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Naidoo, Shannon

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Managing Information Technology Project Risks in Electricity Utilities in South Africa

Shannon Naidoo

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2010

ABSTRACT

South African electricity utilities are spending billions of rand on capital expansion projects to address an aging electricity infrastructure where capacity has been outpaced by the growth in the economy. This expenditure will grow both the asset and customer bases of these utilities, resulting in the need for additional spending on information technology (IT) infrastructure. Successful IT projects require an understanding of risk factors and risk treatment strategies. Managing successful IT projects in an economic downturn requires an understanding of the critical risk factors that are essential to avoiding disaster.

This research sets out to identify which South African IT practitioners in the public sector and, more specifically, in electricity utilities determine to be critical risks in the context of an economic downturn and what the treatment strategies would be for the critical risks.

A qualitative approach, using in-depth interviews, was followed to collect data. The analysis of this data led to the extraction of the critical risks and treatment strategies and key themes in the area of IT risk management.

The key findings were that South African IT practitioners in this sector rate traditional IT project management risks as more important than newer technology risks and are still challenged by commercial processes and governance in the public sector. Furthermore, most IT practitioners agree with the literature concerning economic related risks, specifically ones that focus on economic and political contexts. Finally, IT practitioners confirm the literature about the treatment of these critical risks.

The key message for chief information officers (CIOs) and executive management is that there is a view on which IT risks are critical in this sector and, additionally, which ones are related to an economic downturn. Analysis of these risks will highlight structural problems within these organisations that need to be resolved to allow IT projects to be successful.

DECLARATION

I, Shannon Naidoo, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

……

Shannon Naidoo

Signed at ……

On the …….. day of ……. 2010

DEDICATION

I dedicate this to my wife Rumila and children Renisha and Ethan for their support and understanding and for their patience in looking forward to a daddy not studying again soon.

ACKNOWLEDGEMENTS

The journey that this research took me on has been enlightening and challenging at the same time. The knowledge and insight I have gained during this process has been, without doubt, invaluable to me.

Heartfelt and deserved thanks goes to my supervisor, Rabelani Dagada, whose continuous encouragement and enthusiasm for the subject spurred me on to finishing this research.

IT professionals are notoriously difficult to peg down, especially in the rushed pace of the IT world. However, thanks must go to the individuals and their organisations that participated in this research quite selflessly. Their honest and, sometimes, brutal feedback was instrumental in achieving the aims of this research.

A special note must go to my long suffering PA, Ursula Duvenhage, who tirelessly moved my schedule around and gave me the time to focus and complete this research.

Finally, to my fellow MBA students who have stretched this to the very end, thank you for your company and good luck.

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CHAPTER 1: INTRODUCTION

1.1. Purpose of the study

The purpose of this research is to determine the nature of the risks facing information technology (IT) projects in the Electricity Supply and Distribution industry in South Africa with specific focus on the shaping of these risks due to economic constraints caused by the current economic climate and the need for rapid infrastructure development.

1.2 Context of the study

The energy sector in South Africa contributes 15% to the country's gross domestic product (GDP) (GCIS 2007). Electricity generators such as Eskom, which is owned by the state, produce 95% of the country's electricity needs (GCIS 2005). The remainder is produced by Independent Power Producers (IPPs), local municipalities and private generators (GCIS 2005).

The Electricity Delivery Industry (EDI) is restructuring according to the energy blueprint described by government in 2001 (Department of Minerals and Energy 2001). This blueprint describes, amongst other objectives, the provision of reliable, high quality electricity supply at low cost to all parties and to meet the country's electrification targets.

With economic growth a priority of government through the Accelerated and Shared Growth Initiative for South Africa (ASGISA), the development of the electricity sector has been named as one of the major areas of focus (Mbeki 2006). Government had initially indicated electrical infrastructure spending of R93 billion over the next 5 years with a projected R9 billion accounting for electrical equipment (Creamer 2005). These numbers have escalated rapidly to R800 billion to double the capacity of power generation (Venter 2007) over the next 20 years.

With the declaration of a national electricity emergency on the 24th of January 2008, due to the load shedding crisis in January 2008, the South African government together with Eskom were forced to provide for immediate infrastructure spending to cater for unforeseen demand in electricity which amounted to R343 billion (Eskom Group Communication 2008).

The Universal Access business plan (Sebola, Theron and Nel2007) describes the urgent need to electrify the remaining 3.14 million households based on the commitment from government in 2004 to ensure that every household must be electrified by 2012 (Mbeki 2004). According to the business plan, this requires a further infrastructure spending of R24.7bn to meet this target. Eskom currently provides electricity to 4.1 million direct customers (Eskom Group Communication 2008). By 2012, the number of direct customers, without factoring in organic growth, would be 7.24 million. The increase in customers will place additional demands on IT infrastructure as well as business processes.

The increasing spending on electrical infrastructure would also require consequent spending on IT systems and processes due to the increase in volume of assets. In order to successfully manage IT projects requires an understanding of risk factors and risk treatment strategies. The recent global economic downturn will impact government sector spending on IT. Gartner predicted that the impact would be between 10% and 15% on operational IT spending, up to 40% on existing IT projects and all new IT project investment (Di Maio, Claps, Vining, Harris and McClure 2008). These actions could cause risks to business to arise (Nicolett, Proctor and Caldwell 2008) and need to be managed.

1.3 Problem statement

1.3.1 Main problem

Determine the critical risk factors that arise in the management of modern IT projects in electricity utilities in the public sector, thereafter, determine the risk

factors that are critical or related to an economic downturn and establish the treatment strategies for each critical risk identified.

1.3.2 Sub-problems

The first sub-problem is to determine, from literature, the risk factors that arise in the management of modern IT projects in electricity utilities in the public sector. The second sub-problem is to determine which risk factors are considered to be critical or related to an economic downturn. The third sub-problem is to determine the treatment strategies for these critical risk factors.

1.4 Definition of terms

Table 1 - Definition of Terms

Term	**Definition**
EDI	Electricity Delivery Industry
ESI	Electricity Supply Industry
IS	Information Systems
KPI	Key Performance Indicator
NERSA	National Energy Regulator of South Africa
PMO	Programme Management Office

1.5 Assumptions

- There is a universal level of knowledge on the subject of risk in information technology in the public sector despite the relative sizes of the IT portfolio in each organisation and their relative maturities
- There is reasonable access to decision makers or participants in an IT portfolio in each organisation
- There is no top secret information required or desired to continue with the research
- There should not be any political resistance to the nature of the research in any of the organisations that will be approached.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Information technology projects continue to suffer from poor performance despite increases in technology and knowledge on risk management. Brewer (2005), references the Standish Group Chaos reports showing an initial IT project success rate of 16.2% in 1995 rising to 34% in 2003. Cost overruns have decreased from 185% in 1995 to 43%in 2003. These figures represent an extremely poor rate of success, especially considering the role that IT projects play in modern organisations.

Information technology projects in government, specifically, have a poor track record in terms of delivery. Strauss (2006) illustrates this point with the example of the US federal budget placing 23% (n=342) on a watch list over concerns around risk, cost or performance. These projects amount to 15 billion US dollars in terms of budgeted expenditure. While the South African government spending on IT is far smaller, the South African State Information Technology Agency (SITA) showed government IT service provision to the value of R3.1 billion (Parliamentary Monitoring Group 2007) during the 2006/7 financial year and project values of R4 billion (Czernowalow 2007). These projects are subject to the same risks that result in low success rates and cost overruns. Despite this, IT projects are seen as important enablers in assisting the public sector in improving delivery (Karwan and Markland 2006).

Risks are defined as the “chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood” (Standards South Africa 2003). Previously, risks were defined in the context of negative outcomes (Project Management Institute 1992). However, the occurrence of risks can also give rise to opportunities (Hillson 2008). This led to a revision of the definition of risk to: “an uncertain event or condition that, if it occurs, has a positive or negative effect on a project’s objectives” (Project Management Institute 2004).

Risk management deals with the identification, analysis, treatment and continuous monitoring of risks (Standards South Africa 2007). The Project Management Institute (PMI), additionally, adds the element of risk planning to the definition (Project Management Institute 2004). These standards have been adopted as best practice.

The literature review identified current risk factors that are applicable to IT projects in the public sector, their relative criticality in the context of an economic downturn and their possible treatment strategies.

2.2 Determining applicable risk factors

Any literature search reveals a host of sources around the determination of risk factors using various groupings to categorise the risk based on their sources. The PMI, in its chapter on risk management, states that the categorisation of risks can be based on the sources of risk, the phase of the project or any additional category that allows the identification of uncertainty (Project Management Institute 2004).

A comprehensive international study polled project managers to provide a list of 53 risk factors (Schmidt, Lyytinen, Keil and Cule 2001) that were further grouped into 14 categories. The study asserts that the categorisation of these factors make the understanding and therefore use, of the risk factors easier.

Due to the use of risk assessments in a variety of domains, standards bodies have also provided risk categories for general applications. Both Standards Australia and Standards South Africa have adopted 8 categories for grouping risk factors (Standards South Africa 2003). These are commercial and legal relationships, economic circumstances, human behaviour, natural events, political circumstances, technology and technological issues, management activities and controls, and individual activities.

The literature review has been structured using this approach and this mirrors that of Baccarini, Salm and Love (2004). These categories provide the initial

basis for the grouping of the risk factors integrated with additions from available literature providing both additional groups as well as additional risk factors.

What follows is an integration of various literature sources identifying risk factors applicable to the public sector and the collation of those applicable risks into the categories identified above.

2.2.1 Commercial and legal relationships

Outsourced IT projects are the sources of vendor risk that arise when contracting projects to external vendors rather than in-house development teams (Natovich 2003). Gartner research indicates that outsourcing of IT services has shown consistent increases since the mid-nineties and that further levels of IT outsourcing will be expected (Young and Anderson 2008).
Natovich (2003) further describes three vendor risks that arise:

Adversarial relationships and loss of trust between vendor and client

Outsource contracts rely on a level of trust between the parties and differ from in-house developments in that the trust is harder to establish due to the lack of a prior relationship and the nature of the contract defining penalties and performance criteria (Sabherwal1999). Maintaining communication and having a cultural understanding rate as key contributors to establishing and maintaining trust (Nguyen, Babar and Verner 2006).

Vendor de-escalation of commitment

The role of the vendor's management in maintaining a commitment to the project is taken for granted by the client due to the binding nature of the contract (Natovich2003). However, changes in the vendor organisation, with respect to strategy or business environment, can lead to the de-escalation of commitment.

Difficulty in breaking the contractual engagement

In a troubled project, both parties are so bound by the actual contract that they attempt to find breaches in contract by the other party so as to avoid “losing points” in a legal battle that may follow (Natovich, 2003). This results in an effective stalemate leading to inaction.

Baccarini et al (2004) cite Krasner (1998) for the following vendor risks:

Inadequate third party performance

The selected vendor or contractor is unable to perform to the specification required.

Litigation in protecting intellectual property

Krasner (1998) indicates that inadequate protection of intellectual property rights may result in loss of market potential and the possibility of litigation costs. In an outsourcing relationship, the laws of another country could influence the ownership of intellectual property (Yates and Arne, 2004).

A survey carried out by Lin, Pervan and McDermid (2007) studied the issues in evaluating outsourcing contracts in public sector organisations in Australia. The following risks were identified:

Problems in carrying out IS/IT outsourcing contracts evaluation

Organisations assume that contract control, specified within the service level agreements (SLAs), constitute formal evaluation methodologies and do not make use of benefits realisation approaches. There were no significant differences between public and private sector organisations.

Embedded contract mentality

Organisations did not implement qualitative or formal metrics and relied on terms specified in the contracts and SLAs to provide progress views.

Ability to manage contracts

Organisations do not have the necessary skills to manage contracts leading to contractors dominating the IT decision making process.

Yates and Arne (2004), describe additional legal risks that may impact IT projects as:

Revenue recognition

The rules regarding the recognition of revenue for IT vendors has an impact on clients with different policies. Contracts placed may have certain expectations built in to show early revenue recognition for the client which can undermine delivery linked contracts.

Regulatory risks

Companies are required to be in compliance with regulatory frameworks as a result of the Sarbanes-Oxley Act and would therefore require a greater assessment of risks.

South African electricity utilities are required to comply with the governance as stipulated by the National Energy Regulator of South Africa (NERSA) which includes, amongst others, the provision of performance metrics for utilities and the regulation of tariffs (Republic of South Africa 2006). Failure to reach performance targets affects tariff increase approvals and results in reduced capital expenditure for all departments, including IT.

Public entities are held financially accountable through the public finance management act (PFMA) which specifically tries to address fruitless and wastefulness or irregular expenditure of public funds (Republic of South Africa 1999).

Open source risks

The growing use of open source software either embedded in solutions or as standalone components has meant that organisations need to be

wary of upstream intellectual property concerns, incomplete ownership of solutions and intellectual property attacks due to lack of information regarding warranties and indemnities.

Insurance risks

Errors and omissions policies in contracts are often used as a means to deny accountability in delivery of services. Third party litigation can be brought against clients requiring commercial general liability insurance. Disruptions to business continuity can occur as a result of corruption of computer code, software and specific data.

Kliem (2004) considers legal risks applicable to offshore development models:

Import/export restrictions

Trade barriers can impact the options available to projects in terms of technology, information and project resources.

Privacy

Specific data cannot be released to unauthorised people.

2.2.2 Economic circumstances

Benaroch (2002) describes the following risks:

Competitive risks

Competitors could take action that undermines or introduces risk to current projects. Competitors could also create better products.

Market risks

> Regulatory bodies, customers or vendors may institute changes that affect the investment made in the IT project resulting in unanticipated changes in approach or direction.
>
> The introduction of an IT application may introduce behaviour that changes the market considerably resulting in the project benefits being eroded.
>
> New advancements render older technology obsolete, affecting customers and vendors.

Cai and Treisman (2005), discuss the impact of capital competition in the public sector:

Competition for capital

> Differences in natural resources, human capital or infrastructure will have the effect of draining capital from other regions.

Enslin-Payne and Brown (2008), describe the impact that credit de-rating has on Eskom's funding plans.

Credit rating

> Companies that try to raise funding in markets are subject to ratings agencies views on the ability of the company to pay back loans. The rating in this case for Eskom was dropped three levels (Moneyweb, 2008) as the health of the organisation's balance sheet was questioned against the borrowings being tabled. In the South African context, public sector organisations are still required to maintain healthy financial performances to raise capital for projects. A lower rating increases the cost of capital for new or existing projects.

Lam (2004), describes a set of risks, although specific to the enterprise integration type of IT project, can be used to describe a general risk:

Poorly written business cases

> Business cases that cannot articulate clear business benefits and consequently strong return on investments (ROI) will not gain support and may be stopped altogether. Changing business conditions over a period may further, adversely impact the management support for a project. A lack of a business case is equally risky for projects as value cannot be identified and projects may lose executive support (Kappelman, McKeeman and Zhang 2006).

Kliem (2004), describes financial risk factors that can adversely impact projects:

Currency exchange fluctuations

> Projects that make use of offshore models may be required to make payment in a foreign currency. Fluctuations in currency can lead to widely varying costs.

Management reserve

> Insufficient contingency funding may lead to projects being abandoned or delayed as further funding is sought.

Project abandonment is regarded as a consequence of risks not being managed and it does create additional risks (Iacovou and Dexter 2005; Ewusi-Mensah 1997).

Project abandonment

> Cancelling a project can impact the IT portfolio and hence other projects by not resolving dependencies and resource availability issues.
> Financial impacts on the client and the vendors can arise.
> Loss of credibility could occur to all parties involved which may affect further dealings.

2.2.3 Human Behaviour

Weak project manager

Project managers are required to lead teams and communicate well. Project managers who were recently promoted from programming tasks have to contend with “directing” as opposed to “doing” the work. This places immense pressure on them being able to meet scope, budget and reliability commitments (Kappelman, McKeeman and Zhang 2006).

Cultural differences

Particularly in offshore development projects where the vendor and client teams come from different cultures, misunderstandings can occur as language is based on cultural assumptions and common reference points are not always available (Nakatsu and Iacovou 2009).

2.2.4 Political circumstances

Politicization of projects

Gauld (2007) indicates that public sector projects are often under greater media and political pressure due to the expenditure of public funds. This creates additional pressure for project decision makers. Additionally, these projects are subject to multiple reviews which may lead to confusion in the decision making and implementation process. Projects in the public sector have a public return on investment (public ROI) that may have influence on government actions or policy (Cresswell, Pardo, Burke and Dadayan 2007).

Governance volatility

This relates to the changes of project managers or sponsors (Sauer, Gemino and Reich 2007) on projects that negatively affects project performance.

Political interference

Gauld (2007) describes the case of a public sector information project for a New Zealand hospital that failed and cites political interference in decision making as a contributing factor.

Change of administration

Changes in administration bodies governing public sector organisations can lead to discontinuities with decisions already made. This can lead to a break in communication with the controlling authorities (Strauss 2006).

Lack of top management support

Projects that are started “bottom up”, or in departments that do not have the required support across the enterprise, often conflict with enterprise priorities (Kappelman et al 2006).A lack of continued political support from top management could be a critical contributor to project abandonment (Pan and Flynn 2003).

Restructuring of organisations during projects

The electricity sector is currently restructuring (Department of Minerals and Energy 2001) and will continue to do so affecting the entire electricity supply and distribution industries. This change can be disruptive and can exert negative influences on IT projects (Doherty, King, Al-Mushayt 2003; Wallace, Keil and Rai 2004).

2.2.5 Technology and technological issues

Introduction of new technology

New technology, described as bleeding or leading edge, can affect projects due to the organisations or project teams lack of implementation experience (Schmidt et al 2001). The introduction of incompatibilities or software errors can result from technology choices (Warkentin, Moore, Bekkering and Johnston 2009).

Lack of a suitable communications infrastructure

IT projects require a network infrastructure capable of supporting the solution (Kliem 2004).

2.2.6 Management activities and controls

Lack of documented requirements and/or success criteria

The lack of documented requirements, be it functional, performance or reliability requirements, creates differing expectations and undefined success criteria (Kappelman et al 2006; Kliem 2004)

No change control process

Despite being fixed, requirements on IT projects can change due to changes in business processes, technology changes, management influences or market induced change. Projects are, therefore, required to manage the change process (Kappelman et al 2006; Schmidt et al 2001). A lack of prioritisation of change requests, are also indicative of a poor or non-existent change control process (Kliem 2004).

Ineffective schedule planning and/or management

Projects that have poor milestone definitions, unrealistic milestones and poor sequencing of activities will create confusion around which tasks need to be completed and the timing of the tasks. This creates downstream delays and misalignments (Kappelman et al 2006; Krasner 1998; Baccarini et al 2004).

Resources assigned to a higher priority project

Reassignment of resources to other projects is highly disruptive to the current project, often affecting the overall delivery of the project (Kappelman et al 2006).

Communication breakdown among stakeholders

Project stakeholders need to be kept up to date with possible changes to the project. Any failure to do so can lead to a lack of support from key stakeholders and a loss of consensus on project success criteria (Kappelman et al 2006; Chua 2009; Wallace et al 2004). Decisions, particularly, need to be communicated to stakeholders (Kliem 2004).

Use of an inappropriate methodology

There may be no singular correct methodology but rather a “best fit” approach for the project. Rapid prototyping can be used where there is a lack of definite understanding of the total requirement. The iterative nature of this approach provides for converging with the best solution (Tiwana and Keil 2004). An improperly structured development can lead to a lack of meeting user requirements (Keil, Tiwana and Bush 2002).

Lack of customer involvement

Customers need to be involved in the development process to ensure correct delivery of the solution (Tiwana and Keil 2004).

Lack of formal project management practices

A formal project management practice or methodology, including formal plans, schedules, budgets and milestones, can reduce software project risk (Tiwana and Keil 2004; Schmidt et al 2001; Wallace et al 2004; Kliem 2004).

Dissimilarity to previous projects

The project may involve a technology that has not been used in prior projects (Wallace et al 2004). Prior project experience can be used in project plans, design rationales and problem solving processes (Tiwana and Keil 2004).

Project complexity

This can consist of both organisation and technical complexity (Tiwana and Keil 2004). Organisational complexity deals with coordination challenges. Technical complexity deals with the interdependencies with other IT systems. The size of a project can also have a bearing on its complexity with respect to duration with longer projects being more risky (Sauer et al 2007).

Requirements volatility

Any changes in requirements, makes it difficult to build to a target. This can arise due to business environment changes or fickle customers (Tiwana and Keil 2004). Requirement volatility can result in changes to schedule, budget and scope which require good project governance (Sauer et al 2007).

Kappelman et al (2006), describe six people-related risks based on early warning signs of IT project failures:

Weak commitment of project team

Achieving milestones and project objectives requires concerted effort and any team member that is not committed to the tasks assigned will find other activities to work on, thereby compromising delivery. Sponsors often place unrealistic pressure on teams which increases the lack of commitment (Kappelman et al 2006).

Team members lack requisite knowledge and/or skills

The technology being implemented often requires specific knowledge by the team members to overcome product related risks (Kappelman et al 2006). As a result, the standard of work may be poor, due to the lack of training and/or experience of staff (Wallace et al 2004).

Subject matter experts are overscheduled

Subject matter experts (SMEs) are expected to provide guidance to project teams while retaining their normal outputs. This creates additional load for the SMEs and creates risks for projects (Kappelman et al 2006).

2.2.7 Individual activities

Goldplating

This involves over specification of results from teams that are too focused on the detail and lose sight of the project objectives (Wallace et al 2004; Addison and Vallabh 2002).

Unrealistic expectations

Schmidt et al (2001), identified that mismatched expectations can be a cause of project failure in the context of both finite specifications and relationship management.

2.2.8 Research question 1

What are the critical risks that South African electricity utilities will prioritise in the execution of information technology projects?

2.3 Critical risk factors based on an economic downturn

Despite the masses of research available, there is relatively little research surrounding risk factors within the current, global economic challenges. This literature gap will more than likely be filled soon considering that the full effects of the economic slide has only materialised in late 2008. Research organisations in the IT arena are already advising clients of possible IT risks that will have a material impact. Despite the effects, the traditional risk factors identified are still valid and will not be re-analysed here.

Gartner industry research performed a survey in the public sector of 81 organisations to name the following top issues as a result of the economic downturn (Di Mao 2009):

- Budget reduction
- Staffing
- IT funding
- Prioritisation
- Value of IT
- Sourcing and supplier risk
- Legacy modernisation.

Each issue contains either a singular risk or represents a risk category identified earlier in the literature review.

2.3.1 IT budget reduction

The reduction in IT budgets is an obvious reaction by organisations to an economic slide. Companies are more concerned with survival than spending on IT with the result that non-core activities will be regarded as cash drains and will be trimmed (Cusumano 2009). However, the budget cuts may be more severe for IT departments than for other services in the public sector (Di Maio 2009). In the context of electricity utilities growth requirements, this infrastructural spending will be prioritised above IT spending (Sebola et al 2007; Venter 2007). Leaders in the public sector will expect IT service levels to be maintained

regardless of budget cuts, giving rise to the following risks identified earlier in the literature review:

- Project abandonment
- Competition for capital.

2.3.2 Staffing

Hiring freezes will prevent the hiring of the right talent and result in not being able to replace skills that are no longer needed. This may result in a decrease in staff morale and may impact on any innovation on new projects and technologies (Di Maio, 2009). This gives rise to the following risks identified earlier in the literature review:

- Introduction of new technology
- Team members lacking requisite knowledge and/or skills
- Subject matter experts being overscheduled.

2.3.3 IT funding

The funding of projects, irrespective of their priority, will be questioned by investment decision makers. The specific focus will be on the funding of those projects with a quick ROI, innovation projects and regulatory mandate driven projects (Di Maio 2009). These projects will tend to compete with each other for capital. This issue raises risks, primarily, around investment and capital availability:

- Competition for capital
- Poorly written business cases.

2.3.4 Prioritisation

Prioritisation of projects in a portfolio now take precedence as organisations will be forced to choose their investments more carefully and either cut or delay the lowest priority projects (Di Maio 2009). However, the act of prioritisation can

become politically charged as stakeholders vie for their own projects ahead of others (Alter 2004). Trying to incorporate special requests or off plan projects can result in delays elsewhere in the portfolio as resources are marginalised, often on the major projects (Artunian 2005). In multi project settings, as is the case of a portfolio, changes to project resourcing can be construed as a risk contributor and results from a need to reprioritise projects (Kaulio 2008). Therefore, this issue can raise the following risks identified earlier in the literature review:

- Politicisation of projects
- Project abandonment
- Lack of top management support
- Political interference
- Ineffective schedule planning and/or management
- Resources assigned to a higher priority project
- Communication breakdown among stakeholders
- Difficulty in breaking the contractual engagement.

2.3.5 Showing the public value of IT

Di Maio (2009) points out that respondents to the survey indicated a need to re-emphasise the value to the public of spending on specific IT initiatives. This is required to ensure credible, continued support for IT expenditure. As a result, the requirement is for more concrete financial returns and clear benefits realisation statements aligned to the organisation's public goals and political aims. The risks raised for this issue are:

- Lack of top management support
- Politicisation of projects.

2.3.6 Sourcing and supplier risks

Vendor risks could become more acute during an economic downturn as clients' concern for vendor viability as a result of their possible skills losses due to lowered sales make them more apprehensive (Di Maio 2009). In a recent article

in The Economist (‘Here we go again’ 2009), technology companies IBM and Microsoft are described as potentially cutting 16 000 employees each and that Intel, a microchip manufacturer, may drop quarterly revenues by 20%. These companies provide products that are used by most large enterprises. Vendors may, therefore, be willing to consider better deals for the public sector as a result of the lowered demand. Open source options may become attractive alternatives but the usual technological concerns around maturity, stability and support remain. The risks that this issue gives rise to:

- Adversarial relationships and loss of trust between vendor and client
- Revenue recognition
- Open source risks
- Market risks
- Competitive risks
- Currency exchange fluctuations.

2.3.7 Legacy Modernisation

Organisations are faced with the challenges of ageing applications and technology that will have less support as baby boomers retire, taking their technical expertise with them (Vecchio 2009). These legacy systems will need to migrate to newer platforms and technologies to mitigate risks of support and future sustainability. However, the pace of this modernisation will be felt as organisations will be forced to maintain existing technologies and redirect funding elsewhere (Di Maio 2009). This raises the risk of older technologies still having to be maintained alongside newer technologies, creating challenges for the retention of the right skills (Vecchio 2009). The following risks become pertinent:

- Technology obsolescence/legacy modernisation (from above)
- Team members lack requisite knowledge and/or skills
- Subject matter experts are overscheduled.

2.3.8 Research question 2

The greater the demands of infrastructural growth in South African electricity utilities, coupled with the increasing negative impacts of a global downturn, will cause public sector companies to prioritise risks such as adversarial relationships and loss of trust between vendor and client, revenue recognition risks, open source risks, market risks, technology obsolescence/legacy modernisation risks, knowledge and/or skills risks in teams, over-scheduling risks of subject matter experts, politicisation of projects risks, project abandonment risks, lack of top management support, political interference risks, ineffective schedule planning and/or management risks, introduction of new technology risks and competition for capitalabove the multitude of traditional IT project risks.

This gives rise to the following research question:

Which risk factors in IT projects are determined to be more important to consider in an economic downturn?

2.4 Risk treatment strategies for critical risks

Risk treatment strategies involve the selection, planning, monitoring and controlling of actions to mitigate risk (Standards South Africa 2007). This approach outlines, in essence, a process for management of risk that has to be continuously applied (Project Management Institute 2004). Each of the risks, identified in the literature review as critical for public sector companies within the context of current economic and growth requirements, are given possible treatment strategies from existing literature. Several risk treatments are similar and have been grouped accordingly.

2.4.1 Adversarial relationships and loss of trust between client and vendor

As identified earlier, trust is an essential element in both the establishment and the maintenance of a relationship especially in an outsource context. Nguyen et

al (2006) further describe the factors that are important to establishing trust as cultural understanding, creditability and capability. Should there be unexpected changes required to a project, trust forms an important part alongside structural controls for preventing adversarial behaviour (Sabherwal 1999). The quality of the relationship can, and often does, have a bearing on the outcome, be it the project or a specific deliverable as clients attach the same or more importance to relationship factors than the actual quality of the deliverables (Russell and Chatterjee 2003). Maintaining trust is, therefore, essential to mitigating against this risk continuously, and is achieved by frequent communication between the vendor and the client, ensuring that the vendor's capability for delivery is present throughout an assessment of the quality of deliverables. The contract is conformed to using project structural controls and ensuring that the cultural alignment between the parties is addressed (Nguyen et al 2006; Russell and Chatterjee 2003). Contracting mechanisms can also undermine relationships and introduce risks on projects by providing mismatches between the need to protect against risk and the risk expectations of clients and vendors (Lichtenstein 2004). Mechanisms to reduce client long term risk and to ensure vendor sharing of some long term risks, must be built into contracts and contracting mechanism (Lichtenstein 2004).

2.4.2 Revenue recognition

Yates and Arne (2004) suggest the following:

a) Having an outside accounting firm review contracts for conformity with revenue recognition requirements. Large public sector organisations such as Eskom have standard contract templates either internally created or based on an international standard (Eskom Holdings Limited, 2009).
b) Revenue recognition guidelines are approved by a board of directors and external auditors.
c) Understand the revenue recognition requirements of IT vendors involved with the organisation. This could involve the placement of statements to that effect in the issuing of public tenders.

d) Educate the executive team concerning the guidelines. Additionally, the education of programme and project managers involved in the negotiation and contracting activities would also be advisable.

2.4.3 Open source risks

As identified earlier, the primary risk with open source products stems from the misunderstanding of the legal implications of widespread usage in the organisation. Yates and Arne (2004) provide the following recommendations:

a) Software developers need to be made aware of the legal ramifications and the various licensing restrictions including the fact that free code is subject to copyright. Giera (2004), further, mentions that organisations need to be aware of their choice of licensing model so as to avoid infringing on copyrights or become liable for warranties under certain licence conditions.
b) Develop internal training and focus on acquiring skills to deal with open source products (Giera 2004).

2.4.4 Technology obsolescence/legacy modernization

Legacy systems that remain in the organisation due to lack of IT funding and re-prioritization exercises are complex and reflect the conflicting business rules of different parts of the organisation (Kost 2003). Reanalysing these embedded business rules and resolving the organisational differences in rules can provide opportunities for improving service delivery without expending significant cost on new technology.

2.4.5 Project, people related risks and new technology

The treatment strategies for the following risks have been grouped as they are interrelated and overlap in their approach from literature. The risks are:

- Team members lack requisite knowledge and/or skills
- Subject matter experts are overscheduled

- Ineffective schedule planning and/or management
- Introduction of new technology.

One of the challenges related to having the appropriate skills in a team is retaining those skills. Despite a differential in pay between public and private sectors, staff can be retained if elements of organisational commitment can be addressed through training and mentoring programmes and the cultivation of shared norms and beliefs (Thatcher, Stepina and Boyle 2002). The training and mentoring would also aid addressing the shortage of subject matter experts and ensuring that all team members acquire the requisite technical knowledge demanded (Kappelman et al 2006). Klein, Jiang and Tesch (2002), describe a team composed of professionals each with different strengths in the perspectives (areas) of user, technical and sociopolitical. These perspectives align with risk categories of user, technical and political. They argue that this combination of traits in a team makeup, are more successful at projects than teams that are purely technical. A Gartner survey of failing IT projects in the public sector suggests that the project managers are given career paths with training and certification to deal with the complexities of modernisation and transformational projects (McClure 2006).

2.4.6 Politicisation of projects, political interference and lack of top management support

These risks have been combined as the risk treatment evolves primarily from the need to deal with stakeholder management and communication. The ability of the executive or senior leader to navigate organisational politics by building coalitions, co-opting bystanders and influencing, negotiating and cooperating with powerful allies on projects, is essential (Peled 2000). In an Australian study, executives were found to have a greater awareness of environmental conditions and factors that contributed to project success (Standing, Guilfoyle, Lin and Love 2006). This appears to confirm the role of executives in project success to mitigate against the risk of failure (Chua 2009).

2.4.7 Market risks and project abandonment

Having already acknowledged that project abandonment has a negative impact on the rest of the portfolio, the use of a portfolio management approach, as in investment management, to deal with the portfolio of projects would be ideal (D'Amico 2005). If a project has to be delayed and, therefore, affects dependant projects, this could have a negative impact on the portfolio net present value(NPV) and, thereby, raising the investment risk and forcing changes to the portfolio (Bardhan, Bagchi and Sougstad 2004). The explicit recognition and understanding of dependencies and the identification of common risks and trends are, therefore, beneficial (Olsson 2008). The alignment of these projects with the organisations strategic goals is essential to effective management of the portfolio (D'Amico 2005). This alignment will assist in the response to the need to abandon projects as a response to market, financial or regulatory conditions.

2.4.8 Competition for capital

With IT budgets under pressure and less capital to go around, the immediate impact will be on investment confidence in existing IT projects (Di Maio 2009; Buchanan 2009). Gartner recommends that key cost and key risk indicators be measured on existing running business cases to ensure that decision makers are aware of benefits and start to respect and commit to further investment (Buchanan 2009). Transformational, operational and growth categorisation of these IT projects, allows business to classify and prioritise spending and allocation of capital accordingly. Without this alignment between spending and business goals, all IT investments would be seen as speculative (Buchanan 2009).

2.4.9 Research question 3

In summary, with the increasing likelihood of these critical risks arising, it would be more likely that the treatment strategies would be focused on establishing and maintaining trust relationships to avoid adversarial relationships and

adjusting contracts to reflect recognition of revenue guidelines of both clients and vendors to avoid legal implications. Furthermore, educating software developers around open source licensing and legal requirements, using executives to build coalitions and co-opt powerful allies, implementing portfolio management approaches, assessing risk across multiple projects and aligning projects with business goals to avoid speculative concerns, would serve as effective risk treatment strategies.

Understanding the prioritisation of treatment strategies and their application to critical risks identified in an economic downturn, leads to the question:

What are the treatment strategies identified for the critical risks in an economic downturn?

2.5 Conclusion of Literature Review

There is a rich body of literature available on IT risk factor identification, ranking of risk and treatment strategies. Schmidt et al (2001) establish a comprehensive list of risk factors (n=53) that serve as a basis for further studies by Wallace et al (2004).Two South African studies reaffirm the highest ranking risks and confirm the generic list of risk factors with a listing of ten risk factors (Addison and Vallabh 2002; Smith, Eastcroft, Mahmood and Rode 2006). Selecting the risks that may be applicable to electricity utilities was not easy as there is very little research in this context. However, as the utilities in South Africa are part of the public sector, this body of research turned up risk factors on IT project failures by way of case studies and surveys.

The effect of the economic downturn on public sector companies executing IT projects, has not entered the domain of academic studies and research was sought from Gartner Research and Forrester Research surveys. These provided direction to the current issues impacting IT risk factors and treatment strategies. However, a final list of 47 risk factors was identified as applicable to the main problem and included new factors as well as standard risk factors from literature. Of these 47 risks factors, 20were identified from literature as being relevant to an economic downturn and South Africa's growth requirements.

Treatment strategies overlapped across these 20risk factors as the solutions to managing risk often have similar approaches.

2.5.1 Research Questions 1 and 2

The greater the demands of infrastructural growth in South African electricity utilities, coupled with the increasing negative impacts of a global downturn, will cause public sector companies to prioritize these risks above the multitude of traditional IT project risks:

- Adversarial relationships and loss of trust between vendor and client
- Revenue recognition risks
- Open source risks
- Market risks
- Technology obsolescence/legacy modernisation risks
- Knowledge and/or skills risks in teams
- Over-scheduling risks of subject matter experts
- Politicisation of projects risks
- Project abandonment risks
- Lack of top management support
- Political interference risks
- Ineffective schedule planning and/or management risks
- Introduction of new technology risks
- Competition for capital.

This provided the basis for 2 research questions:

What are the critical risks that South African electricity utilities will prioritize in the execution of IT projects?

Which risk factors in IT projects are determined to be more important to consider in an economic downturn?

2.5.2 Research question 3

The increasing likelihood of these critical risks arising, the more likely that the treatment strategies, based on the literature surveyed, will be focused upon:

- Establishing and maintaining trust relationships to avoid adversarial relationships with vendors
- Adjusting contracts to reflect recognition of revenue guidelines of both clients and vendors to avoid legal implications
- Educating software developers around open source licensing and legal requirements
- Using executives to build coalitions and co-opt powerful allies
- Implementing portfolio management approaches and assessing risk across multiple projects
- Aligning projects with business goals to avoid speculative concerns.

Therefore, the research question becomes:

What are the treatment strategies identified for the critical risks in an economic downturn?

CHAPTER 3: RESEARCH METHODOLOGY

The intention of the research was to gain an understanding of how South African electricity utilities treat risk on IT projects. The research approach was, therefore, partly exploratory as the considerations around the treatment of IT risk in an economic downturn, specifically in the electricity utility sector, was recent and had not been well documented. The research methodology makes use of the qualitative approach using in-depth interviews designed to solicit the way risks are acknowledged and treated in the electricity utility sector and to determine whether the treatment of these risks had changed due to the recent economic downturn.

Three research questions were formed that were used to direct the interview process. The researcher would then use open ended questions to gain a deeper understanding of the reasons behind the perception of the risk factor and its treatment in the context of projects and their environments.

3.1 Research methodology /paradigm

The qualitative research paradigm allows for the study of phenomena in real world settings in an attempt to study the complexity of the problem (Leedy and Ormrod 2005). As there is little research in the South African electricity utility sector as to how IT risk is managed or treated and, specifically, whether the basic identification and treatment of risk has changed. The qualitative approach allows multiple perspectives and possible new insights to be uncovered that may underline the subject of IT risk management. Jaeger and Halliday (1998) describe the use of an exploratory approach as a means to gain new insights from which hypotheses can be generated and tested with confirmatory research approaches.

3.2 Research Design

The use of in-depth interviews was chosen as the appropriate interview method to try and extract themes or patterns concerning the identification and treatment

of IT risks. Despite the challenges of engaging senior people in this sector with respect to getting the required time to conduct an in-depth interview, the benefit of allowing more detail and context about the subject area to be uncovered provides a good fit against an exploratory research approach (Boyce and Neale 2006).

Boyce and Neale (2006), furthermore, describe the disadvantages of in-depth interviews as being prone to bias, time intensive, not conducive to generalisation and requiring appropriate interviewing technique.

As part of the preparatory process, the researcher removed the rating of those risk factors from the literature review that would influence the respondent's thinking in assessing the risk factor and determining its relevance to research questions 1 and 2. Therefore, the initial interview response would be based on the respondent's own knowledge and then further explored.

As the pilot interview yielded an average time of about 2 hours, the respondents were advised and scheduled in advance. The researcher would record the interviews electronically and take interview notes as well, in order to contextualise the resultant transcriptions.

To address the lack of generalisation caused by the small samples size and lack of random sampling, other data sources had to be considered. The researcher chose to use the main themes and the commonly identified risk factors to correlate with the official documented information in the programme management offices (PMO).

The development of an interview protocol would be required to ensure a level of standardisation in the execution of the interviews (Boyce and Neale 2006). The creation of an interview guide would be included as part of the confirmatory email communication for the interview. As the respondents were all IT professionals, there was no need to develop multiple guides.

3.3 Population and sample

3.3.1 Population

The population is defined as all IT professionals that are participating in or leading IT projects in South African electricity utilities. In the public sector, although almost all utilities have an internal IT team, the execution of projects is carried out by both internal and externally contracted resources including vendor IT professionals, system integrators, third party contracted providers and independent contractors.

3.3.2 Sample and sampling method

This research made use of purposive sampling as the types of individuals involved in IT risk management and, hence, IT projects, fulfil typical roles in the decision making of IT projects (Leedy and Ormrod 2005; Hanford 2009a; Hanford 2009b; Hanford 2009c). These decision-making roles would expose them to the types of project and steering committee meetings where all project aspects, especially risk, would be discussed and adjudicated over. Purposive sampling allows the researcher to include “outliers” normally excluded in quantitative research in order to highlight, by way of juxtaposition, the richer set of information that can be analysed (Barbour 1999; Barbour 2001).

To avoid bias in the sample, respondents from both vendor and client organisations were surveyed that were participants on projects. This was essential in order to allow perspectives from both sides and for a removal of client bias, typically, in questions surrounding vendor risk. The Enterprise Architect (EA) role was included as they have a broader view of projects in their respective organisations and will more than likely be involved in more than one project at any given time (Weiss 2006).

Table 2 below describes both the role of the participant and the number to be sampled.

Table 2: Profile of respondents

Respondent Type	Number to be sampled
Programme Managers	5
Project Managers	5
Sponsors	5
Enterprise Architects	5

3.4 The research instrument

The challenges for executing an in-depth interview around risk factors centre around the fact that not all respondents would have explicit knowledge in an interview setting of all the risk factors included in the research. Therefore, the questionnaire was developed by including the risk factors in the document and adding a brief description of each risk factor summarized from the literature review. The questionnaire was circulated via email to the respondents in advance of the interview so as to familiarise themselves with the questions and the actual risk factors applicable to themselves.

The lack of specific rating categories for the risk factors of probability and occurrence (high/medium/low) allowed the researcher to explore the exact reasons behind the respondents understanding of the risk factor and their experience behind their assessment of the risk. This qualitative measure of risk could then be unpacked further in line with research question 3 (Project Management Institute 2004; Standards South Africa 2007).

3.5 Procedure for data collection

The PMO of Eskom Holdings Ltd was contacted for a list of projects that have been executed over the past year. The project resource structures for each project yielded the names of individuals involved in projects. Each individual identified as a suitable candidate through their role on the project, received an

email with the questionnaire attached and an introductory letter explaining the nature of the interview request. A telephone phone call was made to follow up and confirm an appointment with an email meeting request. As the candidates were not in the employ of a single organisation, most of the scheduled interviews were made to accommodate their schedules and occurred at their site offices.

Each of the respondents' interviews was recorded electronically. During the interview, the researcher noted specific observations including examples, key events, possible themes and notes for triangulation in an interview comment book. The aim was to provide as much contextual information for the data analysis (Boyce and Neale 2006).

Despite only a few explicit calls for confidentiality as part of the initial contact process with the respondents, the interviewer chose to maintain confidentiality of the respondents and made this an explicit action at the start of the interview.

Documentation for the evidence of risks on projects discussed by the respondents was sought via the PMO and via the decision makers and leader on IT projects.

3.6 Data analysis and interpretation

The interview transcripts were studied using a qualitative content analysis technique where instead of coding, the key issues or themes were identified and analysed in context using the additional data provided by the researcher's interview comment recordings as well as general observations during the interview (Wilkinson and Birmingham 2003).

Elements of relational analysis (Wilkinson and Birmingham 2003) were also employed to determine if the resultant themes were based on other, overarching relationships. The results of these were modelled with a conceptual mapping tool CMAP from the Institute for Human and Machine Cognition (IHMC).

The results were compared with the literature to determine if this local sector did, in fact, experience and treat IT risk similarly to the markets studied in the literature.

3.7 Limitations of the study

There were only 10 electricity organisations apart from Eskom Holdings Ltd that had IT departments of a size with which to have had valuable interaction. Furthermore, only 4 of these had organisations that had a licence for both generating and distributing electricity which make them comparable to Eskom and, hence, affected by the economic and local growth constraints. This affected the diversity of the sample size and, as a result, more service providers to these organisations had to be canvassed to meet the sample requirements. Despite this, there may exist a bias within the sample toward a few organisations that may affect the ability to generalise the findings.

3.8 Validity and reliability

3.8.1 External validity

External validity determines the extent to which this research could be generalised to other contexts (Leedy and Ormrod 2005). This transferability is based on an adequate and sufficiently varied sample (Malterud 2001).In unpacking the sampled respondents, the intent had been to have interviewed individuals from diverse companies to ensure that they had had experience in all parts of the public sector. This has been partly achieved. However , most of the experience centres around Eskom. This means that caution must be exercised in attempting to generalise the results across, for example, the private sector where, although half the sample have had private sector experience, not all their experience of risk would be isolated within a specific sector.

Additionally, despite the definition of the population as being all IT professionals who have worked or managed projects in electricity utilities, there may be large numbers who have not managed but participated at a junior level and left.

These professionals would have had the same exposure to risk and its consequences but are not part of the population defined. A large proportion of IT professionals may have left the public sector to enter the private sector (Thatcher et al 2002) with a different set of experiences and different approaches to risk management.

It is, therefore, prudent to try to corroborate the data using triangulation with the additional sources mentioned above to improve the generalisation (Golafshani 2003).

3.8.2 Internal validity

Triangulation as a method, deals with the issue of internal validity by using different methods of data collection to answer the research question (Barbour 2001). The researcher attempted to find a means to use the data collected from the interviews, the data from the PMOs of the organisations and the references by each respondent confirming other respondent assessments on common projects. Hoepfl (1997) describes this use of official records, reports and other documents as valid sources of data for this purpose.

Furthermore, the use of open ended, non forcing questions with knowledgeable respondents during the in-depth interview process, allowed the respondents to discuss freely the subject area within his or her knowledge. This would achieve validity (Stenbacka 2001).

To ensure that both face validity and content validity criteria are met, the literature review performed was fairly extensive with almost all literature referencing back to a root point of Schmidt et al (2001) in identifying by way of a Delphi technique,53 risk factors. These seminal risk factors are augmented and integrated in the literature review with subsequent research reaffirming the risk factors using both quantitative and qualitative techniques and instruments.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

The results of the research will be presented using a series of Tables that summarise the results. The unpacking and explanation of these Tables will be covered in Chapter 5.

Each Table will demonstrate the respondents view on each risk factor in response to research questions 1 and 2.

4.2 Demographic profile of respondents

The intent of the research was to sample 20 respondents (5 from each IT professional category). The researcher was able to secure 15 interviews from IT professionals fitting the profiles. An additional demographic questionnaire was circulated under the same conditions of confidentiality and these results follow.

4.2.1 Age of Respondents

The ages of the respondents were primarily in the 31 to 40 year category with few results in the older categories. One respondent was in the younger category.

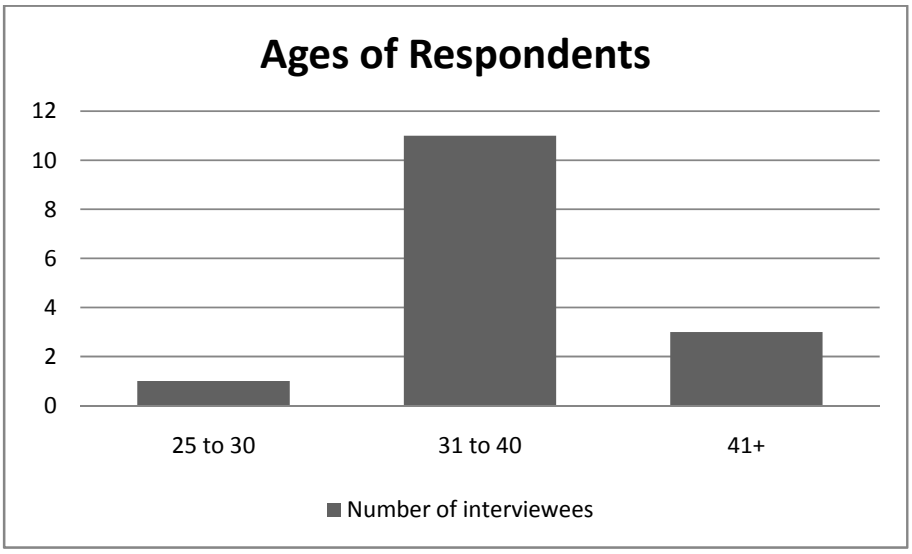


Figure 1 - Distribution of Ages of Respondents

4.2.2 Experience profile of Respondents

The majority of respondents had experience between 6and15 years.

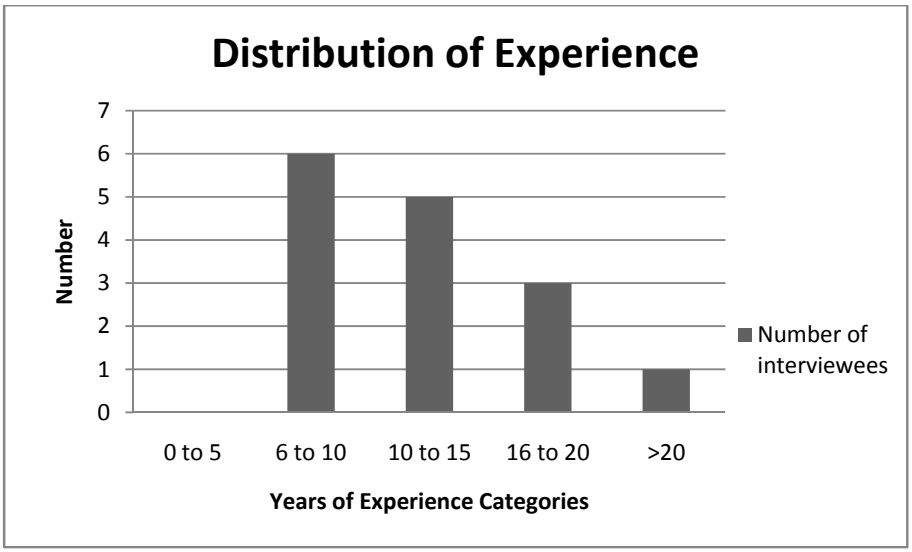


Figure 2: Distribution of Experience of Respondents

4.2.3 Gender Profile of Respondents

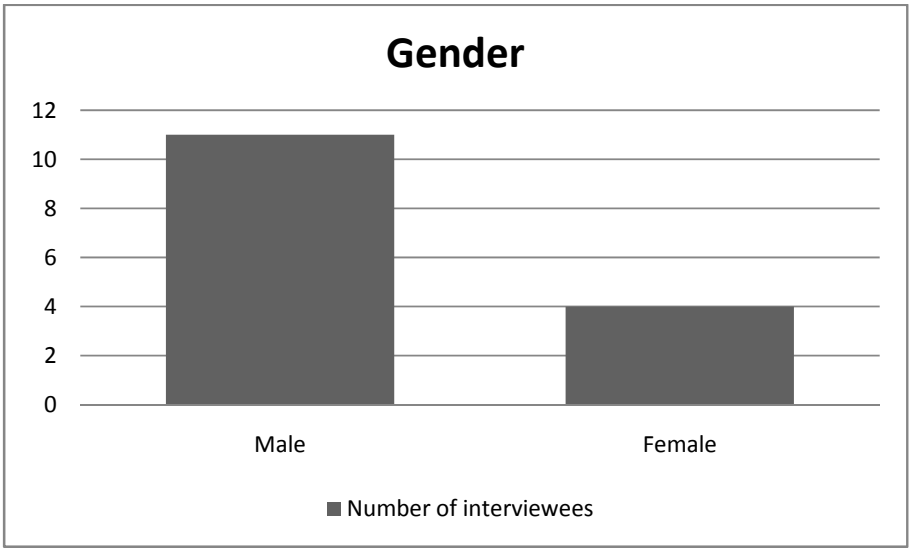


Figure 3: Gender profile of Respondents

The large proportion of male respondents to female was not surprising considering that this schism is still visibly apparent in public sector IT projects. The female respondents in this sample, however, had collectively more experience than the male respondents and were occupying more senior roles on IT projects.

4.2.4 Distribution of utilities experience within the sample

The distribution of experience of the respondents with respect to executing projects within public sector electricity utilities was dominated by Eskom experience with all respondents having had IT project experience with the utility and only one respondent NOT having this experience within the last ten years. Eight of the fifteen respondents had both Eskom and other utility IT project experience and of these, the respondents' experience was attained at six different utilities (including Eskom). This gave a rich experience base for the understanding of project risk even though all respondents indicated that the size and number of projects executed within Eskom exceeded that of the other utilities.

Table 3: Electricity utilities featured in respondents' experience

Electricity Utilities
City Power Johannesburg
City of Cape Town
eThekwini Municipality
City of Tshwane Metropolitan Municipality
Eskom Holdings Ltd
Zambian Electricity Supply Corporation

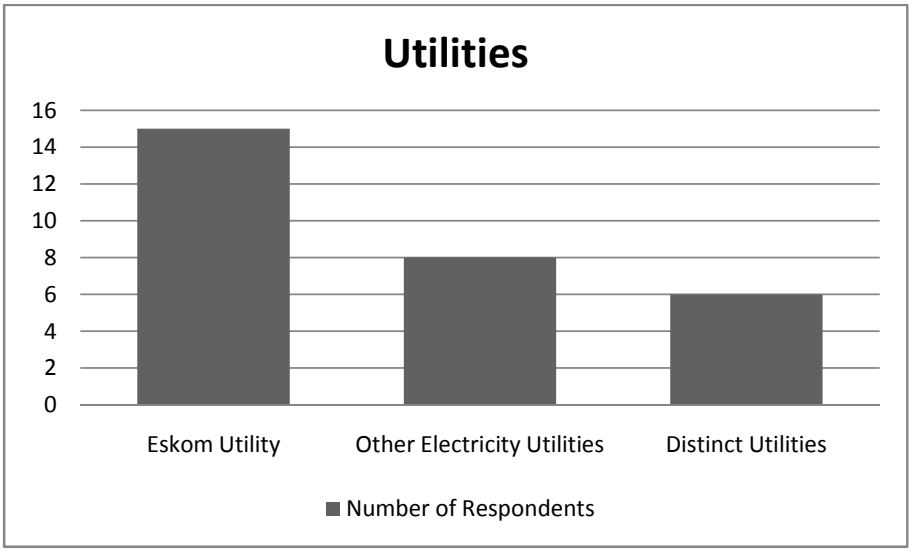


Figure 4: Distribution of Utilities Experience

4.3 Results pertaining to research questions 1 and 2

The following Tables illustrate the summarised results of the respondents' assessment of each of the risks discussed with them in the interview process. The Tables are presented per category identified in the literature review.

The blue solid fill colour over the risk factor numbers indicate what the literature determined to be the critical risk factors to control in an economic downturn

The green solid colour indicates that the respondent viewed an economic downturn as being either a negative or positive (opportunity) contributor to the risk factor.

The marking of the "x" indicates that the respondent felt that this risk factor was critical in its occurrence or impact on IT projects on his or her experience.

The marking of a "?" indicates that the respondent was undecided on whether the risk was critical but felt strongly that it should be highlighted.

The empty cells indicate that the respondent felt that the risk was not critical in their estimation.

Table 4: Risk mapping for commercial and legal relationships

	Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A1 Commercial and Legal Relationships																
Risk 1	Adversarial relationships and loss of trust between vendor and client	x	x	x	x			x	x		x	x	x	x	x	x
Risk 2	Vendor de-escalation of commitment		x	x				x		x			x	x	x	x
Risk 3	Difficulty in breaking the contractual agreement		x	x	x			x	x	x	x				?	x
Risk 4	Inadequate 3rd party performance	x	x	x	x	x	x		x	x		x	x	x	x	x
Risk 5	Litigation in protecting intellectual property								x			x	?			
Risk 6	Problems in carrying out IS/IT outsourcing contracts evaluation			x	x			x	x	x	x	x		x	?	x
Risk 7	Embedded contract mentality					x	x		x	x	x			x	x	
Risk 8	Ability to manage contracts	x		x			x		x	x	x	x	x	x	x	x
Risk 9	Revenue recognition	x		x	x	x			x	x	x			x	x	x
Risk 10	Regulatory risks	x				x		x	x	x					x	x
Risk 11	Open source risks	x				x		x	x	x			x	x	x	x
Risk 12	Insurance risks					x							x			
Risk 13	Import export restrictions								x							
Risk 14	Privacy				x					x						x

Table 5: Risk mapping for economic circumstances

	Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A2 Economic circumstances																
Risk 15	Competitive risks		x		x	x		x		x	x	x	x	x	x	
Risk 16	Market risks		x	x		x	x	x		x	x		x		x	x
Risk 17	Competition for capital	x	x	x	x	x	x	x		x	x	x	x	x		x
Risk 18	Credit rating		x	x	x			x	x	x		x			x	x
Risk 19	Poorly written business cases	x		x	x	x		x	x	x	x		x	x	x	x
Risk 20	Currency exchange fluctuations													x		?
Risk 21	Management reserve			x	x					x		x		x	x	
Risk 22	Project abandonment		x	x	x	x	x	x	x	x	x			x	x	x

Table 6: Risk mapping for political circumstances

	Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A3 Political Circumstances																
Risk 23	Politicization of projects	x	x	x	x	x	x			x		x		x	x	
Risk 24	Governance volatility	x	x	x		x	x	x		x	x	x		x	x	x
Risk 25	Political interference	x	x	x	x	x	x	x		x		x	x		x	x
Risk 26	Change of administration							x						x		x
Risk 27	Lack of top management support			x	x	x			x	x	x	x	x		x	x
Risk 28	Restructuring of organisations during project		x	x	x			x			x	x	?	x	x	x

Table 7: Risk mapping for technology and technological issues

	Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A4 Technology and technological issues																
Risk 29	Introduction of new technology	x	x	x	x	x	x	x		x	x	x	x	x	x	x
	Technology obsolescence	x	x	x		x	x	x	x	x		x	x		x	x
Risk 30	Lack of a suitable communications infrastructure	x	x		x		x	x	x	x				?	x	x

Table 8: Risk mapping for management activities and controls

	Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A5 Management Activities and Controls																
Risk 31	Lack of documented requirements and/or success criteria	X	X	X	X					X	X	X	X		X	X
Risk 32	No change control process	X	X	X	X		X			X	X	X	X		X	X
Risk 33	Ineffective schedule planning and/or management		X	X	X			X	X	X	X	X	X	X	X	X
Risk 34	Resources assigned to a higher priority project	X	X		X					X			X		X	X
Risk 35	Communication breakdown between stakeholders	X	X	X	X			X		X	X	X	X		X	X
Risk 36	Use of an appropriate methodology						X				X	X	X			X
Risk 37	Lack of customer involvement	X		X	X	X		X	X	X		X	X	X	X	X
Risk 38	Lack of formal project management practices						X	X		X						X
Risk 39	Dissimilarity to previous projects				X							X	X			X
Risk 40	Project complexity	X		X	X	X		X		X	X	X	X	X	X	X
Risk 41	Requirements volatility	X		X		X			X	X		X	X	X		X
Risk 42	Weak commitment of project team			X	X						X		X		X	X
Risk 43	Team members lack requisite knowledge and/or skills	X	X	X	X	X		X		X	X	X	X		X	X
Risk 44	Subject matter experts are overscheduled	X	X	X	X	X	X	X				X	X		X	X

Table 9: Risk mapping for individual activities

	Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A6 Individual Activities																
Risk 45	Goldplating				x					x			x			
Risk 46	Unrealistic expectations				x					x	x	x				x

The results of the research indicate that the respondents both concur with literature reviewed critical risks but have a varied and different view on traditional risks.

4.4 Results pertaining to research question 2

The literature review identified 20 risks that were impacted by an economic downturn. The respondents' views on the economic downturn related risks are presented in the Tables below. Each Table highlights the number of respondents that concurred with the literature review, the number that disagreed and the number that determined other risks to be valid in an economic downturn.

The Tables are presented according to the risk categories identified in Standards South Africa (2007).

Each Table highlights the numbers in the sample where more than 6 respondents in the sample concurred.

Table 10: Risks critical in an economic downturn: commercial and legal relationships

A1 Commercial and Legal Relationships	Risk Description	Number Agreeing with Literature	Number Disagreeing with Literature	Different Risks Identified
Risk 1	Adversarial relationships and loss of trust between vendor and client	8	7	
Risk 2	Vendor de-escalation of commitment			6
Risk 3	Difficulty in breaking the contractual agreement	6	9	
Risk 4	Inadequate 3rd party performance			8
Risk 5	Litigation in protecting intellectual property			3
Risk 6	Problems in carrying out IS/IT outsourcing contracts evaluation			8
Risk 7	Embedded contract mentality			4
Risk 8	Ability to manage contracts			4
Risk 9	Revenue recognition	12	3	
Risk 10	Regulatory risks			4
Risk 11	Open source risks	10	5	
Risk 12	Insurance risks			2
Risk 13	Import export restrictions			
Risk 14	Privacy			1

Table 11: Risks critical in an economic downturn: economic circumstances

A2 Economic circumstances	Risk Description	Number Agreeing with Literature	Number Disagreeing with Literature	Different Risks Identified
Risk 15	Competitive risks	14	1	
Risk 16	Market risks	13	2	
Risk 17	Competition for capital	14	1	
Risk 18	Credit rating			8
Risk 19	Poorly written business cases	11	4	
Risk 20	Currency exchange fluctuations	3	12	
Risk 21	Management reserve			8
Risk 22	Project abandonment	12	3	

Table 12: Risks critical in an economic downturn: political circumstances

A3 Political Circumstances	Risk Description	Number Agreeing with Literature	Number Disagreeing with Literature	Different Risks Identified
Risk 23	Politicization of projects	8	7	
Risk 24	Governance volatility			2
Risk 25	Political interference	5	10	
Risk 26	Change of administration			3
Risk 27	Lack of top management support	6	9	
Risk 28	Restructuring of organisations during project			6

Table 13: Risks critical in an economic downturn: technology and technological issues

A4 Technology and technological issues	Risk Description	Number Agreeing with Literature	Number Disagreeing with Literature	Different Risks Identified
Risk 29	Introduction of new technology	7	8	
	Technology obsolescence	12	3	
Risk 30	Lack of a suitable communications infrastructure			6

Table 14: Risks critical in an economic downturn: management activities and controls

A5 Management Activities and Controls	Risk Description	Number Agreeing with Literature	Number Disagreeing with Literature	Different Risks Identified
Risk 31	Lack of documented requirements and/or success criteria			4
Risk 32	No change control process			3
Risk 33	Ineffective schedule planning and/or management	5	10	
Risk 34	Resources assigned to a higher priority project	8	7	
Risk 35	Communication breakdown between stakeholders	6	9	
Risk 36	Use of an appropriate methodology			2
Risk 37	Lack of customer involvement			3
Risk 38	Lack of formal project management practices			1
Risk 39	Dissimilarity to previous projects			3
Risk 40	Project complexity			3
Risk 41	Requirements volatility			5
Risk 42	Weak commitment of project team			2
Risk 43	Team members lack requisite knowledge and/or skills	6	9	
Risk 44	Subject matter experts are overscheduled	9	6	

Table 15: Risks critical in an economic downturn:individualactivities

A6 Individual Activities	Risk Description	Number Agreeing with Literature	Number Disagreeing with Literature	Different Risks Identified
Risk 45	Goldplating			6
Risk 46	Unrealistic expectations			9

4.5 Results pertaining to research question 3

The risk treatments identified per risk were both diverse in their focus and in terms of their application. It was necessary to collate these treatments into common approaches per risk category as illustrated in the literature review. Not all respondents were able to provide a possible risk treatment.

Table 16: Risk Treatments

Number	Risk Description	Literature sourced treatment	Respondent Treatments
Risk 1	Adversarial relationships and loss of trust between vendor and client	Establish and maintain trust Ensure frequent communication between client and vendor Be wary of cultural alignment issues Be wary of contracting mechanisms mismatches Ensure vendor sharing of risks and build into contract and contracting mechanism Nguyen, Babar and Verner (2006) Russell and Chatterjee (2003) Lichtenstein(2004)	Use vendors with a longer standing relationship for large projects with more risk Use enabling contracts as a mechanism to develop relationships before committing vendors to large projects Ensure contracts have “right balance of carrot and stick”. Build in bidirectional incentives and penalties Strengthen project teams with client experts as well as vendor experts early in the commercial process through secondment

Risk 9	Revenue Recognition	Have outside firm review contracts for conformity with revenue recognition requirements Revenue recognition guidelines to be approved by board of directors Place statements in public tenders to make vendors aware of requirements Educate the executive team concerning the guidelines. Include all programme and project managers involved in negotiations Yates and Arne (2004)	Look at a deferred payment strategy and separate this as an addendum to the contract Consider cash neutral payment schedules to alleviate cashflow and provide incentives for greater upfront discounts Use credible vendors with deliverable based contracts Time the negotiations with vendors to achieve desired outcomes without excessively leveraged positions Ensure that as a client, you have the technical skills to evaluate delivery

Risk 11	Open Source Risks	Make software developers aware of legal ramifications of using open source products (Giera 2004) Develop internal training on acquire skill to deal with open source products (Giera2004) Yates and Arne (2004)	Enforce internal governance to prevent unauthorised use of open source Insist on full disclosure upfront on all open source components as a contractual stipulation with suppliers. Understand your company's technology risk tolerance profile to decide how much of the risk transfer you're will to accept Vendors must accept all open source risks – built into their contract Understand and prepare the supporting environments for the new open source components through training and Analyse the need for open source components using a scientific method instead of following the hype

	Technology obsolescence/legacy modernisation	Reassess embedded business rules in existing legacy systems to avoid significant cost on new technology Kost (2003)	Consider the balance point of where sweating the IT assets becomes optimal for your organisation. It will be different for each organisation. Need to plan ahead for the recapitalization effort and disclose it in your rolling plans. Leverage your strong vendor relationships to avoid being forced onto newer technologies and to get consistent support. Map each part of your IT in terms of the upgrade paths and roadmaps for each system or technology and contrast with your initial ROI. Continuously assess your IT infrastructure for optimizations.

Risks 29, 33, 43,44	Project, people related risks and New technology	Retain staff through training and mentoring and the cultivation of shared norms (Thatcher, Stepina and Boyle 2002) Develop team skills beyond technical requirements to deal with complexities of modernization and transformational projects (McClure, 2006; Klein, Jiang and Tesch 2002)	Decide on new technology options timeously allowing the organisation to prepare for it. Limit the dependencies of projects with one another through proper phasing of projects. Avoid multi-vendor teams: “one team one focus”. Ensure that the right skills are available at the right parts of the project. Use overseas contractors where necessary but insist on local rates. This forces the local representative to invest in skills building. Use the enterprise architecture(EA) function as a gate keeper and grow the maturity of the EA practice. Invest in people and spend money on structured training interventions. Consider including training as part of the technology purchase with the vendor. Avoid new technology in a downturn.

Risks 23, 25, 27	Politicization of projects, political interference and lack of top management support	Senior leaders must be able to navigate organisational politics by building collations, co-opting bystanders and influencing, negotiating and cooperating with power allies on projects (Peled 2000)	Ensure that there are auditable governance checkpoints in place and that their enforcement is visible. Choose strong, committed sponsors. Consider an interview process for sponsors rather than assigning based on convenience. Communicate consistently the enterprise priorities at all levels of the organisation. Measure and compact sponsors by building KPI's into their compacts. These KPI's must be sustainable beyond the project phase. Move the ownership of IT projects into business hands. Business owned projects are easier to reposition and maintain support.

Risks 16, 22	Market Risks and project abandonment	Use a portfolio management approach to IT projects: portfolio NPV, portfolio risk profile (D'Amico 2005; Bardhan, Bagchi and Sougstad 2004) Identification of common risks and dependencies in a portfolio (Olsson 2008) Alignment of portfolio with organisations strategic goals (D'Amico 2005)	At some point, you have to abandon projects. Need to understand the real cost of abandonment. Use internal resources for analysis. Become more agile in recognising market shifts and be proactive in assessing those risks on IT projects. Use commercial staff to regularly evaluate suppliers with respect to financial performance, market capitalisation, organisational roadmaps. Understand the durability of the technology to determine its sensitivity to change. Develop your own technology roadmap alongside your financial constraints, not independently. Reacting to market shifts becomes more about navigating the plan. Plan funding more conservatively, with smaller, less risky projects instead of large, multiyear projects. Apply investment management techniques and treat

			the IT project portfolio as an investment portfolio. Embed a risk management process with the IT Portfolio Management function: “let’s get systemic about it if not at least systematic” - Respondent C
Risk 17	Competition for Capital	Make decision makers aware of benefits on projects by measuring key cost and risk indicators in existing running business cases (Di Maio 2009). Categorize IT projects with respect to transformational, operational and growth. Classify and prioritize spend (Buchanan 2009).	Create the portfolio view of projects if not available. Realize the opportunity for re-evaluation of the portfolio and discontinue projects that are not aligned to current business goals. Build capacity of specialized business case developers. Educate decision makers around ICT capital requirements planning, including lead times, technology transition and bedding down times. Design a modular approach to project execution. Plan exit points within the IT project portfolio to aid

			decision making. Invest in a role to manage and oversee this competency for a few years.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter presents the analysis of the data collected during the interviews of the 15 respondents. It describes the key findings, themes and observations with respect to the research questions framed in Chapter 2.

5.2 Demographic profile of respondents

The majority of the respondents were in the 31 to 40 year age group. The purposive sampling method to get rich contextual information was premised on the researchers' frame of reference which led to an expectation that the sample would have an age distribution favouring the 41+ category. This was not the case and, through the course of interviews, it became apparent that the vast number of large IT projects in the public sector had materialised over the last ten years with the dominant ages of the participants now in the 31 to 40 age category. The relatively few numbers of the "41 and over" age category, more than likely points to the movement of these individuals into executive management positions outside of IT management or movement into project sponsorship roles. All the respondents in this age category were currently in project sponsorship roles.

The distribution of experience in public sector IT projects show an expected trend once correlated with the age graph. This coincides with the respondents' accounts of the timing and occurrence of large public sector funded projects. It was interesting to note that the 6 to 15 year experience category did correspond to the 31 to 40 year age category. The implications are that most of the respondents had experience of managing IT projects during the dot com and Y2K era of projects and that this experience was gained during their early twenties and for some more than likely as first-time post-graduate experience.

5.3 Discussion pertaining to research question 1: What are the critical risks that South African electricity utilities will prioritise in the execution of IT projects?

The discussion that follows is based on the same categorisation of risk factors offered up earlier in the literature review (Standards South Africa 2003). Each risk category is discussed in the context of risks that the respondents rated as critical irrespective of an economic downturn. Some of the risks are grouped according to the respondents' views.

5.3.1. Commercial and legal relationships

Adversarial relationships and loss of trust between vendor and client

The loss of trust between the parties on an IT project proved to be a critical risk according to 12 of the 15 respondents. The respondents cited that since the majority of the IT projects are executed using outsource partners: "Our main means of developing or delivering projects is through outsourcing" (Respondent C). This risk factor appeared on numerous projects. According to the PMO, these projects were large and complex and were in the R20m and above cost category. The projects cited as examples were all long running projects that spanned several years. The PMO documentation showed that most of these projects were completed with subsequent phases with additional cost expended by the client. There was no mention of additional cost expended by the vendor.

The trust appears to have been soured during the early parts of each of the projects mentioned as examples. The contracting process seems to be a significant contributor in the removal of trust. The challenge according to respondents is that they were not allowed to develop a relationship with the vendor due to existing company policies: "we have to develop a trust credible relationship with vendors and that is not always the case because of the challenges with our procurement policies" (Respondent C). This presents the dilemma of where the boundary is between engaging with a vendor and developing a working trust relationship versus the contravention of policies where the client cannot engage with a vendor without commercial governance.

This appears to leave unanswered questions in the minds of both parties and sometimes creates the situation where the vendor is more leveraged than the client. This puts the client on the defensive and both parties then start the adversarial gameplay. Sabherwal (1999) confirms that the trust is harder to establish due to the lack of a prior relationship which is made almost impossible by the respondents' governance around its contracting process.

The projects described by the respondents, never recovered from the initial loss of trust and suffered further breakdowns in communication, affirming the view that maintaining communication was a vital requirement in maintaining trust (Nguyen et al 2006).

Vendor de-escalation of commitment

There were several respondent views on how this risk can materially affect their projects. The predominant example provided was the change in ownership of Arivia.kom from Eskom Holdings Ltd to T-Systems. Projects that were being executed during this period, assumed that the contract across which the project had been negotiated, would be covered under the overall sale agreement. As a result, no preparation was completed by the projects in their management committees in securing commitment beyond what was inferred by the sale agreement. This assumption (Natovich 2003) that commitment would be forthcoming was tested as the projects continued to incur additional cost to cover the related risks that materialised.

Previously the role of Eskom Holdings Ltd as a primary shareholder in Arivia.kom provided leverage for these projects to succeed despite the lack of proactive risk mitigation. With no shareholder support, the projects were forced to trade off relative importance against one another to try and manage their own risk. This competition for "risk attention" was not present in the literature surveyed and was analogous to the behaviour of projects competing for capital which is a risk factor that literature identified as critical.

Respondents also identified a consequent risk of "resources being assigned to higher priority projects." This behaviour appeared in several of the projects cited

as examples by the respondents where the preceding action was the change in commitment of the vendor.

Difficulty in breaking the contractual agreement

The largest project discussed with a value far in excess of R20m was the primary example cited by most of the respondents. The client project teams identified flaws in delivery at an early stage of the contracting process and found it difficult to break the agreement due to the conditions set forth at the start of the contracting process by the executive management. As a result, each party to the agreement started to find breaches of the contract by the other party and then justify their own reason to not deliver on time. Respondents who had not been directly involved observed this behaviour in the market. Furthermore, the tactics being used were publicly visible. This confirms Natovich's (2003) statements that this behaviour leads to inaction. The researcher was able to interview the project manager and PMO as well as gain access to the official risk registers and noted that, although all parties acknowledged that this was a critical risk, the documentation reflected the risk as the contracting process and method which could not be mitigated as part of the project. Experienced respondents indicated that the ability to "frame the contract" to "accommodate legitimate difficulties" would be a key success factor.

Inadequate 3rd party performance

This rated consistently by almost all respondents as critical, this risk factor was an indication of several public sector challenges. One of the challenges was the lack of skilled vendors available to the respondents in execution of their IT projects. Although the literature focused on the commercial and legal considerations, Baccarini et al(2004) and Krasner (1998) refer to the lack of third party performance, most respondents described the risk in the context of skills (Kappelman et al 2006). The respondents indicated that since the majority of their IT projects used outsourced vendor teams, the skills of the individuals and their consequent lack of experience was not initially visible to them until delivery commenced.

Problems in carrying out IS/IT outsourcing contracts evaluation

Respondents targeted their inability to conduct proper outsourcing contract evaluations as a key contributing risk to inadequate 3rd party performance citing the fact that the skills and experience within the client organisation was often lacking. Furthermore, respondents indicated that the role of the primary vendor was essential in setting the performance benchmarks to delivery which would further influence others. Additionally, the evaluation methodologies were deemed to be lacking in formalization as described by Lin et al (2007), although they did have additional commercial criteria including a black economic empowerment (BEE) rating of vendors and a gender rating.

Embedded contract mentality

The behaviour that flows from the lack of formal metrics being in place (Lin et al 2007) was described by respondents on several projects where the parties on either side of the contractual relationship became constrained in their ability to solve normal project management issues. Although only half the respondents rated this as a critical risk, the main project referenced was the Letsema project where the qualitative and quantitative measures were not clearly defined up front and were included in the contract. As a result, all parties to the contract could not make a clear distinction between the contract and the service level agreement (SLA) as there had been no formal SLA drawn up that articulated the requirements of the project beyond the contract.

Ability to manage contracts

Lin et al (2007) assert that organisations lack the skill to manage contracts which was affirmed by the majority of respondents. The projects cited as examples were large and complex with multiple vendors. It appeared that the specific skills and experience to manage these types of projects were largely lacking. In one programme management office, there was evidence of only one senior contracts manager who was assigned to a portfolio of more than 50 IT projects including support oriented contracts that where not project related. Another programme management office, with a limited number of high value projects that were no less complex but rarely had multiple vendors found that

they had no real concerns around the ability to manage projects. Respondents in technical roles tied the lack of skill and experience in contract management to the role of the programme manager while project managers felt that the lack of dedicated contract managers was missing. The examples used from the respondents' experiences cited the construction industry where the contract manager role is well defined and understood and, hence, well resourced. The number of dependencies between projects appears to be increasing according to the respondents and this inability to manage these dependencies across projects and, hence, contract boundaries escalate this risk.

Regulatory risks

The requirement for Eskom Holdings Ltd to comply with NERSA affects IT projects, as Eskom uses IT as a means to deliver new information to the regulator from existing or new systems. The requirement to address additional reporting for the regulator, has a disruptive impact on existing projects. IT projects that run late can also affect business reporting to NERSA. The examples provided by the respondents show both impacts occurring on recent projects. The results are; to defer projects, incur additional, unplanned costs to deliver the new requirements or remove the scope from the project so that it limits its impact on the business reporting.

Yates and Arne (2004), reference the Sarbanes-Oxley Act with the local equivalent for IT projects being King 3, citing this as an additional regulatory risk. A KPMG report on King 3 (KPMG 2009) further affirms this stance with the statements that a company's board be additionally accountable for IT governance. None of the respondents raised this aspect of regulatory risk and it, perhaps, indicates that the electricity utility boards are either unaware or not ready to take on IT governance and the risks that surround it.

5.3.2 Political circumstances

Governance volatility

Changing leaders on a project will have an impact on project delivery. Sauer et al (2007), describe how the change in project managers or sponsors has a negative affect which was supported by the majority of respondents. The respondents described large scale transformational projects where the IT components were being used to make significant changes in the business process. Hence, the user communities relied on the sponsor and programme manager to look after their interests. The change in programme manager according to the respondents, led to a loss of confidence by the business in the outcome of the project. This action served to demotivate the project team. The programme management office documentation does not list the change of programme manager as a risk. The project was restarted with additional costs.

In another project example, the change in CIO role affected the outcome of the project leading to different technical choices being made. This change resulted in additional project costs and rework on the project leading to a delay in delivery.

Most respondents did not see the change in project manager as critical as most are contracted in to the project from external vendors. It is the change in programme managers, who are employees of the client organisation that made the most negative impact on project delivery.

Political interference

Almost all respondents viewed this risk as critical and were able to cite examples of projects where this was experienced. The EDI restructuring, led by government and EDI Holdings Ltd, appeared to be the most disruptive on running IT projects. With the main decisions around who would govern new entities and the impact on infrastructure and, hence, IT continually changing on a regular basis, running projects had to continually adjust and adapt to keep pace and still meet their deadlines. The result, according to one respondent, led to significant IT related expenditure and would get worse in the future.

Several respondents described the Advanced Metering Infrastructure (AMI) project which is an initiative to address energy conservation by managing the demand of customers. Government had legislated that customers with consumption in excess of 1000 kilowatt-hours per month would be placed on a new tariff with a smart meter. The respondents described the competing departments and stakeholders all creating confusion with regard to decision making, funding and project phasing.

The Online Vending System (OVS) project was cited as another example where the sponsor was dominated by other more politically astute sponsors that led to delays on the project.

Although Gauld (2007) describes political interference through an example in the public health sector in New Zealand, the above examples confirm that political interference is a critical risk in the public electricity utility sector in South Africa.

Lack of top management support

Ten respondents viewed this risk as critical with one going as far as to describe it as one of his top 3 risks in managing IT projects. The examples of projects included the Letsema project where during a lull in the project, the overt lack of top management support led to the vendors gaining leverage in project delivery arguments resulting in further IT spend on the project.

The Meter Data Management System (MDMS) project lacked an executive sponsor and subsequently did not attract enough top management support and was reprioritised and then closed down. Pan and Flynn (2003) confirm that this is a probable outcome when a project loses top management support.

Several respondents argued that despite the need for top management support, a project that has not started somewhere as a bottom up initiative runs the risk of not being able to create a strong support base for the project and then also losing out on top management support who then see no need for an initiative that has no lobbyists at the lower levels of the organisation. This somewhat contradicts Kappelman et al (2006), not in its entirety, but certainly the view that

projects started as bottom up initiatives may clash with enterprise priorities. While this is a risk, it appears that the respondents felt that their organisations would use the bottom up approach as a means of affirming the priority rather than discounting it.

Restructuring of organisations during project

Restructuring in the electricity sector was set in motion by the then Department of Minerals and Energy (now Department of Energy (DoE)) to effect change in the electricity supply and distribution industries (Department of Minerals and Energy 2001). An example of this risk was cited by respondents where the EDI changes being discussed brought about internal organisational change in Eskom as preparations were being made for a division to be separated from Eskom. As a result, all projects being executed had to re-scope part of their activities so as to cater for the separation. This included ring fencing data between different geographic regions within the division. All this rework amounted to new projects costs and, in some cases, led to the creation of new projects to execute the work. Delays of projects became commonplace as the organisation had to defer certain activities and, in some cases, entire sub projects in order to achieve their targets; confirming the findings of Doherty et al (2003) and Wallace et al (2004).

Several respondents viewed the sale of Arivia.kom, an Eskom owned subsidiary to T-systems as disruptive to the Letsema project. This, according to their accounts, led to negative behaviour during the transition phase of the sale, leading to inaction and further project delays.

An internal department in Eskom called the Business Application Support Centre (BASC) was forced to ramp up in personnel to cater for the sale of Arivia.kom which resulted in a mass migration of key skills from Arivia.kom. This behaviour undermined existing IT contracts on various projects that were held with Arivia.kom. Despite methods to dissuade the appointment of Arivia.kom staff, several key skills were either transferred to BASC or lost to the market during this process. Respondents indicated that nearly all IT projects in the Eskom space were affected by this organisational change.

5.3.3 Technology and technological issues

Introduction of new technology

One of the examples described by the respondents was the OVS project where one of the sub teams performing integration suggested a newly released version of the integration software. However, they lacked the skill and experience in the team members and as a result almost led to the failure of the entire project. This is exactly as described by Schmidt et al (2001), where the team lacked the implementation experience.

Other respondents described how Eskom had changed from an early adopter of new technology (bleeding edge) to almost a laggard. Most felt that Eskom had adopted a position of leading edge where the technology chosen has proven itself at other clients first. However, other examples of new technology risk indicate that this is still a critical risk for Eskom. The Smallworld project attempted to introduce sweeping business changes through the application of a new technology. Several years later, the organisation still suffers from the negative consequences of adopting a new technology ahead of everyone else.

Another example illustrates that the introduction of new technology can have unintended consequences. In the case of the Maximo project, “We didn’t consider the behaviour that the technology would change” (Appendix C:154) which led to the business case benefits not being achieved.

Lack of a suitable communications infrastructure

Geographically distributed businesses are challenged by the need to communicate effectively. Most of the electricity utilities have an investment in communications infrastructure as this is a requirement for maintaining communication with field equipment (plant) used in the electricity sector. These plant communications are used to operate and monitor the equipment in order to maintain the electricity supply to customers. Similarly, IT systems for these organisations are required to communicate to share information and assist in operations. The result, according to respondents, is that the network infrastructure is an essential service to any electricity utility.

Project examples described during the interviews showed that not enough attention and insufficient funding is attributed to the network infrastructure components on IT projects. The SCADA project required a fault tolerant network as the software would be used to control the actual equipment in the field. However, this project uncovered numerous network failures in a region, delaying the implementation in that region for almost a year.

The Video Conferencing project was described by respondents as failing due to the lack of capacity on the existing communications infrastructure. This happened despite testing and lobbying to increase the capacity of the network.

The biggest challenge described by respondents was the inability of Telkom (monopoly holder on “last mile” telecommunications infrastructure) to provide network infrastructure to remote areas and offices. This forces projects to adopt different technologies and often leads to delays and additional unplanned expenditure as was the case on the OVS project. GPRS technology had to be adapted for use for the systems resulting in an inferior performance of the system.

Communications infrastructure is often stolen (cable networks) resulting in the disruption of service. Sometimes these disruptions last several days and, according to one project example, results in the employees driving 300 kilometres to deposit data at another point on the network.

The respondents confirmed that network infrastructure is vital to systems, supporting Kliem (2004). It is also expensive to establish and funding often has to be made available far in advance.

5.3.4 Management activities and controls

Lack of documented requirements and/or success criteria

The lack of clear success criteria was described by several respondents on the Letsema project where the request for proposal (RFP) issued to the market had all the requirements and success criteria intertwined in the document. The vendors were unable to understand the requirement and, hence, could not

determine the success criteria leading to complicated performance clauses and counter clauses as the vendors and the client attempted to protect their interests.

The Customer Network Link(CNL) project, according to respondents, did not establish specific requirements in the initial phases of the project. As a result, the project scope varied continuously resulting in the project taking almost 2 years to achieve its goal.

Some respondents indicated that over-detailed documentation on the Letsema project meant that it was difficult to communicate to the various parties resulting in the value and effort in creating the documents being undermined. Additionally, the gap between the requirements documents which were not sufficient and the resulting technical documentation lead to further gaps in the delivery of the technical solution for the project.

One respondent described the Key Customer Database (KCD) project, where the lack of clear requirements led to contractual hostilities developing between the client and the vendor which put a strain on the relationship.

The respondents all felt that the risk factor should be revised to “lack of clearly documented requirements and/or success criteria” as support of Kappelman et al (2006).

No change control processes

Change control processes must assess the impact of changes. Within large organisations, the changes may impact several projects. Respondents felt that, although change control processes existed, they were ineffectual on large portfolios of projects as the dependencies between projects and systems were not well understood. This could have resulted in poor prioritisation of the changes required by projects as described by Kliem (2004).

The project and programme managers interviewed stated that it may not be practical to pull all parties into a change control meeting to discuss the effects of the change, as in large portfolios, the logistics are often difficult to manage.

Having to project manage the change process according to Kappelman et al (2006) may not be sufficient as each project has an islanded view of their dependencies. The client must be able to play some sort of adjudicating role over the projects so as to make the least risk decisions.

Ineffective schedule planning and/or management

Respondents described the impact of slippage across the project portfolio as a critical consequence of this risk due to an inability to understand dependencies. Although Kappelman et al (2006) describe this risk in the context of a single project, the respondents viewed the greater risk in today's IT project portfolio as being interdependency understanding and management of multiple projects.

Poor estimations appear to be a contributing factor to ineffective scheduling. Project managers on projects such as the Letsema, OVS, Customer Service Mobile (CSM) and MV90GPRS projects were unable to validate the estimations as they had little or no experience of the vendor teams and as a result were reliant on their assessments of effort. The Enterprise Application Integration (EAI) project suffered a 6 month delay as the projects in the portfolio all had to readjust to the slippage of the Letsema project.

Furthermore, project managers had a poor understanding of IT processes and development lifecycles and could not build realistic schedules by taking into account the actual complexity and, hence, duration of testing cycles across interdependent projects. Poor communication was also cited as a reason for project managers missing key, dependent milestones in their schedule planning.

The bottom up method of building schedules was also criticised as a method of introducing poor estimations into the schedule. This was thought to be primarily the cause of inexperienced development teams. Coupled with inexperienced project managers, this risk will remain critical.

Communication breakdown between stakeholders

The OVS project demonstrated that communication breakdown can have far reaching consequences. The sponsor provided feedback to stakeholders without having a precise understanding of the project and its current status. As a result, the sponsor and the project started to provide conflicting information to the organisation which led to expectations of the project that could not be realistically met.

Another example where the flow of information was interrupted resulting in a loss on consensus, was the Horizon project. The management team failed to inform the other teams of the exact financial implications. This resulted in a misalignment between vendors and other project teams in the organisation and eventually caused a full breakdown in the relationship and a project delay. The result was that the organisational politics started to dominate the project.

Some projects are started in politically loaded environments. The Outage Management System (OMS) project was initially delayed, then reprioritised and later abandoned due to an initial communication breakdown between 2 environments competing for IT funding to drive business changes.

All the above examples confirm that communication breakdown remains a critical risk (Kappelman et al, 2006; Chua 2009).

Lack of customer involvement

Respondents indicated that although customer involvement was essential (Tiwana and Keil 2004), the involvement of a representative group that reflected the diversity of the customer base was more important than simply involving customers in the development process. In the DocMan project, the additional change requests that had to be created gave rise to an unplanned expenditure of R11m.

Few companies can afford to have their expert resources or subject matter experts pulled from operational environments to spend time with the vendor implementation teams. The traditional software development lifecycle, based on

a waterfall model, forces the customer of the solution to attend a long period of testing for acceptance of the solution. A more iterative model would allow smaller, focused interactions with customers allowing the solution to have consistent input from the customer and, hence, aligning the output with the requirement.

Projects like the Design Cost and Estimating (DC&E) project failed to gain sufficient customer support due to a lack of involvement at key points of the solution design resulting in extremely low user take on of the solution.

The traditional IT approach of using a few users or representatives to proxy the entire user community remains a critical risk for IT projects.

Project complexity

The majority of respondents discussed this risk in the context of technical complexity where the interdependencies with other IT projects or systems contribute negatively to the risk. The Letsema project was mentioned as having a technical complexity that has an exponential relationship with risk. The reasoning was that up to a point, the nature of the risk and the complexity of the project are linear, however, once another dependency gets thrown into the discussion, it raises the risk exponentially. It is important to model these dependencies across the project portfolio.

Tiwana and Keil (2004) also describe organisational complexity as part of project complexity. The organisational complexity of the electricity utility environment is high and suffers from political undertones according to a respondent. This adds geographic diversity into the mix and the complexities start to multiply.

The Letsema project is a large undertaking and as a result carries more technical and organisational complexity which makes it riskier to execute. This confirms the position of Sauer et al (2007).

Requirements volatility

The respondents were divided in their opinion over the critical nature of this risk. A marginal majority described the risk as critical and provided examples of projects where this was still a risk. The Letsema project was listed as a project where the requirements, although tied down several years earlier, changed as the project started to progress. Part of the reason for this appeared to be the duration of the various phases of the project with the analysis phase being conducted 4 years before the project actually kicked off. Respondents indicated that this long lead time before project kick-off is part of the red tape that large projects have to negotiate in order to execute. The AMI project was also discussed in similar terms with a 2 year gap between concept and execution phases. The governance processes, then, do not allow for much flexibility beyond the point where funding is secured and additional scope is looked on in an extremely negative light.

Other respondents felt that the application of strong methodology and even stronger project management would partly address the risk: “at least you can protect yourself from internal risk with proper methodology.” (Appendix C:165). This supports the literature survey where Sauer et al (2007) describe good project governance as a means to mitigate requirements’ volatility.

Team members lack requisite knowledge and/or skills

There were numerous examples from the respondents addressing the lack of skills. In one example, despite the technology being purchased several years prior and many projects having implemented the technology, there still remained a gap in terms of the requisite knowledge and experience to implement. In this case, it seemed that the issue was more the inability of management to retain and grow the skills base. As a result, resources were continuously being brought into the BASC environment to supplement the existing skills. Project managers complained that there appeared to be no difference and the problem seemed to be getting worse.

Experienced programme managers indicated that most of the top tier skills would prefer to work in any other industry rather than the public sector despite

remuneration levels being increased to match the banking or mining sectors. The electricity utilities appear not to be glamorous enough to attract the top notch technical skills. Whether this perception was a result of past engagements or just a general perception of the public sector, was unclear. The OVS project was used as an example of a project where a significant lack of knowledge on the technology almost led to project failure.

This feedback, although supportive of Kappelman et al (2006), also describes the risk as more deeply rooted in public sector image, perception ratings and competition with other industry sectors. If the resource pool in the country does not grow, all the sectors are effectively merely moving resources amongst themselves and not creating growth.

5.3.5 Non-critical risks

These risks were regarded by the majority of respondents to be non-critical.

Litigation in protecting intellectual property

There was little experience amongst the respondents regarding protecting intellectual property. One respondent described the risk as “an academic rather than a real risk” (Appendix C:138) since Eskom is a monopoly and any loss in market potential is not a concern, as opposed to Krasner (1998).

Most respondents remarked that the standard protection clause in the contracting base document; the national engineering contract (NEC), was sufficient protection against challenges of intellectual property.

Examples used were the Enerweb team building a component for Eskom as part of a software solution. The programme manager interviewed acknowledged that the intellectual property ownership in this case would transfer to Enerweb who would resell the software to other electricity utilities. This open acknowledgment of the intellectual property ownership was used as leverage in the negotiations with Enerweb.

Insurance Risks

The issue of error and omissions clauses in contracts and proposals was an over-abused tactic by Arivia.kom in hedging its own delivery risk to Eskom according to respondents. Any response to remove these conditions was met with refusal by the account managers. Suggested reasons for this include the fact that Eskom was a primary shareholder in Arivia.kom and the executive teams used this to bolster their leverage over the contracts. Another view was that suppliers in the private sector priced these risks into the contract. In the public sector there seemed to be confusion between a true error and omission versus a lack of professionalism which meant that simple and obvious omissions, which indicated a lack of understanding, or delivery capability were still protected under the clause. Despite this, most respondents had accepted this risk as a fact of everyday business on IT projects that needed to be managed, thereby, confirming Yates and Arne (2004).

Import/export restrictions

Respondents indicated that this risk would have been prevalent in the past as South Africa was not well received in the international markets but could not describe any recent realisation of this risk. Kliem (2004) does mention that trade barriers can affect technology selection, but with most vendors having local representation, the respondents felt that this was no longer a critical risk.

Privacy

Only a few respondents mentioned privacy as a risk factor. The most notable example involves the EDI restructuring project where the consultants were working both for Eskom Holdings Ltd and for EDI Holdings Ltd. Since both organisations were in essence competing for position in the to-be restructured distribution electricity business, the consultants exploited this to gain footholds in both companies. Once discovered, they were removed from the project.

Currency exchange fluctuations

Only one of the respondents felt that currency exchange could be rated as a critical risk. The remaining respondents indicated that the use of forward cover was well established on projects from small to large. The increase in local representation of major vendors meant that most transactions were based on local currency negating the need to consider foreign currency transactions. The programme management offices indicated that the contracting process seemed to have made allowance for fixing the rates with the vendors once certainty in the procurement process had been achieved. This implied that the vendor accepted the risk and vendor behaviour suggested that this risk was, therefore, built in to their quotes. Although rated as a valid risk (Kliem 2004), currency exchange fluctuations in this sector appear to have been mitigated.

Change of administration

Respondents described the impact of a change in administration to be a function of how close the IT project is in regards to the executive level sponsorship. Despite changes in ministers and CEOs, Eskom has not felt any impact on IT projects. Strauss (2006) does indicate that certain projects can be at risk as there may be a communication breakdown with the controlling authorities on the project but most respondents felt this would not be the case. Whether the reasons for that is the time it takes to process change in the public sector or that the IT projects governance is well established and hence not reactive to these changes, was unclear from the respondents' views.

Use of an appropriate methodology

Respondents felt that although not critical, this risk materialises more often that initially realised. The predominant model in this sector seems to be the waterfall model as its linear execution does not rely on complex and superior understanding of scheduling and dependency management. One respondent remarked that the use of agile development methodologies would be better suited to the application of modern technologies through IT projects which supported the view of Tiwana and Keil (2004). Other respondents felt that any methodology would still be better than projects executing without one.

Lack of formal project management practices

In the public sector, the use of Prince and PMBOK (Project Management Institute 2004; Siegelaub 2006) as methodologies appears to be well accepted according to respondents. One respondent felt strongly that: “90% of project failures are because of that one thing” (Appendix C:162). The respondents view was that practice of the methodology seemed to be the key concern and not the availability of the methodology, supporting Tiwana and Keil (2004), Schmidt et al (2001) and Wallace et al (2004).

Dissimilarity to previous projects

Most respondents explained that this risk was not critical as there were not any massive differences in projects when the methodology and governance were followed. The examples that could be construed as having a dissimilar approach was when teams that were focused on only implementing one type of technology then tuned their implementation to focus on that single approach. This according to one respondent was the case with Accenture when it was primarily a SAP implementation team. With the diversity of products and technologies on projects, this does not appear to be the case as argued by Wallace, Keil and Rai (2004).

Weak commitment of project team

Most respondents did not see this as a recurring issue. Although acknowledging the lack of training and experience of staff (Wallace et al 2004), the respondents stated that poorly committed resources were removed from projects.

Goldplating

A few respondents reported that individuals on project teams could be passionate about the product or technology and lose sight of the business need, supporting Addison and Vallabh (2002). This behaviour does not seem to be widespread and was not regarded as critical by the respondents.

Unrealistic expectations

Although individuals with unrealistic expectations are commonplace on projects, the chances of these individuals, unless they play sponsorship or other leading roles, being able to cause project failure is minimal and, therefore, only agreeing in part with Schmidt et al (2001). Respondents indicated that this may be due to the maturing of the governance around IT projects.

5.3.6 Summary and Triangulation

The Tables that follow summarise the critical risks rated by the respondents during interviews. These risks were analysed and the sources of evidence investigated. Not all risks were commonly referenced by other respondents as indicated in the Table and, furthermore, not all projects cited as evidence could be confirmed through documentation from the programme management offices. Some risks were rated strongly in both their pure criticality and their relationship to an economic downturn. In most cases, the risk was analysed based on the evidence provided by the respondent and the researcher's ability to confirm it.

For the final result of critical risks, the majority of the respondents rated 22 risks as being critical from their experience.

Table 17: Summary of respondent rated critical risks (A)

Rated Critical by Respondents	Risk Description	Projects Names	PMO Evidence	Described by Multiple Respondents
Risk 1	Adversarial relationships and loss of trust between vendor and client	Letsema	Risk Meeting Minutes	yes
Risk 2	Vendor de-escalation of commitment	Arivia.kom Sale	Operational Management Committee (OMC) Minutes	no
Risk 3	Difficulty in breaking the contractual agreement	Arivia.kom Sale, Letsema	Letsema Steering Committee Minutes	yes
Risk 4	Inadequate 3rd party performance	none	none	yes
Risk 6	Problems in carrying out IS/IT outsourcing contracts evaluation	DocMan	Project Meeting Minutes	yes
Risk 7	Embedded contract mentality	Letsema	Letsema Risk Management Meeting Minutes	yes
Risk 8	Ability to manage contracts	none	none	no
Risk 10	Regulatory risks	Letsema	Letsema Risk Management Meeting Minutes	no
Risk 24	Governance volatility	SCADA	Project Management Forum Presentations	yes
Risk 25	Political interference	EDI Restructuring, Advanced Metering Infrastructure (AMI), Online Vending System (OVS)	Project Management Forum Presentations	yes
Risk 27	Lack of top management support	Meter Data Management System (MDMS)	Project Management Forum Presentations	no
Risk 28	Restructuring of organisations during project	Arivia.kom Sale, EDI Restructuring	Project Management Forum Presentations	yes
Risk 29	Introduction of new technology	Online Vending System (OVS), Maximo	Project Management Forum Presentations	yes
Risk 30	Lack of a suitable communications infrastructure	SCADA, Video Conferencing, Online Vending System (OVS)	Project Mangement Forum Presentation, Investment Committee documentation	yes
Risk 31	Lack of documented requirements and/or success criteria	Letsema, Customer Network Link (CNL), Key Customer Database (KCD)	Letsema Steering Committee Minutes, Project Management Forum presentation, Investment Committee documentation	yes
Risk 32	No change control process	none	none	Yes

Table 18: Summary of respondent rated critical risks (B)

Rated Critical by Respondents	Risk Description	Projects Names	PMO Evidence	Described by Multiple Respondents
Risk 33	Ineffective schedule planning and/or management	Letsema, Online Vending System (OVS), Customer Service Mobile (CSM), MV90GPRS	Letsema Risk Management Meeting Minutes, Project Management Forum, Investment Committee documentation	yes
Risk 35	Communication breakdown between stakeholders	Online Vending System (OVS), Horizon, Outage Management System (OMS)	Project Mangement Forum Presentation, Investment Committee documentation	yes
Risk 37	Lack of customer involvement	DocMan, Design Costing & Estimating (DC&E)		
Risk 40	Project complexity	Letsema	Letsema Risk Management Meeting Minutes	yes
Risk 41	Requirements volatility	Letsema, Advanced Metering Infrastructure (AMI)	Letsema Risk Management Meeting Minutes	no
Risk 43	Team members lack requisite knowledge and/or skills	Online Vending System (OVS)	OVS Audit Report	yes

5.3.7 Conclusion

The critical risks as rated by the respondents are primarily from the commercial and legal category and the management activities and controls category. This was partly surprising as the respondents indicated that the maturity of the programme management offices had improved since the inception of the practice of formalised IT project management in the mid 1990's. The researcher's expectation would have been that the traditional risks (management activities and commercial risks) would have been dealt with and the focus would be on the risks that literature ranked as important in an economic downturn.

The risks ranked as critical by the majority of respondents in the commercial and legal relationships category indicated that the respondents felt that dealing with contractual issues with vendors remained a major obstacle to their IT project success. The lack of experience to deal with multiple vendors on projects, the lack of contractual knowledge and, to a degree, tactical knowledge to deal with adversarial relationships seems to be commonplace. The bulk of the responsibility for this seems to lie with the programme managers. None of the respondents mentioned the definition of the role of the programme manager as a possible contributor to the problem. The role may, in fact, be too broad and encompass too many disciplines to be effective on projects. Another interesting observation was that since the project management role was mainly outsourced, due to the organisations inability to retain these skills, the bulk of the financial aspects, negotiations and relationship management was expected of the programme manager due in part to the organisation's own lack of trust of contracted employees. The role of a dedicated contracts manager may provide the ability to move all the specific legal contractual issues away from the programme manager, allowing them to drive delivery.

The inability to deal with third party vendor performance issues was also ranked as a critical risk for the respondents. Some of the reasons provided were the inability of the organisation to attract competent and credible vendors to this sector. An observation was that the same vendors, who had been responsible

for poor performance on earlier projects, were assigned to new projects where the lacklustre performance continued. This may confirm the issue of insufficient credible vendors in this market sector.

Long running projects that span multiple years appear to be a norm in the public electricity utility sector according to the respondents. These projects, by virtue of their duration, tend to attract more risks than simpler, shorter duration projects (Sauer et al 2007). All the projects described, as examples of where a critical risk was encountered, were of a duration greater than a year. Some projects were running for 5 years with different critical risks being encountered at different times over the project lifespan.

The impact of commercial governance in the public sector was a recurring theme. The majority of respondents cited the inefficiencies in commercial governance in terms of vendor engagement as an obstacle to building and maintain trust with vendors. No respondents mentioned employee-employer trust issues as a contributor to the state of commercial governance.

Projects appear to be competing amongst themselves for risk attention. Respondents agreed that a portfolio management approach to IT projects would allow an overall view of risk and allow these risks to be managed in an effective manner.

The research results also ranked risks that were not rated as critical. These included risks regarding methodology, intellectual property litigation, trade barriers affecting IT projects and insurance and currency exchange fluctuations. The respondents indicated that intellectual property concerns were not a big concern especially as their approach to open source technologies was still conservative. Their commercial process was sufficiently proactive to manage currency exchange issues and no mention was made of insurance risks.

Overall, the spread of critical risks was focused on more traditional project management concerns and risks arising from limitations in the commercial and contracting processes.

5.4 Discussion pertaining to research question 2: Which risk factors in IT projects are determined to be more important to consider in an economic downturn?

The analysis on the content of the interviews proved not only to be confirmatory of the general understanding of risk and risk treatment in terms of an economic downturn but also informative in terms of how South African IT practitioners in the public sector identified the criticality of risk as well as treatment strategies (Di Maio 2009).

5.4.1 Commercial and legal relationships

Problems in carrying out IS/IT outsourcing contracts evaluation

Although already discussed under research question 1, almost half of the respondents indicated that this risk was an important one in an economic downturn. The examples describe the DocMan project where primary vendor, due to the economic downturn, was close to liquidation and had to get its government to inject capital to prevent it from being closed down. The evaluation of the tender that chose this vendor failed to assess the commercial viability of the company in terms of the near future. Subsequent analysis of the balance sheets indicated that the company was servicing debt and continuing to do so without significant sales. The Eskom purchase had not gone through then and would have saved the company if the transaction had been completed ahead of the financial year close. This risk is categorised by Di Maio (2009) as a sourcing and supplier risk and, although not included in the literature review, is an essential risk to consider in an economic downturn.

Revenue recognition

Respondents indicated that this risk arose on several projects including the Letsema project where, due to the economic downturn, the vendors involved increased the pressure on the payment schedule to further process payments

ahead of the targeted delivery. Each of the local vendors had realized that since the payment schedule was delivery based and the project team was not meeting their timelines, the payment milestones would shift into the next financial year. Since the team leads from each of the vendors were at director level in each of their organisations, the pressure came to the forefront in every meeting. This caused significant strain on all parties resulting in every discussion becoming riddled with accusations and counter accusations.

Although Di Maio (2009) describes the scenario where vendors are more amenable to discounts and renegotiated deals due to lower demand, the respondents indicated that this was generally not the case. In fact, most large technology vendors continued to demand above inflationary based increases on software licences and support. New products were being subjected to similar discount strategies from previous years. Exceptions to this were the EAI project where the programme manager agreed to an upfront payment ahead of delivery to satisfy the supplier's cash flow requirement but was able to negotiate a significant discount. In the discussion around research question 1, this was thought to be a mechanism for smoothing cash flow and reducing risk for the vendor.

Overseas based technology vendors, however, seemed more agreeable to the need to negotiate. One respondent quoted a leading metering vendor that was willing to introduce new technology at a much reduced price in order to make the sale.

Open source risks

The consideration to make use of open source software in the downturn due to client funding being constrained as described by Di Maio (2009) was supported by respondents. Most, however, felt that open source adoption would lead to the usual technical and commercial risks already discussed as part of research question 1. The initial benefit of a small or zero outlay of capital to attain the technology was offset by the cost and effort to maintain the technology. Local IT projects, according to respondents, were still cautious about embedding open source software into solutions purely due to the pressure from an economic

downturn. It would appear that the consideration for open source software may in fact be considered in a stable economy rather than a declining one.

5.4.2 Economic circumstances

Competitive risks

The OVS project was subjected to competitive risks when the integration technology, that was procured from SUN Microsystems, proved to be incompatible with the IBM hardware that had been purchased earlier. Initial investigation by the project team had determined that the SUN Microsystems software and the IBM hardware would be a good fit, especially, as the vendors indicated that no compatibility issues would be found. IBM had been trying to purchase SUN Microsystems whose financials, despite showing impressive balance sheets numbers, had a declining share price and no real additional sales. The IBM bid was rejected and one from Oracle accepted. Following this announcement, the project team discovered that IBM were no longer interested in supporting the software and this caused, according to the project manager, additional expenditure on hardware and software to make the solution work.

Whether this was a deliberate action and consequence of IBM losing the bid, is unclear. The respondents that had experience on the project were in no doubt as far as the reasons for the risk. Another respondent rationalised that in a downturn, technology companies would invest less in compatibility testing to make their competitors products work even if it was part of their initial marketing strategy. Di Maio (2009) does not reference this aspect of the risk directly.

Market risks

Most respondents identified the higher level of mergers and acquisitions in the technology sector as impacts on their existing IT projects during the economic downturn. The acquisition of MRO Software by IBM forced the Letsema project to renegotiate licences. This led to commercial delays and additional expenditure eventually decreasing the attractiveness of the business case.

The acquisition of SUN Microsystems by Oracle, previously mentioned, forced the OVS and Letsema projects to replan their integration software strategies. This meant choosing different versions of the software creating a support and skills risk on the project. One respondent commented that the full impact of this acquisition was yet to be felt in the enterprise.

Di Maio (2009) does not reference the mergers and acquisitions in vendor organisations as directly linked to market risks and, thereby, sourcing and supplier risk. However, respondents agree that the increased mergers and acquisition activity was a result of vendors taking opportunities in the downturn to reinforce their offerings and gain market share. This movement amongst vendors lead to risks for clients either using existing technology or acquiring new technology.

Competition for capital

The fact that less capital is available in a downturn is primarily a result of reducing IT budgets to focus on core business activities (Cusumano 2009). The respondents were unanimous in their view that this would be impacted in an economic downturn with most quoting examples where projects that had well secured funding and established benefits, were put on hold. The Land and Rights project designed to assist Eskom achieve benefits in the management of all its servitudes and properties was put on the back burner as it became clear that the ability to raise capital would be affected by the downturn. One respondent felt that this would have been the case regardless of the downturn, but it was clear the departments were competing for infrastructure funding ahead of IT funding (Sebola et al 2007). Portfolio managers interviewed mentioned reductions in project portfolios from 92 to 42 projects during the peak of the downturn.

Poorly written business cases

Similarly to the previous risk, respondents described business cases that were unclear as to the benefit they were aiming for, as well as those that were not aligned with the current business requirements as being cut from the reprioritised investment list (Di Maio 2009). This meant that any project, no

matter how urgent the need, was being delayed as the financial managers investigated their financial calculations in detail. Existing business cases that relied on strategic drivers as motivation for funding were given greater scrutiny resulting in delays for those projects.

Project abandonment

The respondents described the NRM Information Model project as an example where the organisation determined that funding would be removed. This project had already progressed into the conceptual analysis phase and had signed on vendors for the work. The reason given for the cancellation was that this project was establishing a base capability for other projects to leverage. Business benefit would, therefore, only really flow from the start of the other related projects. The abandonment left concerns surrounding the use of the partially created assets and, for the financial managers, a headache on how to account for expenditure in terms of the Public Finance Management Act (PFMA).

The result of abandoning a project, therefore, entails greater risk than the risk boundary of the project. Dependent projects have to scale up their funding to cater for the additional costs that originally would have been shared between the dependent projects. Respondents confirm that the cost of abandonment is often misunderstood and often the entire IT project portfolio pays for the abandonment of a single project, which confirms Iacovou and Dexter (2005) and Ewusi-Mensah (1997).

5.4.3 Political circumstances

Politicization of projects

Di Maio (2009) describes the prioritisation of projects in order to cut low priority projects. Respondents described how politically astute sponsors argued the relative benefits of their portfolios ahead of others during the prioritisation debate. As a result, the discussion often became politically charged, supporting Alter (2004). The impact of an economic downturn raises public awareness around public spending or ROI of public funded projects. Respondents

described business cases that were made more difficult to motivate financially during the economic downturn, where larger projects were targeted. As a result, most respondents started creating smaller projects with smaller profiles to achieve the business needs.

5.4.4 Technology and technological issues

Technology obsolescence

The challenges of being forced to ‘”sweat” older technology for longer periods of time, were universally accepted by almost all respondents as a critical risk in an economic downturn. The Citrix project was described as an example where this server supports infrastructure critical to business applications. The server replacement cycle was targeted at 5 years but failures had started to affect systems availability. The replacement project (Citrix) was delayed due to the lack of funding as a result of the downturn (Di Maio 2009). This resulted in a skills mismatch as the supporting vendors could not retain the older skills as most technical resources felt that they were being left behind in their development. This is supported by Vecchio (2009), where the technical experts of older technology retire or move on.

5.4.5 Management activities and controls

Resources assigned to a higher priority project

One respondent described how external resources were not considered due to the shortage of additional funding during the economic downturn, resulting in internal resources being reassigned to higher priority projects. Other respondents remarked that the reduction in the project portfolios led to a lowered demand for resources and, hence, a greater availability to higher priority projects. Additionally, respondents argued that the resources assigned to projects would stay longer to maximize value and minimize costs. Support for whether this risk is clearly critical in an economic downturn was, therefore, undecided.

Subject matter experts are overscheduled

Similar to the above risk, respondents were divided over whether the criticality of this risk in a downturn, would escalate. The support, in favour of this statement from respondents, suggests that since the skills required would be harder to come by (Vecchio 2009), the projects would experience this risk. Examples provided were the CNL project which, during the downturn, was unable to sign on project teams due to a lack of available skill on traditional development and new technology. This was not, however, conclusive and the counter arguments evidenced on the Letsema project suggested that the issue is not the attainment of the skill but rather the application of those skills at the relevant stages of the projects. Vendors were eager to maximize profitability and, therefore, limited the role of the subject matter experts to avoid incurring additional cost.

5.4.6 Summary and triangulation

The spread of results as shown in Table 10toTable 15 was analysed and presented in the preceding sections. Some of the risks were rated almost equally by the respondents and during the analysis were assigned as either supporting or not supporting the literature based on the majority of respondents and their arguments. Not all the risks were able to be neatly categorised based on the interviews. The interview notes and the evidence gathered from other interviews and the programme management offices were able to finalise the results.

The Tables that follow illustrate the results of the categorization of the risks against the literature reviewed.

Only one new risk; namely, “Problems in carrying out IS/IT outsourcing contracts evaluation” was identified by the majority of respondents as being additional to the result set provided from the literature.

Although literature provided 20 risks related to an economic downturn, 11 were supportive of literature and 9 considered not supportive of the literature review, based on the reports of the majority of respondents.

Table 19: Literature sourced economic related risks supported by respondents

Supported by Respondents	Risk Description	Projects Names Provided	PMO Evidence	Described by Multiple Respondents
Risk 9	Revenue recognition	Letsema	Risk Meeting Minutes	yes
Risk 11	Open source risks	none	none	yes
Risk 15	Competitive risks	Online Vending System (OVS)	Integration Project Meeting Minutes	yes
Risk 16	Market risks	Letsema, Online Vending System (OVS)	Procurement Meeting Minutes	
Risk 17	Competition for capital	Lands and Rights	Project Management Forum Presentations	no
Risk 19	Poorly written business cases	none	none	yes
Risk 22	Project abandonment	NRM Information Model	Project Management Forum Presentations	no
Risk 23	Politicization of projects	none	none	yes
	Technology obsolescence	Citrix	Project Management Forum Presentations	no
Risk 34	Resources assigned to a higher priority project	none	none	yes
Risk 44	Subject matter experts are overscheduled	Customer Network Link (CNL)	Procurement Meeting Minutes	yes

Table 20: Literature sourced economic downturn related risks notsupported by respondents

Not Supported by Respondents	Risk Description	Projects Names	PMO Evidence	Described by Multiple Respondents
Risk 1	Adversarial relationships and loss of trust between vendor and client	Letsema	Risk Meeting Minutes	yes
Risk 3	Difficulty in breaking the contractual agreement	Arivia.kom Sale, Letsema	Letsema Steering Committee Minutes	yes
Risk 20	Currency exchange fluctuations			
Risk 25	Political interference	EDI Restructuring, Advanced Metering Infrastructure (AMI), Online Vending System (OVS)	Project Management Forum Presentations	yes
Risk 27	Lack of top management support	Meter Data Management System (MDMS)	none	no
Risk 29	Introduction of new technology	Online Vending System (OVS), Smallworld	Integration Project Meeting Minutes	yes
Risk 33	Ineffective schedule planning and/or management			
Risk 35	Communication breakdown between stakeholders			
Risk 43	Team members lack requisite knowledge and/or skills			

Table 21: New risks identified by respondents applicable to economic downturn

New Economic Related Risks - Respondents	Risk Description	Projects Names	PMO Evidence	Described by Multiple Respondents
Risk 6	Problems in carrying out IS/IT outsourcing contracts evaluation	DocMan	Project Meeting Minutes	yes

5.4.7 Conclusion

The spread of critical risks identified by the respondents for risks related to an economic downturn yielded both confirmation and rejection of the literature. Of the 20 risks identified from literature, 11 were determined to be supported by the majority of respondents with 9 not being supported. In addition, the respondents identified an additional risk that was not categorized by literature as having a relationship to an economic downturn.

The supported risks were concentrated around the economic circumstances category and dealt with the general concerns in an economic downturn of the scarcity of capital, the market response and its impact on the organisation, the impact of competitors in the marketplace and the availability of skilled resources. The only surprising inclusion was the risk of evaluating outsourcing contracts.

The unsupported risks were primarily from the commercial and legal, political circumstances and expectedly from the management activities and controls categories. The latter was expected as these are the traditional risk factors that would arise regardless of the economy.

The interviews indicated that very few of the respondents had a proactive stance towards managing the economic downturn's related risks. A significant proportion of the discussions led to the realisation that, for some respondents, this was the first time they had considered framing risks in this context. Most respondents regarded the research instrument (Appendix A) as the first time that they had seen where all these risks collated in the workplace.

Most respondents felt that the duration of IT projects, especially in an economic downturn, exposed them to the economic downturn related risks. Suggestions were made as to how to shorten project times and refactor projects into smaller vehicles so that complexity and, consequently, risk exposure would be reduced.

5.5 Discussion pertaining to Research question 3: What are the treatment strategies identified for the critical risks in an economic downturn?

5.5.1 Adversarial relationships and loss of trust between vendor and client

Building the trust relationship is a key element in avoiding this risk. Nguyen et al (2006) describe the factors to establishing trust as cultural, understanding, creditability and capability. The respondents indicated that building this trust was challenging as it is difficult for them to gain access to vendors to create understanding, creditability and capability as the commercial governance that is in place, prevents contact with vendors prior to establishing a contractual relationship. However, the technical respondents indicated that contact with vendors over technology briefings, allowed them to gain an understanding of the vendor technology, though not their implementation capability.

Creating that prior relationship is vital according to respondents. Some approach this by attempting to institute an enabling agreement in order to use resources from the vendor to perform smaller tasks. This form of body shop agreement is difficult to setup up as commercial teams generally regard these contracts as creating an unfair playing field amongst other vendors. The examples described by the respondents are arrangements that have been negotiated at executive level where there already exists a relationship between the organisations in terms of a shareholding or some larger project or initiative.

The programme managers that were interviewed used their past experience, allied with the commercial teams experience with vendors, to determine a suitable vendor for a project. The request for proposal (RFP) process does allow the programme manager to assess vendors as well, but this is often purely a paper evaluation based on evidence provided. Programme managers

that have a trust relationship with vendors with respect from previous projects, assess that vendor accordingly in the RFP evaluation.

This is effectively the trust relationship in action and often other programme managers feed off this in a form of “trust transfer” relationship. Vendors then build their credibility in the organisational and an effective internal reference mechanism provides ongoing work. This makes it difficult for new vendors to enter the market and, perhaps, accounts for the lack of new technology skills available to IT projects.

Lichtenstein (2004) contends that vendor sharing of long terms risks must take place and that this mechanism must be built into contracts. Respondents indicate that the current contract template: the NEC, does allow for a transfer of risk to be explicitly captured but is not used often. Whether this is a result of a lack of knowledge is unclear. The programme managers are, in effect, the owners of these decisions with the commercial teams providing a purely supportive role. Contracting mismatches as described by Lichtenstein (2004) were evidenced on the Letsema project according to respondents. The sharing of risk was not possible since the turnkey specification of the contract meant that the vendor reacted negatively to any customer aligned benefit that meant an adjustment on the vendor output.

Cultural alignment between the vendor and the client is required according to Nguyen et al (2006) although there could be a difference between public and private sector engagements as well. Respondents indicated that often vendors have a limited understanding of the approach they should use in engaging projects in the public sector. They describe vendors that have been successful in the private sector being unable to establish similar trust relationships in the public sector.

One respondent felt that there existed an element of corruption in commercial dealings in the public sector and asserted that this prevented the building of trust on that specific project.

Respondents suggested that joint project teams be established early in the project lifecycle and that this be made part of the contract to assist with cultural

understanding and communication, essential to building and maintaining trust (Nguyen et al 2006).

5.5.2 Revenue recognition

None of the respondents identified the role of the board of directors in being made aware of the revenue recognition risks. King 3 (KPMG 2009) requires that the board be made aware of IT governance and this includes issues of revenue recognition and how it affects IT projects.

The use of outside firms to review contracts (Yates and Arne 2004) specifically for revenue recognition requirements was not confirmed by the respondents. Although internal and external IT auditing was commonplace and available on large projects, none of the respondents seemed aware of this treatment option. It seems that, similar to the commercial team, the internal audit team do not get involved with active decision making on projects. Their role appears to be more of assurance and reactive checking.

The respondents did discuss the tactical options available during contract initialisation and specifically concentrated on the payment strategies to alleviate the vendor pressure on their projects. One specific tactic would involve the timing of negotiations with vendors being cognisant of their financial closing dates. This would provide leverage to the client negotiator to realise potential discounts.

5.5.3 Open source risks

The literature surveyed had limited treatment options and the respondents were able to describe many more. Yates and Arne (2004) and Giera (2004) describe that software developers must be made aware of the legal ramifications of using open source products. The respondents discussed the role of governance in restricting the unauthorised use of open source software. The difference here is that the respondents felt that the only way to get a foothold on this problem was to be proactive and setup the organisational governance required ensuring that the risk is minimised.

The additional support that all contracts include is a disclosure clause on open source software. This would allow all the entry points of technology to be monitored, thereby, partially mitigating the risk.

Most companies were not aware of just how much open source was deployed in the organisation and how much more they would tolerate. This threshold for where and what type of open source was acceptable to the organisation is invaluable in the ongoing treatment of this risk according to the respondents.

The transfer of open source risk to the vendor by building this into the contract was regarded by the respondents as an essential step. Whether or not the vendors would accept this risk, was a valid concern.

Finally, the respondents recommended that a scientific basis for analysing the need for open source be taken as opposed to following the market hype. This would be essential if further risks are to be avoided.

5.5.4 Technology obsolescence/legacy modernisation

Sweating the IT assets of a business is not new and most respondents felt that the issue of embedded business rules in legacy systems (Kost 2003) was valid but an overstated risk and, hence, the treatment to sweat these further was not necessary. However, the lack of capital in a downturn was found to be a valid risk contributor to needing to sweat the IT asset and as a result being able to understand that the optimal balance between sweating old technology and replacement becomes the key concern.

Ultimately, most respondents argued that the recapitalisation of the IT assets that had gone beyond their lifespan was inevitable and would need to be planned for. Since the capital for “risk mitigation” projects would be difficult to raise when competing with the capital needs of new business requirements, the planning for this expenditure would need to be factored into the capital expenditure rolling plans.

In some cases, the respondents acknowledged that the pressure to move to a new technology and replace the older asset was purely a sales strategy on

behalf of the vendor. Having strong trusted relationships with vendors would assist in determining the roadmap and negotiating with vendors for extended support on existing technologies.

Optimising newer assets as alternatives for older solutions by migrating them off legacy equipment was also suggested by the respondents. This optimisation of the asset base would require an overview of the client infrastructure as well as an understanding of vendor technology roadmaps.

5.5.5 Project, people related risks and new technology

The subject of training was highlighted in both the literature and the respondent interviews. Retaining staff in the public sector through training, mentoring and the cultivation of shared norms (Thatcher et al 2002) was supported by the respondents who further described the use of structured training interventions that should be part of the new technology purchase. This could be negotiated with the vendor and executed by the project.

However, not all skills may be available internally and some respondents suggested that overseas resources be contracted through local agencies or vendor representatives to ensure that local rates are applied. This would have the knock on effect of forcing local vendor representatives to invest in skills building thereby ensuring that the shortage of subject matter experts will be addressed (Kappelman et al 2006).

To be able to deal with the ineffective schedule and planning risks, respondents recommended that the dependencies of projects with each other be limited through appropriate phasing of project activities. This may have an impact in terms of additional costs on each project as the optimal sharing of costs at the points of dependency may not be possible anymore. This additional cost may be considered as a mechanism to create flexibility in a project portfolio.

Some respondents recommended the use of single vendor teams instead of multi vendor teams to aid in schedule planning. This may not be a realistic goal as the likelihood of having all the relevant skills in one vendor is not always

possible. What may be optimal is the choice of a single master vendor whose role is to absorb the risks across the project. However, one respondent pointed out that the Letsema project was designed in this way and was still not able to mitigate the complex scheduling risk.

When it came to new technology risks, respondents argued that the planning for such new technology must be completed well in advance to help the organisation prepare. The use of an EA team on the client side may assist in developing this blueprint. Several respondents agreed that taking on new technology in an economic downturn is a risky proposition and should be avoided.

5.5.6 Politicisation of projects, political interference and lack of top management support

The role of executive sponsors and leaders in assisting projects achieve success in the organisation (Peled 2000) was strongly supported by respondents who argued that strong, committed sponsors were required. The respondents further suggested that the sponsor role not be automatically assigned based on convenience but rather be established as a formal role for which one had to interview. The thinking behind this approach is that only sponsors who are motivated to achieve success with that specific project, and who have a greater awareness of the environment (Standing et al 2006) will want to commit. This would also encourage the sponsors to build the project success criteria into their contracts for measurement and reward.

The movement of ownership of IT projects to the lines of business must take place, according to respondents, in order to gain creditability and buy-in. Projects that have been positioned as such may be more agile to respond to a change in business.

5.5.7 Market risk and project abandonment

The use of a portfolio management approach in managing IT projects (D'Amico 2005) was supported by respondents who acknowledged that in terms of understanding and planning for the real cost of abandonment, the portfolio approach allowed the characteristics of the portfolio to be modelled using financial indicators like net present value (NPV) allowing the impact to be quantified (Bardhan et al 2004).

By becoming more agile in recognising market shifts, the respondents argued that this would allow project and programme managers to become aware of the explicit dependencies between projects and, therefore, identify common risks on the portfolio (Olsson 2008).

Respondents also recommended that commercial staff regularly evaluate suppliers with respect to financial performance. These analyses would need to be executed regularly and not only when a project is about to engage contractually with a vendor.

Most respondents provided examples of large projects whose duration spanned several years. One respondent indicated that by shortening the duration of these projects and by executing smaller and, hence, less risky projects, more success would be attained.

5.5.8 Competition for capital

The creation of a portfolio view of projects would highlight projects that are not aligned to current business goals. This was supported by Di Maio (2009) who argued that decision makers become aware of the benefits on projects by understanding existing business cases. By adopting the portfolio approach, one of the benefits argued by the respondents was the ability to plan exit points within IT projects to aid decision making. Should there be a need to delay or defer a project the ability to execute that option would be available.

The capacity to analyse the portfolio and determine how it should categorise projects in order to classify and prioritise spending (Buchanan 2009) would

require the creation of specialised business case developers and analysts which, according to respondents, did not exist in their organisations. The suggestion of a full time role to manage and oversee this capability was recommended.

5.5.9 Conclusion

The treatment strategies and options offered by the respondents matched most of the treatment in the literature review. The respondents were unable to provide sufficient information on the treatment of the revenue recognition risk. Most of the treatment options were centred on contracting mechanisms and skills. This was more than likely a result of the respondents' positioning within the organisation as merely 3 respondents occupied executive level positions.

The treatment strategies were more focused on practical implementations and suggestions. This was to be expected as the majority of respondents were involved in daily programme and project management work.

There was a wealth of options provided for open source risk mitigation indicating that, despite the lack of open source in projects (based on the interviews), the consideration of open source was well discussed in the respective organisations. The respondents also discussed the use of forceful measures of governance and contract compliance as mechanisms to achieve risk mitigation on open source. This did indicate an underlying view that the respondents were used to dictating terms on contracts and since most had worked for Eskom at some point or another, this reflected a strong yet demanding expectation that vendors would comply. It is, however, this assumption that may have lead to an overall inability to be flexible concerning risk mitigation. This was not tested with the respondents.

The mitigation of technology obsolescence risks indicate that the majority of organisations in this research appeared to have migrated off legacy where business rules are embedded and cannot be removed. None of the respondents indicated during the interview process whether this was a consideration. The discussion of this risk was based purely on the reality of a constrained funding

model in an economic downturn and the need to migrate to new technology as a means to either meet minimum standards for vendor support or the need to resolve failing equipment. Recapitalisation of obsolete or old hardware seems to have been accepted by these organisations and was planned for.

The treatment around avoiding adversarial relationships and then building and maintaining trust generated the most in terms of feedback. The challenges facing the respondents in the public sector do relate strongly to governance, policies and procedures. The ability to make these treatment options a reality will require a significant shift in the organisations thinking around commercial engagement with vendors. While only one respondent mentioned corruption, how widespread and damaging it is to overall risk management is not known.

5.6 Conclusion

The response to research question1 indicated that the view on the criticality of risks in this sector is still largely based on traditional project management issues. The rating of commercial risks as critical indicates the problems that the respondents have with their own commercial processes. The issues of inadequate third party performance and the basic project management competency issues point to a real problem with skills across all the IT disciplines in this sector.

The response to research question 2 supported several of the literature sourced risks on the economic downturn related risks. The supported risks indicated that that the challenges of the respondents lay in the expected areas of capital scarcity, internal competition for risk attention, responding to market changes and dealing with competitive vendor risks. One surprising inclusion was the focus on being able to evaluate the outsourcing contracts and proved to be an essential skill in mitigating other downstream risks.

The unsupported risks included new technology risks, indicating that most respondents would not engage in new technology in a downturn even though opportunities may exist. Despite the use of key examples, the majority of

vendors felt that top management support was not a concern and neither was political interference.

Several respondents regarded an economic downturn as an opportunity to re-baseline the project portfolio and to weed out poorly supported systems and projects by analysing their business cases.

The response to research question 3 indicated that most of the literature sourced treatment strategies were agreed to by the respondents. The respondents, however, focused on practical and detailed risk treatment approaches and often these became specific for the type of problem that was being solved.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter will close the research conducted in trying to understand how risks on IT projects in the public electricity utility sector are rated, whether an economic downturn affects the critical nature of the risk and what treatments could be used to treat critical risks. Recommendations on further research will also be highlighted.

6.2 Conclusions of the study

The research highlighted the IT project risks that practitioners in the public electricity utility sector rate as critical. It was informed from their experiences on IT projects delivered primarily over the last ten years and provides insight in IT project success and the maturity of the risk management discipline.

It further determined which risks were regarded as critical in an economic downturn for the execution of IT projects and supported and contrasted with existing literature on the subject. As this is a relatively new area of research in terms of the most recent economic downturn, the results reflect the current thinking and positioning of IT professionals in this sector.

It is likely that considering the spread of responses over research questions 1 and 2, that the differences between the research results and the literature indicate that the South African context may have had a biasing role in the final determination of critical risks. The response of companies involved in IT projects in the local public sector and the implications of having an economy that lags behind the US and European economies may be contributing factors as to why the respondents' views do not fully agree with the literature surveyed.

One of the themes arising from the study is the issue of skills and experience. The lack of experienced programme management, project managers and

technical staff in the utilities is one of the major obstacles for the treatment of risk. Retaining these resources has, according to the respondents, been challenged by the effective competition with the private sector. Despite equalising remuneration, the relative unattractiveness of the public sector had contributed to the loss of resources. This competition for resources across other sectors in both the public and private domains will more than likely continue to be a challenge for public sector organisations.

Addressing the shortage of IT skills within this sector will need new internal capacity to be built (McClure 2006). The success of IT project management and the success of IT in the public sector will be tied to an organisation's ability to build local skills and provide market related opportunities to sustain that skill.

In closing, the success of IT projects in the public electricity utility sector will depend, in part, on its ability to attract and sustain local talent be that in IT or other technical careers. The infrastructural goals and the need for urgent expansion in this sector will create opportunities for all professionals including those in information technology. The sustainability of the retained experience will depend on individuals who are passionate and ready to make the difference and lead in the building of not only this sector, but also this country.

6.3 Recommendations

From the study there are various takeaways for chief information officers (CIOs) and executive IT management teams:

- The role of IT risk management as part of the organisation's risk management will increase as a result of King 3 as directors become even more accountable for IT governance. Sensitise executive members on the economic related risk criteria

- The risks identified as critical are indicative of structural problems within public sector electricity utilities. These include the issues around commercial governance and its unintended constraints in resolving

adversarial relationships with vendors. Focus on assessing the contribution commercial governance is making to escalating IT risks

- Circulate a complete list of IT risk factors and determine the organisation's sensitivity to those factors. Perform this yearly to continuously adjust the organisation's understanding of the risk

- Consider implementing a sponsor interview process to gain committed sponsors and compact them for delivery

- Consider implementing a portfolio management methodology for managing IT projects. Train all staff involved in projects as to the role and need to manage risks across the portfolio

- Appoint specialist and knowledgeable contract managers for the IT portfolio. Consider separate contract managers for projects and for support contracts.

6.4 Suggestions for further research

There are several research topics that could be explored:

- Reuse the set of economic downturn related risk factors and target the executive level in public sector electricity utilities to determine their perspective on risk. This should provide improved insight on both the rating as well as the treatment options

- Perform a quantitative study using a survey instrument and Delphi technique to sample a broader cross-section of IT professions to obtain more conclusive results

- Investigate, using an exploratory approach, the linkage between economic downturn related risk factors, organisational culture and CMMI maturity for all public sector IT functions.

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APPENDIX A

Letter of Introduction

Dear IT Professional,

I am a MBA student from Wits Business School (University of the Witwatersrand) completing my research requirement for the fulfilment of my degree.

My research proposal is “Managing IT risk in an Electricity Utility”. The aim is to:

- Identify and rank the critical risk factors applicable to modern electricity utilities involved in IT projects
- Determine possible treatment strategies for these critical risks.

Considering the spend and growth targeting our public sector and more specifically the Electricity Industry, I hope that the results will prove beneficial to all concerned.

If you are willing to participate in an interview, please respond by email to

Shannon.Naidoo@eskom.co.za or

Shannonn@lantic.net

Or contact me directly on +27 11 690 4167 OR +27 82 872 6791 to confirm an appointment.

Sincerely

Shannon Naidoo

Demographics Questionnaire for "Managing Information Technology Project Risks in Electricity Utilities in South Africa"

Section A: Demographics

Please either tick or fill in the information required

Q1. Please indicate Age: 25-30 ☐ 31-40 ☐ 41+ ☐

Q2. Please indicate years experience in IT: ☐

Q3. Please indicate highest qualification: ☐

Q4. Please indicate Race: Black ☐ Coloured ☐

Asian ☐ White ☐

Q5. Please indicate Gender: Female ☐ Male ☐

Q6. Please indicate the largest project value that you have worked on:

Less than R1m ☐ between R1m and R10m ☐

between R10m and R20m ☐ greater than R20m ☐

Q6. Please indicate the duration of the longest project worked on: ☐

(months)

Q7. Please indicate the number of IT projects you have been involved with in the public sector:

Less than 5 ☐ between 5 and 10 ☐

Between 10 and 15 ☐ more than 15 ☐

Research Questionnaire

Section B:

Managing IT Project Risks in South African Electricity Utilities

Organisation _____

Person Interviewed_____

Current Role_____

Opening Statement to Respondent

I would like to thank you for agreeing to participate in my research in trying to confirm the critical risks affecting IT projects in electricity utilities in South Africa and more specifically those during this economic downturn. The interview should not last longer than 2 hours depending on the depth of discussions.

As I explained briefly in the interview request letter, the intention of the study is to understand how modern electricity utilities in South Africa are dealing with IT project risk especially considering the impact of the global economic downturn. The interview will be utilised to understand what risks you have experience on recent projects and what the treatment strategies were for those risks.

In order to aid with the research validation, some background information on the specific projects and timeframes would be required along with some contact details.

Interview Questions for "Managing Information Technology Project Risks in Electricity Utilities in South Africa"

Section A: Identifying Project Risks

The literature reviewed provides a comprehensive list of 48 risk factors that were applicable to public sector IT projects. These risk factors can be sorted into 8 categories based on a classification by standards bodies. For each of these categories, the following questions will be asked:

1) *How would you rate the applicability of this risk factor in your experience of IT projects in public sector electricity utilities?*
2) *Can you confirm whether this risk factor is more critical with respect to the current global economic downturn in terms of its impact on your IT project?*
3) *Could you provide an example of a project where this risk manifested?*

For each of the critical risks identified in Section A,

1) What would be the treatment strategy for mitigating this risk?
2) Did you apply this on a specific project?

A1 Commercial and legal relationships

The increase in outsourcing of IT work means that more projects rely on contractual relationships to achieve their project goals. Therefore, the nature of the contract and the relationship with the vendors become key elements in the identification and treatment of risk.

Risk 1: Adversarial relationships and loss of trust between vendor and client
Outsource contracts rely on a level of trust between the parties and differ from in-house developments in that the trust is harder to establish due to a lack of a prior relationship and the nature of the contract defining penalties and performance criteria.

Risk 2: Vendor de-escalation of commitment
Changes in the vendor organisation with respect to strategy or business environment can lead to the de-escalation of commitment.

Risk 3: Difficulty in breaking the contractual agreement
In a troubled project, both parties are so bound by the actual contract that they attempt to find breaches in contract by the other party so as to avoid "losing points" in a legal battle that may follow.

Risk 4: Inadequate 3rd party performance
The selected vendor or contractor is unable to perform to the specification required.

Risk 5: Litigation in protecting intellectual property
Inadequate protection of intellectual property rights may result in loss of market potential and the possibility of litigation costs.

Risk 6: Problems in carrying out IS/IT outsourcing contracts evaluation
Organisations assume that the contract itself acts as a control mechanism and fail to evaluate the SLA's leading to more issues.

Risk 7: Embedded contract mentality
Organisations did not implement qualitative or formal metrics and relied on terms specified in the contracts and SLA's to provide progress views.

Risk 8: Ability to manage contracts
Organisations do not have the necessary skills to manage contracts leading to contractors dominating the IT decision making process.

Risk 9: Revenue recognition
Contracts placed may have certain expectations built in to show early revenue recognition for the client which can undermine delivery linked contracts.

Risk 10: Regulatory risks
The requirement to comply with regulatory targets often raise pressure on project delivery targets.

Risk 11: Open source risks
The growing use of open source software either embedded in solutions or as standalone components has meant that organisations need to be wary of upstream intellectual property concerns, incomplete ownership of solutions and intellectual property attack due to lack of information regarding warranties and indemnities.

Risk 12: Insurance risks
Errors and omissions policies in contracts are often used as a means to deny accountability in delivery of services. Third party litigation can be brought against clients requiring commercial general liability insurance. Disruptions to business continuity can occur as a result of corruption of computer code, software and specific data

Risk 13: Import/export restrictions
Trade barriers can impact the options available to projects in terms of technology, information and project resources

Risk 14: Privacy
Specific data cannot be released to unauthorised people.

A2 Economic circumstances

Risk 15: Competitive risks

Competitors could take action that undermines or introduces risk to current projects. Competitors could also create better products.

Risk 16: Market risks

Regulatory bodies, customers or vendors may institute changes that impact the investment made in the IT project resulting in unanticipated changes in approach or direction. The introduction of an IT application may introduce behaviour that changes the market considerably resulting in the project benefits being eroded. New advancements render older technology obsolete affecting customers and vendors alike.

Risk 17: Competition for capital

Differences in natural resources, human capital or infrastructure will have the impact of draining capital from other regions. Departments, therefore, constantly compete for the availability of capital.

Risk 18: Credit rating

Companies that try to raise funding in markets are subject to ratings agencies' views on the ability of the company to pay back loans. A lower rating increases the cost of capital for new or existing projects.

Risk 19: Poorly written business cases

Business cases that cannot articulate clear business benefits and consequently strong return on investments (ROI) will not gain support and may be stopped altogether.

Risk 20: Currency exchange fluctuations

Projects that make use of offshore models may be required to make payment in a foreign currency. Fluctuations in currency can lead to widely varying costs.

Risk 21: Management reserve

Insufficient contingent funding may lead to projects being abandoned or delayed as further funding is sought.

Risk 22: Project abandonment

Cancelling a project can affect the IT portfolio and, hence, other projects by not resolving dependencies and resource availability issues. Financial impacts on the client and the vendors can arise.

A3 Political Circumstances

Risk 23: Politicization of projects

Research shows that public sector projects are often under greater media and political pressure due to the expenditure of public funds. This creates additional pressure for project decision makers. Additionally, these projects are subject to multiple reviews which may lead to confusion in the decision making and implementation process. Projects in the public sector have a public return on investment (public ROI) that may have influence on government actions or policy.

Risk 24: Governance volatility

This relates to the changes of project managers or sponsors on projects that negatively affect project performance.

Risk 25: Political interference

More focused on company and stakeholder politics rather than government politics. Typical scenarios involve sponsors using their influence to either delay or speed up delivery and create stresses as a result of not navigating the process.

Risk 26: Change of administration

Changes in administration bodies governing public sector organisations can lead to discontinuities with decisions already made. This can lead to a break in communication with the controlling authorities.

Risk 27: Lack of top management support

Projects that are started “bottom up” or in departments that do not have the required support across the enterprise and often conflict with enterprise priorities

Risk 28: Restructuring of organisations during project

Any organisational change can be disruptive and can exert negative influences on IT projects.

A4 Technology and technological issues

Risk 29: Introduction of new technology

New technology, described as bleeding or leading edge, can impact projects due to the organisations’ or project teams’ lack of implementation experience.

Risk: Technology obsolescence

Companies with legacy technical assets (e.g. servers, software) cannot upgrade these assets due to funding constraints and, therefore, have to contend with this technology for a longer period.

Risk 30: Lack of a suitable communications infrastructure

IT projects require a network infrastructure capable of supporting the solution. Failing to provide this leads to a host of application and solution performance.

A5 Management Activities and controls

Risk 31: Lack of document requirements and/or success criteria

The lack of documented requirements, be it functional, performance or reliability requirements, creates differing expectations and undefined success criteria.

Risk 32: No change control process

Requirements on IT projects despite being fixed, can change due to changes in business processes, technology changes, management influences or market induced change.

Risk 33: Ineffective schedule planning and/or management

Projects that have poor milestone definitions, unrealistic milestones and poor sequencing of activities will create confusion around what tasks need to completed and the timing of the tasks.

Risk 34: Resources assigned to a higher priority project

Reassignment of resources to other projects, are highly disruptive to the current project, often impacting the overall delivery of the project.

Risk 35: Communication breakdown between stakeholders

Project stakeholders need to be kept up to date with possible changes to the project. Failure to do so can lead to a lack of support from key stakeholders and a loss of consensus on project success criteria.

Risk 36: Use of an inappropriate methodology

An improperly structured development can lead to a lack of meeting user requirements.

Risk 37: Lack of customer involvement

Customers need to be involved in the development process to ensure correct delivery of the solution. Any lack of involvement leads to misaligned expectations.

Risk 38: Lack of formal project management practices
A formal project management practice or methodology, including formal plans, schedules, budgets and milestones can reduce software project risk.

Risk 39: Dissimilarity to previous projects
Projects implementing new technologies that are either a first for the organisation or a first for the service provider can invalidate experienced project teams.

Risk 40: Project complexity
Both organisational complexity and technical complexity contribute as risks to projects. Technical complexity in this case refers to the interdependencies with other IT projects. Organisational complexity deals with coordination challenges in the enterprise.

Risk 41: Requirements volatility
Changes to requirements, makes it difficult to build to a target. This can arise due to business environment changes or fickle customers. Requirement volatility can result in changes to schedule, budget and scope which require good project governance.

Risk 42: Weak commitment of project team
Achieving milestones and project objectives requires concerted effort and any team member that is not committed to the tasks assigned will find other activities to work on, thereby, compromising delivery. Sponsors often place unrealistic pressures on teams increasing the lack of commitment.

Risk 43: Team members lack requisite knowledge and/or skills
The technology being implemented often requires specific knowledge by the team members to overcome product related risks.

Risk 44: Subject matter experts are overscheduled
Subject matter experts(SMEs) are expected to provide guidance to project teams while retaining their normal outputs. This creates additional load for the SMEs and creates risks for projects.

A6 Individual Activities

Risk 45: Goldplating
Over-specification results from teams that are too focused on the detail, and they lose sight of the project objectives.

Risk 46: Unrealistic expectations
Mismatched expectations can be a cause of project failure in the context of both finite specifications and relationship management.

APPENDIX B – CONSISTENCY MATRIX

Table 22: Consistency matrix

Sub-problem	Literature Review	Research questions	Source of data	Analysis
The first sub-problem is to determine from literature the risk factors that arise in the management of modern IT projects in electricity utilities in the public sector.	Project Management Institute , 2004; Schmidt, Lyytinen, Keil and Cule, 2001; Standards South Africa, 2003 ; Baccarinin, Salm and Love, 2004; Natovich, 2003; Young and Anderson, 2008; Sabherwal, 1999; Nguyen, Babar, Verner, 2006; Krasner, 1998; Yates and Arne, 2004; Lin, Pervan and McDermid, 2007; Kliem, 2004; Benaroch, 200; Cai and Treisman, 2005; Enslin-Payne and Brown, 2008; Lam, 2004; Iacou and Dexter, 2005; Ewusi-Mensah, 1997; Kappelman, McKeeman and Zhang, 2006; Nakatsu and Iacovou, 2009; Gauld, 2007; Cresswell, Pardo, Burke and Dadayan, 2007; Sauer, Gemino and Reich, 2007;	What are the critical risks that South African electricity utilities will prioritise in an economic downturn?	In depth interview transcripts	Content analysis on qualitative data

Sub-problem	Literature Review	Research questions	Source of data	Analysis
Determine which risk factors are considered to be critical or related to an economic downturn.	Di Maio, 2009; Cusumano, 2009 Vecchio 2009 Artunian 2005; Sebola, Theron and Nel, 2007; Venter, 2007 Alter, 2004; Kaulio, 2008	Which risk factors in IT projects are determined to be more important to consider in an economic downturn?	In depth interview transcripts	Content analysis on qualitative data

Sub-problem	Literature Review	Research questions	Source of data	Analysis
Determine the treatment strategies for the identified critical risk factors.	Standards South Africa,2007 Project Management Institute, 2004 Nguyen, Babr and Verner, 2006 Sabherwal, 1999 Russell and Chatterjee, 2003 Lichtenstein, 2004 Yates and Arne, 2004 Eskom Holdings Limited, 2009 Giera, 2004; Kost, 2003 Tatcher, Stepina and Boyle, 2002 Kappelman, McKeeman and Zhang, 2006 Klein, Jiang and Tesch, 2002 McClure, 2006; Peled, 2000 Standing, Guilfoyle, Lin and Love, 2006 Chua, 2009; D'Amico, 2005 Bardhan, Bagchi and Sougstad, 2004 Olsson, 2008; Buchanan, 2009 Di Maio, 2009	What are the treatment strategies identified for the critical risks in an economic downturn?	In depth interview transcripts	Content analysis on qualitative data

APPENDIX C TRANSCRIPTS

RESEARCHER	Welcome Respondent G, Thank you for agreeing to my request for an interview for my MBA research. What you have in front of you is a handout with the interview questions and just some background on the risks that my literature review has identified. What I suggest is we go through them one by one than just talk through the questions. I'll make some rapid notes while we talking and the recording I will transcribe later.
PARTICIPANT	Perfect
RESEARCHER	So the first risk is in the area the research came up with the category called commercial and legal relationships, basically anything to do with commercial and legal issues everything from IP protection to contracting models to behavioural issues between vendors and client and so forth. There have been a few identified, the first one is the adversarial relationships and loss of trust between vendor and client and I imagine with your experience, you have definitely seen this on projects that you have worked on.
PARTICIPANT	Absolutely.No,I think it remains one of the key risks in any kind of outsource or vendor related projects. Has it gotten worse in the recent times?, Difficult to say, but I would assume that it has because your vendors have been under significant financial pressure which means they are more inclined to take more risks and cut corners which will lead to friction with the client. A clear example of where this has affected project development is, for example, the ENS environment where there has been a very tense relationship between the supplier and Eskom, for a number of years now. This has spilled over into project extension and additional funding required and lack of buy in from business and a number of compounded issues. So definitely.
RESEARCHER	Let's move on to the next one - Vendor de-escalation of commitment. So the idea here is that all of a sudden you see a step change in attitude, more than likely for the negative where they now start to draw away from their commitment to you that was important at the start of the project. This can be due to a variety of changes, economic changes, their structure organisational issues and so forth.
PARTICIPANT	No, Absolutely it's still a risk and more of a risk in the current economic environment because there are more mergers and acquisition's so we've had a very clear experience of this when we contracted with Convergent for the Smallworld stabilization.They were then bought out by SchlumbergerSemathenSchlumbergerandSema split ways

	and during that process I think the lead consultant that we were dealing with didn't have any kind of management for over a year and the commitment to the project just dwindled. We eventually delivered, but it was more through the commitment of individuals rather than the vendor actually keeping up with his commitments.
RESEARCHER	Respondent G, How would you go about treating that risk, How do you then prepare for that?
PARTICIPANT	Both these risks, you have probably got to get your Escrow agreements in and ensure that you have a good mediation and arbitration process planned for, so that you don't waste six months trying to figure out how to go about that process when it actually happens. Get it done early rather than later.
RESEARCHER	Would you build that into the contract, into the design of the project, upfront?
PARTICIPANT	I'm not sure if it's a contractual thing, sometimes you would have to do it contractually, but at other times it's just a discussion with a vendor. If this happens, this is our immediate strategy so that they are on their toes and they are aware that you will be monitoring. The other thing is actually to just have delivery based contracts. Don't pay them too much money upfront.
RESEARCHER	Yes. One of the next ones we're talking about is the difficulty in breaking the contractual agreement and this I imagine happens on troubled projects where you have two parties that is tightly bound in terms of the contract and in order to honour the contract it has defined penalties upfront and in order to avoid ceding any ground at the end of the day they start to play negative games with each other upfront.
PARTICIPANT	Look, I think breaking a contractual agreement is really the last resort, it's a very messy and difficult process .In fact I don't think I have ever; I have never actually reached that point of walking away from a contract. Because of the difficulties and the finger pointing that you can use and you can land up in legal wangles forever. It will just drain your resources even further and affects all your other work that you suppose to be doing. I think this is a last resort, and I think I'm not sure if it is getting more difficult to break contractual agreements, it has always been a difficult thing to do.
RESEARCHER	Would you say this is a critical risk in managing IT?
PARTICIPANT	Well, I think you have to go in with your eyes open, knowing full well that it's going to be very difficult to walk away once you have committed, once you have signed a contract. Because to restart with somebody else with all the same risks again is not going to be good for anyone.

RESEARCHER	Good point. Okay, Let's talk about third party performance, especially when it is inadequate and here basically you are contracted with a primary vendor who than subcontracts the work out further, that vendor then starts to under perform affects your delivery and on the client side you sitting with this.
PARTICIPANT	It is something that you have to manage closely. I'm not sure if the economic situation is making it worse infact it probably is making it a bit better. Because you'll find that there is more skilled resources available for 3rd party contracts. This has definitely affected us Online Vending is a clear example of that where the integration portion was sub contracted to 3rd parties and they weren't performing and you know the thing to do there is to keep the pressure on your primary consortium.
RESEARCHER	So just to confirm, you think this is a critical risk..?
PARTICIPANT	I wouldn't say that is critical risk. It is one of those things.We have only run into this problem once in fifteen years so its not that, maybe more than one, maybe I'm being a bit kind, maybe once or twice but it hasn't been...hugely the sub contracted bits are relatively small and you can manage around jut like we did with ONLINE VENDING. We implemented parts of it.
RESEARCHER	Okay, IP and dealing with IP is an interesting one. I am not sure if Eskom has ever had any issues in this space. But, the research seems to show and I imagine ...
PARTICIPANT	In a competitive environment it must be huge, but I think in a public sector utility environment particularly in Eskom's case where we have monopoly it's an academic rather than a real risk. Although having said that lets talk a bit of Genussoft where Eskom employees on Eskom time, developed the knowledge and skills and sometimes the product which they than leave Eskom and sell back so that is an IP risk to some extent. But it does not affect projects.
RESEARCHER	And did we ever do anything about that?
PARTICIPANT	No ...we still pay them.
RESEARCHER	What about doing the actual IT outsourcing contracting evaluation. Research says this is a huge issue because organisations have this expectations that the contract itself you know, without the addition of metrics on SLA or some sort of quantifiable mechanism acts as enough of a control and I think this is probably a more broad comment around outsourcing in general as opposed to outsource IT project development .
PARTICIPANT	Look I mean we obviously had problems with our outsource partner for years, it’s simply because we did not go though a process of selecting a resource partner we were given one. I would imagine that this will be give a massive risk , for any public service utility if they were going through a standard

	commercial process of selecting an outsource partner. I mean you would have to go in there with your eyes wide open and have a management structure in place to ensure there is good delivery and early identification of issues, once it degenerates to pull it back is going to be very difficult. Eskom is inadequately structured and resourced to manage an outsource partner. Think you need specialist contract managers and people that understand Eskom's business. It is critical
RESEARCHER	I'm aware that Eskom is currently going through a process where It systems around that very same thing. What is your opinion or view around that process, in the context of this risk?
PARTICIPANT	In the context of this risk my view is that Eskom is inadequately structured and resourced to manage an outsource partner. We cant rely on the ops [operations] people in BASC to manage this guys or the ops people in the regions. In my view we should be strengthening our outsource contract management to ensure that we manage these guys, they are very commercially aware and they will make money where there is money to be made.
RESEARCHER	So you saying this is a very specialized area, we should have those kind of skills?
PARTICIPANT	Absolutely
RESEARCHER	Do we pull those from our business or you think it something we will have to go to the market to get?
PARTICIPANT	I think it is a combination, I think you need specialist contract managers, which we don't have and people that understand Eskom's business and Eskom's financial and commercial process. It is critical
RESEARCHER	So just to summarise, you're saying it is critical for the public sector and those are the kind of things we have to ...
PARTICIPANT	And it is going to become more critical. Once again, the economic pressure on most companies is going to make delivery and maintenance of delivery more and more difficult.
RESEARCHER	Good point. Okay, the next one and I apologize this is all a little mixed up. We are going back towards contracts and this risk identified in literature called the embedded contract mentality and it's in some ways similar to what we talking about in terms of metrics and SLA's but here it talks about behaviours where both parties are so locked in to the narrow definition of what is between them that they can't seem to run outside of that.
PARTICIPANT	I think this risk depends on how well those contracts are written I think that is the bottom line. I think it relates closely to

	risk 6, if you have a clear operating model around the contract you can manage this thing. I think in our case a lot of these things are inherited is not much thought into how we structured the contracts.
RESEARCHER	So would you say the current contract base we use is inadequate or could be viewed as being inadequate?
PARTICIPANT	It's inadequate in that there is no final recourse. Eskom can't take Eskom to court. We own most of the service providers so well the key service providers and we have run into this a couple of times where we not happy with something we say we want to take this thing further and you go up to whatever committee and they say but where you going to take it this is it.
RESEARCHER	Do you see this as being critical at this point?
PARTICIPANT	It is something we have learned to work around so I don't think it is a massive risk.
RESEARCHER	Okay , what about the ability to manage contracts, and this is sort of related to the previous two because now we moving to the skills requirement in the organisation we already mentioned risk 6, we were talking about procuring specialist contract management skills just in terms of Eskom's current ability to manage contracts.
PARTICIPANT	Well, I think we're okay. I don't think we are terrible. We have certain individuals who are good at managing contracts but it will remain a risk. I think we are thin on the ground in this department, particularly in the IT space so it will remain a risk I don't think its getting worse I don't think its getting better. Its something that you have to watch out.
RESEARCHER	Okay, You don't see any economic downturn having an impact on this?
PARTICIPANT	No, because it's individual based so depending on the individuals in place it will either be well managed or poorly managed .I don't think it has much to do with the economic situation.
RESEARCHER	Let's talk about revenue recognition, it is an interesting one. The idea here is we have got outsource providers and they are being managed according to what their board and their shareholders expect in terms of financial performance and therefore that puts pressure on them in the relationship with yourself as a client to recognise revenue a lot earlier. Issues like quarterly and half yearly results and publishing those. They are in other financial transactions and need to show that revenue earlier and that puts the pressure on the contract on the project and on the delivery mechanisms and on when things get delivered. Is that something you have had

	experience with?
PARTICIPANT	Is this relating to the payment schedule or is it relating to the benefits you should show for having outsourced something?
RESEARCHER	In terms of an example, probably best to describe it will be you contract a provider to do something over a period of say 9 months and it so happens that at month 5 they point to the original payment schedule. They were going to get X amount they are late and the money is now shifted out to the latter part of the 9 months. However they expect as a company to show that revenue earlier and it could also talk to the entire contract. You might have a deliverables base contract with the bulk of the payment at the end, based on performance and then what they than do is, they whip their team into shape by either getting them to build faster putting them under pressure on the client organisation to accept the deliverables without the governance or alternatively they pull those resources way because they feel that it minimises their exposure to ...
PARTICIPANT	Oh, okay I understand, that is why it is right after the ability to manage contracts. I think that risk is completely is the same risk as the ability to manage a contract. Your vendor will always be under pressure to pull in revenue as early as possible within the contract and its something that needs to be managed on an ongoing basis. It is a massive risk; if your contracts manager is not able to effectively mitigate the kind of expectations you can end up with the situation where you paid almost all the money over and end up with little delivery. I don't think that is escalating, it has always been an issue. The vendors are under pressure to get the money in, regardless of how far you are-get the money.
RESEARCHER	You don't see any economic downturn pressures changing this behaviour?
PARTICIPANT	There might be but I think it has always been an issue, I don't think the economic downturn has escalated it, in my experience I think it was 10 years you always under significant pressure from the vendor to make as much payment upfront to load your upfront payments..
RESEARCHER	Let's talk about regulatory risks and this I understand you do have experience with. So I wont give you examples because you know what those are....
PARTICIPANT	I'm trying to think in an IT … look it is definitely an issue the regulator puts down an unrealistic expectation like LV management for example we want you to inspect your LV assets annually and we don't have a system, we don't even know what our LV assets are So yes you are at risk of sacrificing quality and sanity in some instances to try and meet

	a regulatory target or face a penalty. Unfortunately our regulator, the process of applying for exemptions works relatively well for us. So I'm not sure I think in the current relationship that we have with the regulator this risk isn't getting worse or it's not a major risk because we can manage it with a good relationship with the regulator, talking to them and saying listen we would love to do this but these are the issues that we face. We have a relatively open relationship but I think with the economic situation and particularly Eskom requesting massive increases that I foresee the regulatory relationship becoming more antagonistic in the future. Then this risk will become more relative.
RESEARCHER	It's interesting that the timing of that is, the primary markets in overseas they have already felt this so ours is lagging slightly..
PARTICIPANT	I think the only thing that is saving us right now is the lack of skill in our regulator. So I mean when we sat around the table this year there was a complete 100% turn around there was not a single face from the previous MYPD discussions. So the fact that they all new and they don't have the history is working in our favour now but that could change at any point so ja I think it is definitely a risk that we will have to monitor and manage. You will always be under pressure to cut corners in terms of your methodology to achieve a regulatory or a legal requirement.
RESEARCHER	You don't have any examples of this in our business for that matter?
PARTICIPANT	If you take the SAIDI thing, the risk there is that you're running it is not necessarily an IT project but IT is involved and there is a real risk that people start interfering with the IT systems to give a result than that is favourable.
RESEARCHER	Open source risk, now we jumping away, but this is not from a technological stand point this is more about IP concerns and commercial considerations of the embedment of open source software in proprietary software or commercial software that gets purchased, and I think the literature points to a big concern in this area. Whether utilities and people in this sector see it as an issue is everywhere actually to be honest how would you perceive that risk?
PARTICIPANT	This is my perception and not from any experience. The real issue is the IT skills base is not open source centric. So if for whatever reason open source becomes a thing for us than it let's just say the risk is we will lose the opportunities that open source base gives, because the people we have are not open source centric an we are unlikely to attract those kind of individuals just because of the history. I think the risk for us is we've already lost the opportunity. The other risk is if

	government decrees no state owned organisations will be able to use Microsoft word included from next year we are totally unprepared for those. It is not unthinkable. I know that they have done that for SITA where they said they want open source and they just don't have the skills for it. I don't know it's probably one of those things that we decreed and just let it fall.
RESEARCHER	The heading of a recent IT magazine article was SITA the black hole, its actually quite interesting. Respondent G do you think this is going to be impacted by an economic downturn for the utilities?
PARTICIPANT	I definitely think so. Utility boards will say IT spend wings are cut. And someone is going to say, "Oh I've heard of this open source thing that you can save lots of money because you not paying license fees and proprietary software costs". In fact if it doesn't happen within the next couple of financial years I will be surprised. If I was the CEO I would be challenging my CIO to say can we use open source to reduce our cost and then the risk reverts to no skills, different culture, different management style…
RESEARCHER	Insurance risk. Now this is an interesting one certainly in my experience I haven't given it too much thought but the idea is issues like errors and omissions policies and contracts. They talk about 3rd party litigation so you have to protect [yourself] using some sort of general liability insurance. And also business disruptions to business continuity. So its obviously a generic risk but I'm, not certain and I would be keen to hear your view on whether this is applicable to this sector and whether you have seen any examples of it?
PARTICIPANT	No I have no experience from an insurance point of view and IT. I can imagine. We just saw that Online Vending had to go to the DR [disaster recovery mode] and that loss counts against us with vendors and customers. I'm not sure.
RESEARCHER	I think historically we have never had that to process that.
PARTICIPANT	We have never been exposed to it
RESEARCHER	But I think what we're seeing now, certainly in the states is all this AMI technology and all this direct means to deal with customer issues and businesses so you effectively have these micro contracts all over the place…
PARTICIPANT	Definitely, if you think about SMART Grids for instance. The utilities are actually getting involved in the consumer space now, switching on and of. If there is a software glitch and you switch off the wrong thing at the wrong time and someone on a heart lung machine dies there could most certainly be litigation

	risks. I think we are away from that just because of the maturity of our consumer market but this will definitely increase.
RESEARCHER	Okay, import and export restrictions, and this is also a generic risk. Basically the comment here was about trade barriers, say you want the latest greatest security protocol device from the states and the states than says well South Africa is not on the targeted approved list of countries you export this technology to. I'm not sure it applies to us.
PARTICIPANT	I have never had an issue procuring something we wanted procured.
RESEARCHER	I was told the stories back in mid 80s where there was an issue...
PARTICIPANT	Ja sure I think our political framework has changed somewhat. I think if we were sitting in China that would be a real issue.
RESEARCHER	Okay privacy, this is just a generic risk there is not a lot of data that I think it's quiet commonly understood you want to protect your data and in the Eskom context I suppose from an IT point of view most of your IT projects and resources are external but I'm not sure if you have ever experienced any issues with this risk?
PARTICIPANT	We have. We have had significant risk. Specifically with the EDI project. So we for example had vendors that were consulting on this side and on that side so there was a significant risk that our strategy to mitigate EDI. Some of the paper work of less intelligent EDI strategies [would be exposed]. There was always the risk of that information getting leaked so this was an issue for us and the way we managed it, is we brought the specific vendors in and we said if we feel that any sensitive information has been leaked your contract will be terminated immediately no questions and I think that was enough of a deterrent. We didn't experience any leaks but we had to take quite drastic action .
RESEARCHER	Do you think this behaviour or issue will escalate in an economic downturn?
PARTICIPANT	It is difficult to say due to the nature of our business. It’s really when there is a regulatory change. It does not necessarily relate to an economic downturn. In our case the two have come at the same time but it’s more circumstantial.
RESEARCHER	Respondent G the next set of risks have to do with the category - just so you know these categories come out of a standards body that is primary constructed by the construction engineering industry who has far more advanced risk practices, methodologies than IT and what IT is doing is borrowing from this so the categorisation has come from a

	standards body the South African Bureau of standards, they now adopt this categorisation. So economic circumstances. These are the more interesting ones certainly in the context of literature. The first one is competitive risks and this is obviously where competitors are undermining other competitors - they introducing risk to existing projects. Have you had exposure to this sort of risk?
PARTICIPANT	I'm trying to think...I mean this is always a risk specifically on our infrastructure projects, where when you put a piece of hardware on the ground and it is already outdated. I guess the best way of managing this thing is to ensure that you have upgrade path, be aware of what's happening in that space and ensure that you have some sort of upgrade path. Is this getting worse?No, I think it is getting better. Your R&D spend by your big companies is reduced so this risk is reducing in terms of new products and not in terms of reckless action. Your product risk is decreasing due to the tough economic times but your reckless risk is increasing.
RESEARCHER	I'm curious to know you mentioned the infrastructure projects Is that a function of the time it takes to implement by the organisation...
PARTICIPANT	Ja, I mean if we talking public sector utilities we know the commercial and investment process is quiet lengthy so by nature of the business and of that governance process Ja.
RESEARCHER	Market risks now a lot of people that look at this they initially think it is similar, and they are related. So what you got is you're running an existing project and all of a sudden major new development that fundamentally changes the way you would have approached that project, happens. So you're sitting with a positive NPV project and in 3 months time its negative.
PARTICIPANT	In my experience the electricity market does not change. We are in a long term business that has a culture of a lot of inertia so I have never experienced this specific risk. It is not to say that it can not happen. If you thought laterally, if the government decided to ban all private communication all of a sudden your entire telecoms infrastructure is now. It's not to say it can't happen. I have not experienced this.
RESEARCHER	What about if you shift the market boundary and talk about the market between public sector purchases of technology and technology vendors and private purchases of technology. If you move it along there would you say there might be a risk from that point of view? That could involve, it's a broad spectrum, it could involve anything from the infrastructure side of deliveries so the guys providing the devices, the meters and what not and the related software vendors around…

PARTICIPANT	I think it is definitely something that you will have to do your proper market scan and understand what it is that affects that specific project you running.
RESEARCHER	Is that done by the way, is that something really practiced?
PARTICIPANT	I don't think so. I think its something we don't acknowledge there is a massive gap. We do experience it in some extent, Not so much an IT thing. But let's say we take the IBR thing where SAIDI is your thing, so you set up all your structures. You have changed your guys to reduce the duration of outages and next year they say safety is the big thing. It was much better to have lots of small outages to reduce the duration. Now all of a sudden frequency is the big problem. Now you rather take one longer outage..
RESEARCHER	Changes the behaviour...
PARTICIPANT	Changes the behaviour. It is a massive shift in how you do things so these things definitely can happen. Does a proper scan and are we doing it and are we resourced to do it? I don't think we are. There is very few people that have got that kind of view what might be happening out there..
RESEARCHER	Where do you think that skill should sit though is it in the delivery chain under the sort of big management office or strategy ...
PARTICIPANT	When we see something like load shedding probably it is, and all of a sudden we doing this activity that we have never done before. It is being forced on you through circumstances not in our own making and all of a sudden you need this new framework and application and policies to manage this.
RESEARCHER	Do you see this as getting worse in an economic downturn?
PARTICIPANT	Good question, I mean in our specific case it has gotten better with lower demand. It could be at risk.
RESEARCHER	You mentioned earlier that merges and acquisitions was due to the downturn. Would that perhaps have an impact?
PARTICIPANT	For sure, it could! Mergers and acquisitions and consumer behaviour are in the downturn. We have set out our systems and our IT projects based on a certain level of losses and certain customer behaviour that can shift completely and can turn completely.
RESEARCHER	We saw a flooding of our call centres during load shedding and that’s a good example.
PARTICIPANT	Not only that I mean, we shoved the electricity price up by 100% over the next two years and all of a sudden we don't have 6% losses on our networks, we have 20% losses and that could affect a number of IT projects. This is something we

	probably need to strengthen. In my projects I do try to get the guys to think in these terms, You ask the questions, what if the regulators do this. it is not a formalised process.
RESEARCHER	Do you think this will rate in criticality up there...?
PARTICIPANT	I would think in terms of impact it is critical in terms of probability it is low.
RESEARCHER	Competition for capital. There isn't a lot of research around this area which I found quite strange and certainly in the examples they talked about are very much in the States. But definitely for them the issues are just the natural competition that occurs and I think that is what the research has pointed out. It's not just this natural competition and specifically how does the economic crisis [affect this risk].
PARTICIPANT	This risk is obviously increasing and it is a major risk. We have seen many projects have been delayed; re-phased or even cancelled .I think to mitigate this is to have exit points and be geared to give something like readiness assessments on security of supply. If the project was cut, we have to be able to assess the readiness to pick up what ever the project was doing. Highlight the risk to management so they know where to focus their efforts. It is a major issue and is increasing with the competition for resources, for capital and supply funds. It is a major problem.
RESEARCHER	So definitely impacted by an economic situation?
PARTICIPANT	Definitely
RESEARCHER	Would you have an example?
PARTICIPANT	Many projects were basically cut mid-stride. Lets just take the Land Development Application [Lands and Rights project].The guys were screaming for it, we got geared up, we got business excited and than we said sorry no money. That’s just because the other projects were more important.
RESEARCHER	The next one talks about credit rating and its a generic one, oddly enough there isn't a lot of research on the South African situation, mostly on Europe, Asia and the States. A lot in Asia and I think it has to do with the Asian crises we had a couple of years ago and there is a lot of research on that, on Korea and Singapore and so forth. None of them mentions anything close to where we are as a country. So basically it is centred around the company within the country and their ability to raise capital.
PARTICIPANT	This is a risk and it is related to risk 17.It is still critical and will probably getting worse as our customers continue to default, our credit rating goes down. I think one of Eskom’s biggest risks is municipal default.

RESEARCHER	That is interesting.
PARTICIPANT	And how we managing it…
RESEARCHER	It does not sound like an IT project but I can believe the impact.
PARTICIPANT	If we have all the 5 municipals all defaulting, we are bankrupt!
RESEARCHER	Lets talk about, this is a more generic one, poorly written business cases. Years ago the maturity of IT projects was poor and there wasn't much development around program and portfolio management techniques. Business cases did not really articulate any clear direct benefit so when the crunch came and companies had to make decisions there was nothing and that caused issues.
PARTICIPANT	I would definitely say this is a risk it is improving somewhat with this VMO [Value Management Office] thing happening. We are probably from an investment point being more prudent about the access to capital. If I look at the projects being closed down now and you start questioning the guy about what were you supposed to deliver and what was the benefit, it's very hazy There is definitely an issue around business cases. Which I think we are probably getting under control. It is not going to get worse and it will get better. The access to capital is going to force you to make sure that your business cases are far better articulated before you make the decision. I think that is the pain you guys are feeling at the moment. You are used to going in at a certain level and that level is no where near adequate anymore.
RESEARCHER	I mean by virtue of the fact that we are linking it to capital issues, we saying it has got to be impacted by the economic downturn but indirectly, or do you think there is a more direct link?
PARTICIPANT	No, I think the link is when money is harder to come by you are more careful about your expenditure. Even as individuals, if you sitting with a big fat bank account you are less picky about the camera you buy.
RESEARCHER	So true..currency exchange
PARTICIPANT	Well there we have always had a policy of forward cover so I don't think it is critical, its more a business risk..
RESEARCHER	Management reserves are also called contingent funding. What is your view on that?
PARTICIPANT	I actually think, in Eskom's case because of our experience we actually have a robust process. So, if the process is followed I don't think this is a big risk. The risk is when the process is bypassed. In other words the guys arrive for IMG without DRA

	[investment committee stage approval], they are just straight into “We need R30m thenR30m with 10%contingency.Then I think it is a risk, because we don't actually know what we getting into. But if the process is followed, and I think we are getting better at following the process and the economic downturn is forcing us to get better at following the process.
RESEARCHER	In a sense is the economic downturn beneficial?
PARTICIPANT	It's beneficial yes. Because we making sure that the guys’ have done their homework before we’re meeting them. This is a homework issue in my mind. Sure you do have the odd project where there is a change in market force which leads to 50% overspend but those are few and far between, typically it is we didn't really do the homework before we got the money.
RESEARCHER	The last one they talk about in this section is the risk of project abandonment, and even though we have talked about abandoning and cancelling the projects, the idea here is the impact it has on the rest of the portfolio..
PARTICIPANT	And on the vendors
RESEARCHER	And on the vendors, is this something….
PARTICIPANT	Look it is still a risk. We've experienced it on a number of projects particularly IT projects. We can talk about OMS [Outage Management System] where you have a lot of very upset business people and we can talk about Land Development or Lands and Rights Management - also massively impacts on business and very unhappy business people because we’ve abandoned the project. We have not had major impacts on clients and vendors yet as far as I am aware. But this risk I think is going to increase. I think if you take Smallworld [GIS project in the late 90’s] as an example, where you are dropping another chunk of capital, the tolerance of people is just going to be, “well if this continues we abandon to something else.”
RESEARCHER	So related in a sense to the economic downturn?
PARTICIPANT	Yes.
RESEARCHER	So the first one they talk about here is the politicisation of projects and the idea here is that because you are running projects in the public sector and you are meant to be transparent, a lot of these projects have visibility in the public domain. I am aware that South Africa has, I'm not sure if it is still called SCOPA, a public forum on IT funds. My research actually pulled out a few comments on projects run in government departments that were brought under their attention. This concept of public ROI - the public feels they should be more accountable and that unfortunately gives added pressure to decision makers who than make perhaps

	not the right or correct decisions or the timing is compressed on the overall delivery.
PARTICIPANT	In terms of Eskom IT projects I don't think risk 23 is massive because they are typically not of the size, and Eskom's business is not of the nature where it is scrutinised from an IT point of view. If you had to talk about building power stations, that's a big issue. Managing coal that's a big issue because it is open to public scrutiny but from an IT point of view I am not convinced that this one is a big thing. Risk 25 political interference yes definitely, I think the public ROI thing is not a major thing for Eskom IT projects right now unless we had to publicly go and say we are going to upgrade our Contact Centres and we going to spend R500m and you as the public are going to see the benefit. Then we start getting public uproar. We don't do that, we do internal communications rather than external.
RESEARCHER	Do you think that is going to change in future?
PARTICIPANT	No, I'm not convinced it would.
RESEARCHER	Okay, Lets talk about governance volatility.
PARTICIPANT	Definitely, a big risk and it has always been a problem. Project managers are chopped and changed and sponsors are chopped and changed and governance processes are chopped and changed. So I think this will remain a risk and I don't think it has got anything to do with an economic downturn. It has got more to do more with the nature of the business.
RESEARCHER	Can you provide an example of where this has happened in your experience?
PARTICIPANT	Well I mean I can name any one of a hundred projects that have come to an investment committee. They are at revision 21 and the project managers names have changed not 21 times but probably 16 times. So there is definitely an issue here and I think it also has to do with the fact that some of the guys that we have appointed are mobile in terms of contractors and permanent staff .If you got a black guy that has project management skills he is in demand and he is going to get head hunted and they will move him. It's just the way it is. On the sponsorship side you talk about the data program which we had, probably about 7 sponsors and every time the sponsor changed you had to go right from the start again getting them on board, making sure they buy in, making sure they believe that it's as important. Then you have lost 4 or 5 months and the sponsor expects a different approach and a different way of doing things and different reports. So governance volatility is an issue.

RESEARCHER	So how do you treat that?
PARTICIPANT	It's a difficult one, because you can not manage it. The way that we have gotten better at managing it is by ensuring a strong steering committee structure. So that if for example if the sponsor changes at least the steering committee is there to provide some level of continuity. The other thing we have done is, on the business side we have tried to get committees to sponsor, which has a lot of its own risks. You are subject to group think as opposed to a champion but it will help you manage that volatility.
RESEARCHER	Okay, the one you're keen to talk about is political interference.
PARTICIPANT	And is this going to get worse I don't think it is related to the economic downturn but I think it is definitely going to get worse. I think that state owned enterprises are going to become more and more political. I have first hand experience with political interference with EDI - when its going then not going and then we have decided it's going to be 6 [stand alone REDs] and the next month it is one national RED and 6 Metro REDs.
RESEARCHER	How disruptive was this
PARTICIPANT	Incredibly disruptive, it impacted every individual everywhere because one day you are going to be reporting to a municipal government department and the next month it was a nationally owned government department and then it was no no no, we are all staying as part of Eskom and we only moving off small sections within the metros. This makes an impact on people and their future and I think a lot of the problems we dealing with, morals and issues out there in the field relate to these things where they felt we are just like rag dolls getting tossed around.
RESEARCHER	How where IT projects impacted, where they similarly impacted?
PARTICIPANT	Definitely. I mean we had like 300 people on the floor doing these IT projects. Half way through we are "Like oh no" but all those changes we don't have to do now because we need to make these new changes which are much less of an impact. Let people go then a month later, "oh no, no we going back to that model we need all those people back". So definitely its a risk you have to be aware of, you have to plan for it .You have very little you can do to mitigate it because you actually don't know what the political agendas are and unless you got somebody sitting on the NEC on the ANC you don't know.

RESEARCHER	I hear that, you said it's going to get worse just give me your view?
PARTICIPANT	With the swing to the left in terms of the countries political mean ...
RESEARCHER	You mean the change of the administration happening at government level...
PARTICIPANT	When your government is more free market based they'll leave state owned enterprises to companies and the boards and what have you, where as with the swing to the left you see state owned enterprises as a way of creating wealth for the masses, finding employment for the masses and in other words we are all controlling projects.
RESEARCHER	Okay, now the next one is very simple talks about a change in administration.
PARTICIPANT	Yes I think these two are linked. I mean we have had lots of experience with this and going out we had like 4 coming in and we have seen at political level when there is a change in administration, there is a decision vacuum, there is a leadership vacuum because everybody sits back to see who's who in the zoo before we can do anything. So if you think about the department of energy, we have had nothing come out for about a year. It's a year we haven't had a single decision stuff on the IPP'S and power producers. Everything has just stopped because everybody is waiting to see who is going to be the director general and deputy director general and what is Zuma's approach to this and that and it impacts right down to IT projects. We should be doing things around PCP [Power Conservation Project] and all these IT related things that we should be getting ready, but we can't do anything until we have the policy framework in place .So this is a huge risk.
RESEARCHER	Once again I imagine there is not much you can do about this?
PARTICIPANT	You have to be more agile. You can take the risk of doing stuff with the hope that the policy framework will support you, but if you have spent a lot of money putting something in place and the policy frameworks comes out saying something else you got to rework all of that. This will be an issue.
RESEARCHER	Okay, what about lack of top management support .Very much a generic risk this is quite an old one, comes form early work in the 1990's as well...
PARTICIPANT	It is a risk and it will remain a risk. It is one of those inherent things that remain in the projects environment. It’s very seldom that you have some guy leading from the top that envisions the project and sees it through to the end.. So I think and I can talk about for example the Resource Model [transformation

	project]where there was a hint of interest, and then the senior manager that was interested left. We have been doing it ourselves trying to keep it alive for the better part of three years. Now we have another senior manager interested in doing it. We have been doing it but we could have been so much further than we are now.
RESEARCHER	How does a business reconcile the value lost or do they not recognize value lost.
PARTICIPANT	The thing is they will be pointing fingers at themselves so no one will ask the question. [joke]
RESEARCHER	What about the restructuring of organisations during a project. We talked about it under the EDI restructuring so I think I'll just mention that...
PARTICIPANT	And I think the one thing I will say about this is the economic downturn is going to impact it. We're working on a new business model and we've presented to board. It is massive restructuring.
RESEARCHER	This is all the analysis that has been effectively building under that RESOURCE model.
PARTICIPANT	It's related to the RESOURCE MODEL. We just use the resource model to price what kind of savings you can get but it is a greenfields restructuring saying if we had no unions how would we structure it looking at the proper shared service getting rid of GMS in the regions .That kind of thing.
RESEARCHER	I imagine the reason it's related to the economic downturn is simply the pressures.
PARTICIPANT	If you had to cut R500m out of your budget, how do you do it? There is no other way to do it, you got to restructure the way you operate.
RESEARCHER	I hear Anglo as an example also went on a massive restructure I was talking to a colleague exactly the same issue...
PARTICIPANT	What we are saying is let's look at other ways of structuring, instead of having all these layers. We have a TSC, Field Service Centre and all these layers up to a GM. Surely if we had to go back to the district setup - 20 zones and the guy that runs the zone runs wires and retail and take out a whole bunch of layers and he just reports to an OPS manager,, so the OPS manager has 20 reports so what it's all the same stuff they doing, it's not like you dealing with an IT person and a this person and a that person, you're just doing OPS .You should be able to manage 50 people if they all doing the same thing.
RESEARCHER	Is that going to have an impact on skills and training?

PARTICIPANT	Not a massive one because I think the vast majority of your organisation remains unchanged 7000 employees at a walking in centre and a TSC and they are not affected. They now report to that guy. That guy instead of reporting to a FSCM just reports to his own manager .So the vast majority of business I know isn't affected it is just your management layers that get halved.
RESEARCHER	Which is probably the right place to do that?
PARTICIPANT	It is the right place to tackle, the expensive resources are not always the most productive.
RESEARCHER	Respondent G you okay to continue...
PARTICIPANT	Sure or maybe we should get a cup of coffee
RESEARCHER	Let's do that. Respondent G we're moving to the next section that is technology and technological issues. I only have three risk factors in this area, primarily because from culling the relevant research material for this sector these were the only ones that stood out. The rest were very much duplicated. So the first one talks about the introduction of a new technology and all the problems that it brings in an organisation.
PARTICIPANT	Look we've definitely experienced some of this. We introduced bleeding edge stuff in a form of something like Smallworld where we didn't really have the ability to manage or implement it, and no one did at the time. So we learned some hard lessons that we are still paying for, 10/12 sorry 13 years later. In my view you have to go through a proper assessment and we can talk about the human side of this as well. Let's talk about the introduction of Maximo [software package]. The basic premise of the business case is that we can smooth people's working time. In other words we can make use of their idle time to do better maintenance. What we didn't consider is the individual that works on the ground likes to sit around and do nothing, then work for three days in the snow with no sleep. That is the individual we were appointing in these positions. So they will always kick against smoothing work. The other thing is the way we reward them is we pay them over time and they rely on that overtime. Its part of their pay package. We didn't foresee it that way but it is so they are not in fact rewarded for maintenance because if they maintain there are no breakdowns, there is no overtime. So there is no incentive for them to do good maintenance. So my view is one of our major issues around our lack of delivery on our maintenance particularly the scheduling part around the Maximo business case is that we didn't consider the behaviour that the technology would change or the type of individual that we were introducing that type of technology to. We never did anything intelligent around the incentivisation of those people.

	, so in my view you have massive technology failure because we didn't look at the softer side of the change.
RESEARCHER	Do you see this as a critical risk in IT project management?
PARTICIPANT	Definitely. I don't think the economic downturn has a direct impact on but it will remain. It is one of the traditional risks and you would think that by now we would do it better but we don't .
RESEARCHER	So treatment in your view is to extend that early evaluation phase so to speak?
PARTICIPANT	But to extend it, I mean we typically look at the hard change, we don't look at the softer change and the softer motivators. It didn't even occur to me when we were implementing Maximo to look at the type of individual we were expecting to work on it, and if we went to spend a week with these guys we would realise that smoothing their work load is not high on their priority list.
RESEARCHER	Our recent analysis has shown that the engineers want information, they have an information driven skill so their issue is not a system. They just want access to data, so if we give them a whole lot of data services they would actually be happy.
PARTICIPANT	They would create the tools
RESEARCHER	Exactly, but like you say it takes us 10 years to figure that out. Technology obsolescence talks about the fact that most public sector organisations, carry with them a degree of legacy systems that you never seem to be able, because it takes massive funding, to change it, and you have the internal organisation view that says if it works why replace it. Unfortunately what happens is that this over sweating kills your upgrade and that is where you find yourself, maybe you want to comment on this?
PARTICIPANT	We experienced this with SMART. We sweated the SMART system for way too long. We should have probably upgraded ten years ago. In fact, we implemented an obsolete solution in my view as it was very old when we put it in and yes it does impact us. Besides for that one example I don't think we had other major instances where we had big stranded investments.
RESEARCHER	What about MAINFRAMES?
PARTICIPANT	The MAINFRAME is the other thing because i know we still keep it alive but I don’t see that as a stranded asset. It was our decision as it is a legal requirement to have access to records for about 15 years. We have to keep that mainframe alive even if its just to retrieve information.

RESEARCHER	Do you think an economic downturn makes this worse?
PARTICIPANT	It will make it worse. I think this frequent upgrading of software is going to stop so we are going to have to manage our upgrade paths and our relationships with our vendor far far closer. Take SAP as an example. The chances of us going through a massive SAP upgrade to stay on the recommended path is very slim so we have to manage that.
RESEARCHER	So if I look at it from the other perspective you are suggesting that vendors are driving now more frequent upgrades. Is that the behaviour you seeing?
PARTICIPANT	I would say I have seen that behaviour I would assume that it would be one of their strategies. I'm making an assumption that it would be one of their strategies to increase revenues. I know that software sales have dropped off so they not making new sales they have to sweat things out.
RESEARCHER	One of the things you said earlier about mergers and acquisitions was that what we are seeing is that a lot of the results of that mergers or acquisitions that are resulting in restated license agreements to increase their revenue base or secure it again for the next 10 years. What do you do to deal with this Respondent G, how do you treat this, how do you mitigate against this?
PARTICIPANT	That is why I say keep your relationship with your vendors. That is your only major and real mitigating factor. The other mitigating factor is potentially looking at the skills in that environment and ensure that they are on a retention plan because if you lose; lets talk old terms, if you lost your last AM400s support you were stuffed, with this massive mainframe that is costing you a lot of money a month in terms of license fees and you got no one to maintain it, no one to treat it.So those are probably some mitigating factors but the point of the matter is we most certainly going to sweat your assets longer because of the economic downturn. Which means we have to have a better relationship with our vendors to ensure that we keep a potential upgrade path open and we very aware of the current. This is D day if you haven't started your upgrade by that day you off the upgrade path it's going to cost you a reimplementation.
RESEARCHER	How do you think organisations financial decision makers are going to react to that ? I'm curious
PARTICIPANT	I don't know...
RESEARCHER	Because you absolutely right making a conscious decision to sweat and this is the D day point if you than slip it its a reimplementation. This is interesting.
PARTICIPANT	You think anybody understands that?

RESEARCHER	I think like you said earlier they are so focused on, due to the current economic downturn, limiting the current spend that that argument is perhaps not put clearly enough.
PARTICIPANT	It's not a popular message
RESEARCHER	Okay and the final risk factor in this section talks to the lack of a suitable comms structure and I have included it because by this I mean the telecommunications, data communications infrastructure available to the utility space and the challenges. I have included it specifically because in this country, there is lots of public commentary of how an inadequate communications infrastructure is limiting corporate development.
PARTICIPANT	Definitely, I think we have experienced this as one of the major constraints of getting Smallworld and Maximo properly utilized within the business. Our communications infrastructure is too slow. You hear stories about the guy logging into Maximo, coming back 15 minutes later to see that its actually logged in, then having his cup of coffee and going back. It is a significant risk in our country and in our business and because of the cost of adequate network infrastructure and the pressure on finance I think this issue is probably going to get worse. In my view it is a critical risk for any IT project. You have to know that your network infrastructure is going to support you or you have to have some way of mitigating against it. So for example in the Online Vending project we reverted to GPRS, which is not great but its far superior to what Telkom is offering.
RESEARCHER	So looking at your alternative technologies?
PARTICIPANT	Yes, Alternative technologies.
RESEARCHER	Okay, Respondent G the last section now, and this is actually the biggest section in terms of risk factors. These factors are common almost and are pretty much lectured at University level all the way through. Let's go through it. We talk about the lack of documented requirements and success criteria.
PARTICIPANT	Definitely , I think it is actually a level deeper than that, where sometimes the users don't even know what they want. That is why there is no documentation because they are not sure what they want. They leave it up to you so they can criticize you when you deliver it. I don't think it is affected by the economic downturn. I think that it is just human nature.
RESEARCHER	Is it critical?
PARTICIPANT	It is a standard risk ,you just make sure you force that documentation process and sign of process.
RESEARCHER	The fact that they don't know what they want; do you think that's just a standard behavioural issue or a maturity issue

	driven by organisation?
PARTICIPANT	I think it is a maturity issue specifically in the utility industry. Your typical line staffer is not the computer savvy individual. So he is not 100% sure and even the guys that are computer savvy will tell you they want the system but they actually don't want the system, they want the data so they not even clear in their minds. Even your more computer savvy guys aren't computer savvy to know what it is that they really want.
RESEARCHER	That is going to be interesting to solve. It is a broad base education issue that needs to be addressed .
PARTICIPANT	But I think there are approaches like rapid prototyping and these type of things where you put something in front quickly. They can play with it immediately and they can tell you this is not actually what I wanted; I want something different.
RESEARCHER	Okay, I want to pick up on that comment on one of the other risks later, not change control process, the next one.
PARTICIPANT	Look I think we have gotten better at this.It still is a risk but my view is it is under control in the Eskom space. I think we learned our lessons in the late 90s when nobody knew what version of the software they were working on and anyone had access to change what ever they wanted, whenever they wanted. I think with the control of the change control boards, we've got this one largely under control. I do not think it is going to be any different with the economic climate.
RESEARCHER	Ineffective schedule planning and management?
PARTICIPANT	This is a two way street and I think this is a major, major risk. If you show the real expected schedule, no project will ever get approved. That is my personal opinion not in this business because the governance process for a largish project is a year long so what we do is we comprise things and we try and give a best possible scenario view just to get the project approved. Then after 6 months we go back and say we need another 6 months then after a year we go back and say we need another year. So I think this is how our standard approach, on top of what is happening with Letsema. I can assume they have already asked for the six months and they are going to go back in six months and ask for the year.
RESEARCHER	They are actually going to do that in a couple of weeks.
PARTICIPANT	See, so it is ineffective scheduling planning and there are unrealistic expectations from management around what's possible, so its a significant risk. Your Mitigation is extremely complex. If you show your true schedule nothing gets approved on the other hand if you don't show the true picture, you show the picture to get the project approved you know you are already behind before you have started. So I think it's

	definitely a risk; it's definitely increasing. It is probably going to get worse because of the access to capital issue. People are going to try harder to sell their projects because they are more optimistic .Unfortunately there are very few people sitting in decision making that have the experience of running these things. So they are not always able to question what to pick up on a overly aggressive schedule.
RESEARCHER	The fact that it takes that long, is that a function of the organisations ability to accept that change? You mentioned something similar earlier, technology so ...
PARTICIPANT	I think there is a number of contributing factors but I think largely, we are bureaucratic and I think every utility will be a bureaucratic institution so there is a lot of red tape.But it is also utilities that typically have people with a lot of experience who never necessarily grew up in a computer or information age and any IT project takes long to sell. Guys take long to grasp the concepts. The decision makers, that could change in future as the younger managers come through and are better acquainted with this type of information. So I think that the governance selling process takes long. I also think that we really don't have strong sponsorship. So if you have a strong sponsor pushing for something typically it will get approved faster. If you've got weak sponsorship then they'll sign the documentation and lets you do everything.
RESEARCHER	I think we are going to cover those explicitly later, the next one lets talk about the resources assigned to higher priority projects. So basically you have a pool of resources and they get sucked….
PARTICIPANT	The mitigating factor there is to just work on the most important project. That is a risk and I think the economic downturn is actually improved this somewhat because there are less projects on the table. My perception is that the same people are remaining on the same projects longer than they were two years ago. Where people were jumping between projects all the time, because there were just so many projects on the table and when one was burning this guy he ignored that one and ran to the burning one. But It will remain an issue.
RESEARCHER	It's not critical in your view though?
PARTICIPANT	No, it is not a critical thing as long as you got an adequate pool [of resources] and I think we are probably in a position where we do for now, for the number of projects that we have, we have an adequate pool now and doing things like pipelining and ensuring that its one of the things that I do. I know it frustrates my resources sometimes but if I have status feedback, everybody sits in and everybody has to listen and I force them to ask questions. Should Lana have to go on

	maternity leave Kobus can step in and manage that project. So I force that process a little bit, it is not always that easy because people tend to focus on their own work only.
RESEARCHER	Pipelining, is that an industrial engineering term or is it just a ...
PARTICIPANT	No, it is an HR term. It's just saying for that post or that individual, do we have people that we have an eye on to groom.
RESEARCHER	Because I picked it up on something we using on our side as well, I assumed always it was an industrial term .What about communication break down between the stakeholders?
PARTICIPANT	Is it a critical risk? I think it can be a critical risk. It depends on the team that you got involved. Are we talking about conflict or are we talking about the project not communicating with the key stakeholders or are we talking about two different stakeholders on a project, conflicting, and then they don't talk?
RESEARCHER	The latter.
PARTICIPANT	That can be a significant risk on a project, If you have conflicting goals from two key stakeholders and you as the project end up having to select, one of the stakeholders might feel snubbed or actively undermined going forward. It is a massive risk in terms of that and we deal with it all the time. Unfortunately.
RESEARCHER	Do you think the pressure is caused by an economic downturn?
PARTICIPANT	I think it can. Because certain projects get cut, so you cut a project, there is a stakeholder that is now very upset that his project was cut, so he tries to make another project look bad. I see this all the time so it is definitely getting worse.
RESEARCHER	Can I ask you for a non loaded example, something that you can mention?
PARTICIPANT	Well, let's take OMS. OMS gets cut so we try to do good things in the SAIDI environment. Everything we suggest, some guy will stick up his hand and object and say "But if we had a proper OMS you wouldn't have to do this… you are wasting money"- once that seed is planted. If the audience does not understand it and even if they do understand it, they'll say maybe I don't understand enough, this guy knows more than me therefore I listen to him or I'm nervous to push forward on this thing so you in a state of inertia.
RESEARCHER	Okay, and the treatment for that than, how would you deal with that?
PARTICIPANT	There I think it comes down to, I think personal skills and

	interpersonal skills, in terms of making sure your stakeholders can see what is in it for them, so you can say, “listen you’re not getting your OMS but atleast you’re getting these things here”.It is putting you on the road to getting the OMS in place, so you might be able to get your data in place.Once we have an OMS you just do a click up and upload.
RESEARCHER	So you can't make them feel a whole lot better about it, but you can show them the value along the way.
PARTICIPANT	Exactly. You can say by cutting this you actually become a step further away from where you want to be, because we can plot this which means you only need R2m or R3m less for what you want. The other thing is like conflict in functional environments. In energy losses you have the conflict between Finance and Retail. Retail sees it as their space they are not quite sure why Finance is the sponsoring the function so it becomes politically loaded and you do have some conflict between stakeholders.
RESEARCHER	Okay, what about the use of an inappropriate methodology and let me clarify this one. Although this is stated very generically the research was actually talking about inappropriate development life cycles.
PARTICIPANT	A part of all this is prototyping and waterfalling?
RESEARCHER	Absolutely and in the broader context it is probably talking about matching that to the type of either the technology, or the type of project or the goals that you trying to achieve part of the project at that time.
PARTICIPANT	Look I can't speak myself on anything specific here. I have not got the experience to say we should have definitely done something like this here.
RESEARCHER	As I recall TIPS was built using a rapid methodology which was meant to be this fast, iterative mechanism. I don't know if you have any views on it?
PARTICIPANT	The issue there is we didn't have enough data in place so you were just seeing a shell. We were never getting to use the actual thing. I'm pretty sure it is a risk. Technically it must be a risk on a project but..
RESEARCHER	Okay than let's talk about it then in those terms. Would it be critical if it did happen?
PARTICIPANT	If you use an inappropriate methodology, any methodology will get you to a certain point, I think no methodology is probably your real risk. So we’re just winging it, no change control you know we just got Mr X working and this guy working and hopefully at some point everything they do will work. So I think that’s probably a larger risk. I think we are past that and we

	are more mature than that.
RESEARCHER	Do you think an economic downturn has any impact on this?
PARTICIPANT	You might be more prone to prototype, getting a product on the table quickly, and end up with something less functionally rich simply because you're under pressure to cut budgets and get something on the table fast. Sometimes it is a good thing and sometimes it's a bad thing. There is an opportunity to that, we overspec our systems to that so we cater to the 2% of people who want 100% of functions when we could be catering to the 80% of people with 5 functions. We added 95 functions for 2% of the population.
RESEARCHER	Good point. Let's talk about a lack of customer involvement. So you could interpret customers as internal, external and I think in this case we can assume either?
PARTICIPANT	I think that is the classic IT problem, where IT go's and sits in a room and comes out with a product and says here we go. The guy looks at it and says we don't need that. So its a definite risk. It's critical. Is it getting worse? No I don't think it is. Its always been there and it's a classic IT problem.
RESEARCHER	Impacted by an economic downturn?
PARTICIPANT	No but I think using an appropriate methodology will mitigate against that.
RESEARCHER	Good point. Let's go on to, this is something I'm sure you are going to have comment on - the lack of formal project management practices. When ever I speak to experienced portfolio managers, or project managers this one sticks out like a sore thumb.
PARTICIPANT	Now, it's in my view that 90% of project failures are because of that one thing .And I'm not saying you need to apply an entire PMBOK. I don't do that and I'm a firm believer in doing those critical few things. Just do those things and your chances of success improve dramatically. It's like exercise , you get all your benefit from that first 20 minutes per week your 90% the balance of your week gives you that 10%, it is exactly the same with formal management practices.
RESEARCHER	So you're saying, absolutely critical?
PARTICIPANT	Absolutely critical, I think that if you don't structure your projects, make sure that you got a methodology that covers your governance, your risks, managing your financing and some sort of delivery and controlling. All due respect to Mr Y, but he doesn't work according to a formal project and every time he comes to an investment committee it is an issue. It's late, it's over spent it is this, it is that, they have changed scope without a formal process. It's basic program

	management stuff.
RESEARCHER	Which projects?
PARTICIPANT	Project Delta[not real name] they cut in half so they cut the scope by 60% but they spent 2/3 of the money. On [Project Rome] they over spent and they under delivered, and they changed scope in mid stride without any process and it is now a verbal feedback which is dangerous. Mr Y is exposed because of what he said verbally in a committee. He could have just said refer to this document it has been signed off, its dangerous.
RESEARCHER	Treatment I imagine is just the application of that framework?
PARTICIPANT	Yes the application. Make sure that you have a framework in place, make sure you appoint people and make sure that they follow the framework.
RESEARCHER	Is it surprising to you that after so many years in IT that this is still such a ...
PARTICIPANT	No, I'm flabbergasted. If I go and talk to some of the BASC portfolio managers right now, just say “When did you guys discuss the risks around the project and did you revise that risk and are you all agreed on your top 5” and they give you like kind of a blank stare. My mouth hangs open.
RESEARCHER	So this is broad I mean it's skills issues, it's training , it's hiring the right people I imagine all of these?
PARTICIPANT	But if you had to go ask Distribution for it's project methodology they won't give you anything because they don't have anything. So I got something that I enforce on my guys. But it is bare bone stuff. I'm not asking them to go through an ISO 9000 kind of process. I'm just saying guys I want that report in that format and this is the content. I want you to talk about your risks. I want you to have a weekly meeting, just basic and I want to make sure that you have a steering committee and that you talk to your sponsors at least once a month. Just basics, it's not like rocket stuff it's basic things. But nothing happens.
RESEARCHER	You think that’s the issue, you think that the methodologies that Distributions uses, as an example are just so big and complex that there just isn't this strip down tread that they must understand what to do.
PARTICIPANT	People look at these massive things and they go no one expects me to do that. I am one person and I am running 5 projects, no body expects me to do that and that is where the danger comes. I would expect better from our own internal people I mean that's where I am really disappointed. Often when the guys come they doing an FRA that is outstanding for

	18 months and they are 18 people that have been in the business along time. It's not like they are juniors that they don't know. It's just slack.
RESEARCHER	Is this going to be impacted by an economic downturn?
PARTICIPANT	It should be, it's a behavioural thing not an economical thing.
RESEARCHER	Okay what about dissimilarity to previous projects, now this is a broad definition. The example that I provided here is about technologies that are new in a sense and you have a very experienced team that totally caught off guard by this, but this is just one dimension I mean there are many dimensions?
PARTICIPANT	Lets talk building projects. Can anyone say they doing the latest really new building project? The last new building project was the Sydney opera house. I'm exaggerating but we know that we need an electrical plan and a plumbing plan and an engineering plan. In an IT project there are no real dissimilar projects in my view,
RESEARCHER	And I would imagine that in your view if you have a sound methodology…..
PARTICIPANT	I don't know if that's a major risk. There are some greenfields things you know like when we started the data program. We went internationally and said who's doing a data management program. There wasn't any but I just followed through and got myself a good steering committee and a strong sponsor and I did my reports and I put some metrics. I did all these basic things that you have to do for any project and you can make a success of it regardless of how dissimilar or similar it is to anything else. So I not convinced that, that is a major risk and with the economic downturn the chance of you doing some new and fancy thing is quite low in our business. Maybe if you were in an aggressive R&D environment and they're saying if we don't do something completely out of the whack we are going to lose market share. We are not in that market. We are in the market that we don't have money now - cut back on expenditure, just do the basics, no risky stuff. We don't want to end up with the CEO on the front page.
RESEARCHER	Project complexity. There are two dimension here the research talks about organisational complexity as well as technical complexity. We have kind of covered technical complexity, but they mean it here specifically as dependencies with other IT projects and of course organisational complexity is just your ability to mobilise.
PARTICIPANT	I think this is a risk , in the utility environment because we are not a profit driven organisation yet we are not just a state department. We have got a technology slant, a customer slant, our organisational complexity is high and that goes for most

	utilities plus there are the political undertones because of our link to government. You add the technical complexities, around geographic dispersion and all these layers of technology. One, managing hard core network things and other proper IT stuff I think it is a risk and I think we under estimate the complexity of this organisation. If we talk to organisations say I had a meeting with the guy from CISCO and he had been the Eskom rep for 6 months and he says I still don't get it in my head how this whole thing hangs together, it is too complex. There is too many players. This organisation is big and the technologies you have applied are unusual so I think its a critical risk.
RESEARCHER	How would you treat it then?
PARTICIPANT	I think just be aware of it, I don't think there is any thing you can do to mitigate but don't over simplify the thing. Know your organisation, get people that are old hands, that know how to get things done in the constraints of the organisation. Some people who just know how to get things through, they know how to engage with stake holders and a lot of it, is just being able to understand the complexity and knowing what interacts with what and which ways.
RESEARCHER	Impacted by an economic downturn, you think?
PARTICIPANT	I think it will be if we are forced to do things like restructure. It is going to make it even more complex , If we are forced to strip out management layers and become more matrix driven it will increase the organisational complexity no doubt about it
RESEARCHER	Requirements volatility, this is a standard staple of IT,
PARTICIPANT	I mean they are all quite closely related. This is where the user doesn't know what he wants or even when he does know what he wants and something in the market changes and all of a sudden he doesn't need to see a monthly aggregate, he needs to see a half hourly aggregate, because the regulator is saying this is how we need to manage this type of customer. I think its one of those things where you rely on a good methodology. It won’t manage all your risk out because the regulatory field that comes out will still hit you. At least you can protect yourself from internal risk with proper methodology and check points and go, no-go processes.
RESEARCHER	Critical?
PARTICIPANT	I wouldn't say it is that critical. It does happen but it is not something that I would lose sleep about it on every project.
RESEARCHER	And in the context of the economic downturn?
PARTICIPANT	It could affect it in that you will start trimming. You had R30m, you now have R15m, your requirements are going to change. Because you won't be doing the whole scope of it, you'll be

	doing portions of it. It will be slightly worsen. I don't think its major you might be forced to do it in a modular fashion rather than big bang.
RESEARCHER	Okay, that is a good point, The next one talks about the weak commitment of a project team so basically you got team members or you're part of the team that is not fully committed to the project goals or additionally you have a sponsor who puts unrealistic pressures on the team and that creates and increases the non-commitment ?
PARTICIPANT	It is a risk no doubt about that, I can not say that I have experienced weak commitment from project team members on even a small project. It does happen where you're stuck with a project which no one cares about. The only one that reads the report is the project manager. You know that kind of thing and you do have commitment flagging but I think it is unusual. My experience is that people are typically quite passionate about the projects they working on.
RESEARCHER	I think it is a factor of the organisation, perhaps?
PARTICIPANT	I don't think it is a critical, I have experienced it. In fact I have been subject to it where particularly on construction where you have guys going why are we doing this, we are going to put the country through a mess if we do this. And you do struggle to keep motivated to do it.
RESEARCHER	Do you think this will manifest more in the economic downturn?
PARTICIPANT	I don't think so. I think it will be better. People are thankful that they have jobs. People are thankful that they are getting a salary and there are so many people sitting without a salary. I have seen the opposite effect. I have seen non-permanent resources that are far more motivated to keep things going than they would have been a year or 2 ago.
RESEARCHER	What about where you have your team members and they lack the requisite knowledge and skill. For this one, the example from literature specifically looks at product related risks. It could be expanded to process issues?
PARTICIPANT	A massive risk. How many projects do you want me to quote: Smallworld, TIPS,Online Vending.You arestuck with a technology that is not new or bleeding edge. Your skilled resources are far more prone to go work in a country with hard currency or work for the mines or banks where they know they are going to get better pay. There is a bit more glamour to the role. I think my experience has been that you are stuck in especially the IT space with team members that lack the requisite knowledge .
RESEARCHER	Is this going to be made worse, or has it been made worse by

	an economic downturn?
PARTICIPANT	I can't say that I have experienced it as getting worse I think the economic downturn and the lack of projects will make people slightly less choosy. So I think the risk is mitigated somehow by the economic downturn. It's just easier to access these guys. If you go to any of the software houses or any of the major management consultants they are quite prepared to fly people down now. Because they have guys sitting on the bench, internationally whereas 5 years ago you try and get a Smallword international person in and it was almost impossible.
RESEARCHER	So the treatment for that?
PARTICIPANT	Pick your team members carefully. Manage your contracts carefully, because the people that lack the skills are contract resources so this relates to the contracts management risk. you not managing your contracts that is when you stuck with people who don't have the skills actively manage them out other wise your project will be impacted. In terms of your permanent staff this is a little more difficult because there you are relying on internal or training programs.
RESEARCHER	And I imagine getting access to training programs in an economically constrained environment is difficult. Last one for this section. SME's or subject matter experts. The research talks about how these guys are going to be over-committed generally and they aren't able to focus and I suppose it relates back to an earlier risk, but this specifically talks about subject matter experts.
PARTICIPANT	In our experience, because of the fact that a lot of our experienced people have left, the pool of these experts are very shallow and the guys are most certainly over-committed. If you take for example the SAS PROJECT, where their finance cube was just a year delayed just because Mr Z didn't have two weeks to sit with the team, we're finding that everywhere. People like Mr T and your IARC staff that are old hands and have the business knowledge is a challenge. You can't really pin them down for long periods of time and it is a critical risk. You end up with the risk of delivering things that are not necessarily as good as they could have been with the right people.
RESEARCHER	How do you overcome that?
PARTICIPANT	Strong sponsorship, if your sponsor is actively involved.
RESEARCHER	You think made worse in an economic downturn?
PARTICIPANT	Probably not.
RESEARCHER	Okay the last section this concentrates on what research tries

	to classify as more relating to the individual. So gold plating which until recently I didn't know was a valid term but basically...
PARTICIPANT	Going for the Rolls Royce
RESEARCHER	Exactly
PARTICIPANT	This I think is a real risk. I perceive it to be a real risk. You end up with a project team that become so passionate about the product that they lose sight of the business need and requirements. It is usually individuals who get over excited about the toys. I think it is probably getting better because they know that there is more scrutiny on the money that is going to be spent.
RESEARCHER	So what you saying, it was critical.
PARTICIPANT	It was critical. It's really just delivering the Rolls Royce for, the only person that will ever use all the functions, the developer himself
RESEARCHER	Respondent G what is the treatment?
PARTICIPANT	I think once again through your governance and your methodology you have to control this.
RESEARCHER	Good point, Do you think this is going to be made worse in an economic downturn?
PARTICIPANT	No, I don't think it will be made worse in an economic downturn. The guys are less prone to it. They are doing the bare minimum because their budgets are being cut, their projects are getting more scrutinised or closely scrutinised.
RESEARCHER	Last one Respondent G is unrealistic expectations. So the idea here is that in the context of relationships or in terms of specifications that are being put down, you got this mismatch between what is going to be developed and by what actually comes out.
PARTICIPANT	TIPS, was a classic example. The guys were expecting something and it was unrealistic to expect it because the base was not in place. They reject the entire project and anything associated with it because it did not meet their expectations. This happens in a lot of cases.
RESEARCHER	Critical?
PARTICIPANT	It's usually individuals, it is seldom that it is the entire user base. Usually it is 2 or 3 individuals who had this unrealistic expectation and that is managed. I would not mark it as a critical risk .
RESEARCHER	And in the context in an economic downturn?

PARTICIPANT	No I don't think there is any.
RESEARCHER	Respondent G, that's it. Thank you very much.
PARTICIPANT	I would like to add...
RESEARCHER	Yes by all means...
PARTICIPANT	I am very surprised that sponsorship never came through as a key risk in the literature .Because in my view one of the critical risks is we have projects with weak sponsorship. Most of the projects we see at level 2 are sponsored by X and that is recipe for disaster because you can't have an IM manager sponsoring a project that the business is expected to gain benefit from. I am just going to speak loosely
RESEARCHER	Yes, by all means.
PARTICIPANT	I think you need sponsorship that has to be from business for most of your IT projects. My view is 99% of IT projects should have a business sponsor that is quiet senior and that has bought into the reason for this and is going to back you when you have challengers.
RESEARCHER	Sorry while you're talking about sponsorship, does that then aid in riding those impacts of an economic downturn?
PARTICIPANT	Definitely, If your project is on the chopping block and you do not have someone senior there to stand and lobby for it no matter how strong the business case, is it will get cut. So you want somebody in a senior position that will lobby for you. It will take one word from a senior guy and that project is untouchable. The second risk which we spoke about a bit earlier was, is the ability of line managers to ensure that the skills and the discipline of the users. We could have the best product that fails miserably on its business case because line management is incapable of ensuring discipline and skills. Within the lines people need to perform and there is many examples here. The entire scheduling process: nobody has any discipline around scheduling in our organisation and we do not have the skills for it.
RESEARCHER	I remember a famous one where the manager could effectively defend his user….
PARTICIPANT	There is failure in a lot of IT projects and they are at risk of this and maybe why you have not picked this up in literature is because it is not an issue in Europe and America but it is an issue here. I think a lot of our projects fail here. The last risk, where there is an IT project that is initiated outside of its strategic framework of the business so your business has a certain direction that they trying to take and there are certain strategic maps and you have got to get your projects in line with something bigger than just the business plan. It is almost

	associated with your gold plating risk where somebody somewhere has decided this is the thing but it doesn't support your strategic direction of the business and those projects are doomed and eventually ends up with wasted money which then reflects on the whole IM fraternity because it was an IM project and we don't know why we did it. It links back to sponsorship. So those are just three risks that I did not pick up in your identified risks.
RESEARCHER	This is exactly the kind of thing we're looking for.
PARTICIPANT	There is two things that we have to be cognisant of in our environment. The one is the unionisation in our country and the second thing is the skills. So we can not approach projects in the vacuum of a project methodology that does not recognize the history of the country. We have inherent risks because of our history that probably does not exist any where else, maybe in the 3rd world countries. In Latin America and Asia but most certainly the vast majority of your literature is going to come out of Europe and America and they will have the common things that we are aware of that we also deal with but we are going to have things that are specific to here that they don't begin to understand. If you had to tell them there is a guy in a control room that refuses to push this button because it is not in his profile, they wouldn't be able to understand it. Why don't you just fire him? Because we can't fire him. So there is these risks as well that we have to recognize. Cool
RESEARCHER	Thank You very much Respondent G
PARTICIPANT	No worries.