' product, completely vanilla.5. Vast majority of regional real estate areas were working on spread sheets, a minority were using another existing module from the vendor and this was adapted for RE use. Therefore the regional business units were open to receiving a vanilla module. 6. Had no time to develop the system. Was seen as a critical project by senior management. The nice to haves were not included, were left out for possible later inclusion.	1. RE module was a rapid deployment solution (RDS)2. System went live about 7 months before the interview took place3. Module supported the value chain of the business unit4. Integrated with the financial controlling module5. Functionality supported the following business activities: management of the property, includes capturing of notifications, dealing with reported defects or calls, executing of maintenance work and the costing thereof (reactive maintenance), planned maintenance, where the life cycle management of equipment and plant is tracked. Another portion was for contract management, which is effectively lease management.
3	Describe the value chain relevant to this project	1. Continuous Strategic portfolio planning 2. Continuous lease in / procure real estate or leasing out / disposal 3. Space planning/management and fitting out and refurbishment and maintenance, plant management, of existing portfolio 4. Keeping track of all moveable assets within the premises, each with its own value chain	1. Establishment of customer requirements and long-term planning, these two inform the acquisition either through development, or leasing, or buying a complete building. 2. After acquisition the lifecycle of the asset, equipment, and plant are managed. 3. After the lifecycle is complete, the assets are disposed of according to the disposal process.

4	Was the ERP functionality (module) delivered according to the URS?	1. Yes, there was agreement that the 'vanilla/standard' module would be used.2. The scope was reduced however and the initial URS was reduced to become the project URS, due to time constraints, inherent risks, size of portfolio. 3. Could not go for a 2-3 year system development and had to go for off the shelf solution.4. Not having the inherent systems experience within the new business unit also lead to the decision of the vanilla project.	1. Yes and no.2. The URS defined a different product from what was delivered.3. The scope was reduced due to time and money constraints on a company level.4. The BU still considered the reduced scope as valuable, since it had no systems at all5. The senior leadership within the IT department instructed that the scope be reduced.
5	Your role?	Role was a Land Management subject matter expert, part of project from the beginning.	A subject matter expert on Commercial and Residential property. Part of project from the beginning.

	Expected benefits		
1	What benefits did the business unit expect from the project?	1. Centralised real estate information database for portfolio, and being able to access information where you need it and being able to report on it. (most critical immediate need) 2. Benefit the strategic decision-making of the business unit 3. Being able to track the individual cost per unit of each individual building, being able to compare across different buildings and pick up on trends leading better cost, strategic decisions 4. Operational cost savings 5. Capital cost savings	1. Standardisation of systems and processes. The BU was previously split and different methods were being used by the various units, including Excel spread sheets. 2. Consistency of reporting, since the data would be captured centrally and reports would be drawn from the same data all the time 3. Timely reporting 4. Accurate reporting 5. Optimisation of human resources. A lot of time was spent to produce reports. 6. Needed a systematic approach to the life cycle management of assets, now there was.

2	What benefit materialised?	1. Real estate information has been centralised and reports can be drawn from this common database.2. Went live +-5 months ago, but only part of the functionality installed has gone live 3. The system can automatically notify when debtor and creditor account payments are overdue, automatic and with correct checks and balanced. and can now do something about it. This is a huge benefit due to better management of residential properties being leased out.4. There is a need for an operational programme to upload operational data, and only then will the full benefits be realised.5. Not yet able to track the individual cost per unit of each individual building / compare costs across different buildings / pick up on trends	1. Realised standardisation of systems and processes because using one standard system2. Reporting is not yet consistent, because if we had implemented the original URS it would have been in line with our business reporting.3. Reporting is now timely, anyone that has system access can draw a report4. Reporting not yet accurate. The short project deadlines lead to the data not being 100% cleaned and there still some inaccuracies. The business made a decision to not use consultants to upload the data, and used in-house resources. This is the first time this had been done and there was pressure on the existing internal resources which lead to some errors in light of chasing to deadlines. Chased deadlines as opposed to data quality. 5. Human resource optimisation have not yet been realised6. There is now a systematic approach to the life cycle management of assets
3	What disbenefits materialised	1. Stress to employees due to the decision to not to fund external consulting 2. Negatively affected the quality of other outputs employees were accountable, for since they were not released from their daily jobs. Would have been ideal to have dedicated project personnel.	1. Still struggling with some interfaces, especially with other financial modules. Causes tension due to the uncertainty in terms of the impact which a transaction might have 2. Erroneous payments to suppliers are made because the system does not have the necessary governance controls. 3. Often unable to determine root causes of system errors, such as the erroneous payments. 4. Errors with regards to employee payroll deductions, still not sure why this is happening and IT cannot explain. The Real Estate module is also new to the IT team.

4	What were the critical success or failure factors for realising Post-Implementation benefits from the project in your business unit?	1. **A stable and properly resourced org structure pre-implementation**. We had identified our org structure, identified key positions, but were not allowed to fill those positions. Most positions are acting, therefore did not get the compassion and commitment from people acting in key positions and this affected the quality of master data. Should have implemented the RE module only once structure was fully populated 2. **Taking a vanilla off the shelf solution** as a strategic decision was a critical success factor. Avoided huge delays on the project, benefits would have been delayed for 2-3 years. 3. **Post implementation support**: A section made up of IT and RE experts should be setup and dedicated to support existing and future implementations of the system, also useful for continuous improvement, where skills would also be retained, and transferred, and all issues related to system could be resolved. There have to be sufficient and dedicated resources to transition the business unit to its future business state, and to support a more complex system and business model. See this as a dismal failure. The stress of the project has continued even after the project was finished.5. **The phased approach of building competence over time** was a big advantage, feels a big bang approach would have been a fatal mistake in terms of success6. **Having equal strength personalities that are not dominated by any one party.** Business unit were not afraid of stating their needs.	1. There was no clear gap analysis done between the initially proposed and the delivered product, as a result we have established benefits based on the original scope. We did not look at which benefits were under threat by reducing the scope. This could lead to a 'blame' situation when looking for realised benefits post-project. For example: **Two financial benefits are related to the life-cycle tool, and this not operational due to Plant Maintenance module not being fully utilised.** Original scope included standardised reports, and this scope was removed and therefore the report related benefits could not be realised. For example certain metrics, such as the occupancy rate cannot be automatically calculated from the system reports. , **compromises accuracy**, and **impacts the optimisation of resources benefits**2. The emphasis of deadlines over quality 3. The correct decision of using majority internal resources as opposed to consultants, good since IP is retained which supports the positive execution of business processes after the project4. Benefits were established before the project was approved. As opposed to selling ideas without understanding what the benefits will be.5. During scoping (blueprinting/URS) a multi-disciplinary team was used to establish the scope6. The roles were clearly demarcated, and it was clear that the system belongs to the business and the business took ownership. So IT was an enabler to delivering that product. For example accountability of accurate data rested with the

			business. The implementation structures were established and the business resourced those structures appropriately. 7. Training was implemented just in time for application, and this had a positive result. Staff better retained the knowledge. 8. Change management plan was superb, but it didn't materialise. Not sure why, possibly due to lack of resources9 Cleansing your data at the beginning (before loading the data) can achieve accurate, timely reporting. Feels that the data management team was not brought in well and in time. We ended up cleansing the data during the project, and this resulted in re-work having to be done. Had to re-request similar data from the business. Data cleansing was being pushed by the IT team, but their agenda was to upload it as soon as possible. In contrast the data management subject matter expert was concerned with data quality. The data we want should be informed by the end result required by the business, rather than the system field informing what data should be uploaded. This had an impact on the reporting, as the reports required could not be generated.

A	**Alignment to corporate goals**		
1	Do you think there was alignment between your business unit, the project, the re-implementation, and corporate strategy?	Yes, 99% aligned.	1. Yes. In terms of reporting, the RE BU carries a big piece of the balance sheet. The reporting was therefore in the interest of the business and its corporate strategy of accurate and timely reporting. This has an effect on funding and taxation.
B	**Change management**		
1	What is your opinion on how change management was performed during and after the project?	1. It 'didn't go down well'. But does not want to fault change management team.2. The effect of the geographical displacement of real estate personal was underestimated in terms of a quality change management programme. Couldn't get to everything that needed to be done. The quality of the end result diminished the further away from head office and the project the stakeholders were.3. Change management was seen by the new business unit as 'just another thing to do' since they were under so much pressure to deliver. A stable business unit would have largely mitigated this issue.4. There was already a lot of change fatigue. Change management did not take into account the context of the business unit, which was different to the other projects and change management stream didn't adjust their plans.	1. During the project they shared a project plan related to project management, which was superb, because it was designed to provide the information just in time, and only the information that is relevant, and only to the target audience at a specific time. 2. The execution was lacking, and the project leader was of the opinion that the change management stream did not come to the party, and raised concerns several times. Change management was identified as a critical success factor from the R1 programme, and the programme was planning to give it special attention. Interviewee observation was that change management team was made of external resources and suspect there was a funding issue. 3. Change management after the project was non-existent. After the go-live, communication from the change management stream in the PMO stopped. Thinks this was due to the contract period of the external consultant expiring.4.Believes that after go live you need to 'make things exciting', and that the real benefit is after go-live. and the recipient of the benefits can only see this benefit once the system starts to working according to expectations.

C	Stakeholder opinion of leadership		
1	What is your opinion of the leadership during the project?		
a	Business unit	1. From an employee point of view, there was unhappiness with the resourcing strategy of the company. Did not have the resources that were dedicated to the project. But understood the business unit management and why the work had to be done.2. The management of the BU did communicate the situation well and therefore the employees understood there was limited funds and resources. Employees were willing to work almost twice as long as they were expected to. Frustration levels were still very high and there were flair-ups between employees and managers.	1. Excellent support given senior management in the BU. Support from the sponsor (GM) was evident through the interest shown and also by committing resources2. The lower level management struggled to give the same support, wanted to but could not due to resources constraints.
b	Programme Office (PMO)	1.Happy with the PMO approach, support provided was acceptable and cannot be faulted. The project had a project manager, and all the relevant streams were represented, including training, change management. RE business unit just had to supply the information and expertise. 2. Feels that this way of doing things worked very well for the implementation, but not good for support post-implementation of a big system like this. The PMO disbanded the project after the system went live.	1. PMO leadership was not according to the expectation of the interviewee. 2. Other stakeholder interests were overlooked, due to pushing through the PMO mandate, which was to deliver within certain time constraints, regardless of the quality of the deliverable. 3. 'Project was tough on deadlines, and slack on quality' 4. The processes employed by the PMO were was exceptional, and the project was run well in terms of cost and time and were tracking activities very well.

c	Executive	1. Executive leadership came from the Financial Director (FD). This was the same FD that sponsored the R1 ERP Re-implementation. 2. Made the call for the off the shelf product, this was a good call. 3. The project timelines given by the executive were seen as difficult to meet, but the project actually met these dates which was positive.	1. Had good support from executive. 2. The executive asked relevant questions, and commitment to the business unit was shown. 3. In terms of focus, the CIO would not allow unnecessary scope creep, and the project team knew what had to deliver, on time. 4. When risks were escalated, they were addressed in a decisive manner.
D, E	**Definitions of success, and vision buy-in**		
1	Was there a clear vision of the current state of the business unit / value, and was a desired future business state communicated?	1. Very clear view of current state, that the business had been operating in a decentralised way.	Yes, knew where they were and where they were going: There was frustration in terms of data accuracy before the project, and uncertainty with regards to the ownership and management of assets the company owned. No long term planning for any asset, only when something broke and it affected stakeholders was something done to address an issue.
2	Was there a common vision? And did you buy into it?	1. There was alignment between regional management (geographically scattered BUs) and head office senior management in terms of where we were, the shortcoming of the current state, and where we needed to get to. 2. Centralised, one management system, one IT system. Cannot comment on alignment within each region.	Yes there was a common vision and interviewee bought into it. In the business unit objectives, it was acknowledged that they needed to pay attention to systems and the vendor module was one of the tools identified to aid the business in managing its portfolio.

3	Was success defined differently for different stakeholders, even when there is a common vision. Was the programme (PMO) aware of these different definitions?	1. Yes it was different for different stakeholders. 2. PMO and IT department chased the go-live date and were somewhat inflexible, but because the solution was vanilla it did not affect the project. 3. Senior management expected a system that would enable good business and strategic decisions, and as you go further down the ranks this perspective is lost. 3. Less senior staff saw the new system as additional work while already being stressed and did not always see the strategic benefit. 4. The expectation from the end users is that the system will save time, after the full business transition is complete. 5. Perhaps need a bit of post-implementation change management. 6. PMO was aware of different needs of different stakeholders, especially the difficulties the stakeholders would be experiencing, but they still pushed their own project agenda. PMO saw some of these difficulties and needs as business unit problems.	1. Success was defined in the same way by all the business units what were being merged into one Real Estate department, they had common goals in terms of the benefits that the project would bring. 2. There were differing definitions when it came to the successful implementation of the project. 3. IT was more interested in building and activating the system, 'going live'. 4. The business unit defined the benefits before the project (BR plan) so success was to realise the benefits. 5. The executive were aligned to the realisation of business benefits i.e. aligned to the BU. 6. The PMO's objective was their mandate, which was to deliver the system by a certain date, and were very rigid. The PMO did deliver the system successfully. The main request in the URS was to be able to generate specific reports that are accurate. The rapid deployment solution could not do that, and the PMO was very rigid and did not allow custom reports to be developed,. The end result is that the project did not deliver the critical reports that the business needed. Master data was a success however and is centralised and accessible anywhere.

F	**Business led vs. systems led implementation**		
1	Was the project led by the systems (IT) team or by the business? Elaborate.	1. This was a combined effort (50/50), since the IT resources allocated to the project went on a ERP vendor Real Estate course.2. The business unit was dependent on the IT resources advice.3. The plan of action was usually negotiated and no party dominated another.4. This was mostly due to the business unit project participant having very strong personalities and were not afraid of standing up for their needs, but in a positive way. 5. Had a good team. This could also have been due to the system being vanilla and the business did not really have to modify the work done by the IT stream.	CSF: Having equal strength personalities that are not dominated by any one party.1.The project was led by the IT team.2. Most of the time the IT team would dictate the terms of the engagement, not sure whether it was due to time constraints. 3. Feels that if we were allowing each other a chance to get onto the same page, there would have been a different result.4. Feels that in some meetings the BU reps were not active participants.5. IT had an obsession with delivering within time, and did not take everyone along in the journey. 6. The IT team made it clear that the business owns the system and created the structure to support that, but in terms of the implementation they were lacking.7. It was difficult to communicate and ask for information from the IT team.
G	**Funding Model**		
1	Was your business area funded with regards to the implementation?	1. Yes it was fully funded but a strategic decision was made to cut the scope in order to not delay the project and to get certain immediate benefits. 2. When the decision was made to use internal RE personnel it was understood that the funding would come from within the RE business unit. 3. No external costs to the company w.r.t. consultants.	1. No, there was nothing additional implemented. The reason was that the business unit did not know what would transpire post - go live and therefore did not know what would have been required over and above the project scope. 2. Once the project stopped, so did the funding related to the system 3. Additional projects are deemed change requests, and will be funded after they are sent to an investment committee for approval. This money would come from the IT budget.

2	Did you require any funding outside the programme?	No, see above	Yes, mostly IT related projects need to be funded. These are mostly enhancements to the existing system.
H	**Management of project interdependencies**		
1	Were there any projects outside this programme that were related to the implementation, but not included in the project scope.	1. Yes2. Financial Adobe forms need to be changed to accommodate rental objects for cost collections, can only cost to a cost centre at this point in time.2. This needs to be implemented before you can enable cost per unit reporting. This was missed in the beginning and was not included in the project scope.2. HR payroll wrt to company employees using company real estate. 3. Delivery of month end pay slips to different RE occupied buildings	No
2	How were project interdependencies managed with regards to the implementation?	1. These projects should have been brought a lot closer to the ERP implementation, could have been better managed. 2. No real consequences because these processes can be operated independently. 3. It is only delaying the stage where all the building lists and codes are on the same master database. Still being looked at this point in time.	N/a

I	**Completeness of solution, as related to the desired benefit(s)**		
1	When considering what it would take to achieve the benefits expected from the project, how complete was the solution?	1. Always knew that there were other internal business / business as usual activities that had to be done. 2. But did not want to delay the rest of the project due to the amount of buildings. 3. Cost saving decision was made to develop intellect within the company and that consultants would not be used extensively. Put more pressure on existing employees who had to be trained and get up to speed. System implementation was done in one go, and now there is a need to bring in operational data etc. Plant maintenance module also need to be used in the business unit.	1. Processes: complete 2. Organisation: Change management was incomplete, end users still resisting the system 3. Technology: Still missing customised reports 4. Information: Still cleansing and loading data after the project 5. Had to raise a new request for a post-implementation project to analyse the gap between the system implemented and the needs of the business in terms of custom reports and other functionalities. It would have been more efficient to extend the project to develop these reports. 6. *Why was there a gap?* Different levels of understanding between business and IT. The IT team had a responsibility to ensure the business understood what was going to be delivered. The business reps were never given a demonstration of the system until the testing phase began. 7. The business was just happy to get a system, since the new BU did not have any. A systematic process was missing to test the capabilities in the business., should have used pilot sites.

J	**Path to success**		
1	Did you have a defined and communicated path to the benefits?	Formal plan is being developed *now*, to roll out additional benefits from the new financial year. E.g. capturing all the spacial elements of buildings in database.	1.There was a roadmap which clearly stipulated project outputs and milestones. 2. There was a trajectory estimate of where the benefits should be after about 5 years. 3. Do not know what projects will affect the benefits in future years. 4. Currently not tracking the benefits, since the system has not begun realising any benefits. Busy closing gaps first. 5.The benefits realisation plan looked at all the benefits that were possible if the full URS had been approved, but the URS was only partially approved so some of these benefits will not materialise.
K	**Lessons learned activities post-implementation (both projects and benefits)**		
1	Were lessons learned formally captured post-implementation? If so, how.	Yes	1. Yes they were captured 2. A template was sent out to representatives and it was shared with the business to get business inputs. Was collated by programme manager. Captured a few weeks before go-live and then a few weeks after go-live. 3. The business reps on the project team knew what difficulties might arise post implementation 4. The broader business did not yet fully understand what issues might arise but did have an idea through being involved in the lessons learned process.

2	If yes, has this improved the post-implementation situation?	Information has been fed back into programme and to business unit, but will not have any impact due to the current policies of the company in terms of procuring additional resources.	1. The lessons learned process was concerned with the system implementation process and how that could be improved for future system implementations. 2. The lessons learned did not focus on what the business unit needed to learn in order to realise post implem benefits. 3. However the business unit is currently using the system lessons learned to fix the system issues being experienced now, and this should improve the state of the business as the system is central to many of the desired benefits.

11. APPENDIX D: Business Documentation Register

MDM and SRM Documents (ERP Release 1)	
Document Code	**Generic title**
BD1	ERP Re-implementation Business Case (R1,R2, R3 combined)
BD2	Benefits Realisation Pilot Progress Report (R1)
BD3	Change Management Plan
BD4	Benefits Realisation Pilot Implementation Programme report
BD5	Consulting house assessment of Benefits and Benefits Realisation Study Report
Real Estate Documents (ERP Release 2)*	
Document Code	**Generic title**
BD6	Real Estate Project Business Case (R2 specific)
BD7	Real Estate Project Benefit Realisation Plan
BD8	Real Estate Project Close-Out Report

*R1 documents are also cited during the Real Estate analysis when relevant.

12. APPENDIX E: Semi-structured Interview Questions

Corresp. CSF (A-K)	Business Unit and Project Context
1	Describe the relevant business unit and its function
2	Describe the ERP project
3	Describe the value chain relevant to this project
4	Was the ERP functionality (module) delivered according to the URS?
5	Your role?
	Expected benefits
1	What benefits did the business unit expect from the project?
2	What benefit materialised?
3	What disbenefits materialised
4	What were the critical success or failure factors for realising Post-Implementation benefits from the project in your business unit?
A	**Alignment to corporate goals**
1	Do you think there was alignment between your business unit, the project, the re-implementation, and corporate strategy?
B	**Change management**
1	What is your opinion on how change management was performed during and after the project?
C	**Stakeholder opinion of leadership**
1	What is your opinion of the leadership during the project?
a	Business unit
b	Programme Office (PMO)
c	Executive
D, E	**Definitions of success, and vision buy-in**
1	Was there a clear vision of the current state of the business unit / value, and was a desired future business state communicated?
2	Was there a common vision? And did you buy into it?
3	Was success defined differently for different stakeholders, even when there is a common vision. Was the programme (PMO) aware of these different definitions?
F	**Business led vs. systems led implementation**
	Was the project led by the systems (IT) team or by the business? Elaborate.
G	**Funding Model**
1	Was your business area funded with regards to the implementation?
2	Did you require any funding outside the programme?
H	**Management of project interdependencies**
1	Were there any projects outside this programme that were related to the implementation, but not included in the project scope?
2	How were project interdependencies managed with regards to the implementation?
I	**Completeness of solution, as related to the desired benefit(s)**
1	When considering what it would take to achieve the benefits expected from the project, how complete was the solution?
J	**Path to success**
1	Did you have a defined and communicated path to the benefits?
K	**Lessons learned activities post-implementation (both projects and benefits)**
1	Were lessons learned formally captured post-implementation? If so, how.
2	If yes, has this improved the post-implementation situation?

13. APPENDIX F: Ethics Process for Interviews

The following ethics process was followed:

1. Ethics clearance was requested and obtained through the School Ethics Committee.
2. Permission to conduct the study was requested of and granted by the case organisation.
3. Potential interviewees were contacted and their participation was requested.
4. A letter of consent and a participation information sheet was emailed to each participant before the interview was agreed to and conducted.
5. Interviewees were required to sign the letter of consent.
6. Informed consent will be obtained via letters of consent and participation information sheets.