The Influence of Stakeholder Power, Proximity and Urgency on the Selection and Prioritization of Projects within IT Project Portfolio Management

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ABSTRACT

IT investments constitute a major portion of the capital budgets of many organizations. It can be challenging to select the right projects that fit the corporate strategy to maximize value for the organization. In the past, senior executives focused on projects that met three criteria, namely being on-time, on budget and in scope. However, a shift has occurred as a result of the fact that senior executives are more concerned about the right mix of projects that will best utilise the organization's resources and deliver long-range growth.

Some of the benefits of IT Project Portfolio Management (IT PPM) are to provide executives with the ability to monitor projects ensure business alignment and identify risks quickly. It is argued that maintaining a balanced portfolio of diverse projects can reduce the risk of an individual project and can produce a higher rate of return.

It is suggested that selecting and prioritising the right projects within an IT PPM requires clarity with regards to the business drivers for undertaking the projects, as well as the strategy that reduces risks and augments rewards. The decision to choose the right combination of projects is complicated by IT managers becoming caught up in managing and responding to everyday needs and challenges. IT PPM allows companies to shift away from everyday needs and challenges, to long-range planning.

Successful IT PPM management is aimed at decisions that are best for the organization. However, interactions between IT and business may lead to conflict when stakeholders make selection and prioritisation decisions that are in their own interest and not that of the organization. This conflict is better understood as political behavior, when individuals manipulate, to ensure ultimate success. The impact of power and politics in the evaluation of IT projects is significant and therefore requires management to be fully aware of its implications on the overall outcome of the selection and prioritisation process. For this reason, this research has been carried out to determine the influence stakeholder power, proximity and urgency on the selection and prioritization of IT projects within an IT project portfolio.

The first part of the study investigates if theoretical relationships do in fact exist between a set of independent variables, namely stakeholder power, stakeholder proximity and stakeholder urgency; and dependent variables, namely qualitative techniques, prioritization and selection and expected outcomes. The theoretical relationship has been described as the influence of stakeholder power, proximity and urgency on the prioritisation and selection process within an IT project portfolio. In doing so, the researcher aimed to provide methods that can be used to control stakeholder influence.

The researcher used a positivistic, quantitative research methodology that allowed him to demonstrate the relationship between various items of data that have been collected. A self-completion survey instrument was used to collect the data. The participants were selected from a professional social network site, Linked-in, and were invited to participate in the survey through email correspondence, submitted via the linked-in portal. Linked-In calls itself "an interconnected network of experienced professionals from around the world, representing 170 industries and 200 countries. The linked-In portal allows professionals to connect and collaborate with other qualified professional in order to accomplish commonly shared goals".

A sample size of 50 respondents was used during the data-collection process, managed through the Linked-In portal, which represented three broad categories of roles within the IT domain, namely ***Executive Heads***; these are respondents who described themselves as Chief Information Officers, Directors, Vice Presidents or Executives Heads. ***Senior Managers*** are respondents who described themselves as Senior Managers; and the ***Middle Manager*** category described themselves as Project Managers, IT Managers, IT Developers and Portfolio Managers.

In the second part of the study, Bourne (2005) SHC methodology and visualisation tool was used to identify and prioritize the top 15 stakeholders out of the sample size of 50 respondents. The process of identification was determined by what each stakeholder required from the project and their level of significance to the project. The process of prioritization is assessed based upon the relative importance of each stakeholder using three factors: power, proximity and urgency, where power is the ability to kill a project, proximity is the degree of association with a project and urgency is the degree to which a stakeholder will go to influence a project's outcome.

Once the identification and prioritization was completed through the SHC methodology, the top 15 stakeholders were plotted on a SHC visualisation tool with the most important stakeholder at position 1, starting at 12:00 o'clock, followed by the 2nd important, through to the 15th most important. In addition, each of stakeholder's degree of power is indicated by the radial depth of the segment and his or her degree of influence is indicated by the relative size of each segment. Furthermore, colours and shading indicate the direction of influence and whether the stakeholder is internal or external to the organization.

The results indicate that a theoretical relationship do in fact exist between stakeholder power, stakeholder proximity and stakeholder urgency, and qualitative techniques deployed in the selection and prioritisation process. A closer examination of the top 15 stakeholders reveal that because senior managers wield the power to kill a project they therefore have the highest degree of influence on the selection and prioritization process.

Furthermore, the results of this study reveal the use of internal and external qualitative techniques in the selection and prioritization process. Internal techniques are described as "gut feel" and "reasoning", and external techniques are described as "existence of a project champion", "probability of completion" and "mandatory requirements" The finding suggest that these qualitative techniques are used by the Top 15 stakeholders to influence the outcome of project selection and prioritization.

Based upon the above finding, it becomes clear that creating a stakeholder management strategy based only upon project roles is inappropriate. Rather the identification and prioritisation of stakeholders demonstrated in this study, and Bourne (2005) suggest that it is necessary to consider the influence of power, proximity and urgency.

Moreover, the findings of this study suggest that in order to ensure that the outcomes of the selection and prioritization process is in the interest of the organization, and not that of the stakeholders, the organization needs to be aware of the following influencing factors: the relative

power, proximity and urgency wielded by stakeholders, together with the internal and external qualitative techniques they deploy.

It is recommended that research regarding the selection and prioritization of IT projects within an IT PPM be continued, with specific focus on a qualitative case study methodology that documents the selection and prioritization process across a number of organisations. It would also be particular useful to IT PPM practitioners to determine techniques that link the IT corporate strategy to selected projects within the IT project portfolio and investigate which IT projects best suite the different IT strategies.

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Glossary of Terms

3 G	Third Generation
BCR	Benefit Cost Ratio
CBA	Cost Base Analysis
CEO	Chief Executive Officer
CIO	Chief Information Officer
CMM	Capability Maturity Model
CRM	Customer Relationship Manager
CTO	Chief Technology Officer
DCF	Discounted Cash Flow
EVA	Earned Value Analysis
IRR	Internal Rate of Return
IS	Information Systems
IT	Information Technology
ITPPM	Information Technology Project Portfolio Management
ITPM	Information Technology Portfolio Management
NPV	Net Present Value
PMBOK	Project Management Body of Knowledge, published by PMI
PMI	Project Management Institute
PMO	Project Management Office
PPM	Project Portfolio Management
R&D	Research and Development
ROI	Return of Investment
SHC	Stakeholder Circle
SM	Stakeholder Management
Y2K	The year 2000 problem

Chapter 1 - Introduction

IT investments constitute a major portion of the capital budgets of many organizations. Furthermore, selecting a project that fits the corporate strategy and therefore maximizes the business value can be challenging (Jeffery and Leliveld, 2004). According to Levine (2005), executives' concerns have shifted from when a project will be completed and how much it will cost to what mix of projects will provide the best utilization of human and cash resources to max long-range growth and ROI, how a project supports the strategies of the organization and how the project will affect the value of shares. He maintains that executives talk about profitability, ROI, delivery of benefits and windows of opportunity. By appropriately evaluating these factors and selecting the highest ranked projects, the organization's limited resources are identified. Levine (2005) defines this as the overall management of a project portfolio so as to maximize the contribution of projects for the overall welfare and success of the enterprise.

Levine (2005) argues that selecting and pursuing the right combination of projects is key to sustaining a corporate competitive advantage, executives concerns of profitability, ROI, delivery of benefits and windows of opportunity are valid. Some of the benefits of Project Portfolio Management (PPM) are to provide executives with the ability to monitor projects to ensure business alignment and to plan costs and identify risks quickly. It is argued that maintaining a balanced portfolio of diverse projects can reduce the risk of an individual project and produce a higher rate of return.

It is suggested that selecting and defining the right projects requires clarity regarding the business reasons for undertaking projects, scope description, and strategy that reduces risks and augments rewards. The process involves ensuring that the goals are right and that structures, systems, processes and practices are such that the project accomplishes it goals (Dinsmore and Cooke-Davies, 2006).

According to Dinsmore and Cooke-Davies (2006), prosperity of organizations hinges on the successful application of a simple formula: the right combination of right projects done right. The decision to choose the right combination of projects is complicated by what Covey, Merrill & Merrill (1994) call the urgency addiction and argue that when the distinction between what is

important and what is urgent becomes blurred, managers become caught up in doing the first thing first. They do not stop to ask if what they are doing really needs to be done. Covey et al, (1994) contrasts the Important – Not Urgent activities, which are long-range planning, anticipating and preventing problems to Important – Urgent activities, which are managing and responding to everyday needs and challenges.

PPM allows companies to shift away from the Important – Urgent Activities into the Important – Non Urgent activities of long-range planning and prevention. The shift and interest in PPM, according to Lelived and Jeffery (2003), is due to four factors: tighter budgets, cost cutting and delay or different investment decisions; investor scepticism, where more transparency is required due to the technology boom and bust; poor track record – IT projects not on time or in budget and not delivering business benefits. Lelived and Jeffery (2003) argue that this has lead to executives requiring more business skills and the PPM approach requiring improvements in technique and practices.

1.1 Research Questions

Successful IT PPM projects are likely to involve significant interactions between IT and business. These interactions are likely to occur during the management of the IT portfolio. Therefore, different stakeholders may prefer outcomes in terms of selection and prioritization that are best for them, while successful IT PPM management is aimed at decisions that are best for the organization as a whole. This is likely to lead to conflict between stakeholders, (Kumar, Ajjan, and Nui, 2008).

This conflict is better understood as political behavior in which individuals and groups seek, acquire, and maintain power. According to Berghout, Nijland & Grant (2005) several researchers claim that power is a primitive term that needs to be clarified using such terms as "influence", "authority" and "control". Power by many researchers and practitioners is clarified as the resources available to a person to make another person do something that the person would not have done otherwise. This behavior is emotionally charged and has important corporate ramifications. Political behavior is ubiquitous in organizations and can best be understood as the

nature of the power source that drives organizations. Knowing how to engage with powerful and influential stakeholders is called political skill, and is used to manipulate inter-personal relationships with employees, colleagues, clients and supervisors to ensure ultimate success (Pinto, 2000). The degree to which influence is achieved can be measured in terms of proximity, which is defined in terms of the close association with or remote association with a project; and urgency is used in terms of two perspectives, 1) when a relationship is of a time-sensitive nature and 2) when a relationship is of a critical nature (Bourne, 2005).

Knights and Murray (1994) argue that power can be seen to infuse organizational relationships and, rather than being an exception or aberration from the norm, political activity is the focal process through which organization are sustained, reproduced and transformed.

Berghout, Nijland & Grant (2005) argue that the impact of power and politics in IT evaluation is significant. A deeper understanding of the politics of IT evaluation in specific managerial contexts could be reached by making a complete political appraisal of the organization, aided by more interpretive IT evaluation framework. Remenyi (2000) argue that when IT investment decisions become complex, managers often rely on methods that do not fall within the boundaries of traditional, rational decision-making. On the bases of these criticisms, new evaluation perceptions and methods for IT evaluation have been constructed that include the following: intangible aspects of investments such as the notion of an investment lifecycle that assesses a portfolio of IT investment proposal, that includes risk-assessment and also political aspects of evaluation (Berghout, Nijland & Grant, 2005). As such, this research addresses the following three questions:

1. What is the degree of influence that stakeholder power, proximity and urgency have on the use of qualitative selection and prioritization techniques?
2. What is the degree of influence that stakeholder power, proximity and urgency have on the selection and prioritization in terms of meeting their own personal objectives?
3. What is the degree of influence that stakeholder power, proximity and urgency have on the selection and prioritization of the IT project portfolio?

1.2 Necessity and Value of the Research

With the economy in a recession, there is increasingly heightened interest by Senior Executives in delivering near-term results, justifying the value of IT expenditure and prioritising IT projects in terms of their strategic importance to maximising value for the organization. The trend towards increasing use of IT continues, and the challenge remains how to better manage IT projects in order to maximize their economic benefits. Without the full understanding and support of top executives, the constant fight over resources and reprioritization will never be resolved (De Reyck, B., Grushka-Cockayne, Y., Lockett, M., Calderini, S.R., Moura, M. and Sloper, A, 2005).

In a recent study examining politics in IT evaluation (Berghout, Nijland & Grant, 2005), no focus was given to the influence of key stakeholders regarding the ranking, prioritization and optimization of new and existing projects. All of these factors could have a significant influence on the IT evaluation outcome and as such should be considered relevant to the current challenges that many companies struggle with.

This research is valuable in that it aims to make predictions about the influence of stakeholder power, proximity and urgency on the prioritization and selection process on the IT Project Portfolio. In doing so, it aims to provide methods that can be used to control stakeholder influence.

1.3 Structure of the Thesis

The thesis begins with chapter two summarising the literature review that was conducted in order to investigate IT PPM, particularly focusing on stakeholder influence on the selection and prioritization of IT projects. The dimension of Stakeholder influence is further divided into three constructs namely; power, proximity and urgency.

Chapter three describes the research questions that were set up in the form of three hypotheses. Each hypothesis was further revised into three sub hypothesis. The research methodology in chapter four presents the research strategy, methodology and design, and gives and overview of the research methods applied to collect and analyse the data. The research instrument used in

collecting the data in described and a description of the demographic characteristics of the respondents is provided

Chapter five thoroughly explains the data analysis processes deployed by the researcher namely, uni-variate multi-variate statistical analysis techniques. The second phase of the analysis involved using Bourne (2005) Stakeholder Management methodology and visualisation tool which produced the top 15 influential stakeholders.

Finally, chapter six highlights the implication of the findings of Chapter five together with the limitations of the research approach. Further more recommendations for further research are made.

Chapter 2 - Literature Review

2.1 Introduction

According to Levine (2005) organizations need to develop a set of criteria for evaluating projects based upon benefits, costs and risks. This is due to executives concern for the mix of projects that could provide the best utilization of human and cash resources to maximize growth and ROI, as opposed to when a project will be completed and how much it will cost. This suggests that projects are viewed as change instruments that can deliver value and benefits to the organization. Therefore Levine (2005) suggests that projects require central oversight and management in order that limited resources available to an organization are allocated appropriately.

PPM involves a logical and formalised selection of projects and the methodical execution of these projects to their logical and successful conclusion. An effective PPM system process serves to identify, analyse and quantify project value on a regular basis; to prioritize projects and to identify which projects to reprioritize or terminate. The primary benefit of such a PPM system is that only the right projects will be selected and /or continued. The projects in the pipeline will be fully aligned with the strategic business goals of the enterprise (Rad and Levin, 2007).

Levine (2005) argued that selecting and pursuing the right combination of projects is key to sustaining a corporate competitive advantage, executives concerns of profitability, ROI, delivery of benefits and windows of opportunity are therefore valid. The benefit of Project Portfolio Management (PPM), according to Levine (2005), is to provide executives with the ability to monitor projects for alignment objectives and planned costs and to identify risk quickly. Maintaining a balanced portfolio of diverse projects can reduce the risk of an individual project and produce a higher rate of return.

With the increasing investment and use of information technology (IT) in organizations, the effective management of IT projects and resources is becoming critical for gaining competitive advantage (Jeffery and Leliveld, 2004). IT managers are constantly challenged to optimize IT investments across business units, to ensure alignment of business needs with appropriate IT assets and demonstrate the value of IT to key stakeholders. For most organizations doing the

project right is no longer sufficient to stay competitive, but instead it is important to do the right projects (Elonen and Artto, 2003). According to Ajjan, Kumar and Subramaniam (2008), there has been an emphasis on managing IT projects strategically within an organization, using PPM.

PPM is defined as a dynamic decision process in which a list of new projects are evaluated, selected and prioritised, while existing projects are accelerated or terminated and resources are allocated or de-allocated among those projects (Ajjan, Kumar and Subramaniam, 2008). Some of these projects may relate to project management or the implementation of a new IT system. A key managerial task is to dedicate key resources across all of these projects. Consequently, management across projects is critical to company performance (Blichfeldt and Eskerod, 2007).

Successful IT PPM projects are likely to involve significant interactions between IT and business. These interactions are likely to occur during IT PPM implementation as well as during ongoing management of the IT portfolio. It is important to note that different stakeholders in an IT PPM process prefer outcomes in terms of project selection and prioritization that are best for them, while successful IT PPM implementation is aimed at decisions that are best for the organizations as a whole. This is likely to lead to conflicts and hence the issue of power and politics are likely to be important for a variety of portfolio management decisions (Kumar, Ajjan and Niu, 2008).

In their review of the IT PPM literature, Kumar, Ajjan and Niu (2008) concluded that the concept of managing IT as a portfolio is gaining momentum. Their review of relevant literature from multiple disciplines was used to develop an improved understanding of IT PPM concepts, such as assets, alignment, costs, benefits and risks. Furthermore, it presents a systematic process-orientated framework for understanding IT PPM that identifies critical IT PPM decision stages.

2.2 Project Portfolio Management

PPM involves a logical and formalised selection of projects and the methodical execution of these projects to their logical and successful conclusion. An effective PPM system process serves to identify, analyse and quantify project value on a regular basis; to prioritise projects and

to identify which projects to reprioritise or terminate. The primary benefit of such a PPM system is that only the right projects will be selected and /or continued. The projects in the pipeline will be fully aligned with the strategic business goals of the enterprise (Rad and Levin, 2007).

The past decade has seen the firm establishment of PPM as a discipline (Adams-Bigelow, 2006; PMI, 2006) with a strong base in R&D management and in the management of innovation projects, which has now evolved to support the management of project-based organizations (Drye and Pennypacker, 1999). Both De Reyck et al. (2005) and Morris and Pinto (2004) argue that PPM methods are used across various types of project portfolios such as IT projects and infrastructure projects, and findings from one area may lend insight into other areas. To provide the best value to the organization, the portfolio must contain a balance of project types and risk levels, and the number of projects must be limited to ensure that all projects can be resourced effectively, but sufficient to facilitate an adequate flow of projects (Killen, Hunt and Kleinschmidt, 2008).

Although several methods to measure the value and risk of IT portfolio components exist, many companies are missing the full benefits of ITPM (Maizlish and Handler, 2005). According to a survey of 1000 CIOs, while 89% of them are aware of ITPM, and 65% believe that it yields significant business value, only 17% think that they have realised ITPM full value (Jeffery and Leliveld, 2004). In response to the findings of this survey, Jeffery and Leliveld (2004) suggest that an IT portfolio maturity model be used to characterize different levels of ITPM implementation in organizations. Weill and Aral (2006) argue that even though companies link their IT investments to their business strategies and outrun their competitors, above average management capabilities are also needed to achieve above industry-average returns from their IT investments.

D'Amico (2005) explained that effective management of an IT project portfolio requires that senior management addresses the following 7 areas:

1: Understand the strategic goals of the enterprise. What is the company trying to achieve, and what are the most important issues faced by the enterprise? What is the time horizon for

achieving the goals and resolving the major issues? How much risk is the organization willing to assume? According to D'Amico (2005), if these questions cannot be answered or agreement cannot be obtained, forget about managing the IT portfolio.

2: Assemble a cross-functional portfolio management team. IT projects cut across the entire organization. For this reason, the team should reflect the diversity of technologies and applications used within the company.

3: Take an inventory of IT projects. Put together an inventory of all the major IT projects in the company. This effort will build a strong project inventory that will serve as the foundation for implementing the projects that best meet strategic objectives.

4: Align projects with strategic goals. One of the keys for determining whether or not to fund a project is how closely that project meets the company's strategic objectives. Those that match well are fully funded, while those that do not are scaled back or dropped. There will always be projects in the grey area; that is, they align in some respects but not all. After the best projects are fully funded in terms of money and staffing, any remaining resources can be allocated as the team sees fit.

5: Prioritize projects based upon some type of scoring system. After the above evaluation, most organizations will have more good projects than they can afford to fund. This is where the team will need to categorize projects and allocate funds. The project team might allocate project categories as follows:

a) enterprise-wide application projects, such as knowledge management systems
b) departmental application projects, such as a sales force automation system
c) infrastructure projects, such as a new email server
d) leading-edge technology evaluation, such as 3G wireless networks.

For scoring the projects within each category using a simple impact scoring table, see Figure 1. The table shows ten impact areas, ranging from strategic alignment to payback period. Each

impact area is assigned a weight between 0 and 1, (0 being no impact and 1 being very large impact). Each project is scored in each impact area. The score range is between 1 and 5, with the meanings shown at the bottom on the table. Based upon this example, the conclusion is that Project 3 has the most impact on the organization, and this should be given priority. Conversely, Project 4 has the lowest impact score, and is a candidate for being re-directed or unfunded.

Impact areas	Weights	Project 1	Project 2	Project 3	Project 4	Project 5
Strategic alignment	1.0	3	5	5	4	2
Revenue	0.9	5	4	3	2	4
Cost reduction	0.7	4	4	5	4	3
Productivity	0.8	5	4	4	1	5
Customer satisfaction	0.9	2	5	4	3	4
Employee satisfaction	0.8	3	3	5	2	5
Intangible benefits	0.5	3	5	4	3	5
Business risks	0.8	5	2	3	3	5
Return on Investment	0.7	2	4	4	4	3
Payback period	0.8	4	3	5	4	2
Cumulative score		**28.6**	**30.8**	**33.2**	**23.6**	**29.5**

Figure 1: Impact scoring table, (D'Amico, 2005)

6: Fund the high-scoring projects and table the low scorers. Once the allocation is determined and the scores tabulated, it's time to decide on funding. The process is about making informed decisions so that limited resources are spent in the most effective manner.

7: Re-evaluate regularly. Now that projects are defined, funded and staffed, there is a tendency to turn attention to other matters. This is the time to actively monitor the projects and cancel those that get too far off track.

2.3 IT Project Portfolio Management in Practice

According to Maizlish and Handler (2005), there are elements of IT portfolio management that exist in all companies. They have very similar goals and objectives: maximising value while managing risks and costs. Most companies utilise simple and straight-forward financial models to make investment decisions. For these companies, the IT portfolio management framework is incomplete. It is missing key criteria, is not conducted uniformly and is not applied across the entire organization or over the life cycle of an IT investment.

According to Ajjan, Kumar, and Subramaniam (2008), successful deployment of PPM could help the organization achieve several benefits, including: 1) improved visibility of IT projects for better management, 2) improved ability to objectively select optimal projects for funding, 3) improved strategic alignment and 4) greater IT cost reductions. In recent years, research on PPM has moved away from tools, techniques and methods to include PPM practices that focus on real-world managerial phenomena on how and why PPM works in certain ways, and the consequence PPM has for project work (Dawidson, 2004).

Jeffery and Lelived (2004) investigated how extensively IT PPM were used in large US companies between November 2002 and March 2003. The research was benchmarked against an IT portfolio management maturity model that helps measure the progress made by companies in the IT portfolio management process and based on the capability maturity model (CMM) for software development shown in Table 2.

Jeffery and Lelived (2004) segment a company's IT portfolio management into four stages: 1) ad hoc, 2) defined, 3) managed and 4) synchronised. Each stage is characterised by IT project portfolio activities that contribute to achieving a successful outcome. The four stages described in Jeffery and Lelived's (2004) IT portfolio management maturity model indicate how factors define a progression of capabilities that an organization can use to plot a roadmap for improvement.

Factor	ITPM Maturity Model		
	Defined	**Managed**	**Synchronised**
Advanced Valuation			Inclusion of qualitative option value in funding decisions: monitoring of projects earned value in deployment
Feedback Mechanism			Feedback on IT alignment with strategy – score cards evaluate each project
Benefits Measured			Tracking of project benefits after project development is complete: measurement of IT value through the full project life cycle
Active Portfolio Management			Frequent review of session with business unit to discuss strategy alignment
Strategic Alignment		Annual review session between business unit heads and IT to discuss strategy alignment	
Financial Metrics		Use of financial metrics in prioritizing: NPV, ROI, IRR	
Demand Management		Well defined scheme for screening, categorising and prioritizing projects: portfolio management approach to rank project investments	
Centralization	All projects in one database: all IT spending tracked centrally and rolled into one database: centralized project office monitors projects		Use of portfolio software – real-time updates on portfolio modifications, performance and health
Standardization	Applications and infrastructure are well defined and documented	IT portfolio segmented by asset classes – infrastructure, strategic projects	

Table 1: ITPM Maturity Model, (Jeffery and Leliveld, 2004)

Benchmarking is a technique used to compare processes against a structured reference for best practices. Jeffery and Lelived's (2004) research validated the IT Portfolio Management Maturity Model, finding that 4.5% of the 130 respondent companies are at the ad hoc stage, 2.4% are at the defined stage, 54% are at the managed stage and 17% are at the synchronised stage.

Companies at the ad hoc stage make decisions about investments in an uncoordinated way. For example, Jeffery and Lelived's (2004) research into a major Fortune 500 investment bank found four customers' relationship-management projects under way in three divisions, using software from different vendors. The bank was seeking significant cost savings that would have accrued from consolidating the projects into a single CRM program.

The IT Portfolio Management (ITPM) maturity model can be segmented into four stages, three of which are critical. Where there are no processes, the ad hoc label is applied. At the defined and managed stages, companies are on the right track, but only enterprises at the synchronised stage show a link between ITPM and improved performances. The stages are composed of major factors, so that the synchronised stage includes all of the factors of the managed and defined stages, and the managed stage includes the factors of the defined stages, (Jeffery and Leliveld, 2004).

Companies at the defined stage have identified and documented the key components of their portfolios, roughly estimating each element's costs and benefits. Having developed methods for evaluating and prioritizing investment proposals, the corporate IT department also has instituted central budget oversight, and most likely maintains a central project management office. Pertinent IT personnel have a basic understanding of financial metrics used to make investment decisions. Missing at this level are consistency in organization-wide compliance that links into budgeting cycles and feedback loops to assess actual returns. Companies functioning at this stage struggle to link IT portfolio to business strategy because of the lack of common beliefs and standard (Jeffery and Lelived, 2004).

Companies functioning at the managed stage distinguish themselves from those at the defined stage by standardised IT project portfolio management processes that enable objective project selection and have a clear link with business strategy. Financial metrics such as ROI and net present value (NPV) are consistently calculated and used in reviews with business leaders to align IT spending with strategy. However, at the managed stage, such exercises are usually annual rather than ongoing.

The synchronised stage according to Jeffery and Lelived (2004) is characterised by the IT management team's ability to align the investment portfolio with business strategy. These companies use evolving metrics to measure a project's value through its life cycle. They routinely weed out underperforming initiatives, and to increase the aggregate value of their IT investments, they assess both the risks associated with each project (in terms of delays, cost overruns, strategic misalignment, end-user acceptance and portfolio risk). In addition, Jeffery and Lelived (2004) write that they also measure the option value, which is the value of investing in a project that will create future opportunities. Synchronised companies are also disciplined about getting frequent feedback from heads of business units and corporate strategy vice presidents to ensure that IT efforts stay aligned with strategy after investments have been decided on.

Jeffery and Lelived's (2004) research also revealed that IT portfolio management can be instrumental in improving communication between business units and IT in that it provides facts and insights needed in the decision-making process. According to Jeffery and Lelived (2004), ITPM benefits to the organization were found to be greater at the synchronised maturity level than at the managed or defined stages. Maizlish and Handler (2005) argue that raising the level of IT portfolio management should not become the primary objective, as a maturity model is a diagnostic tool and nothing more. While advancing to the next level may have merit, failure to address business issues and provide demonstrable value will derail the most well intentioned IT portfolio management initiatives.

Klienschimdt et al (2008) writes that project portfolio management capabilities clearly have a central role in each organization's ability to dynamically adjust its resource allocation and project activities to meet ever-changing environmental demands and organizational capability evolution. The PPM capability is also believed to be responsible for creating balance in the portfolio and providing the oversight necessary to ensure resources are adequate for the project portfolio.

Killen, Hunt, and Kleinschmidt (2008) argue that an organization's PPM capability provides a holistic perspective of decision-making to ensure that the project portfolio aligns with the

strategy and provides the best organizational outcomes. The effectiveness of PPM capability is ultimately determined by the level of financial return, generated from project portfolio investments, that is sustainable. PPM capability is therefore defined as an organizational capability that consists of a combination of organizational structures, the specific process and the people that are involved in managing the project portfolio. The specific process includes commonly identified PPM activities such as identifying, prioritizing, authorising, managing and controlling projects as well as organization learning activities that ensure that the PPM capability is dynamic and responsive to the changing environment (PMI, 2006). PPM is a high-level capability that usually involves a team of strategic decision-makers.

The type of organizational structure and process used for PPM varies among organizations, and there is no standard structure or process that is required for an effective PPM capability (Killen, Hunt and Kleinschmidt 2008). Research by Cooper et al (2001) indicates that although there are common elements such as financial measures, strategic checklists or portfolio Visualization techniques in many PPM process, each organization customises and adapts its PPM process to its individual situation. PPM capabilities are also an important mechanism for alignment of project activities with strategy (Dietrich, 2006; Milosevic and Srivannaboon, 2006; Poskela et al., 2005). PPM capabilities focus on the decisions concerning how best to spend or invest resources that are central to organizational strategy.

The strategic management literature, according to Killen et al (2008), has been dominated by approaches focused on competitive environment and strategic conflict and positioning, such as Porter's competitive forces approach (Porter, 1980). This external focus does not fully explain why some organizations are more successful in this market than others, and does not help organizations to understand how to develop sustainable competitive advantage (Teece et al., 1997). To better understand the organizational basis for competitive success, the core competence models of organization advantage offer internally focused frameworks that have gained popularity (Prahalad and Hamel, 1990). A significant aspect of organizational strategy is the identification, development and maintenance of the important organizational resources that underpin competitive advantage (O'Regan and Ghobadian, 2004).

Killen et al (2008) state that PPM capabilities have a central role in each organization's ability to dynamically adjust its resources allocation and project activities to meet ever-changing environment demands and organizational capability evolution. Their study on six organizations' learning mechanisms and organizational learning investments, which have enabled these successful organizations to establish and evolve their project and PPM capabilities, found that each of the organizations has experienced a relatively recent increase in the importance of their PPM methods. This highlights the fact that in today's increased competitive environment, the ability to dynamically adjust organizational activity to ensure that projects are aligned with strategy is more important that ever. In addition, they found that all of these organizations had project management processes in place that were relatively robust and established. The existence of solid project management foundations forms an important aspect of organizational readiness for PPM.

2.4 Risk and Value Management for a Portfolio of Projects

According to Maizlish and Handler (2005), stock traders and money managers of mutual funds tailor a portfolio of investments based on their customer's risk and reward profile, where a keen understanding of the fundamentals associated with investments in the portfolio. Regardless of whether money managers oversee a risk-averse or high-risk portfolio, the objective is to maximize investment return at an acceptable risk level. IT portfolio management leverages many of the rigorous constructs and best practices from the financial marketplace. However, there are numerous differences due to the complexity, high exit costs, low salvage value and lack of securitization associated with some elements of IT, Maizlish and Handler (2005).

In IT PPM, risk-management processes focus on analysing the probability of the success or failure of projects and on analysing risks generated by the selection of a project ensemble during the balancing of a portfolio. However, a risk-management guide to managing threats and opportunities, resulting directly from portfolio processes such as project selection, project alignment or project prioritisation, is not available. The new edition of the PMI Standard for Portfolio Management may resolve part of this limitation (Sanchez, Robert, Bourgault and Pellerin, 2009).

According to Tesch, Kloppenborg and Frolick (2007), the first edition of the Project Management Institute (PMI) body of knowledge (PMBOK) stated that the three primary areas that needed to be managed on projects were costs, schedule and performance (or quality). As the state of project management knowledge evolved, integrating factors, such as risk, procurement, human resources and communications, were also acknowledged to impact on the success of a project. Project risk management is now recognized as one of the facilitating functions critical to project success.

According to Sanchez et al., (2009), qualitative risk management that considers uncertainties generated by the interaction between individuals should also be considered important. The soft issues, such as how people respond during a crisis, substantially influence the efficiency of the team. Reich (2007) states that the risk of not having governance structures in place from the start of the project results in lack of control of the project and a loss of influence on the project resources and direction. Project risk governance also includes the lack of role knowledge among the governance team when senior executives do not assume the role of project sponsor, so as to affect the outcome of the project.

According to Sanchez, Robert, Bourgault and Pellerin (2009) risk-management literature, applied to the whole organization, is sometimes called "Enterprise Risk Management" see figure 2. However, there is an important gap between the two levels. While both are well documented, it is difficult to find references to processes, tools and analysis approaches that monitor the threats or opportunities to achieve strategic goals. From a strategic perspective, this is a major issue, as programs and project portfolios are the means to convert strategic needs to projects and operational activities. Standards or generic approaches can be adapted to these levels. However, a risk-management approach, developed specifically for programs or project portfolios, would bring better support (Sanchez, Robert, Bourgault and Pellerin, 2009).

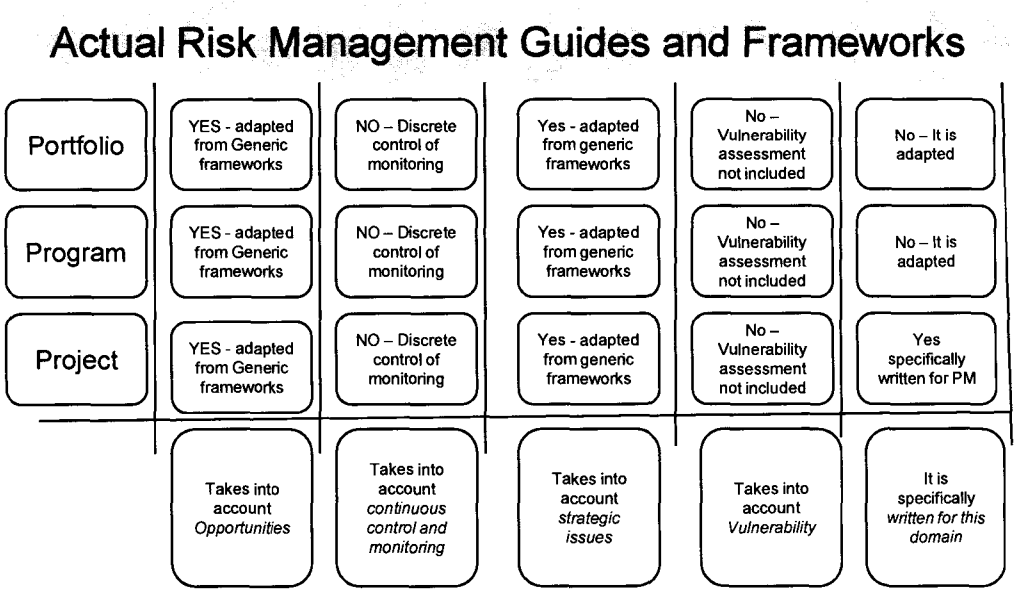

Figure 2: Risk Management Frameworks (Sanchez, Robert, Bourgault and Pellerin, 2009)

A main goal of IT PPM is to spread risk among multiple decisions. By determining what percentage of investment should go into running the business, versus growing the business, versus transforming the business categories, an organization is asserting its risk tolerance on its IT portfolio. Diversification of risks is an important aspect of IT portfolio management. Risks are minimized by spreading and diversifying resources across short-term and long-term investments, high-risk and low-risk projects, existing infrastructure and regions, and market segments (Maizlish and Handler, 2005).

2.5 Selecting and Prioritising the IT Project Portfolio

IT evaluation can have many objectives throughout the life cycle of an IT project. One important objective of IT evaluation is facilitating the appraisal of IT investment. The value of an IT investment proposal is determined to facilitate decision-making about a proposal (Berghout, Nijland & Grant, 2005). Organizations invest in IT for a number of reasons. Wang (1994) suggests gaining competitive advantage, strategic planning, goal alignment, management support

and information architecture as the reason for undertaking IT projects. More recently, Byrd and Turner (2000) suggested that organizations establish appropriate IT infrastructure as it provides the organization with flexibility and responsiveness in adapting to changing business environments. According to Suwardy, Ratnatunga, Sohal and Speight (2003), although organizations may be motivated to undertake IT projects, proposals for IT investments must go through some form of evaluation before they commence.

Maizlish and Handler (2005) suggest that the first step to selecting and prioritizing IT projects is to create inventories of all significant IT investments, both current and planned (see figure 3). Details of each potential IT investment is captured using a standard business case and located in a central database. The screening process helps to identify related investments that might be candidates for consolidation, acceleration or decommissioning before a large investment exposure is incurred.

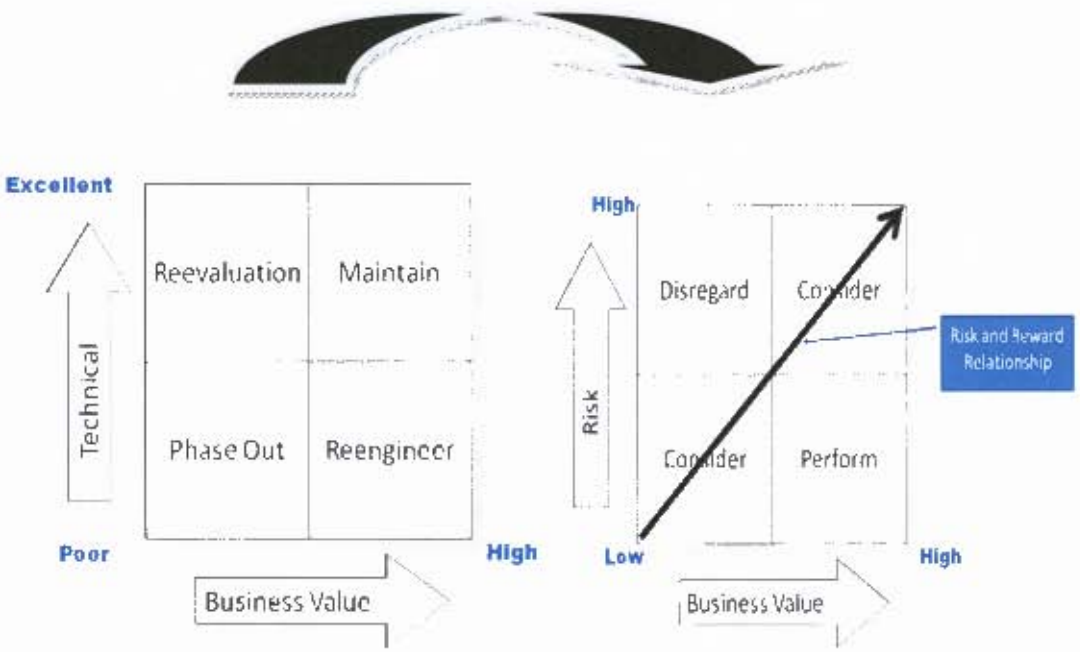

Figure 3: Analysis of IT Investments (Maizlish and Handler, 2005)

The conventional way of evaluating IT proposals is derived from the "usual" procedures an organization practises in evaluating other investments (such as purchase of machinery). Thus, in

practice, the most popular evaluation techniques are based solely on financial considerations, using techniques such as payback period, net present value (NPV), internal rate of return (IRR), and return on investment (ROI) or some form of financial savings analysis (Suwardy, Ratnatunga, Sohal and Speight, 2003). According to MIS (1998), payback analysis is by far the most common method of evaluation, followed by NPV and IRR (which are methodologically similar). However, the desire to express all IT costs and benefits into hard financial terms is fraught with problems (Irani, Ezingeard, and Grieve, 1998).

One major feature of IT, according to Lucas and Weill (1993), is that it often offers intangibles or soft benefits that are by definition hard to measure or quantify, and it is often these intangible benefits that are the key to many investment decisions. Another example of the irrelevance of conventional evaluation such as ROI, according to Suwardy et al (2003), was IT projects associated with the "millennium bug" or Y2K compliance, where costs were incurred primarily to minimize risks rather than for any specific benefits to the company. Researchers are in agreement that evaluations based solely on accountancy cost benefits analysis are not adequate methodologies for assessing IT proposals and measuring IT investment performance (Farbey, Land and Targett, 1993; Hares and Royle, 1994; MIS, 1998; Parsons, 1983; Remenyi, 1995).

Several techniques are used to measure the financial value of projects. These include ROI, IRR, NPV and EVA. However, they have been criticized for their inability to value investments that are strategic in nature, as financial techniques often overlook intangible benefits associated with IT investments, thereby understating the project's true value (Dos Santos, 1991).

The limitations of financial techniques to evaluate IT projects, and IT investment decisions becoming more complex has lead IS managers to rely on methods that do not fall within the boundaries of traditional rational decision-making. Their decisions are influenced not only by clinical analysis of numbers and costs, but also by cultural, political, personal and a host of subliminal factors (Remenyi, 2000).

In the Suwardy et al (2003) study, exploring the full IT experience from its inception as an idea, its evaluation and implementation process to its outcomes, it was found that the technical

specifications often driven by vendors, consultants and technology updates clearly dominate the financial considerations in evaluating IT investment proposals. According to Rosacker et al (2008), organizations appraise their IT investments for several reasons, including justifying their investments, to enable organizations to decide between alternative projects, to control IT expenditures, to improve the investment selection process and to facilitate project management.

2.5.1 IT Project Selection and Prioritization

According to Berghout, Nijland & Grant (2005) IS managers are being put under increasing pressure to justify the value of corporate IT expenditure. Their constant quest continues as existing methods and approaches of justifying IT expenditure are still failing to deliver what they were intended to deliver, and the decision- making process is not as objective and transparent as it is claimed or intended to be. Berghout, Nijland & Grant (2005) suggest that this can be attributed to the following reasons: benefits are difficult to assess measure and manage; costs are high and difficult to predict; large uncertainties and major risks are involved; communication problems and stakeholder politics exist.

Berghout, Nijland & Grant (2005) argue that the concept of power is playing a growing and prominent part in IS research, and awareness is growing among researchers that the scientific rational view of evaluation has to be expanded or replaced by a perception of evaluation as a social and political phenomenon, where power is an essential element. Power has a major impact on the decision-making process and on the actual decision itself. Bannister et al (2000) write that two broad categories of IT project appraisal techniques can be identified: financial and qualitative, with qualitative approaches requiring more detailed data than is reasonably available. All projects are therefore subjected to these two broad categories of assessment while in the project funnel. Once projects are assessed, the selected projects form part of the project portfolio.

Farbey et al (2001), on evaluating investments in IT, sum up this relationship by stating that the corporate strategy needs to be developed alongside the business strategy, and the role of IT will have to be assessed in general terms before either strategy can be finalised. The outcome may be

a portfolio of projects – some concerned with specific IT applications and others with the required IT infrastructure.

Rosacket (2008) states that there is no universally preferred method of evaluating IT projects among the standard methods – financial and qualitative – that have been specified and assessed in the literature. Indeed, the selection and use of project methodologies seems to be contingent upon the personal preferences of the evaluators and the operating environment of the organization and/or industry.

Keisler (2004) states that portfolio decision analysis is used to aid in the allocation of resources across a project portfolio. The approach consists of applying decision-analytical techniques to the candidate projects, one at a time, to estimate the cost and value. Cooper et al (2001) and Kleinmutz and Kleinmutz (2001) explain that these projects are then ranked and prioritized based upon the common terms "bang for the buck", "productivity index" or "benefits to cost ratio". Benefits to cost is abbreviated as BCR, and is defined as the expected value of the proceeds resulting from a project divided by its costs. The existing budget is then used to fund the higher ranking projects until it is exhausted.

2.5.2 Quantitative Selection and Prioritization

The traditional formal-rational ideal view on evaluation assumes that it is possible, before an IT project commences, that managers and evaluators can determine the outcomes of an IT investment project proposal. Knowing the outcome, an objective decision about whether to allow a project to go ahead can be reached. Many evaluation methods and decision-aiding tools are based upon a Net Present Value (NPV) technique. Many criticisms have been raised to this formal-rational view on evaluation and the evaluation methods it employs. Some key criticisms to formal-rational evaluation methods are: They neglect qualitative aspects of investments; they favour short-term views on investments and thereby disfavour long-term infrastructure investments; they neglect the establishment and discussion of risk factors in investment determination; and they are susceptible to manipulation and inappropriate scientific use and

historical ways of working, rather to address and respond to the social view of evaluation (Berghout, Nijland & Grant, 2005).

According to Farbey et al (2001), the role of IT has changed from one of support to one of strategic importance. Hence, the issue of evaluating the cost and benefits of IT projects has become a major issue for senior managers. Literature confirms that there are multiplicities of evaluation methods available, but two of the techniques, 'Return on Investment' and 'Cost Benefit Analysis' are the most common. According to Dos Santos (1991), for more than two decades finance academics have taught the net present value (NPV) method as the correct procedure to use in making capital-budgeting decisions. Recent surveys suggest that this view is also widely shared by practitioners who now use some version of discounted cash-flow analysis to evaluate projects.

Remenyi (2000) argues that financial and non-financial metrics attempt to parameterize some characteristic or closely related set of characteristics of the investment down to a single measure. These metrics vary from capital budgeting techniques, such as return on investment and internal rate of return, to non-financial performance metrics such as anchor values (for example, cases processed per employee) and user-satisfaction ratings. The defining characteristic of such methods is that they provide a single score or statistic by which to assess the investment.

In order to gain some insight into the evaluation criteria used in practice, Bacon's (1992) research on what criteria CIOs use to evaluate IT projects included three categories of evaluation, namely: financial, developmental and management.

Selection and Prioritization - Financial

Within the financial domain, one of the techniques used is capital budgeting, and is the process for deciding upon capital investments Bacon (1992). It focuses on the evaluation of cash flows, based upon time-value of money, using discounted cash flow (DCF) techniques. There are two basic DCF techniques: net present value (NPV), which discounts all estimated cash flows for a project to the present value using a required rate of return or hurdle rate; and internal rate of

return (IRR), which aims to find the discount rate that would equate the present value of estimated cash outflows with the present value of inflows. If the rate is greater than the required rate of return, the project may be accepted.

Profitability index method is an extension of the two basic DCF techniques. It provides comparative profitability among different investments by dividing the present value cash flows by the project's initial investment (Bacon, 1992).

In addition to Bacon's (1992) research findings, other financial methods are also used as evaluation criteria when evaluating IT projects. Brealey and Myers (1998) stated that return on investment (ROI) approaches include a number of formal investment appraisal techniques. The best known of the ROI methods are those that are based on evaluating the current value of estimated future cash flows on the assumption that future benefits are subject to some discount factor. Managers usually set a hurdle rate that defines the minimum acceptable ROI for a project. The main strength of the method is that it permits decision makers to compare the estimated returns on different investments. The weakness is that some good investment possibilities are withheld because the benefits are difficult to assess in cash flow terms (Farbey et al, 2001).

Remenyi (2000) states that composite approaches combine several financial and non-financial measures to obtain a balanced overall picture of value/investment return. Composite measures include but are not limited to the information economics of Parker and Benson (1988), and balanced score cards of Kaplan and Norton (1996).

Rosacker et al (2008) state that when utilizing the budgetary constraint method, an organization will simply select the number of projects that can be entertained within its current budget, which is an extremely simplistic methodology. Also, the payback approach to IT investment analysis involves estimating the time required to recover the initial investment and ranking the projects based on this criterion.

Financial metrics play a key role in the evaluation and cannot be ignored, as noted in a recent study done by Rosacker et al (2008): the overall conclusions are that financial methodologies can be important to get better control over project cost.

Selection and Prioritization – Developmental and Management

In addition to Bacon's findings (1992) that a financial category was an evaluation criterion used by CIO's to evaluate IT projects, two other categories of evaluation were uncovered, namely developmental and management. Bacon (1992) lists the management criteria as: support explicit business objects, support implicit business objectives, support management decision-making, legal/government requirements and probability of achieving benefits. The developmental criteria are: technical/system requirements; learning new technology; and probability of project completion.

Farbey et al (2001) state that the use of experimental methods is a recent development in project evaluation. Until recently, the precise impact of introducing new systems could only be estimated, because the investment in developing a system to the stage of getting actual impacts was very high. Today, a range of developmental tools and simulation methods make it possible to develop a prototype. There are three categories of the experimental method: 1: Prototyping (Alavi. 1984; Earl 1978) involves the rapid development of prototype form of the system, using 4th generation language. 2: Simulation, which probably has the longest history (Hez 1990; Kleijnen 1979). It involves building a model of the proposed system and using the model as the basis for experiments. 3: Game playing, which can be used to assess the outcome of a revised way of doing certain tasks (Kleijnen 1979, Hirschheim 1985; Etzerodt and Madsey 1988).

2.5.3 Qualitative Selection and Prioritization

Dos Santos (1991) states that even though discounted cash flow (DCF) analysis is widely used in organizations, DCF techniques have come under increasing criticism from both IS and non-IS academics. DCF analysis has been criticized for its inability to value investments that are strategic in nature, and it has been blamed for many of the ills that have befallen American industry, including failure to modernize, short-term focus in making investment decisions and

lack of adequate funding for research and development. Dos Santos (1991) argue that since the NPV approach is widely used to evaluate potential capital expenditures, it is inappropriate for evaluating new projects.

Remenyi (2000) states that there is little doubt that information systems evaluation is problematic, and has been so for quite some time. In addition to traditional capital budgeting techniques, a wide variety of other approaches have been developed, including productivity measures, return on management and information economics. Remenyi (2000) argue that when IT investment decisions become complex, managers often rely on methods that do not fall within the boundaries of traditional, rational decision-making. On the bases of these criticisms, new evaluation perceptions and methods for IT evaluation have been constructed that include the following: intangible aspects of investments such as the notion of an investment lifecycle that assesses a portfolio of IT investment proposal, that includes risk-assessment and also political aspects of evaluation (Berghout, Nijland & Grant, 2005).

Hirschheim and Smithson (1988) make the distinction between formal and informal evaluation procedures: the former might be considered an objective and rational mechanism, whilst the latter might be viewed as ill-informed, hasty, and largely involving subjective judgements.

Ballantine and Stray (1998) state that IT is fundamentally "different from other types of capital investments, and as a result, financial techniques that have historically been used to appraise capital investments are inappropriate for appraising IT investments." Rosacker et al (2008) point out that these financial techniques often overlook intangible benefits associated with IT investments, thereby understating the project's true value. Hochstrasser (1992) mentions that financial appraisal techniques emphasize profit, which is unsuitable for many IT investments that could be undertaken to improve customer support and/or offer better market information. Finally, these financial methods are based on a capital budgeting theory that makes assumptions regarding cash flows and discount rates that are merely estimates (Bacon, 1992).

Selection and Prioritization Techniques – Salesmanship

McFarlan (2001) states that the difference between having good ideas and getting them implemented often comes down to a keen sales mindset, and this is fundamental to most of the things that managers do. These include winning senior management's buy-in, keeping the direct report's hearts and minds engaged, and building support for a unit's work in other departments. Not only does selling have a logical component to supply the objective content that decision makers require each step of the way, but it also has a strong affective component.

Dunn et al (2001) state that selling techniques have evolved from charming customers with a firm handshake, smile and a few good jokes to consultative selling, where the salesperson is now the advisor who provides all the necessary information so that customers can make up their own minds.

McFarlan (2001) argues that for new ideas to be sold to the company, the proposal must do more than address company needs. It must also benefit key decision-makers positioned in three categories:

1: Selling up. Establish whether the decision-making power lies where the organizational chart says it does. Present your arguments in stages, fine-tuning them as needed. Allow upper management to comment and they are more likely to give it approval.

2: Selling down. Despite having formal authority over direct subordinates, their willing support is preferable to coerced support. Take cognizance of their ideas and incorporate them into the plan.

3: Selling sideways. Large organizations view matters as a zero-sum game: what is good for manufacturuing must be bad for sales. Hence, present arguments on how the proposal benefits the people whose incentives are very different from your own.

Selection and Prioritization Techniques – Ad-hoc Factors

Farbey et al (2001) concludes that when organizations have an IT project that does not fit into a formal evaluation process, they resort to what he calls an "Ad-hoc" way of evaluation. The

approach is to modify the formal process to fit the project. The rationale behind these "ad-hoc" procedures can be classified under the following headings:

- Top-down strategic: senior management believes that IT is fundamental to the success of the organization.
- Top-down by dictator: corporate headquarters make rules on what divisions can do.
- Incremental change: the project is determined by technological change.
- Competitive imperative: the organization must use IT to survive.

Selection and Prioritization Techniques - Subliminal Factors

Remenyi (2000) argues that even though evaluation methods may be, and in practice often are, used separately as single evaluation techniques, they may be also be used in combination, and applied in two different ways:

1. Positivist/reductionist, where the decision-maker allows the methodology to make the decision. In this approach, the investment with the highest score return or with the best overall ranking is chosen.
2. Hermeneutic, which is here defined as a method of interpretation of data that is non-structured in its approach to both understanding and decision making. It is an area in which instinct and intuition play the biggest role.

Remenyi (2000) goes on to say that in complex decision situations, no matter how quantitative the analysis has been, some person will sooner or later have to make a judgement. This sort of decision-making or judgement-making is not irrational, or at least need not be. However, it is often made without going through the rational step-by-step process that management decision-makers are expected to follow.

Gadamar (1989) states that people bring their own prejudices to a decision. Decisions are influenced not only by clinical analysis of numbers and costs, but by cultural, political, personal and a host of subliminal factors. Dunne (1993) calls this the subsoil of the psyche, which acknowledges human bias. Remenyi (2000) writes that this partly conscious, partly subconscious

digestion of a mass of information, prejudices, personal values, experience and sense of duty, as well as internal and external pressures is what decision-makers often go through when making complex decisions about IT investments. They can not easily rationalize this process even if they try. Instead, they call it gut instinct, faith, intuition, etc. Instinct is therefore not necessarily something to be condemned or abandoned by the decision-maker of reason. Rather, it is often a different and subtler kind of reasoning; a taking into account of how the world really is rather than simply what the spreadsheets say.

2.6 The People Dimension – Stakeholder Analysis

2.6.1 Stakeholder Management Theory

According to Maizlish and Handler (2005), the most often misunderstood elements of the success of IT portfolio management are the people and cultural aspects in which attitude, persecutions and measures of customers, employees, suppliers and shareholders are the largest differentiators between high and low performing companies, even though financial and operational metrics are important. Furthermore, many companies that assume that stakeholder analysis is optional find that projects are derailed because of failure to address the issues of a key stakeholder.

Stakeholder theory attempts to identify the fundamental question of which groups of stakeholders deserve to require attention. This is termed "salience" and refers to how managers prioritize competing stakeholder demands (Mitchell, Agle and Wood, 1997). An additional focus is on the relationship dynamics between stakeholders and the organizations, as well as between stakeholders. Stakeholder relationships have been described as a network of influence in which stakeholders are likely to have direct relationships with one another, as well as the dyadic ties between an organization and each of its stakeholders (Rowley, 1997).

In the PMBOK, stakeholders are defined in a similar vein as "individuals and organizations that are actively involved in the project or whose interest may be affected as a result of project execution or project completion". A typical categorization is division into internal and external

stakeholders. Internal stakeholders are the stakeholders who are formally members of the project coalition, and hence usually support the project. They are often referred to as primary stakeholders or business actors. External stakeholders are not formal members of the project coalition, but may affect or be affected by the project. Examples of external stakeholders include local residents, landowners and environmentalists, regulatory agencies, local governments and national governments (Aaltonen and Sivonen, 2009).

Successful IT PPM projects are likely to involve significant interactions between stakeholders, IT and business. These interactions are likely to occur during the management of the IT portfolio. Therefore, different stakeholders may prefer outcomes in terms of selection and prioritization that are best for them while successful IT PPM management is aimed at decisions that are best for the organizations as a whole. This is likely to lead to conflict between stakeholders (Kumar, Ajjan, and Nui, 2008).

Maizlish and Handler (2005) argue that while IT portfolio management has its roots in mathematics, people are the critical elements to its success. Key stakeholders must be identified and their support secured. To do this, however, the personal benefits to them must be identified, associated with the IT portfolio management effort, and subsequently communicated to them to secure their involvement, as shown in the stakeholder management model in figure 4.

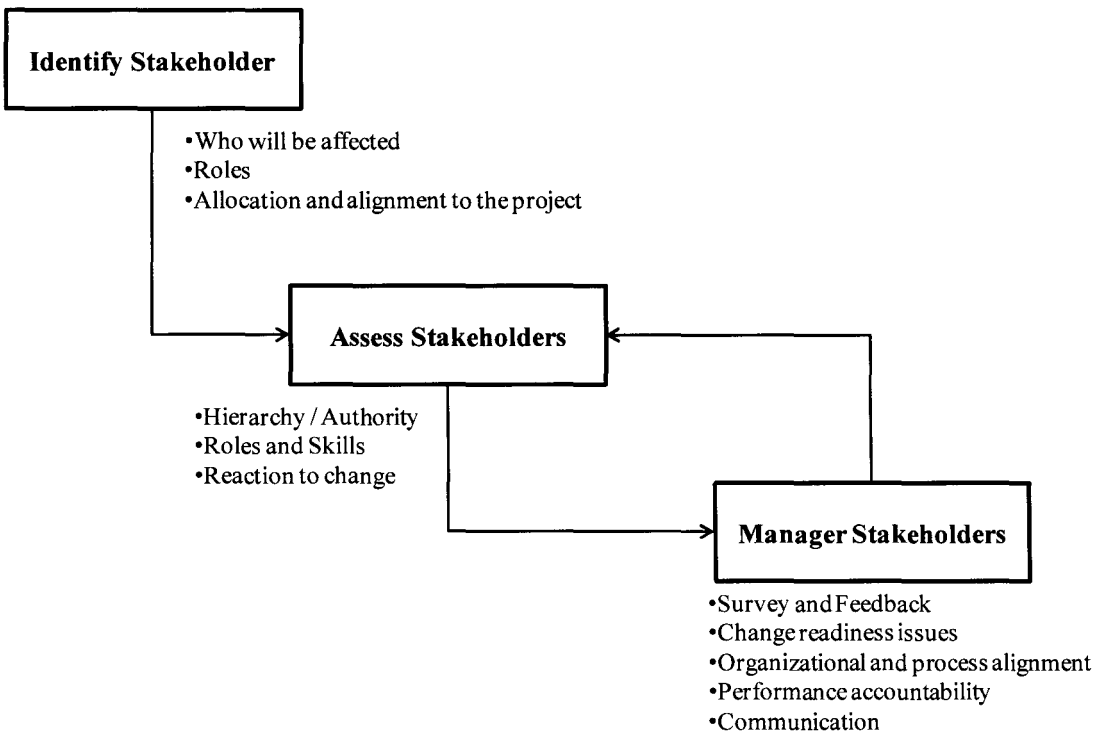

Figure 4: Stakeholder Management Model, (Maizlish and Handler, 2005)

Maizlish and Handler (2005) Stakeholder Management Model maps a methodology that can be applied in three steps: Step 1. Stakeholders are identified through asking the following questions: Who will be affected by the project? What roles do they perform and what is their alignment to the project? Step 2. Stakeholders are accessed by asking the following questions: What is their hierarchy in the project and organization? What roles and skills do they possess and what is their tolerance for change? Finally, Step 3. Stakeholders are managed with a set of communication instruments, namely surveys, feedback and organizational communications strategies. In the model, Step 2 and Step 3 is a continuous loop within the process as stakeholder's roles and responsibilities change throughout the life-cycle of a project.

Once key stakeholders are identified, their attributes must be collected. See table 2 for an illustration of the attributes about each stakeholder. The perceived level of support is identified to enable portfolio management stakeholder triage. Those with high support for the effort can be enrolled in providing active sponsorship and participation. Those on the fence should be addressed directly to increase their level of support. Those who are naysayers should be addressed to increase their level of support to minimise the damage their negativity could bring

to the initiative. Power level and other influences such as lead end users are also major considerations. It is optimal to have those with the most power or those who are the most influential lead the IT portfolio management initiative.

Who	Level of IT PPM Support	Power Level	Learning and Communication style	Perceived Risks with IT PPM	Business Issues / Opportunities
Senior Management	Supporter	High	Analytical	Loss of Power	Reduce Costs
Line of Business	Fence Sitter	Medium	Behavioral	Loss of Control	Increase Revenue
IT Management	Naysayer	Low	Directive		Improve
Line of Business Staff			Conceptual		
IT Staff					

Table 2:Stakeholder Analysis Attributes, (Maizlish and Handler, 2005)

2.6.2 Stakeholder Dynamics – Trust

Trust is used as one of the metrics that defines the nature of inter-organizational relationships found frequently within project settings. As such, it is reasonably argued to have a strong positive influence on the strength of inter-organizational relationships and, ultimately, on project success (Pinto, Slevin and English, 2008). A variety of work has pointed to the advantages that derive to project organizations from exploiting trust-based relationships. According to Pinto, Slevin and English (2008), trust is a critical success element to most business, professional, and employment relationships. Trust is shown to cement the critical stakeholder relationships that often determine the success of a project. Alternatively, in examining the nature of relationship building among critical project actors, Jensen, Johansson and Lofstrom (2006) identify trust as emerging when long-lasting relations among principals combine with good reputations.

Similarly, trust is developed through communication, and communication is important for successful projects. Thus, trust is seen and regularly acknowledged as a critical component for

building and maintaining healthy, cooperative partnerships in projects and has been shown to be enhanced through reward structures that influence parties' perceptions of each others' motives and the value of joint performance (Pinto, Slevin and English, 2008).

2.6.3 Stakeholder Dynamics – Power and Politics

According to Berghout, Nijland & Grant (2005) several researchers claim that power is a primitive term that needs to be clarified using such terms as "influence", "authority" and "control". Power by many researchers and practitioners is clarified as the resources available to a person to make another person do something that the person would not have done otherwise. Berghout, Nijland & Grant (2005) argue that influence techniques can be used as the actual use of power, whereas power is the potential to influence. Manipulation can be viewed as a form of influence, where the person influenced is unknowingly made to do something that he or she would not have done if he or she knew the perceived results.

Bourne (2005) claims that successful stakeholder relationship management is achieved through a structured process focused on: identifying stakeholder; understanding their expectations; managing those expectations; monitoring the effectiveness of stakeholder engagement activities and continuous review of the stakeholder community. These claims lead to the development of a Stakeholder Circle Methodology and Visualisation tool undertaken as part of a Doctor of Project Management research project. Bourne (2005) argued that for any activity an organization undertakes, whether strategic, operations or tactical, the activity can only be successful with the input and support of stakeholders. Bourne (2005) Stakeholder Circle Methodology and Visualisation tool aims to create a stakeholder –aware culture in an organisation through a structured set of guidelines and processes.

Lynda Bourne has been working with organisations in Asia, Australia, Europe and the US since 2001 developing ways to manage stakeholder relationships more effectively. These assignments involved training and consulting in relationship management and the application of the stakeholder relationship management methodology developed as a result of this research. Previous research (Bourne and Walker 2003; Bourne and Walker 2005) have explained how stakeholders influence the outcome of projects and how their power can be identified. Table 3

shows the bases of power according to Bourne (2005). These research papers argue that a unique set of skills called "tapping into the power lines" is required by project managers to ensure support and project success.

1	Coercive Power	Threat of punishment
2	Reward Power	Promise of monetary or non-monetary compensation
3	Legitimate Power	Drawing on one's right to influence
4	Expert Power	Relying on one's superior knowledge
5	Referent power	Based on target's identification with influencing agent as model
6	Informational power	Convinced by rational argumentation

Table 3: Bases of Power, Bourne (2005)

According to Pinto (2000), political behavior, sometimes defined as any process by which individuals and groups seek, acquire, and maintain power, is pervasive in modern corporations. The key underlying feature is that the processes by which decisions are made and power is seek is "power-laden", and the steps taken to maintain our position, are often emotionally charged. Berghout, Nijland & Grant (2005) argue that politics is the process by which differing interests reach accommodation. It is the accommodation of interest that is the business of politics and the accommodation that is generated, modified or dissolved by politics, which ultimately rest on the disposition of power. Knights & Murray (1994) argue that political activity is the focal process through which organizations are sustained, reproduced and transformed.

Power can be used both as a constraint or an enabler; the exercise of power is a political process; and all relationships are simultaneously power relationships through dependency or position in the hierarchy (Stacey, 2001). According to Bourne (2005), project relationships can be understood in terms of direction; if a project manager is managing upwards, the project manager has least power in that relationship; if he or she is managing downwards, the team member has least power.

Peled (2000) argues that leaders with extensive background in organization politics complete their IT projects successfully because they manage their projects mainly upwards and outwards,

and tailor their technological visions to the day-to-day reality of their organizations. This ability, called political skill, is used to manipulate inter-personal relationships with employees, colleagues, clients and supervisors to ensure ultimate success of the project.

Projects are affected by both the "hidden agendas" and the overt actions of project stakeholders. This group extends well beyond the more readily recognized traditional stakeholder groups. In large, complex organizations, understanding the power structures and using them to influence project outcomes is often understood as "politics". Awareness of the need, and the ability to manage different types of stakeholders and their "how, why and when" issues so that these needs might be best addressed is an essential part of a successful project manager's toolkit (Bourne and Walker, 2005).

According to Morris and Hough (1993), legitimate and valid stakeholders need to be identified, and their power and influence understood to manage their potential impact on projects. Identification of stakeholders is part of the project planning process and consists of listing all individuals and groups considered by the project team to have the potential to impact the project or be impacted by it. Appropriate strategies can then be formulated and implemented to maximize a stakeholder's positive influence and minimise any negative influence. Stakeholder classification strategies have been developed to attempt to understand each stakeholder's importance to the project and define the most appropriate relationship management. One model for categorising stakeholders is based on assessing the stakeholder power to influence the outcomes of the project, the legitimacy of each stakeholder's relationship with the project, and the urgency of the stakeholder's claim on the project, leading to specific managerial actions (Mitchel et al, 1997).

2.6.4 Managing Stakeholder Influence

The management of project stakeholders, taking into account their needs and requirements, is an essential part of project management and project success. Project stakeholders have been defined broadly as a group or individual who can affect or is affected by the project. The rationalized stakeholder management models such as applications of power and interest mainly provide guidelines on whether to manage a certain stakeholder or not. The idea is to respond to the

7) Retry the proposal over and over again. If the first attempt fails, resubmit the proposal the year after. In the dynamic market of IT, people change position and jobs frequently.

Berghout, Nijland & Grant (2005) argue that in the political area of IT investment evaluation, it is equally possible to deploy counter tactics against the 7 previously described tactics. Managers typically employ two forms of counter tactics: one of rationalisation in which the aim is to reduce ambiguity by clarification of objectives, processes and information, working towards a common understanding of what is right and wrong. The second is political counter-tactics, which have the potential to increase political behaviour in the organization and might even create a battlefield where decision-makers have to outwit or overpower their opponents by political counter-tactics.

In order to deal with organizational politics, Aaltonen and Sivonen (2009) suggest that organizations can respond to stakeholder pressures in various ways, ranging from passive adaption strategies to active influencing strategies, as described in table 4.

Response Strategy Types	Description
Adaption Strategy	Obeying the demands and rules as presented by stakeholders
Compromising Strategy	Negotiating with stakeholders
Avoidance Strategy	Transferring the responsibility to respond to stakeholders
Dismissal Strategy	Ignoring the presented demands
Influencing Strategy	Pro-actively shaping the demands and values by sharing information and building relationships

Table 4: Response Strategies, Berghout, Nijland & Grant (2005)

These strategies appear to be dependent on different factors. See table 5. These factors emerge and are defined and redefined in the interaction of the different actors taking part in the project. Therefore, as the scale of stakeholders' demands changes, so the response strategy of the focal organization is redefined. This proves that their demands require constant attention throughout the life cycle of the project.

	Response Strategy Types
1	Position of the focal company in the project network
2	Power of the stakeholder
3	Legitimacy of the presented claims by stakeholders
4	The means stakeholders use to advance their claims
5	Experience of the focal company
6	Responses of the other actors in the project network

Table 5: Response Factors, Berghout, Nijland & Grant (2005)

According to Bourne and Walker (2005), relationship management skills are vital for achieving project outcomes that fully address stakeholder expectations throughout the project lifecycle. Relationship skills are required to aid the effective application of hard skills – it is people, using knowledge and creativity, that realize projects, not techniques or hardware. Bourne and Walker (2005) argue that these special skills and competencies focus upon both understanding the nature of the power source that drives large, complex organizations, and knowing how to harness this energy effectively for project success. "Tapping into the power lines" requires "wisdom" and "know-how" to make sense out of complex, fragmented and often confusing alliances of power, influence and resource availability, coupled with the willingness to engage with those powerful and influential stakeholders who have been identified by the project manager as being essential to his/her project's success.

Bourne (2005) writes that stakeholders form part of a project environment that consists of a seven-element framework, forming the network or "sphere of influence and support" on which a project depends for its very existence. A sphere of influence represents relationships within and around the project and is illustrated in table 6.

Directions of Influence	Stakeholders (Areas of interest)
Forwards	All stakeholder types, project team, senior management, users, vendors
Backwards	All stakeholder types, project team, senior management, users, vendors
Inwards	Project manager
Outwards	Client, end user, external stakeholders
Downwards	Team members
Upwards	Project owner, senior executives, those who will represent organizational commitment
Sideward's	Project manager's peers

Table 6: Direction of Influence, Bourne (2005)

In order to better understand the relationship dynamics, Bourne (2005) used the stakeholder circle management methodology and visualization tool, the Stakeholder Circle. See figure 5. The Stakeholder Circle is based on the premise that a project can only exist with the informed consent of its stakeholder community. The methodology supported by the tool provides an effective mechanism for assessing the relative influence of a project's stakeholders, understanding their expectations and defining appropriate engagement procedures to influence the key stakeholders expectations and perceptions to the benefit of the project. Bourne (2008) writes that influence is based on power, proximity and urgency which is a well established method of gauging stakeholder influence.

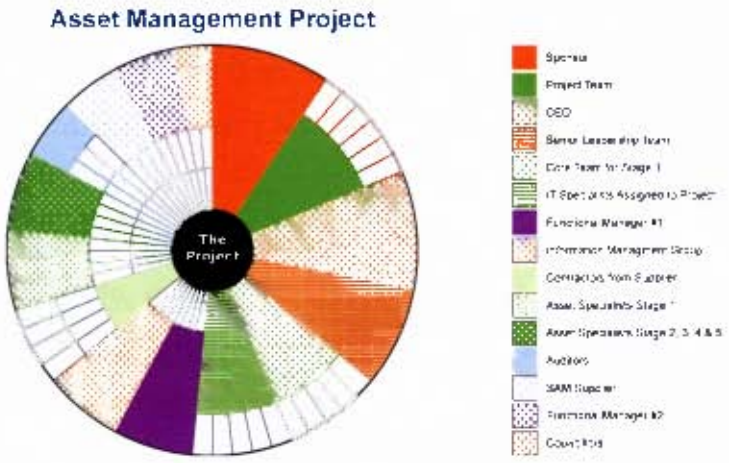

Figure 5: Stakeholder Circle, Bourne (2005)

The methodology consists of two tasks, the identification and prioritization of project stakeholders. The identification task uses categories upwards, downwards, inward, outward and sideward's, as described by Table 7, to begin a categorization process. The prioritization of these stakeholders considers three factors: power, proximity and urgency. Power is used in terms of the relative power to kill a project; proximity is used in terms of the close association with or remote association with a project; and urgency is used in terms of two perspectives, 1) when a relationship is of a time-sensitive nature and 2) when a relationship is of a critical nature. The raw stakeholder list is sorted numerically to provide a list of key stakeholders, in priority order (Bourne, 2005).

Key elements of the Stakeholder Circle are: concentric circle lines that indicate distance of stakeholders from the project or project delivery entity; the size of the block, its relative area, which indicates the scale and scope of influence; and the radial depth, which can indicate the degree of impact (Bourne, 2005; Bourne and Walker, 2005c). The overall size of a stakeholder's segment gives an indication of overall influence of that person or group of people on the project. The outcome of the visualization process is a diagram designed to facilitate decisions on where the project team needs to concentrate its stakeholder management effort. Defining appropriate responses requires an understanding of such elements as which stakeholders need to be involved in the project definition and planning process, who needs more information to mitigate opposition, and which are the key and relevant stakeholders. Color coding is key to interpretation: senior managers – upwards are coded in orange, stakeholders external to the project are shown in blue – outwards, and the project team – downwards are coded as green. The project manager's peers are coded purple (Bourne, 2005).

Patterns and colors of stakeholder entities indicate their influence on the project. See figure 6. For example, orange indicates an upwards direction. These stakeholders are senior managers within the performing organization that are necessary for ongoing organizational commitment to the project. Green indicates a downwards direction. These stakeholders are members of the project team. Purple indicates a sideward's direction. They are peers of the project manager , and are essential as collaborators or competitors. Blue indicates "outwards". These stakeholders

represent those outside the project such as end-users, government, the "public" shareholders. The final color-coding is dark hues and patterns for stakeholders that are internal to the organization and light hues and patterns for those external to the organization (Bourne, 2008).

2.7 Literature Survey Summary

Executives have become more focused on the mix of projects that will provide the best utilization of human and cash resources to maximize the bottom line as apposed to project delivery times and costs (Levine, 2005). This suggests that projects are viewed as change instruments that can deliver value and benefits to the organization. Projects require central oversight and management in order that limited resources available to an organization are allocated appropriately. This new thinking on the part of executives requires that an organization develop a set of criteria that evaluates projects based upon benefits, costs and risks (Levine, 2005).

Jeffery and Lelived (2004) argue that the adoption of IT PPM as a methodology for evaluating and selecting the appropriate IT projects has a significant impact on the return on the projects in the portfolio. However, Killen, Hunt and Kleinschmidt (2008) argue that in order to provide the best value to the organization, the portfolio must contain a balance of project types and risk levels, and the number of projects must be limited to ensure that all projects can be resourced effectively, but sufficient to facilitate an adequate flow of projects. A main goal of portfolio management is to spread risk among multiple projects. By determining what percentage of investment should go into running the business, versus growing the business, versus transforming the business categories, an organization is spreading its risk tolerance on its IT portfolio. Diversification of risk is an important aspect of IT portfolio management. Risks are minimized by spreading and diversifying resources across short-term and long-term investments, high and low-risk projects, existing infrastructure and regions, and market segments (Maizlish and Handler, 2005).

One major feature of IT, according to Lucas and Weill (1993), is that it often offers intangible benefits that are by definition hard to measure or quantify, and it is often these intangible

benefits that are the key to many IT investment decisions. IS managers are being put under increasing pressure by their executive team to justify the value of corporate Information Technology expenditure. Their constant quest to ensure that It delivers value to the business continues, as existing methods and approaches of justifying IT expenditure are still failing to deliver what they were intended to deliver, and the decision-making process is not as objective and transparent as it is claimed or intended to be. This can be attributed to the following reasons: benefits are difficult to assess, measure and manage; costs are high and difficult to predict; large uncertainties and major risks are involved; communication problems and stakeholder politics exist (Berghout, Nijland & Grant, 2005).

The conventional way of evaluating IT projects is derived from traditional procedures an organization practises in evaluating other investments such as purchase of machinery. Thus, in practice, the most popular evaluation techniques are based solely on financial considerations, using techniques such as payback period, net present value (NPV), internal rate of return (IRR), and return on investment (ROI) or some form of financial savings analysis (Suwardy, Ratnatunga, Sohal and Speight, 2003). However, the desire to express all IT costs and benefits in hard financial terms is fraught with problems (Irani, Ezingeard, and Grieve, 1998).

The limitations of financial techniques to evaluate IT projects and IT investment decisions is becoming more complex and has lead IS managers to rely on methods that do not fall within the boundaries of traditional rational decision-making. Their decisions are influenced not only by clinical analysis of numbers and costs, but also by cultural, political, personal and a host of subliminal factors (Remenyi, 2000). According to Berghout, Nijland and Grant (2005), the concept of power is playing a growing and prominent part and awareness is growing among researchers that the scientific rational view of evaluation has to be expanded or replaced by a perception of evaluation as a social and political phenomenon. Power is an essential element, as power has a major impact on the decision-making process and on the actual decision itself.

Furthermore the project selection and prioritization process is likely to involve significant interactions between IT and business. These interactions are likely to occur during the management of the IT portfolio when determining which project to select vs. which projects to

abandon. Therefore, different stakeholders may prefer outcomes in terms of selection and prioritization that are meets their requirements, while successful IT portfolio management is aimed at decisions that are best for the organization as a whole. This is likely to lead to conflict between stakeholders (Kumar, Ajjan, and Nui, 2008).

This conflict is better understood as political behavior in which individuals and groups seek, acquire, and maintain power, which is emotionally charged and have important corporate ramifications. However, political behavior is ubiquitous in organizations. Understanding the nature of the power source that drives organizations and knowing how to engage with those powerful and influential stakeholders is called "political skill" and is used to manipulate inter-personal relationships with employees, colleagues, clients and supervisors to ensure ultimate success (Pinto, 2000). Knights and Murray (1994) argue that power is inherent in all organizational relationships. Rather than being an exception or aberration from the norm, political activity is the focal process through which organization are sustained, reproduced and transformed.

Peled (2000) writes that leaders with extensive backgrounds in organization politics complete their IT projects successfully because they manage their projects mainly upwards and outwards, and tailor their technological visions to the day-to-day reality of their organizations. This ability, called political skill, is used to manipulate inter-personal relationships with employees, colleagues, clients and supervisors to ensure ultimate success of the project. According to Morris and Hough (1993), legitimate and valid stakeholders need to be identified and their power and influence understood to manage their potential impact on projects. Appropriate strategies can then be formulated and implemented to maximize a stakeholder's positive influence and minimise any negative influence (Mitchel et al, 1997).

Project stakeholders have been defined broadly as a group or individual who can affect or is affected by the project. The rationalized stakeholder management models, such as applications of power and interest, mainly provide guidelines on whether to manage a certain stakeholder or not. The idea is to respond to the demands of such stakeholders that have power to promote their claim and that are interested in the project (Aaltonen and Sivonen, 2009). According to Bourne

and Walker (2005), relationship management skills are vital for achieving project outcomes that fully address stakeholder expectations throughout the project life cycle. Relationship skills are required to aid the effective application of hard skills – it is people, using knowledge and creativity that realize projects, not techniques or hardware.

Bourne and Walker (2005) argue that these special skills and competencies focus upon both understanding the nature of the power source that drives large, complex organizations, and knowing how to harness this energy effectively for project success. "Tapping into the power lines" requires "wisdom" and "know-how" to make sense out of complex, fragmented and often confusing alliances of power, influence and resource availability, coupled with the willingness to engage with those powerful and influential stakeholders who have been identified by the project manager as being essential to his/her project's success. Research by Bourne and Walker (2005) has shown that a direct link exists between the successful management of the relationships between the project and its stakeholders, and the stakeholder's assessment of a successful project outcome. The project's success, or failure, is strongly influenced by both the expectations and perceptions of its stakeholders, which are based on power, proximity and urgency to a project.

Politics in decision-making is inevitable. Elimination is both impossible because counter-tactics themselves are a form of soft politics because they are crucial to come to a decision that keeps the organization dynamic. The bounded rationality of people makes influence tactics and manipulations an integral part of IT decision-making processes. Instead of fruitlessly trying to employ counter-tactics, be aware of aspects where manipulation is suspect or where more information is needed to become more confident in the proposal at had, (Berghout, Nijland & Grant, 2005). By making sense of power and politics in a more interpretive manner, perhaps the knowledge base of IT evaluation can move on from the plethora of financial methods and techniques: ratio methods and portfolio methods (Renkema & Berhhout, 1997). Berghout, Nijland & Grant (2005) argue that the impact of power and politics in IT evaluation is significant, and a deeper understanding of the politics of IT evaluation in specific managerial contexts could be reached by making a complete political appraisal of the organization, aided by more interpretive IT evaluation framework.

Chapter 3 - Research Questions

Following the IT PPM literature discussed in Chapter 2, Berghout, Nijland & Grant (2005) argue that the impact of power and politics in IT evaluation is significant, and a deeper understanding of the politics of IT evaluation in specific managerial contexts could be reached by making a complete political appraisal of the organization, aided by more interpretive IT evaluation framework. The research model shown in Figure 6 identifies three factors that impact on the degree of Stakeholder influence across three broad categories. Bourne (2005) has shown that a direct link exists between the successful management of the relationships between the project and its stakeholders, and the stakeholder's assessment of a successful project outcome. The project's success, or failure, is strongly influenced by both the expectations and perceptions of its stakeholders, which are based on power, proximity and urgency to a project.

1. Stakeholder power, proximity and urgency influence on the use of qualitative selection and prioritization techniques
2. Stakeholder power, proximity and urgency influence on the selection and prioritization in terms of meeting their own personal objectives
3. Stakeholder power, proximity and urgency influence on the selection and prioritization of the IT project portfolio

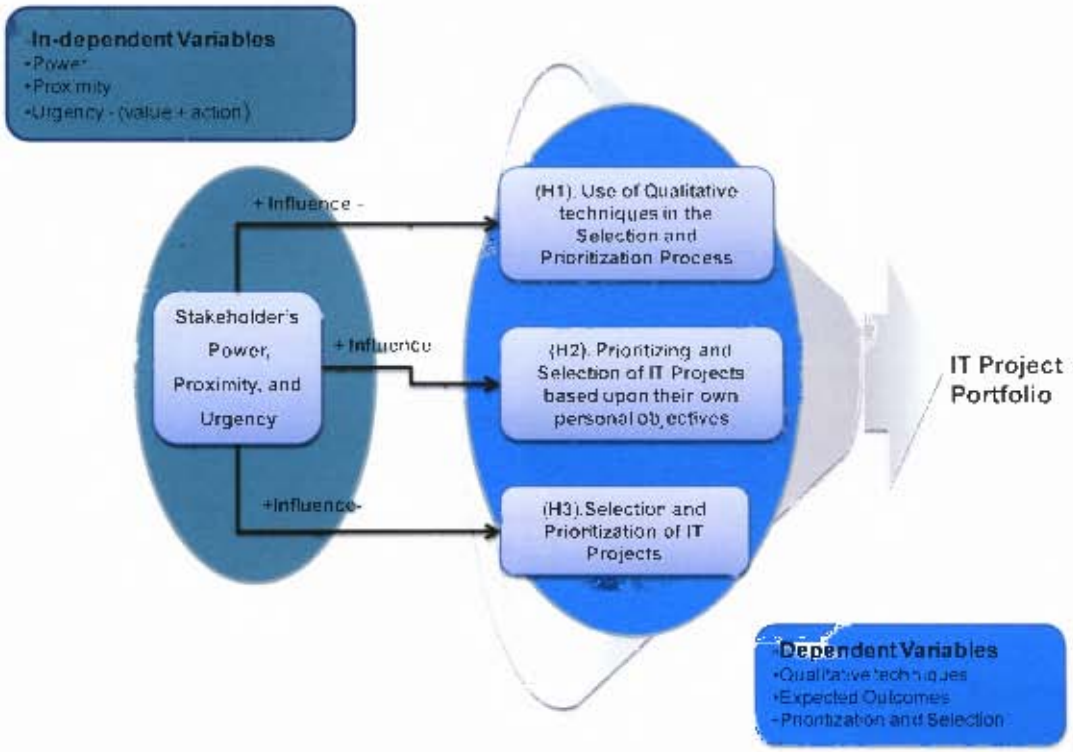

Figure 6: Stakeholder Influence on ITPPM - Model

The three research questions that are illustrated in figure 6 were further sub-divided in order to split each construct into separate dimensions: stakeholder power, stakeholder proximity and stakeholder urgency, represented in figures 7, 8 and 9.

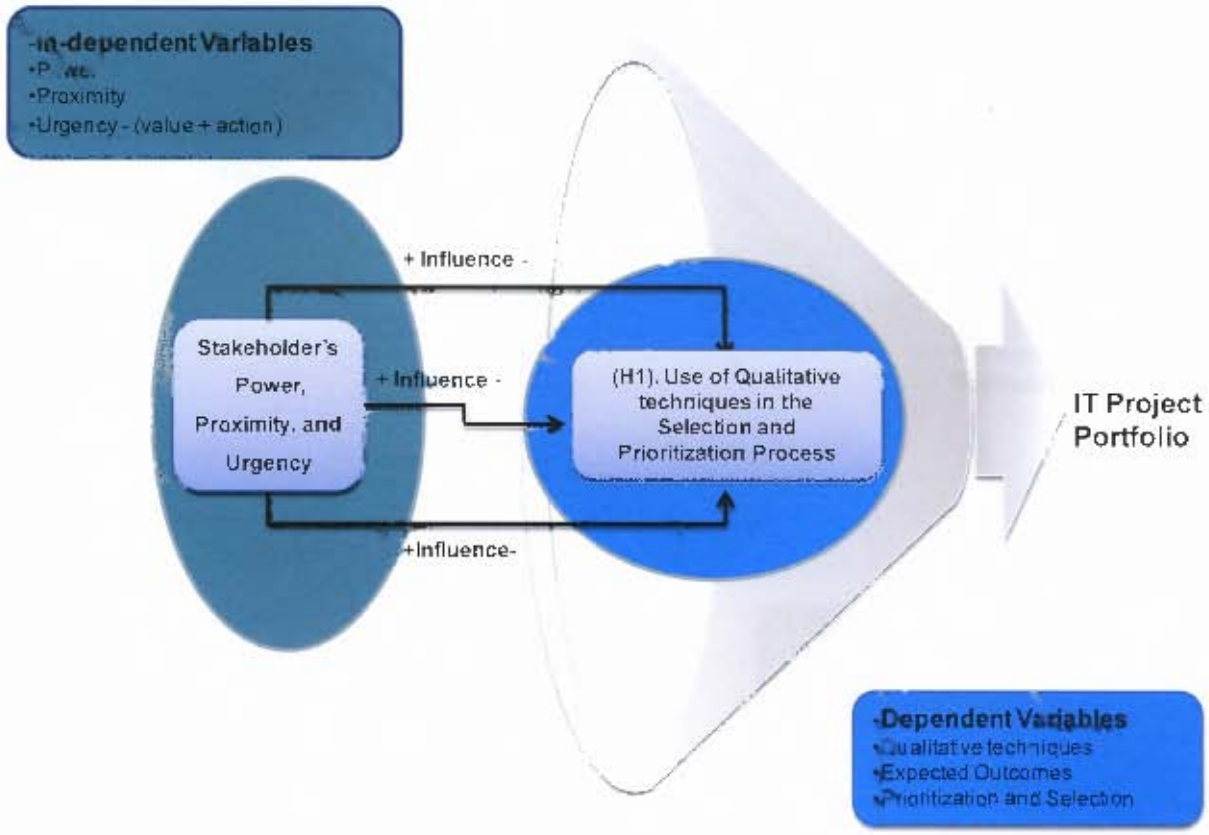

Figure 7: Hypothesis 1

Hypothesis 1. Stakeholder power, proximity and urgency influence the use of qualitative selection and prioritization techniques was revised as follows:

- H1-1) Stakeholder power strongly influences the use of qualitative selection and prioritization techniques
- H1-2) Stakeholder urgency strongly influences the use of qualitative selection and prioritization techniques
- H1-3) Stakeholder proximity strongly influences the use of qualitative selection and prioritization techniques

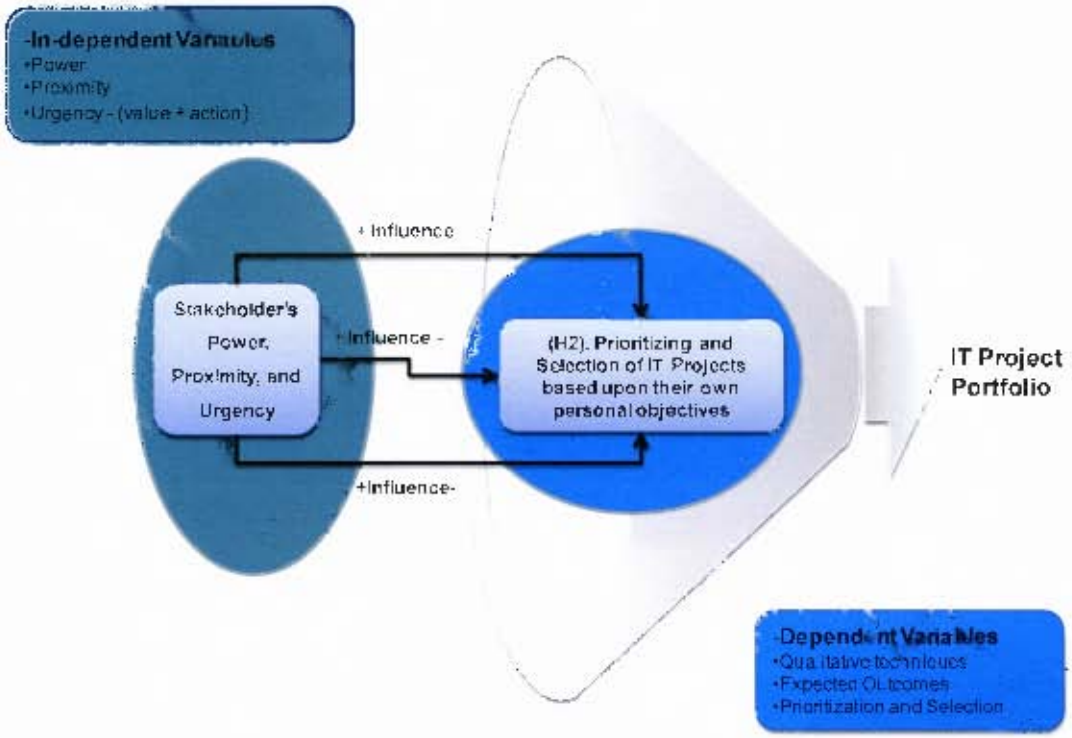

Figure 8: Hypothesis 2

Hypothesis 2. Stakeholder power, proximity and urgency influence on the selection and prioritization in terms of meeting their own personal objectives was revised as follows:

- H2-1) Stakeholder power strongly influences project selection and prioritization in terms of meeting their own personal objectives
- H2-2) Stakeholder proximity strongly influences project selection and prioritization in terms of meeting their own personal objectives
- H2-3) Stakeholder urgency strongly influences project selection and prioritization in terms of meeting their own personal objectives

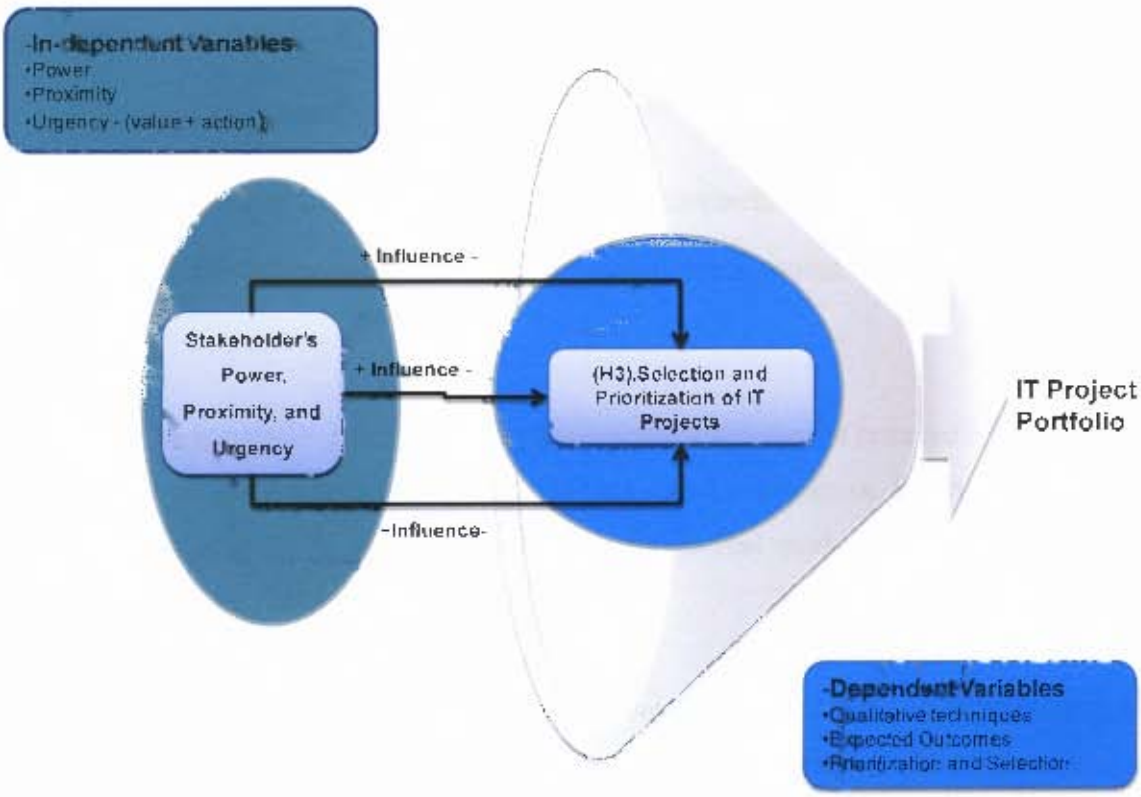

Figure 9: Hypothesis 3

Hypothesis 3. Stakeholder power, proximity and urgency influence on the selection and prioritization of the IT project portfolio was revised as follows:

- H3-1) Stakeholder power strongly influences the selection and prioritization of the IT project portfolio
- H3-2) Stakeholder proximity strongly influences the selection and prioritization of the IT project portfolio
- H3-3) Stakeholder urgency strongly influences the selection and prioritization of the IT project portfolio

Chapter 4 - Research Methodology

The purpose of this chapter is to explain the research methodology used for this research.

4.1 Underlying Philosophy and Approach

Two major philosophical perspectives of research are apparent in the social sciences (Licker, 1999):

Positivism (scientific) – Empirical or real-work situations can be reduced into properties that are independent of the research instrument. This approach is objective, mechanical and not open to interpretation. It seeks to make predictions about the real world and ways in which real-world phenomena can be controlled.

Non-positivism (experimental) – An experimental approach that is holistic and can included any externalities. This research is subjective, open to interpretation and is an expression of the researcher's views. It seeks to promote understanding and debate regarding the research subject.

This research aims to make predictions about the influence of stakeholder power, proximity and urgency on the prioritization and selection process on the IT project portfolio. In doing so, it aims to provide methods that can be used to control stakeholder influence. This, therefore, suggests that the positivism approach is best suited, and that the data is a vital component of the research.

The adoption of the positivistic, quantitative research methodology will allow the author to demonstrate the relationship between various items of data that have been collected. This is based on the correlation research design in which data is collected from a cross-section of people at a single point in time in order to discover how variables relate to each other (Bryman, 1990). A correlation study examines the extent to which differences in one characteristic or variable are related to differences in one or more other characteristic or variables. A correlation exists in that when one variable increases, another variable either increases or decreases in a somewhat predictable fashion (Leedy, Ellis & Ormond, 2005).

The data collected from this research will represent instances of the variables that are to be measured: stakeholder power, stakeholder proximity, stakeholder urgency, project selection, project prioritization, qualitative selection techniques and qualitative prioritization techniques. The literature review and the hypothesis suggest that certain relationships exist between these variables. The data will demonstrate if the theoretical relationships between the variables do in fact exist. Once the data has been analysed, the complete set of relationships will become apparent and it will be possible to predict whether stakeholder influence on the selection and prioritization can be limited or even eradicated by adjusting the independent variables under scrutiny.

In all correlation studies, be alert for faulty logic. When two variables are correlated, researchers sometimes conclude that one of the variables must in some way influence the other. In some instances, such influence may indeed be present but, ultimately, we can never infer a cause-and-effect relationship on the basis of correlation alone. Correlation does not in and of itself indicate causation (Leedy, Ellis & Ormond, 2005).

4.2 Concepts and their Measurement

Bryman & Bell (2007) defines concepts as the building blocks of theory that represent the points around which business research is conducted. Examples of concepts that will be used in this research are: influence, stakeholders, power, proximity and urgency. According to Bryman & Bell (2007), we give labels to elements of the social world that seem to have common features and that strike us as significant. Furthermore, concepts may provide an explanation of a certain aspect of the social world, or they may stand for things that cannot be explained. These concepts once employed in quantitative research will have to be measured. Once they are measured, they are in the form of independent or dependent variables.

When cause-and-effect relationships are investigated, the extent to which one variable (the cause) influences another variable (the effect) is looked at. A variable that the researcher directly manipulates is called an independent variable. A variable that is potentially influenced by the independent variable is called the dependant variable, because it is influenced by and so to some

extent depends upon the independent variable (Leedy, Ellis & Ormond, 2005). In this research, the ***independent variables*** are *stakeholder power, stakeholder proximity and stakeholder urgency*. The ***dependant variables*** are *expected outcomes, prioritization and selection, and qualitative techniques.*

According to Bryman & Bell (2007), there are three main reasons for the preoccupation of measurement in quantitative research.

1. Measurement allows us to delineate fine differences between people in terms of the characteristic in question
2. Measure gives us a consistent device or yardstick for making such distinctions
3. Measurement provides the basis for more precise estimates of the degree of relationship between concepts

Quantitative researchers are mostly pre-occupied with measurement. Hence it is no surprise that issues of reliability, which are defined as consistency of measures, and issues of validity, which are defined as whether or not a measure really measures that concept, are a concern for researches, though not always manifested in research practice (Bryman & Bell, 2007).

4.3 Survey Research: Self-completion Questionnaire

Survey research is the most widely used data-gathering technique for social research (Neuman, 2003). Questionnaires that are completed by respondents themselves, using social survey design, are one of the main instruments for gathering data. The term "self-completion questionnaire" is often used because it is somewhat more inclusive than mail or postal questionnaires (Bryman & Bell, 2007). Self-completion questionnaires were developed within the positivist approach to social science, and produces numerical results about beliefs, opinions, characteristic and past or present behaviour, expectations and knowledge of respondents. This technique is able to test several hypotheses in a single survey and can be conducted through mail or electronically, using a self-administered questionnaire, by telephone or in person. The advantages of the mail or email

administered survey are that it is low cost, has ease of administration by a single researcher, provides respondent anonymity and avoids interviewer bias. However, there is often a low response rate and little opportunity to know or control the conditions of response (Neuman, 2003).

Quantitative data is collected through experiments, surveys, existing statistics or other secondary data such as organizations' business plans or project documentation. A survey research method was chosen for the following reasons:

1. Survey research is the most widely used data-gathering technique for social research (Neuman, 2003).
2. Access to senior members of an organization is restricted and to secure face-to-face interviews is a lengthy logistical process. Through the use of UCT IS department's online survey, the URL pointing to the online portal can be emailed to the author social network. As a result of the snowball effect, survey respondents in similar roles will grow.
3. Senior members of organizations have limited space in their calendars to fit in face-to-face interviews. Through the use of a survey instrument, respondents are free to participate at their own discretion with no pressure.
4. It is cheaper to administer than interviewing, as interviewing can be expensive if one has a sample that is geographically dispersed (Bryman & Bell, 2007).
5. It is quicker to administer, as self-completion questionnaires can be distributed in large quantities at the same time (Bryman & Bell, 2007).

The disadvantages of the self-completion questionnaire in comparison to the structured interview include (Bryman & Bell, 2007):

1. There is no one present to help respondents if they have difficulty answering a question.
2. There is no opportunity to probe respondents to elaborate on an answer.
3. Difficulty of asking other kinds of questions
4. Respondents are able to read the whole question before answering the first question.

5. You cannot collect additional data.
6. It is not appropriate for some kinds of respondents.
7. It is a lower response rate.

The survey instrument (see appendix C for copy of self-completion survey) deployed in this research was also used by Bourne (2005) to test stakeholder influence of power, proximity and urgency on projects. Bourne's (2005) research resulted in the Stakeholder Circle Methodology and Visual tool, which analyses the stakeholder community's influence on projects and its outcomes. Employing existing questions allow the researcher to use questions that have been validated and, furthermore, allowed comparisons to be drawn from other research (Bryman & Bell, 2007).

4.3.1 Survey Research: Techniques to Improve Response Rates

Because of the tendency for self-completion questionnaires surveys to generate lower response rates than structured interview surveys, the following steps are frequently suggested (Bryman & Bell, 2007): Write a good covering letter, (see appendix A); follow up individuals who do not reply at first, with two or three further mailings; shorter questionnaires tend to achieve better response rates than longer ones; give clear instructions; do not allow questionnaires to appear unnecessary or bulky; begin with questions that are more likely to be of interest to the respondent.

4.3.2 Survey Research: Design and Motivation for Questions

Observation studies look at people's behaviours. Survey research frequently uses questionnaires to learn about people's behaviours, characteristic, attitudes and opinions. Behaviours and attitudes are often quite complex and so not at least on the surface, easily evaluated or quantified. Two techniques that facilitate both evaluation and quantification in such circumstances are the checklist and the rating scale. A checklist can investigate a list of behaviours, characteristics or other entities. The participant checks whether each scale item on the list is observed, present or true, or else not observed, present or true. A rating scale is more useful when behaviour, attitude or phenomenon of interest needs to evaluated on a continuum of, for example inadequate or

excellent, never or always, strongly approve or strongly disapprove (Leedy, Ellis & Ormond, 2005).

The self-completion research survey deployed in this research, (see Appendix C) used a combination of scales and checklists to understand behaviours and attitudes of senior stakeholders involved in the prioritization and selection process of ITPMM. Whenever you use checklists or rating scales, you simplify and more easily quantify people's behaviours or attitudes. In the process, however, you may lose valuable information (Delandshere & Petrosky, 1998).

It is always desirable to conduct a pilot study before administering a self-completion questionnaire, as it ensures that the survey questions operate well and that the research instrument as a whole functions effectively. Pilot studies may be particular crucial in relation to research based on self-completion questionnaire, since there will not be an interviewer present to clear up confusion. Furthermore, some benefits of a pilot study are: if the main study is going to employ mainly closed questions, open questions can be asked in the pilot to generate the fixed-choice answers. Also, a pilot study identifies questions that could all be answered in the same way. Finally, a pilot study reveals questions that could be misunderstood (Bryman & Bell, 2007).

A pilot study was employed for this research as a means to address any structural or design issues. A small control group of 5 respondents was chosen to review the self-completion survey. Their feedback was captured and the following improvements made to the survey:

- Each of the independent variables was defined so as to explain what the concepts mean in relation to the question that followed.
- Abbreviations were written out in full.
- The configuration of the survey was changed, forcing all respondents to only exit the survey after reading all the questions.
- Careful consideration was given to the sample, as the survey was difficult to fill out for those in the control group who were not directly involved in IT projects.

- An ambitious concept, "gut feel, intuition and instinct" was replaced with a single term, namely "gut feel".

The self-completion questionnaire, question 1 – 14, deployed in this research, (see Appendix C), was developed using the Bourne (2005) stakeholder circle framework. The researcher revised the original questions 1 – 11 relating to stakeholder influence of power, proximity and urgency on the success of projects and added Question 12 – 14 relating to the selection and prioritisation of IT projects using qualitative and quantitative techniques as shown in table 7. The support for question 12 – 14 was derived directly from the literature review of chapter two.

Question No.	Question	Literature Support
12	**With respect to your participation in your last Selecting and Prioritizing of a Portfolio of IT projects, a key objective would have been to facilitate the appraisal of IT Project investments based upon their proposed outcomes. Which quantitative technique, when applied to the IT investment Project, best allowed you to determine the IT project outcomes? Circle one.** • ROI – Return on Investment • NPV/IRR – Net Present Value and Internal Rate of Return • Payback period • Earned Value Analysis • DCF – Discounted Cash Flow	Farbey et al (2001), the role of IT has changed from one of support to one of strategic importance and hence the issue of evaluating the cost and benefits of IT projects has become a major issue for senior managers. Literature confirms that there are multiplicities of evaluation methods available but two of the techniques, 'Return on Investment' and 'Cost Benefit Analysis' are the most common. Dos Santos (1991): for more than two decades finance academics have taught the net present value (NPV) method as the correct procedure to use in making capital-budgeting decisions. Recent surveys suggest that this view is also widely shared by practitioners who now use some version of discounted cash-flow analysis to evaluate projects.
13	**Question 13. With respect to your participation in the last Selecting and Prioritizing of a Portfolio of IT projects, a key objective was to facilitate the appraisal of IT Project investments based upon their proposed outcomes. Which qualitative**	Gadamar (1989) states that people bring their own prejudices to a decision. Decisions are influenced not only by clinical analysis of numbers and costs, but by cultural, political,

	technique was used to evaluate IT Project outcomes. Choose one from the list? • Existence of a project champion (top management support) • Reasoning • Probability of completion • Gut feel • Mandatory requirements	personal and a host of subliminal factors. Dunne (1993) calls this the subsoil of the psyche, which acknowledges human bias. Remenyi (2000) writes that this partly conscious, partly subconscious digestion of a mass of information, prejudices, personal values, experience and sense of duty as well as internal and external pressures is what decision-makers often consider when making complex decisions about IT investments. They could not easily rationalize this process even if they tried. Instead they call it "gut instinct", faith, intuition, etc. Instinct is therefore not necessarily something to be condemned or abandoned by the decision-maker of reason. Rather, it is often a different and subtler kind of reasoning; a taking into account of how the world really is rather than simply what the spreadsheets say.
14	**When Selecting and Prioritizing IT projects, which technique do you most use? Circle one.** • Quantitative • Qualitative	Hirschheim and Smithson (1988) make the distinction between formal and informal evaluation procedures: the former might be considered an objective and rational mechanism, whilst the latter might be viewed as ill-informed, hasty and largely involved subjective judgements.

Table 7: Literature Support for Researcher's Questions

The following section details how each of the variables in the research model in figure 6 were assessed in the questionnaire.

- **Stakeholder power** was measured in Question 6 of the Bourne (2005) questionnaire. **Stakeholder proximity** was measured in Question 7 of the Bourne (2005) questionnaire.

Stakeholder urgency was measured in Question 8 and 9 of the Bourne (2005) questionnaire.

- **The use of qualitative selection and prioritization techniques** was measured in Question 13.
- **Expected outcomes** were measure in Question 5.
- **The selection and prioritization technique** most used by stakeholders was measured in Question 14.

According to Bryman & Bell (2007), when deploying the research survey design that will yield quantitative data that can be summarised through statistical analysis, four main errors could arise that could disqualify your research. 1) Sampling error. This kind of error arises when the sample is not truly representative. 2) Sample-related error. This kind of error arises from activities or events related to the sample process and connected with the issue of generalizability or external validity of findings. Examples are inaccurate sample frame or non-responses. 3) Data-collection error: The source of this error includes such factors as poor question wording or flaws in administration of research instrument. 4) Data-processing error: This arises in faulty management of data.

4.4 Sampling Design

According to Bryman & Bell (2007), the need to sample is one that is almost invariably encountered in quantitative research and only the findings from a representative sample can be generalized to an entire population. The sample used in this study is defined as the stakeholder community responsible for the project selection and prioritization of IT Projects. Included in the sample will be programme managers, business unit heads, IT managers, chief information and chief operating officers distributed across gender and age.

The participants were selected from a professional social network site, Linked-in, and were invited to participate in the survey through email correspondence submitted via the Linked-in portal. Linked-In calls itself "an interconnected network of experienced professionals from around the world, representing 170 industries and 200 countries. The Linked-In portal allows

professionals to connect and collaborate with other qualified professionals in order to accomplish commonly shared goals (www.Linkedin.com, online).

The self-completion questionnaire was posted in the following Linked-In forums: *Portfolio and Project Management Professionals, Gartner PPM and IT Governance Summit, Certified Project, Program and Portfolio Managers, Certified Project, Program and Portfolio Managers, Project Portfolio Management, CIO Forum*, which focus on building best practises within the IT PPM discipline and strive to gain access to a wide network of experience professionals. The benefit of using the Linked-In professional forums is that it increases the probability of finding qualified survey respondents and hence improves the reliability and credibility of the data. Because these forums specialise in Project Portfolio Management, members who participate in them are practitioners in the craft of PPM. The aim was to target a minimum sample size of 50 Linked-In respondents over a 45-day period.

Portfolio and Project Management Professionals

Group's Profile: "Consulting and/or working professionals with in-depth experience, knowledge and skill in the area of Portfolio and Project Management (PPM). PPM professionals should have more than 7 years experience with designing, implementing, supporting and/or utilizing PPM processes and solutions".

Gartner PPM and IT Governance Summit

Group's Profile: "PPM (Program & Portfolio Management) and IT governance are key to aligning what your organization wants to do with the resources required to getting it done: budget, hours, people, time and equipment. The new Gartner PPM & IT Governance Summit is designed to help you deliver stronger results from your IT portfolios and investments, through the recession and beyond. You'll learn how to better prioritize your initiatives, organize your PMO and program management functions, and create IT policies that support your business goals".

Certified Project, Program and Portfolio Managers

Group's Profile: "A global professional networking site to further the continuous improvement of the project management profession and provide career development and opportunity for its members. Membership is open to all certified project, program, and portfolio managers (regardless of certification authority) and those interested in contributing to and/or advancing the profession. (Keywords: PMI, PMP, CAPM, PgMP, Prince2, MPM, Project+, Scrum, Agile, CSM, CST, Six Sigma, Black Belt, Green Belt, Yellow Belt, AMPC, CIERP, CMMI, SEI, IPMA)".

Project Portfolio Management

Group's Profile: "This is a group for professionals who are looking for other professionals active in the field of project portfolio management. Their goal is to establish a network for sharing knowledge and best practices".

CIO Forum

Group's Profile: "The industry is continually broadening and the knowledge domain is becoming increasingly complex, so the focus must be more direct in terms of the target audience, rather than trying to target a broad audience. We focus on: a) Academics: There is a need to increase collaboration and create a non-competitive environment. b) Chief Information Officers: CIOs as the leaders and employers representing IT in the enterprise are critical stakeholders who are also under increased pressure to deliver and gain qualification".

4.4.1 Identifying a Sufficient Sample Size

The decision about sample size represents a compromise between the constraints of time and costs, and the need for precision. A larger sample size does not guarantee precision. However, increasing the size of the sample increases the likely precision of the sample. This means that, as sample size increases, sampling error decreases. Therefore, an important component of any decision about sample size should be how much sample error the study is prepared to tolerate, (Bryman & Bell, 2007). Fowler (1993) warns against this simple acceptance criterion. He argues

that, in practice, researchers do not base their decisions about sample size on a single estimate of a variable. Most survey research is concerned with generating a host of estimates.

Considerations about sampling error do not only pertain to the constraints of time, costs and the need for precision. The problem of non-response should also be borne in mind. Most sample surveys attract a certain amount of non-response. Thus, it is likely that only some of the sample will agree to participate in the research. To address the required response-rate that is defined as the number of respondents in the sample that agree to participate, one should increase the number of respondents in the sample (Bryman & Bell, 2007).

4.4.2 Non-probability Sampling

Snowball sampling differs from convenience sampling. Convenience sampling is available to the researcher by virtue of its accessibility, while with snowball sampling, the researcher makes initial contact with a small group of people who are relevant to the research topic and then uses these to establish contacts with others. A snowball sample is in no sense random, because there is no way of knowing the precise extent of the population from which it would have to be drawn. Furthermore there is no accessible sampling frame for the population from which the sample is to be taken and hence the difficulty of creating such a sample frame means that such an approach is the only feasible one (Bryman & Bell, 2007).

4.4.3 Bias in Research Sampling

Samples that are not representative of the population are biased. However, it is incredibly difficult to remove bias altogether and to derive a truly representative sample. What needs to be done is to ensure that steps are taken to keep bias to an absolute minimum. Three sources of bias can be identified.

1. If a non-random sampling method is used. If this method used to select the sample is not random, there is a possibility that human judgement will affect the selection process,

making some members of the population more likely to be selected that others. This source of bias can be eliminated though the use of probability or random sampling.

2. If the sampling frame is inadequate. If the sampling frame is not comprehensive, the sample that is derived cannot represent the population, even if a random sampling method is employed.
3. If some sample member refuses to participate or cannot be contacted – in other words if there is non-response. The problem with non-response is that those who agree to participate may differ in various ways from those who do not agree to participate. Some of these differences may be significant to the research question or questions.

4.5 Data Analysis

The analysis of the data was performed in three steps as shown in figure 9. The first step was to apply statistical techniques to the data generated by the self-completion questionnaire. During this process, univariate techniques were applied to better understand each variable under scrutiny. Furthermore, bivariate analysis techniques were applied to test if any relationships existed between two variables. The second step was to use Bourne and Walker's (2005) SHC methodology and Visualization tool to identify the Top 15 critical stakeholders in the sample data, collected by the self-completion questionnaire. The final step was to synthesise the statistical findings and SHC results and provide conclusions in the form of implications to managers.

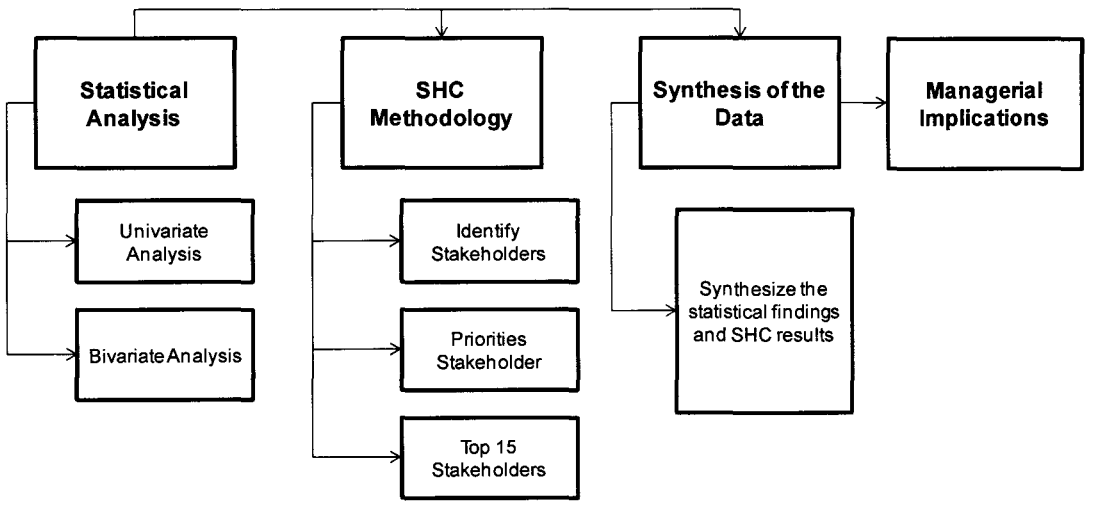

Figure 10: Data Analysis Process

4.5.1 Statistical Analysis

The following section describes the statistical analysis steps that were adopted when analysing the data received by the self-completion questionnaire. First the different types of variables that will be generated by the self completion questionnaire need to be identified. Table 8 illustrates the variables types and their associated classification.

Survey Questions	Variables		Data Type
Question 5	**Dependent**	Expected Outcomes	Nominal
Question 14		Selection and Prioritization Techniques	Nominal
Question 13		Qualitative Techniques	Nominal
Question 6	**Independent Variables**	Stakeholder Power	Ordinal
Question 7		Stakeholder Proximity	Ordinal
Question 8 & 9		Stakeholder Urgency	Ordinal

Table 8: Variables and their Data Types

The statistical analysis was divided into two parts, namely:

- univariate analysis, which refers to the analysis of one variable at a time; and
- bivariate analysis, which refers to the analysis of two variables at a time in order to uncover whether or not the two variables are related.

Univariate Analysis

A common approach to analysing a single variable is the use of diagrams. Their chief advantage is that they provide a relatively easy way to interpret and understand quantitative data. For ordinal and nominal variables, pie charts are the easiest methods to use. The pie chart shows the relative size of the different categories but also indicates the relative size of each slice relative to the total sample. The percentage that each slice represents of the whole sample is also given in the diagram (Bryman & Bell, 2007).

Bivariate Analysis

Exploring relationships between variables means searching for evidence that the variation in one variable coincides with the variation in another variables. A variety of techniques are available for examining relationships, but their use depends on the nature of the two variables being analysed. An important point to bear in mind about the methods used for analysing relationships between variables is that it is precisely relationships that they uncover, which means you cannot infer that one variable causes another. It is not uncommon for researchers, when analysing their data, to draw inferences about casual direction, based upon their assumptions about the likely causal direction among related variables. Although such inference may be based on sound reasoning, they can only be inferences and there is the possibility that the real pattern of causal direction is the opposite of that which is anticipated (Bryman & Bell, 2007).

Statistical Significance

A test of statistical significance allows the researcher to estimate how confident the results derived from the study based on a randomly selected sample are generalizable to the population from which the sample was drawn. Statistical significance indicates the level of risk inferred when there is a relationship between two variables in the population from which the sample was taken when in fact no such relationship exists. The maximum level of risk that is conventionally taken in business and managerial research is 5 chances in 100 that a relationship exists in the population from which the sample was taken. The risk level is denoted by $p < 0.05$ (p means probability) (Bryman & Bell, 2007).

The chi-squared test

The chi-squared test allows the researcher to establish a level of confidence in a possible relationship between the two variables in the population. The chi-squared value means nothing on its own and can be meaningfully interpreted only in relation to its associated level of statistical significance, which in this case is $p>0.05$. This means that there are fewer than 5 chances in 100 that a sample allows a relationship when there is no one in the population. Whether or not a chi-square value achieves statistical significance depends not just on its magnitude but also on the number of categories of the two variables being analysed. This latter issue is governed by what is known as the degrees of freedom (Bryman & Bell, 2007). Table 9

illustrates how the chi-squared test was used to test each hypothesis through questions represented by the independent and dependant variables in the self-completion questionnaire.

Objective of this Research	Survey Questions	Statistical Analysis	Survey Questions
Hypothesis 1 - Stakeholder power, proximity and urgency influence on the use of qualitative selection and prioritization techniques	Question 6, 7, 8, 9	Perform Chi-squared test of association to test the relationship between Question 6, 7, 8, 9 and 13 Perform Descriptive Statistics on Question 13	Question 13
Hypothesis 2 - Stakeholder power, proximity and urgency influence on the selection and prioritization in terms of meeting their own personal objectives	Question 6, 7, 8 ,9	Perform Chi-squared test of association to test the relationship between Question 6, 7, 8, 9 and 5	Question 5
Hypothesis 3 - Stakeholder power, proximity and urgency influence on the selection and prioritization of the IT project portfolio	Question 6, 7, 8, 9	Perform Chi-squared test of association to test the relationship between Question 6, 7, 8, 9 and 14.	Question 14

Table 9: Multivariate Analysis Performed on the Self-completion Questionnaire

The chi-squared test –combining cells

Chi-squared tests of association require that cells in a table all have expected frequencies greater than 5. In small studies this is often not the case. There are criteria that show it's valid to use the chi-square test with cells that have expected frequencies <5. Otherwise, nonparametric tests can be used. Sidney & Castellan (1988) recommend that in chi-square tests for which the df are greater than 1 (that is, when either r or c is greater than 2), no more than 20% of the cells should have an expected frequency of less than 5, and no cell should have an expected frequency of less than 2. Fisher's exact test can be used when above conditions are not met, but is extremely computationally intensive. Therefore, the researcher has combined cells where feasible to make straight-forward chi-squared tests of association possible. In order to meet conditions for

For hypothesis 1 and 2, question 6, the categories "relatively low levels of power" and "significant informal capacity to instruct change" was combined into "limited" power levels and the categories "some capacity to informally instruct change" and "high capacity to informally instruct change" was combined into "significant" power levels. For question 7, the categories "relatively remote from the activity" and "detached from the activity" were condensed into "remote" proximity and the categories "routinely involved in the activity" and "directly involved in the activity" was combined to into "associated proximity".

For hypothesis 1, question 13, the categories "existence of a project champion (top management support)", "probability of completion" and "mandatory requirements" are thought of as being "external" qualitative techniques as they all revolve around external, not internal requirements. Furthermore the categories gut feel and reasoning were thought of as being "internal" qualitative techniques as they revolve around internal requirements.

For hypothesis 2, question 5, the categories "enhanced reputation", "career advancement", "power and influence", "more work experience" and "benefits realization" were condensed into "own" goals, and the categories "improve organizational reputation", "customer satisfaction" and "delivery of project outcomes" were condensed into "company" goals.

4.5.2 Stakeholder Management Circle Methodology

Bourne's (2005) claim that a project can only exist with the informed consent of its stakeholder community and therefore Bourne's (2005) Stakeholder Management Circle and Visual tool methodology provides an effective mechanism for assessing the relative influence of a project's stakeholders, understanding their expectations and defining appropriate engagement procedures to influence the key stakeholders' expectations and perceptions to the benefit of the project. Influence is based on power, proximity and urgency. This is a well established method of gauging stakeholder influence.

The stakeholder circle methodology will be divided into two exercises. The first exercise is identifying the project stakeholders supported by the project organization chart, chart of the project environment and participant's local knowledge. The process of identification uses categories upwards, downwards, inwards, outwards and sidewards, which includes indentifying what each stakeholder requires from the project, as well as a definition of the significance to the project of these individuals (Bourne, 2005).

The second exercise is the prioritization of these stakeholders, which is assessed based upon the relative importance of each stakeholder using three factors namely; power, proximity and urgency. Power is the ability to kill the project and is rated on a scale of 1-4, where 4 is high capacity to formally instruct change and 1 is relatively low levels of power. Proximity is rated on a scale of 1-4 where 4 is directly working on the project and 1 is relatively remote from the project. Urgency has two attributes: time sensitivity and criticality and is rated on a scale of 1-5, where 5 is "immediate action is warranted, irrespective of other work commitments" and 1 is "there is little need for action outside of routine communications" (Bourne, 2005).

4.6 Ethical Considerations and Data Integrity Issues

The researcher recognised the importance of three aspects of ethics; informed consent in recruitment of participants, avoidance of harm in the fieldwork; confidentiality in reporting of the findings; and providing assurances of privacy, confidentiality and anonymity (Miles and Humerman, 1984). Ethics in research refers to a code of conduct or expected societal norm of behaviour while conducting research (Sekaran, 1992).

In order to adhere to ethical practices across all aspects of the research process – data collection, data analysis and publication of information, as well as to satisfy the requirements of the Faculty of Commerce Ethics Committee at UCT, the necessary ethics documentation was filed in May 2009. Together with this documentation, a copy of the final research proposal and final questionnaire containing the appropriate consent section was submitted. Once approval to continue was granted, an email inviting participants to complete the self-completion survey was distributed.

The self-completion survey questionnaire that was sent out via the Linked-In portal clearly explained the purpose of the research and gave participants the option to participate freely. For the purposes of this research, details related to respondents' names and organizational positions were collected. These characteristics were necessary for understanding the relationship between role of the participant and their influence over the project success. Before completing the online self-completion survey, respondents were asked to provide their email addresses if they required a copy of the data analysis.

In order to maintain the integrity of the data and simplify data analysis, all data obtained from the online self-completion surveys was exported into a single Excel spreadsheet. Given that the data was automatically transferred from the website into Excel, transcription errors resulting from human intervention were eliminated.

Chapter 5 - Analysis and Findings

This chapter investigates if the theoretical relationships do in fact exist, as described in chapter four, between multiple variables, as suggested by the literature review. The theoretical relationships have been described as the influence of stakeholder power, proximity and urgency on the prioritisation and selection process within an IT project portfolio. Three factors that have an impact on the degree of stakeholder influence across three broad categories have been indentified, namely:

1. Stakeholder power, proximity and urgency influence on the use of qualitative selection and prioritization techniques
2. Stakeholder power, proximity and urgency influence on the selection and prioritization in terms of meeting their own personal objectives
3. Stakeholder power, proximity and urgency influence on the selection and prioritization of the IT project portfolio

The variables under scrutiny are in the form of independent variables, namely stakeholder power, stakeholder proximity and stakeholder urgency; and dependent variables, namelyexpected outcomes, prioritization and selection techniques, and qualitative techniques. The chapter begins with a description of the data sample followed by a 1st order analysis on a single variable using uni-variate statistical techniques. This is followed by analysis of the relationship between two variables using uni-variate statistical techniques.

A second order of analysis is applied to the data sample where Bourne (2005) SHC methodology and visualization tool was used to identify and prioritize the top 15 stakeholders out of the sample size of 50 respondents. The top 15 stakeholders were further analysed through uni-variate statistical techniques followed by uni-variate statistical techniques. The results were compared with the sample size of the 50 respondents as well as the findings of Bourne (2005). In doing so, the researcher aimed to provide methods that can be used to control stakeholder influence on the selection and prioritization of projects within the IT project portfolio. An Excel Spreadsheet for Windows was used for the purposes of the data analysis.

5.1 Statistical Analysis

5.1.1 The Sample

A sample size of 50 respondents, see Appendix G, was achieved during the data collection process, managed through the Linked-In portal. The 50 respondents represented three broad categories of roles within the IT domain and are represented in Figure 11. The distribution of roles represented by the three categories was: ***Executive Heads***; these are respondents who described themselves as Chief Information Officers, Directors, Vice Presidents or Executive Heads. ***Senior Managers*** are respondents who described themselves as Senior Managers; and the ***Middle Manager*** category described themselves as Project Managers, IT Managers, IT Developers and Portfolio Managers. Figure 11 illustrates that 58% of the sample represented Middle Managers, whereas 33% of the sample represented Executives Heads; and only 9% of the sample represented Senior Managers.

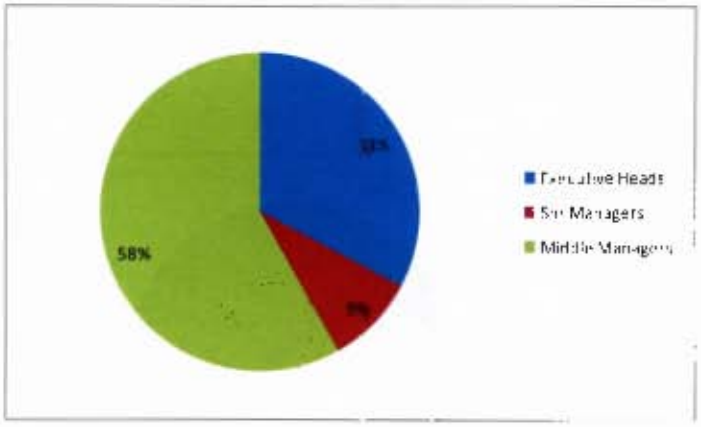

Figure 11: Sample Distribution of Roles

5.1.2 Data Types of the Variables

The independent variables, namely stakeholder power, stakeholder urgency and stakeholder urgency are ordinal variables, whereas the dependent variables, namely selection, prioritization and qualitative techniques are nominal. Ordinal variables are those variables that have categories

that can be ranked, while nominal variables comprise categorise that cannot be ranked (Bryman & Bell, 2007).

5.1.3 Univariate Analysis

A common approach to analysing a single variable is to use diagrams. The pie chart shows the relative size of the different categories, as well as the relative size of each slice relative to the total sample. The percentage that each slice represents of the whole sample is also given in the diagram (Bryman & Bell, 2007). A pie chart was produced for each variable. The chart illustrated the percentage respondents per question. Table 10 illustrates which question relates to which variable under scrutiny.

Figure 12 represents how respondents answered question 6, which measures stakeholder power. When respondents were asked to rate their level of power during an IT Project Portfolio Management Selection and Prioritising scenario, 30% of the respondents felt that they had informal power over the project selection and prioritization process, whereas 17% felt that they had low power.

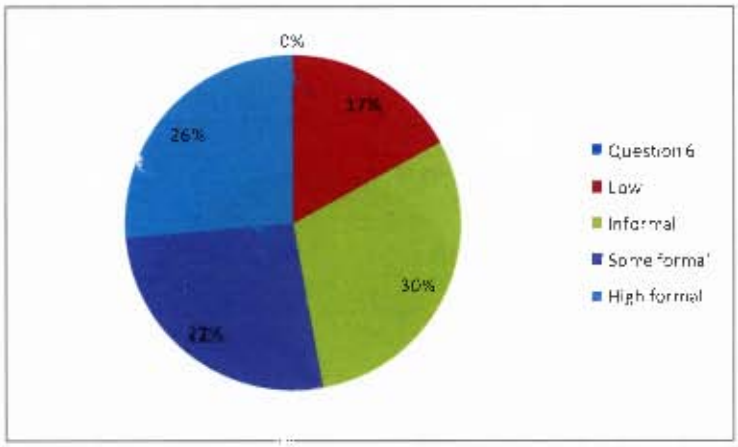

Figure 12: Stakeholder Power

Figure 13 represents how respondents answered question 7, which measures stakeholder proximity. When respondents were asked how close or remote they were to the activity of the project during an IT Project Portfolio Management Selection and Prioritising scenario, 36% of

the respondents indicated they were routinely involved in the activity of the project, whereas only 13% indicated that they were detached.

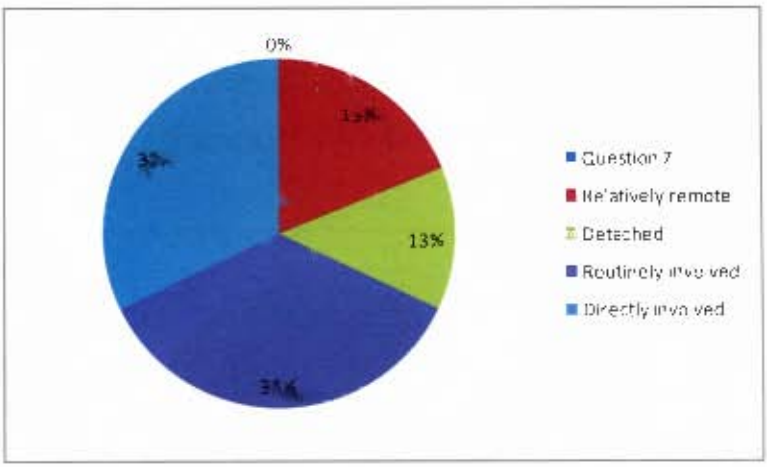

Figure 13: Stakeholder Proximity

Figure 14 represents how respondents answered question 8, which measures stakeholder urgency value. When respondents were asked what stake they had in the outcome of the project during an IT Project Portfolio Management Selection and Prioritising scenario, 41% of the respondents indicated they had high stakes in the outcome of the project, whereas only 6% had very low stakes in the outcome of the project.

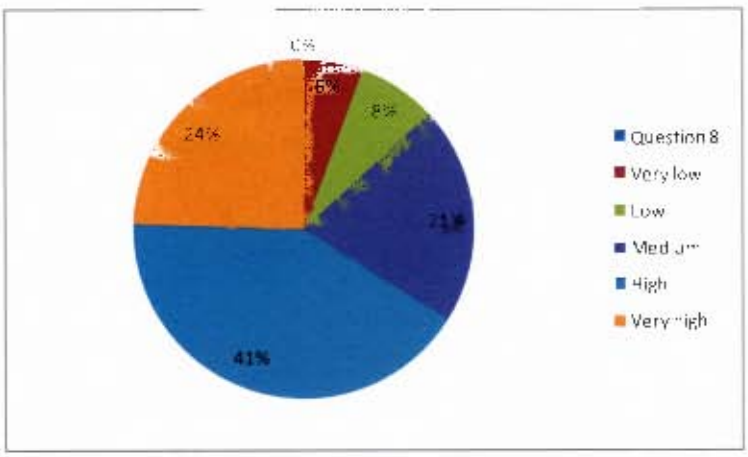

Figure 14: Stakeholder Urgency Value

Figure 15 represents how respondents answered question 9, which measures stakeholder urgency action. When respondents were asked whether they would take a positive or negative action to influence the outcome of the project during an IT Project Portfolio Management Selection and Prioritising scenario, 53% of the respondents indicated that they would go to any length to influence the outcome of the project, whereas only 7% indicated that they would be unlikely to attempt to influence the outcome of the project.

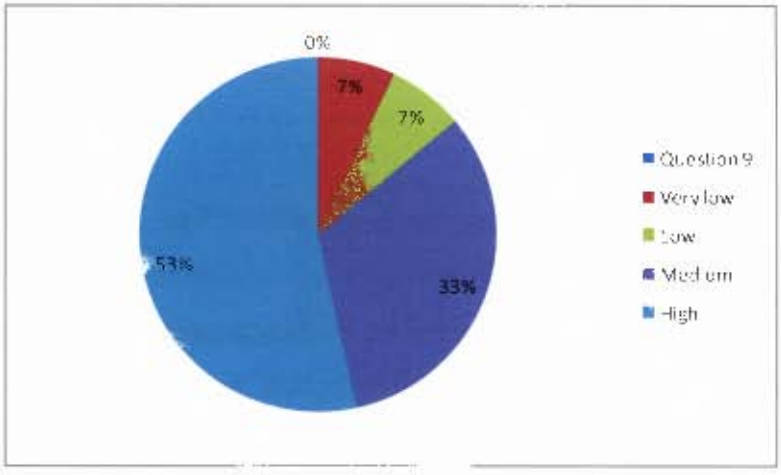

Figure 15: Stakeholder Urgency - Action

Figure 16 represents how respondents answered question 13, which measures the choice of qualitative techniques. When respondents were asked, when selecting and prioritising IT projects, which qualitative techniques they used during an IT Project Portfolio Management Selection and Prioritising scenario, 40% of the respondents indicated that they focused on mandatory requirements, whereas only 4% used gut feel.

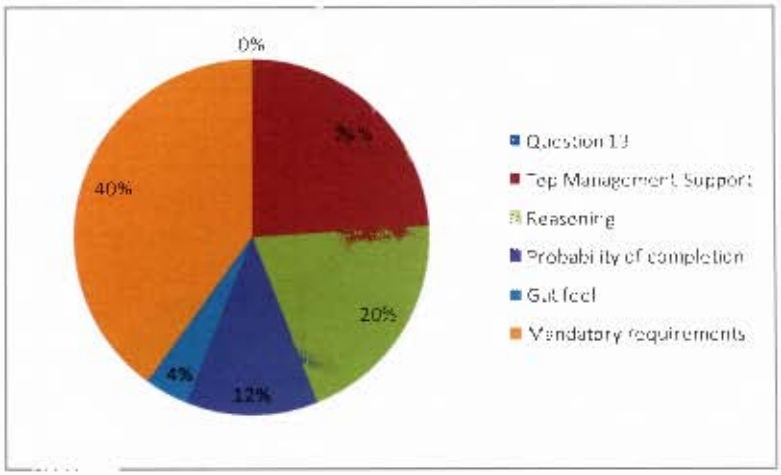

Figure 16: Qualitative Techniques

Figure 17 represents how respondents answered question 14, which measures the use of qualitative techniques vs. quantitative techniques. When respondents were asked when selecting and prioritising IT projects which technique they used the most, qualitative or quantitative. 50% of the respondents indicated that used qualitative techniques, and 50% indicated that they use qualitative techniques.

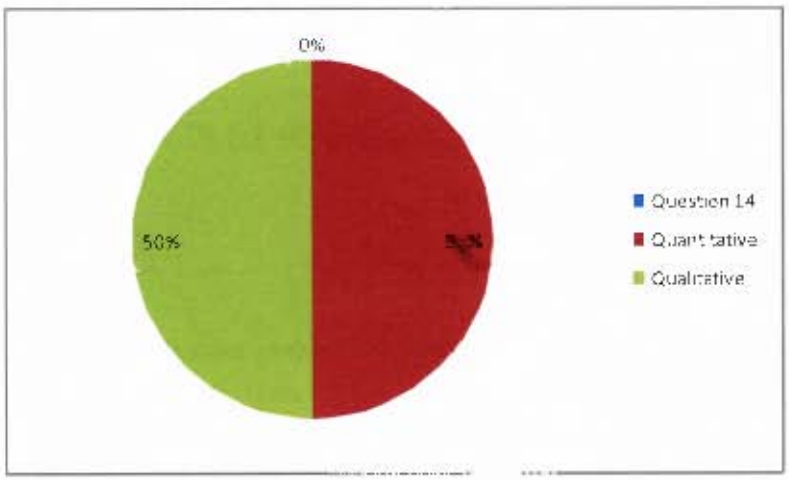

Figure 17: Selection and Prioritization Choice

Figure 18 represents how respondents answered question 5, which measures expected outcomes. When respondents were asked what their expected outcomes were of the IT project during an IT Project Portfolio Management Selection and Prioritising scenario. 36% of the respondents indicated that project delivery outcomes were important, followed by 27% who wanted benefits

realisation, 18% wanted customer satisfaction, whereas only 2% wanted to improve organizational reputation.

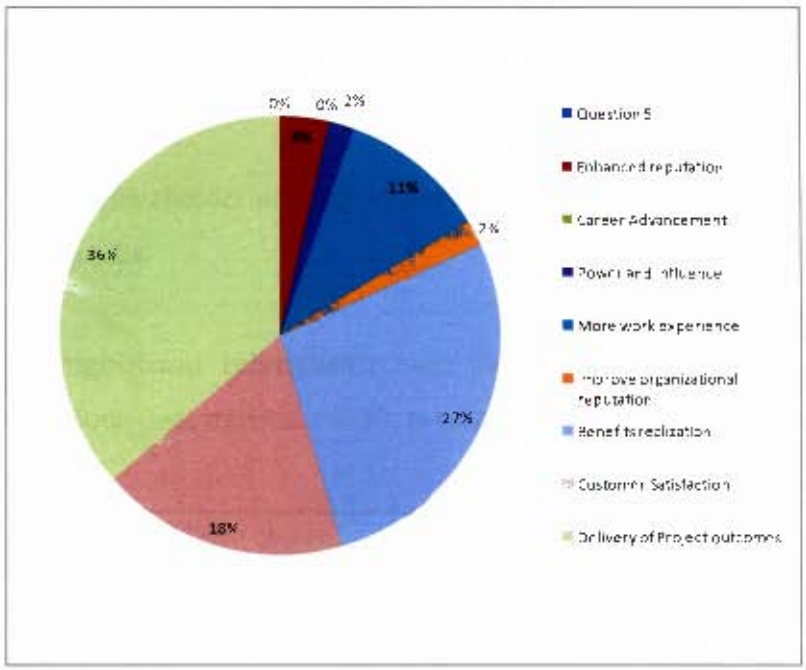

Figure 18: Expected Outcomes

5.1.3 Bivariate Analysis

Hypothesis 1.

H1-1) Stakeholder power strongly influences the use of qualitative selection and prioritization techniques.

A Strongly significant relationship was detected between stakeholder power and qualitative technique (test statistic = 5.35, p-value = 0.02). This means that whether a stakeholder has limited or significant power does influence whether s/he chooses internal or external qualitative techniques.

Condensed table:				
	Qualitative Technique		test statistic	5.35
Power	*Internal*	*External*	degrees of freedom	1
limited	9	14	p-value	0.021
significant	3	24	SIGNIFICANT RELATIONSHIP	

Table 11:Condensed Table -H1-1 Testing

H1-2) Stakeholder urgency strongly influences the use of qualitative selection and prioritization techniques.

No significant relationship was found between urgency in terms of value and qualitative technique (test statistic = 0.33, p-value = 0.85).

Condensed table:				
	Qualitative technique		test statistic	0.33
Urgency - value	Internal	*External*	degrees of freedom	2
low	2	4	p-value	0.849
medium	2	7	NO SIGNIFICANT RELATIONSHIP	
high	8	27		

Table 12: Condensed Table - H1-2 Testing

A highly significant relationship was found between urgency in terms of action and qualitative technique (test statistic = 9.75, p-value = 0.01).

Condensed table:				
	Qualitative technique		test statistic	9.75
Urgency - action	*Internal*	*External*	degrees of freedom	2
low	3	1	p-value	0.008
medium	5	8	SIGNIFICANT RELATIONSHIP	
high	4	29		

Table 13:Condensed Table - H1-3.1 Testing

H1-3) Stakeholder proximity strongly influences the use of qualitative selection and prioritization techniques.

Condensed table:				
	Qualitative Technique		test statistic	3.79
Proximity	*Internal*	*External*	degrees of freedom	1
Remote	6	8	p-value	0.052
Associated	6	30	SIGNIFICANT RELATIONSHIP	

Table 14:Condensed Table –H1-3.2 Testing

A significant relationship was detected between stakeholder proximity and qualitative technique (test statistic = 3.79, p-value = 0.05), which means that whether a stakeholder is remote from or associated with a project does weakly influence whether s/he chooses internal or external qualitative techniques.

It can therefore be concluded that the evidence found supports Hypothesis 1.

Hypothesis 2. Stakeholder power, proximity and urgency influence on the selection and prioritization in terms of meeting their own personal objectives was revised as follows:

H2-1) Stakeholder power strongly influences project prioritization in terms of meeting their own personal objectives.

Condensed table:				
	Expected outcome		test statistic	0.21
Power	*Own*	*Company*	degrees of freedom	1
limited	10	13	p-value	0.643
significant	10	17	NO SIGNIFICANT RELATIONSHIP	

Table 15:Condensed Table -H2-1 Testing

No significant relationship was found between power and expected outcomes in terms of meeting personal objectives. For power, test statistic = 0.21, p-value = 0.64.

H2-2) Stakeholder Proximity strongly influences project prioritization in terms of meeting their own personal objectives.

Condensed table:				
	Expected outcome		test statistic	0.81
Proximity	*own*	*company*	degrees of freedom	1
remote	7	7	p-value	0.368
associated	13	23	NO SIGNIFICANT RELATIONSHIP	

Table 16:Condensed Table -H2-2 Testing

No significant relationship was found between proximity and expected outcomes in terms of meeting personal objectives. For proximity, test statistic = 0.81, p-value = 0.37.

H2-3) Stakeholder urgency strongly influences project prioritization in terms of meeting their own personal objectives

Condensed table:				
	Expected outcome		test statistic	3.25
Urgency - value	*Own*	*Company*	degrees of freedom	2
low	2	4	p-value	0.197
medium	6	3	NO SIGNIFICANT RELATIONSHIP	
high	12	23		

Table 17:Condensed Table -H2-3.1 Testing

No significant relationship was found between urgency and expected outcomes in terms of meeting personal objectives. For urgency, test statistics = 3.25 and 1.87, p-values = 0.20 and 0.39 for value and action respectively.

Condensed table:				
	Expected outcome		test statistic	1.87
Urgency - action	own	company	degrees of freedom	2
low	1	3	p-value	0.392
medium	8	5	NO SIGNIFICANT RELATIONSHIP	
high	11	22		

Table 18:Condensed Table -H2-3.2 Testing

No significant relationship was found between urgency action and expected outcomes in terms of meeting personal objectives. For urgency, test statistics = 3.25 and 1.87, p-values = 0.20 and 0.39 for value and action respectively.

It can therefore be concluded that no evidence was found to support Hypothesis 2.

Hypothesis 3. Stakeholder power, proximity and urgency influence on the selection and prioritization of the IT project portfolio was revised as follows:

H3-1) Stakeholder power strongly influences the selection and prioritization of the IT project portfolio

Power	*Qualitative*	*Quantitative*	*Total*		
Relatively low	4	4	8		
Informal capacity	9	6	15	**test statistic**	**2.81**
Some capacity	4	9	13	**degrees of freedom**	**3**
High capacity	8	6	14	**p-value**	**0.42**
Total	25	25	50	**NO SIGNIFICANT RELATIONSHIP**	

Table 19:Condensed Table -H3-1 Testing

No significant relationship between stakeholder power and selection and prioritization of the IT project portfolio, that is, no significant relationship between level of power and whether quantitative or qualitative techniques were used (test statistic = 2.81, p-value = 0.42).

H3-2) Stakeholder proximity strongly influences the selection and prioritization of the IT project portfolio

Proximity	*Qualitative*	*Quantitative*	*Total*		
Relatively remote	5	4	9		
Detached	2	3	5	**test statistic**	**1.31**
Routinely involved	11	8	19	**degrees of freedom**	**3**
Directly involved	7	10	17	**p-value**	**0.73**
Total	25	25	50	**NO SIGNIFICANT RELATIONSHIP**	

Table 20:Condensed Table -H3-2 Testing

No relationship between proximity and selection and prioritization of the IT project portfolio (test statistic = 1.31, p-value = 0.73) existed.

H3-3) Stakeholder urgency strongly influences the selection and prioritization of the IT project portfolio

condensed table:					
urgency - value	Most used Qualitative	Quantitative	Total		
low	4	2	6	**test statistic**	**0.81**
medium	4	5	9	**degrees of freedom**	**2**
high	17	18	35	**p-value**	**0.67**
Total	25	25	50	**NO SIGNIFICANT RELATIONSHIP**	

Table 21:Condensed Table -H3-3.1 Testing

No relationship between urgency and selection and prioritization of the IT project portfolio (test statistics = 0.81 and 0.11, p-values = 0.67 and 0.95 for value.

condensed table:					
urgency - action	Most used Qualitative	Quantitative	Total		
low	2	2	4	**test statistic**	**0.11**
medium	6	7	13	**degrees of freedom**	**2**
high	17	16	33	**p-value**	**0.95**
Total	25	25	50	**NO SIGNIFICANT RELATIONSHIP**	

Table 22:Condensed Table -H3-3.2 Testing

No relationship between urgency and selection and prioritization of the IT project portfolio (test statistics = 0.81 and 0.11, p-values = 0.67 and 0.95 for action.

It can therefore be concluded that no evidence was found to support Hypothesis 3.

5.2 Stakeholder Management Circle

5.2.1 Stakeholder Management Circle and Visualization Tool

Bourne and Walker's (2005) Stakeholder Management Circle and Visualization tool methodology provides an effective mechanism for assessing the relative influence of a project's stakeholders, understanding their expectations and defining appropriate engagement procedures to influence the key stakeholders' expectations and perceptions to the benefit of the project.

The first task was to categorise each respondent's relationship to the IT project by the use of categories upwards, downwards, inwards, outwards and sidewards. This includes indentifying what each stakeholder requires from the project, as well as a definition of the significance to the project of these individuals. The second task was to prioritize these stakeholders. This was based upon the relative importance of each stakeholder, using three factors, namely power, proximity and urgency.

Figure 18 represents the output of the Stakeholder Management Circle (SHC) task. The top 15 Stakeholders were identified and prioritized through the SHC methodology out of the sample size of 50 respondents. The top 15 stakeholders were plotted on the SHC visualization tool and represented by segments of the circle. The power of the stakeholder is represented by the radial depth of the segment. Stakeholders that cut the circle have more power. The importance of each stakeholder and their degree of influence is indicated by the relative size of each segment measured on the outer circumference; the larger the segment, the more influential the stakeholder. The most important stakeholder is plotted at position 1, starting at 12:00 o'clock, the second important is next, through to the 15^{th} most important. The colours and shading indicate the direction of influence of the stakeholder and whether the stakeholder is internal or external to the organization.

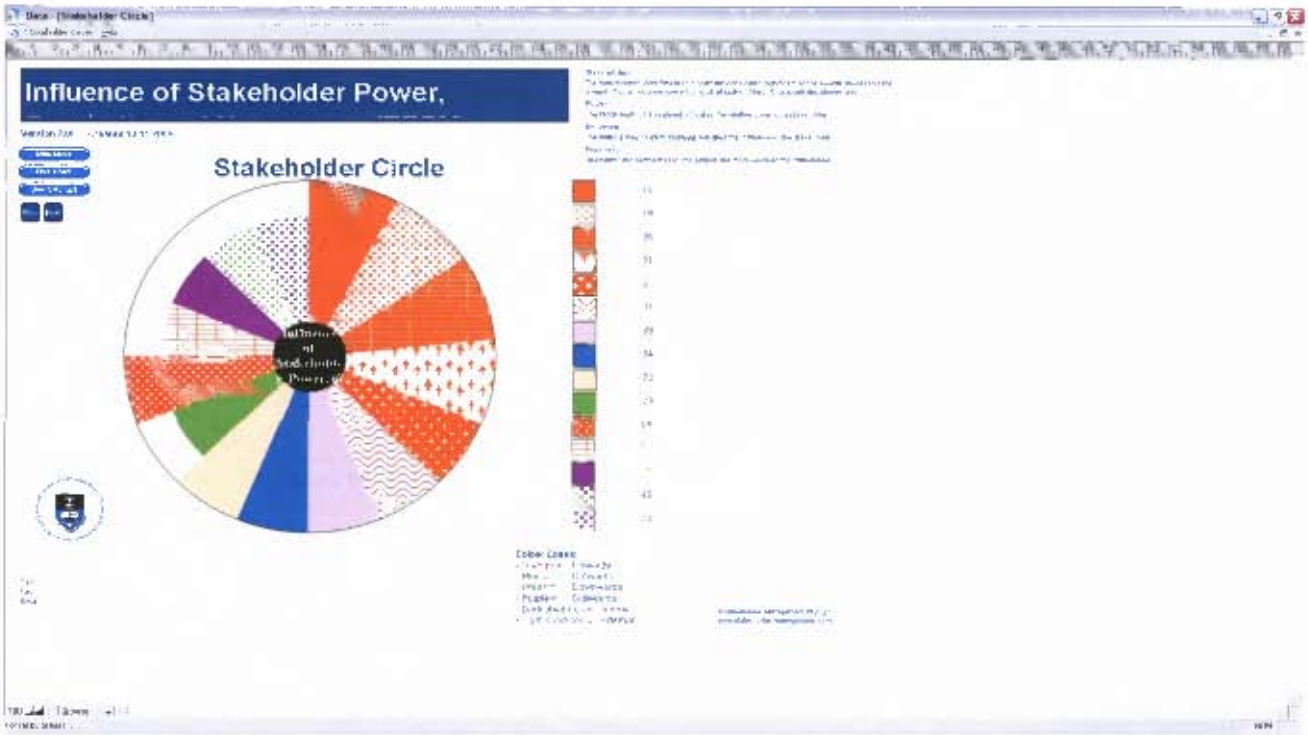

Figure 19: SHC Visualization Tool

The top 15 stakeholders identified through the methodology were listed with their direction, priority and associated influence, see table11.

Respondent ID	Role	Direction of Influence
12	IT Director	Upwards –
19	CIO	Upwards
26	Former CIO - Currently Chief Executive and Ideas Officer for a new startup	Upwards
31	PM in EPMO	Upwards
6	Sr IT manager	Upwards
37	Regional Executive	Upwards –
38	Business Analyst	Sideways –
64	VP IT Effectiveness	Outwards –
72	Programme Manager	Upwards
73	Project Manager	Downwards
29	Logistics Director	Upwards –
1	Technical Product Development (Network Strategy)	Upwards –
48	Developer	Downwards –
70	Project Manager	Sideways
11	Sr. Project Manager	Sideways –

Table 23: Top 15 Stakeholders

The output of the SHC is summarised in table 12. This provides some indication of the "What" and "Who" of the stakeholder visualization output in terms of the directions of management attention required. There are a large number of upwards management, 60% of the Top 9 Stakeholders require upward management. A smaller percentage is sideways management, 20% and smaller percentage is downwards management.

Managing Upwards – Snr Managers in the Organizations	9 (60%)
Managing Downwards (part of the team)	2 (13. 3%)
Managing Sideways (Peers of the project manager)	3 (20%)
Outwards	1 (6.7%)
Power to kill a project	9 Managers

Table 24: Results of SHC

When analysing the distribution of roles across represented by the three categories namely: ***Executive Heads***; these are respondents who described themselves as Chief Information Officers, Directors, Vice Presidents or Executives Heads. ***Snr Managers*** are respondents who described themselves as Snr Managers and the ***Middle Manager*** category described themselves as project managers, IT Managers, IT developers and Portfolio Managers. Figure 19 illustrates that 47% of the sample represented Middle Managers whereas 40% of sample represented Executives Heads and only 13% of the sample represented Snr Managers. The distribution of the top 15 Stakeholders aligns to that of the overall sample.

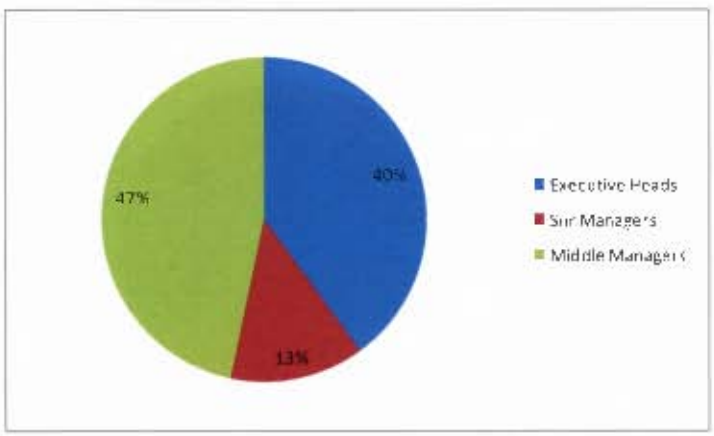

Figure 20: Sample Distribution of Roles

5.2.2 Univariate Analysis on 15 Top Stakeholders

A common approach to analysing a single variable is the use of pie chart diagrams that shows the relative size of the different categories as well the relative size of each slice relative to the total sample. Each slice is represented as a percentage of the whole sample (Bryman & Bell, 2007). A pie chart was produced for each variable that illustrated the percentage respondents per question. Table 8 illustrates which question relates to which variable under scrutiny.

Figure 19 shows how the Top 15 stakeholders responded to question 6, which measures power; it shows that 67% of the Top 15 stakeholders have total power to kill a project, whereas 33% have some power to kill a project.

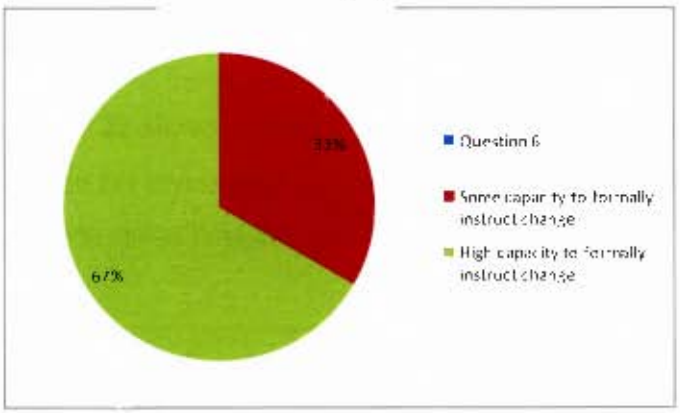

Figure 21: Top 15 Stakeholder Power

Figure 20 shows that 60% of the Top 15 stakeholders chose quantitative techniques and 40% chose qualitative techniques.

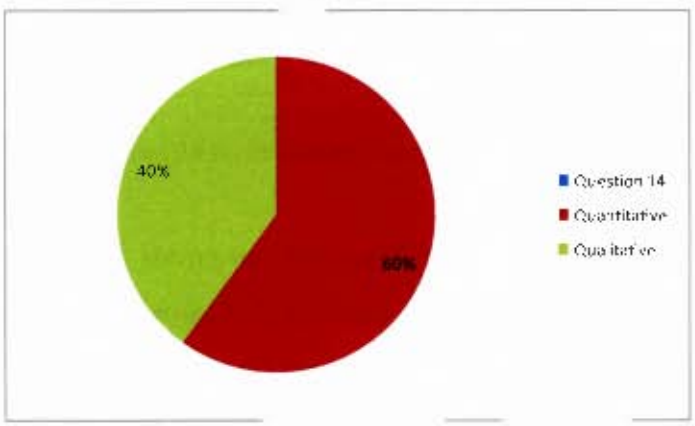

Figure 22:Top 15 Stakeholders Selection and Prioritization Techniques

Figure 21 shows that 67% of the Top 15 stakeholders who chose qualitative techniques chose mandatory requirements.

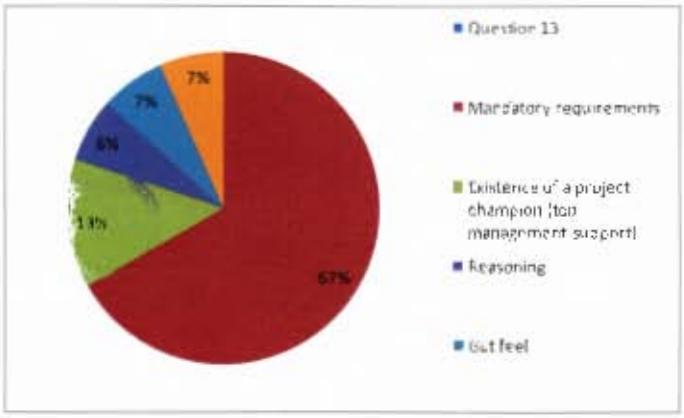

Figure 23: Top 15 Stakeholder Qualitative Techniques

Figure 22 shows that 67% of the Top 15 stakeholders that chose quantitative techniques chose Return on Investment as a selection and prioritization technique, whereas only 27% chose NPV and 6% chose Payback period.

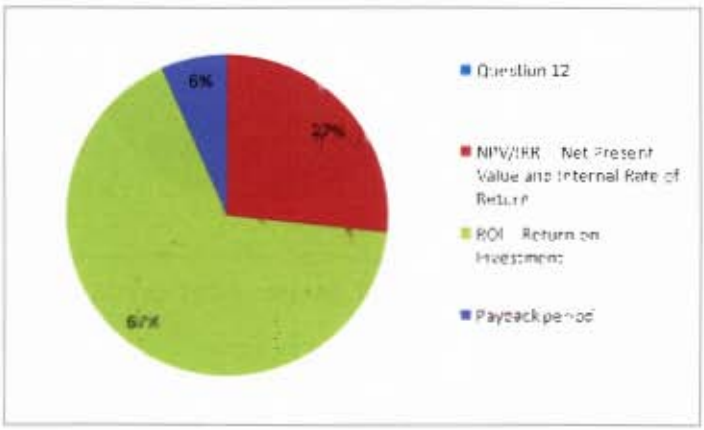

Figure 24:Top 15 Stakeholder Quantitative Techniques

Figure 23 shows that 80% of the Top 15 stakeholders are directly involved in the activity of the project, whereas only 20% are routinely involved.

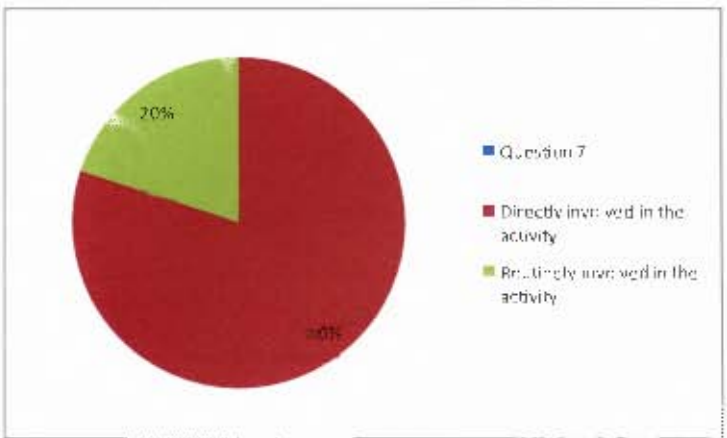

Figure 25:Top 15 Stakeholder Proximity

Figure 24 shows that 53% of the Top 15 stakeholders will go to any length to influence the activity of the project, whereas only 47% is likely to make a significant effort to influence the activity.

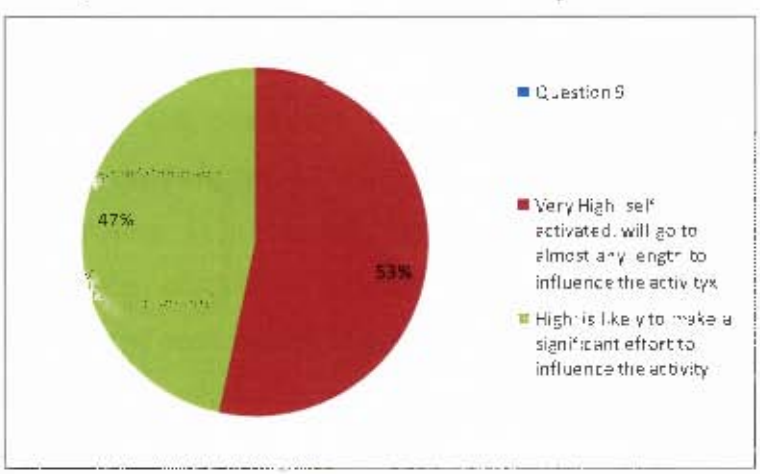

Figure 26:Top 15 Stakeholder Urgency Action

Figure 26 shows that 53% of the Top 15 stakeholders indicated that delivery of project outcome is important whereas 20% indicated customer satisfaction and benefits realisation were important.

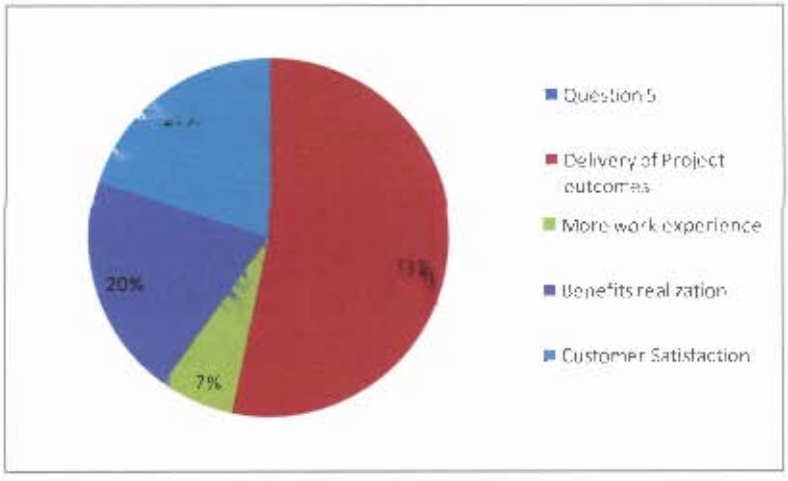

Figure 27: Top 15 Stakeholder Expected Outcomes

5.3 How do the results compare with Bourne (2005) findings?

Firstly, when comparing the results of the independent variables: stakeholder power, stakeholder proximity and stakeholder urgency between the sample data and the top 15 stakeholders, the results showed that in both cases, the independent variables under scrutiny had similar distributions. 1) In the case of stakeholder power, the majority of each sample indicated that they had a high capacity to formally instruct change. 2) In the case of stakeholder proximity, the majority of each sample indicated that they were routinely involved in the project activity. 3) In the case of stakeholder urgency, the majority of each sample indicated that they would go to almost any length to influence the activity.

Bourne (2005) argued that stakeholders have the ability to influence project outcomes through power, proximity and urgency, and development of the SIIC methodology was a means to assist in assessing stakeholder's relative influence by measuring its relative power, proximity and urgency. Aaltonen and Sivonen (2009) also argue that the management of stakeholders, taking into account their needs and requirements, is an essential part of project success. Stakeholder management models are mainly guidelines on how to respond to stakeholders that have power to promote their claim and their interest in a project. Pinto (2000) warns that this phenomena, which he calls political behaviour has important personal and corporate ramifications because the process by which individuals seek and maintain power is emotionally charged. Whatever our

level of understanding of power and politics in organizations, its presence is ubiquitous and its impact is significant. Berghout, Nijland & Grant (2005) suggest that in the political area of IT investment evaluation, managers can deploy influencing tactics to get their project selected.

When comparing the dependant variables: expected outcomes, prioritization and selection techniques, qualitative techniques between the sample data and the top 15 stakeholders, the results showed that in both cases, the independent variables under scrutiny had dissimilar distributions.1) In the case of expected outcomes, the majority of each sample indicated project delivery outcomes as important, followed by benefits realisation. 2) In the case of Selection and Prioritisation techniques, the sample was split 50/50 between qualitative and quantitative techniques, whereas in the Top 15 Stakeholder sample, 60% indicated quantitative techniques were preferred. 3) In the case of which qualitative techniques were most preferred, the majority of each sample indicated that mandatory requirement were preferred, followed by top management support.

Bourne (2005) explained that a direct link exists between the successful management of stakeholders and a project outcome. The project success or failure is strongly influenced by stakeholders' expectations and perceptions of the value created by the project, and the nature of the stakeholders' relationships with the project team. Rosacket et al (2008) states that among the universally preferred method of evaluating IT projects, qualitative and quantitative techniques are the most preferred. Quantitative methodologies can be important to get better control of costs. Berghout, Nijland & Grant (2005) argue that many criticisms have been levelled against the formal-rational evaluation methods as they neglect qualitative aspects of investments. Remenyi (2000) also argue that when IT investment decisions become complex, managers rely on methods that do not fall within the boundaries of traditional, rational decision making. On these bases, Berghout, Nijland & Grant (2005) suggest that new evaluation perceptions and methods for IT evaluation be constructed that include intangible aspects of investments such as risk-assessment and political aspects of evaluation.

According to Remenyi (2000) complex decision situations, no matter how quantitative the analysis, sooner or later will become a judgement call. This decision making is not irrational; it is

often made without going through the rational step-by-step process that management decision-makers are expected to follow. Farbey et al (2001) also argue that when organizations have an IT project that does not fit into a formal evaluation process, they resort to what he calls "Ad-hoc" evaluation methods. Remenyi (2000) explains that when managers need to make complex decisions about IT investments, they have to digest a mass of information. This process, which cannot be rationalised, is call gut feel or intuition. Managers take into account how the world really is, rather than what the spreadsheets say.

5.4 Summary of Findings

The literature survey supports the findings of hypothesis 1 shown in Figure 25.

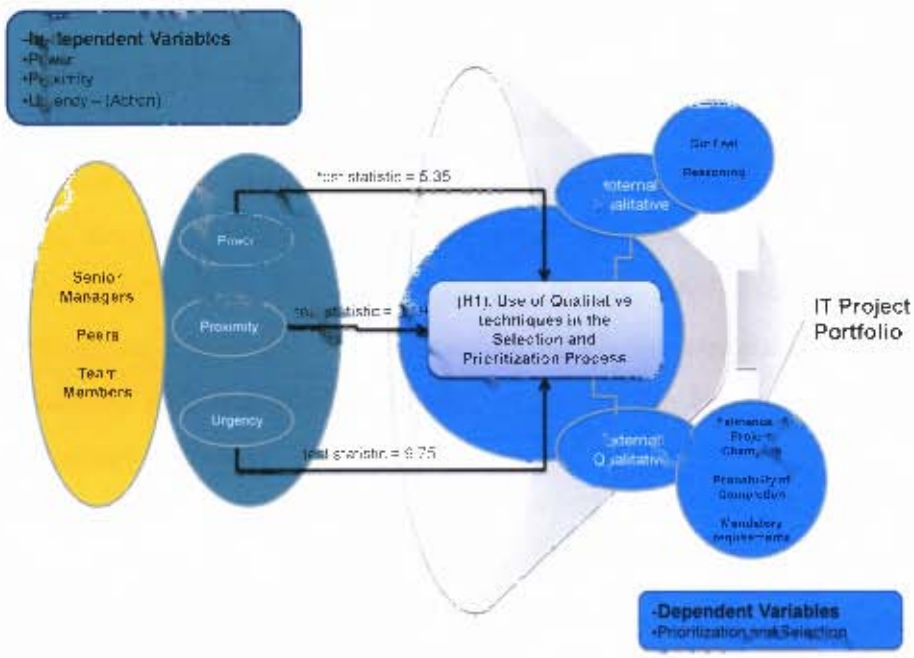

Figure 28: Hypothesis 1

Hypothesis 1 --Evidence found to support hypothesis

Stakeholder power, proximity and urgency influence the use of qualitative selection and prioritization techniques was revised as follows:

- H1-1) Stakeholder power strongly influences the use of qualitative selection and prioritization techniques – ***evidence found to support hypothesis***
- H1-2) Stakeholder urgency strongly influences the use of qualitative selection and prioritization techniques – ***evidence found to support hypothesis***
- H1-3) Stakeholder proximity strongly influences the use of qualitative selection and prioritization techniques – ***evidence found to support hypothesis***

Stakeholder (Senior Managers, Peers and Team mates) Influence and Analysis

The most often misunderstood elements of the success of IT portfolio management are the people and cultural aspects. Attitudes and perceptions are the largest differentiator between high and low performing companies, even though financial and operational metrics are important. Companies that assume stakeholder analysis as optional find that projects are derailed because of failure to address the issue of a key stakeholder (Maizlish and Handler, 2005). Stakeholder theory attempts to identify the fundamental question of which groups of stakeholders deserve to require attention. This is termed "salience" and refers to how managers prioritise competing stakeholder demands (Mitchell, Agle and Wood, 1997). Stakeholder relationships have been described as a network of influence in which the stakeholders are likely to have a direct relationship with one another, as well as dyadic ties between the organization and each of its stakeholders (Rowlegy, 1997).

Project stakeholders have been defined broadly as a group of individuals who affect or is affected by the project. The rationalized stakeholder management models such as applications of power and interest mainly provide guidelines on whether to manage a certain stakeholder or not. The idea is to respond to the demands of such stakeholders that have power to promote their claim and that have an interest in the project (Aaltonen and Sivonen, 2009).

Successful IT PPM projects are likely to involve significant interactions between stakeholders, IT and business. These interactions are likely to occur during management of the IT portfolio and therefore different stakeholders may prefer outcomes in terms of selection and prioritization that are best for them while successful IT PPM management is aimed at decisions that are best for the

organization as a whole. This is likely to lead to conflict between stakeholders (Kumar, Ajjan, and Nui, 2008). This conflict is better understood as political behaviour. Where individuals and groups seek, acquire and maintain power, situations are emotionally charged and have important corporate ramifications (Pinto, 2000).

According to Bourne and Walker (2005), relationship management skills are vital for achieving project outcomes that fully address stakeholder expectations throughout the project life-cycle. Relationships skills are required to aid the effective application of hard skills, which is defined as special skills and competencies that focus on understanding the nature of the power source that drives large, complex organizations and knowing how to harness this energy for project success. Tapping into the power lines requires wisdom and know-how to make sense out of complex, fragmented and often confusing alliances of power, influence and resource availability. In order to understand this relationship, Bourne and Walker (2005) developed a stakeholder management methodology and visualization tool, the Stakeholder Circle, which is based on the premise that a project can only exist with the informed consent of its stakeholder community. Bourne (2008) writes that influence is based upon power, proximity and urgency which are a well established method of gauging stakeholder influence.

Power, Urgency and Proximity influencing factors

According to Berghout, Nijland & Grant (2005), the concept of power is playing a growing and prominent part in IS research, and awareness is growing among researchers that the scientific, rational view of evaluation has to be expanded or replaced by a perception of evaluation as a social and political phenomenon, where power is an essential element as power has a major impact on the decision-making process and on the actual decision itself. According to Pinto (2000) the presence of power and politics in organizations is ubiquitous and its impact significant. Berghout, Nijland & Grant (2005) define power within organizations as the resources available to a person to make another person do something that the person would not have done otherwise. Moreover influencing techniques can be used as the actual use of power whereas power is the potential to influence. Manipulation can be viewed as a form of influence, where the person influenced is unknowingly made to do something that he or she not had done if he or she knew the perceived results.

Stacey (2001) states that power can be used both as a constraint or enabler; the exercise of power in a political process and relationships are simultaneously power relationship through dependency or position in the hierarchy. Bourne (2005) writes that project relationships can be understood in terms of direction, where managing downwards has more power than managing upwards. Understanding these power structures and using them to influence project outcomes is often understood as politics. Peled (2000) argues that leaders with extensive background in organizational politics complete their IT projects successfully because they manage projects mainly upwards and outwards and tailor their technological visions to the day-to-day reality of their organizations. This ability, called political skill, is used to manipulate inter-personal relationships with employees, colleagues, clients and supervisors to ensure ultimate success of the project.

Qualitative *(Internal – Gut feel and Intuition; External – Probability of completion, existence of project champion and mandatory requirements)* selection and prioritization techniques

Bannister et al (2000) write that two broad categories of IT project appraisal techniques can be indentified: Financial and qualitative, with qualitative approaches requiring more detailed data than is reasonably available. Financial metrics play a key role in the evaluation and cannot be ignored. However, financial techniques often overlook intangible benefits associated with IT investments, thereby understating the true value of the project. Hochstrasser (1992) mentions that financial appraisal techniques emphasise profit, which is unsuitable for many IT investments that could be undertaken to improve customer support. Farbey (2001) writes that when companies have IT projects that do not fit into a formal evaluation process, companies resort to what he calls an "ad-hoc" way of evaluation that modifies the formal process to fit the project.

Remenyi (2000) writes that in complex decision situations, no matter how quantitative the analysis has been, some person will sooner or later have to make a judgement. This sort of decision-making or judgement-making is not irrational. This partly conscious, partly subconscious digestion of a mass of information, prejudices, personal values, experience and sense of duty, as well as internal and external pressures, is what decisions-makers often experience when making complex decisions about IT investments. They could not easily

rationalize this process even if that tried. Instead, they call it gut instinct, faith or intuition. Instinct is therefore not necessarily something to be condemned or abandoned by the decision-maker of reason. Rather, it is often a different and subtler kind of reasoning; taking into account how the world really is, rather than simply what the spreadsheets say.

In conclusion, politics in decision-making is inevitable. Elimination is both impossible because counter-tactics themselves are a form of soft politics, and undesirable because they are crucial to come to decision with commitment that keeps the organization dynamic and flexible, to respond to internal and external developments. The bounded rationality of people makes influence tactics and manipulations an integral part of the IT decision-making process. Instead of fruitlessly trying to employ counter-tactics, inquire for more information in order to become more confident about the proposal at hand (Berghout, Nijjland and Grant, 2005). By making sense of power and politics in a more interpretive manner, the knowledge of IT evaluation can move on from the plethora of financial methods and techniques (Renkema & Berhout). Berghout, Nijjland and Grant (2005) argue that the impact of power and politics in IT evaluation is significant and a deeper understanding of the politics in IT evaluation in specific managerial contexts could be reached by making a complete political appraisal of the organization, aided by more interpretive IT evaluation frameworks.

Hypothesis 2 - No evidence found to support hypothesis

Stakeholder power, proximity and urgency influence on the selection and prioritization in terms of meeting their own personal objectives was revised as follows:

- H2-1) Stakeholder power strongly influences project selection and prioritization in terms of meeting their own personal objectives- ***No evidence found to support hypothesis***
- H2-2) Stakeholder proximity strongly influences project selection and prioritization in terms of meeting their own personal objectives- ***No evidence found to support hypothesis***
- H2-3) Stakeholder urgency strongly influences project selection and prioritization in terms of meeting their own personal objectives- ***No evidence found to support hypothesis***

Hypothesis 3 -No evidence found to support hypothesis

Stakeholder power, proximity and urgency influence on the selection and prioritization of the IT project portfolio was revised as follows:

- H3-1) Stakeholder power strongly influences the selection and prioritization of the IT project portfolio ***-No evidence found to support hypothesis***
- H3-2) Stakeholder proximity strongly influences the selection and prioritization of the IT project portfolio- ***No evidence found to support hypothesis***
- H3-3) Stakeholder urgency strongly influences the selection and prioritization of the IT project portfolio- ***No evidence found to support hypothesis***

The researcher believes that the reason why no evidence was found to support hypothesis 2 and hypothesis 3 is that the measuring instrument used was flawed. The flaw in the measuring instrument was not apparent to the researcher because the researcher based its decision on the adoption of the positivistic, quantitative research methodology which would allow the researcher to demonstrate the relationship between various items of data that would have been collected. The data collected from the research would of represent instances of the variables that were to be measured: stakeholder power, stakeholder proximity, stakeholder urgency, project selection, project prioritization, qualitative selection techniques and qualitative prioritization techniques. In doing so the researcher would be able to make predictions about the influence of stakeholder power, proximity and urgency on the prioritization and selection process on the IT project portfolio. In addition there were no concerns raised by the test group during the piloting phase of the self-completion survey, instead, the feedback was that the self completion survey instrument approach was objective, mechanical and not open to interpretation and as a result, the researcher concluded that positivistic, quantitative approach would seek to make predictions about the real world and ways in which real-world phenomena can be controlled.

Whilst the measuring instrument was flawed, the researcher believes that no evidence was found to support hypothesis 2 and 3 for the following reasons; 1) In order to measure a respondents degree of self preservation, a specific set of questions are required in order to unmask this phenomena. 2) A more effective instrument would be the use of a qualitative study whereby

respondents are engaged through an interview process. This process would allow respondents a context for a personal conversation whereby qualitative data is captured. 3) Furthermore in order to investigate if "personal objectives" were part of a selection and prioritisation process, the complete process would need to be documented. The use of a case study in this regard would be more effective. These considerations could be used in future research.

Chapter 6 - Conclusions

According to Kumar, Ajjan, and Nui (2008) successful IT PPM projects are likely to involve significant interactions between IT and business. These interactions are likely to occur during the management of the IT portfolio. Therefore, different stakeholders may prefer outcomes in terms of selection and prioritization that are best for them, while successful IT PPM management is aimed at decisions that are best for the organizations as a whole. This is likely to lead to conflict between stakeholders.

Pinto (2000) argues that this conflict is better understood as political behavior, when individuals and groups seek, acquire, and maintain power that is emotionally charged and has important corporate ramifications. Pinto (2000) suggests that knowing how to engage with powerful and influential stakeholders is called "political skill" and is used to manipulate inter-personal relationships with employees, colleagues, clients and supervisors to ensure ultimate success.

Furthermore, Knights and Murray (1994) also argue that power can be seen to infuse organizational relationships. Rather than being an exception or aberration from the norm, political activity is the focal process through which organizations are sustained, reproduced and transformed. Berghout, Nijland & Grant (2005) warn that the impact of power and politics in IT evaluation is significant. Therefore, a deeper understanding of the politics of IT evaluation in specific managerial contexts must be reached by making a complete political appraisal of the organization, aided by more interpretive IT evaluation framework.

For this reason, research has been carried out to determine the factors that influence the evaluation of IT projects, but has been generally focused on individual IT projects and not across a number of IT projects as part of project portfolios. Research by Suwardy, Ratnatunga, Sohal and Speight (2003) found that the conventional way of evaluating IT projects was derived from traditional procedures an organization practises in evaluating other investments such as purchase of machinery. Thus, in practice, the most popular evaluation techniques are based solely on financial considerations, using techniques such as payback period, net present value (NPV), internal rate of return (IRR), and return on investment (ROI), or some form of financial

savings analysis. However, the desire to express all IT costs and benefits in hard financial terms is fraught with problems (Irani, Ezingeard, and Grieve, 1998).

The reason for this problem, according to Remenyi (2000), is that financial techniques used to evaluate IT projects and IT investment decisions is becoming more complex and has lead IS managers to rely on methods that do not fall within the boundaries of traditional rational decision-making. Their decisions are influenced not only by clinical analysis of numbers and costs, but also by cultural, political, personal and a host of subliminal factors. According to Berghout, Nijland & Grant (2005), the decision-making process is not as objective and transparent as it is claimed or intended to be. They attribute it to the following reasons: benefits are difficult to assess, measure and manage; costs are high and difficult to predict; large uncertainties and major risks are involved; communication problems and stakeholder politics exist.

Berghout, Nijland and Grant (2005) argue that the scientific rational view of evaluation has to be expanded or replaced by a perception of evaluation as a social and political phenomenon in which power is an essential element, as power has a major impact on the decision-making process and on the actual decision itself. Bourne and Walker (2005) argue that special skills are required that focus upon both understanding the nature of the power source that drives large, complex organizations, and knowing how to harness this energy effectively for project success. "Tapping into the power lines" requires "wisdom" and "know-how" to make sense out of complex, fragmented and often confusing alliances of power, influence and resource availability, coupled with the willingness to engage with those powerful and influential stakeholders who have been identified by the project managers as being essential to their project success. Research by Bourne (2005) has shown that a direct link exists between the successful management of the relationships between the project and its stakeholders, and the stakeholders' assessment of a successful project outcome. The project's success, or failure, is strongly influenced by both the expectations and perceptions of its stakeholders, which are based on power, proximity and urgency to a project.

The first part of the study investigated if theoretical relationships did in fact exist between a set of independent variables, namely stakeholder power, stakeholder proximity and stakeholder urgency; and dependent variables, namely qualitative techniques, prioritization and selection and expected outcomes. The theoretical relationship has been described as the influence of stakeholder power, proximity and urgency on the prioritisation and selection process within an IT project portfolio. In doing so, the researcher aimed to provide methods that can be used to control stakeholder influence.

The researcher used a positivistic, quantitative research methodology that allowed him to demonstrate the relationship between various items of data that have been collected. A self-completion survey instrument was used to collect the data. The participants were selected from a professional social network site, Linked-in, and were invited to participate in the survey through email correspondence, submitted via the linked-in portal. Linked-In calls itself "an interconnected network of experienced professionals from around the world, representing 170 industries and 200 countries. The linked-In portal allows professionals to connect and collaborate with other qualified professional in order to accomplish commonly shared goals".

A sample size of 50 respondents was used during the data-collection process, managed through the Linked-In portal, which represented three broad categories of roles within the IT domain, namely ***Executive Heads***; these are respondents who described themselves as Chief Information Officers, Directors, Vice Presidents or Executives Heads. ***Senior Managers*** are respondents who described themselves as Senior Managers; and the ***Middle Manager*** category described themselves as Project Managers, IT Managers, IT Developers and Portfolio Managers.

In the second part of the study, Bourne (2005) SHC methodology and visualisation tool was used to identify and prioritize the top 15 stakeholders out of the sample size of 50 respondents. The process of identification was determined by what each stakeholder required from the project and their level of significance to the project. The process of prioritization was assessed based upon the relative importance of each stakeholder using three factors: power, proximity and urgency, where power is the ability to kill a project, proximity is the degree of association with a project and urgency is the degree to which a stakeholder will go to influence a project's outcome.

Once the identification and prioritization was completed through the SHC methodology, the top 15 stakeholders were plotted on a SHC visualisation tool with the most important stakeholder at position 1, starting at 12:00 o'clock, followed by the 2nd important, through to the 15th most important. In addition, each of stakeholder's degree of power is indicated by the radial depth of the segment and his or her degree of influence is indicated by the relative size of each segment. Furthermore, colours and shading indicate the direction of influence and whether the stakeholder is internal or external to the organization.

The results of the analysis of the first part of the study suggest that a theoretical relationship does in fact exist between stakeholder power, stakeholder proximity and stakeholder urgency and qualitative techniques. Furthermore, the results of the analysis of the second part of the study identified and prioritized the top 15 stakeholders within the sample size. The top 15 stakeholder were classified into three broad categories namely; Senior Executives, Peers and Team members.

Firstly, closer examinations of the top 15 stakeholders reveal that out of the three categories, Senior Managers wield the power to kill a project. They therefore have the highest degree of influence on the project outcomes and success followed by their peers. Secondly, the results indicate that the influences of proximity where stakeholders are closely associated to the activity of their projects are critical to the selection and prioritization process and, furthermore, the influence of urgency where stakeholders will take any action to influence the outcomes of the selection and prioritization process. Therefore, creating a stakeholder management strategy based upon project roles only is inappropriate. Rather, the identification and prioritization of stakeholders demonstrated in this study and Bourne (2005) suggest that it is necessary to consider the influence of power, proximity and urgency.

Furthermore, the results of this study reveal the use of internal and external qualitative techniques in the selection and prioritization process, where internal techniques is described as "gut feel" and "reasoning" and external techniques are described as "existence of a project champion", "probability of completion" and "mandatory requirements". The finding suggest that

these qualitative techniques are used by the Top 15 stakeholders to influence the outcome of project selection and prioritization.

Based on the findings of this study, it is concluded that organizations seeking to engage with IT PPM should consider the influence of stakeholders on the prioritization and selection process in terms of using internal or external qualitative techniques. The findings of this study suggest that in order to ensure that the outcomes of the selection and prioritization process meets the needs of the organization and not what is best for the stakeholders, managers need to be aware of the following influencing factors: the relative power, proximity and urgency wielded by stakeholders, together with the internal and external qualitative techniques they deploy.

Whilst this study has provided valuable insights into stakeholder influence on selection and prioritization, the author acknowledges that there were some limitations. For example, the participants responding to the survey did not share experience in a commonly related project. Hence each respondent's responses could have been biased towards his or her own environment and experience. Therefore, an interesting research project would be a qualitative case study, incorporating interviews and the documentation of a complete process.

It would also be particularly useful to IT PPM practitioners to determine techniques that link the IT corporate strategy to selected projects within the IT project portfolio and investigate which IT projects best suit the different IT strategies.

6.1 The Objectives of this Research

The objectives of this research were to address the following three questions:

1. What is the degree of influence that stakeholder power, proximity and urgency have on the use of qualitative selection and prioritization techniques?
2. What is the degree of influence that stakeholder power, proximity and urgency have on the selection and prioritization in terms of meeting their own personal objectives?

3. What is the degree of influence that stakeholder power, proximity and urgency have on the selection and prioritization of the IT project portfolio?

6.2 Outcomes achieved by the Research

This research confirmed the following:

- That ***stakeholder power*** strongly influences the use of qualitative selection and prioritization techniques.
- That ***stakeholder urgency in terms of action*** strongly influences the use of qualitative selection and prioritization techniques.
- That ***stakeholder proximity*** strongly influences the use of qualitative selection and prioritization techniques.

6.3. Limitation of the Research

The research focuses on the stakeholder influence of power, proximity and urgency on the selection and prioritization of an IT Project Portfolio. The limitations associated with this research are:

- **Survey participants represent a random sample within the ICT sector.**
  Participants responding to the survey did not share experience in a common, related project. Hence each respondent's responses could have been biased towards his or her own environment and experience.
- **Research dealt only with selection and prioritization and not IT evaluation.**
  The self-completion survey assumed that IT projects were already evaluated and assessed prior to the selection and prioritization phase.
- **Research did not consider alignment between IT and the Corporate Strategy**.
  IT projects that were considered for selection and prioritization were assumed to have been developed based upon the corporate strategy and cascaded down into a pool of critical IT Projects that would deliver on the strategy .

The implications for practitioners, when dealing with top stakeholders that have the ability to kill a project, is to consider that organizational politics which Pan and Flynn (2003) defined as actions taken outside the formal power structure to influence others especially those at higher levels, to promote or maintain one's vital interest, play a central issue in decision-making. Pan and Flynn (2003) research suggest that managers need to be aware of political distrust among project stakeholders which is likely to lead to stakeholders suspecting one another of ulterior political motives. In order to deal with political mistrust, practitioners should seek to enhance close cooperation among stakeholders which requires frequent communication and interaction as it is only through these activities that relationships are strengthen.

In responding to stakeholder pressure, Aaltonen and Sivonen (2009) suggest these response strategies that range from passive adaption strategies to active influencing strategies, as described in table 25.

Response Strategy Types	Description
Adaption Strategy	Obeying the demands and rules as presented by stakeholders
Compromising Strategy	Negotiating with stakeholders
Avoidance Strategy	Transferring the responsibility to respond to stakeholders
Dismissal Strategy	Ignoring the presented demands
Influencing Strategy	Pro-actively shaping the demands and values by sharing information and building relationships

Table 25: Response Strategy Types. Aalton and Sivoen (2009)

Practitioners therefore need be aware that as the scale of stakeholders' demands changes, so the response strategy of the focal organization is redefined which proves that stakeholder demands require constant attention throughout the life cycle of the project.

6.5. Future Research

The research has analysed stakeholder influence of Power, Proximity and Urgency on the selection and prioritization of an IT Project Portfolio. A further study can be conducted to

explore the role of stakeholder's engagement strategies within the IT PPM environment in one of the following areas:

- Investigate the role a senior executive plays in project evaluation and authority within an IT PPM
- Investigate the impact of stakeholder relationships in IT PPM Governance - The right person looked at the issue, made the right decision with appropriate information and took the correct actions.
- Explore the impact of different types of stakeholders on different types of organization culture.
- Explore other types of criteria for evaluating an IT PPM portfolio other than ROI, NPV and Payback.
- Investigate stakeholder management as part of the overall risk management of an IT PPM.
- Investigate the link between the corporate strategy and IT projects selected for the IT Project Portfolio.

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Appendices

Appendix A: Bourne (2005) Questionnaire approval letter

From: Lynda Bourne <lyndab@mosaicprojects.com.au>
To: mervyn christoffels <mchristoffels1@yahoo.com>
Cc: Derek.Smith@uct.ac.za
Sent: Sunday, May 3, 2009 4:47:45 AM
Subject: RE: Master's Students In IS - Instrument Permission

Dear Mervyn
I would be delighted for you to apply the ***Stakeholder** Circle*® methodology and software to your research and assist you in whatever way I can.

Please let me know exactly how I can help you.

Regards,
Lynda
Dr. Lynda Bourne, Training Director,
Mosaic Project Services Pty Ltd
Tel: (03) 9686 1424 Fax: (03) 9686 1404
Mobile : 0408 556 917
Mosaic is a PMI approved Registered Education Provider
visit our web site http://www.mosaicprojects.com.au

From: mervyn christoffels [mailto:mchristoffels1@yahoo.com]
Sent: Friday, 1 May 2009 5:49 PM
To: lyndab@mosaicprojects.com.au
Cc: Derek.Smith@uct.ac.za
Subject: Re: Master's Students In IS - Instrument Permission

Greetings Dr Lynda Bourne

My name is Mervyn Christoffels, a Master's in Commerce student at the University of Cape Town in South Africa , specializing in Information Systems. My Supervisor is Prof Derek Smith, cc on this email as well.

My research focus is on Project Portfolio Management and specifically stakeholder influence on the project selection and prioritization within an IT project portfolio.

The more I read the work you've done in this area, the more I'm convinced that your Stakeholder Circle Management model will be the ideal instrument to use to measure the three key variables of power, proximity and urgency and I sincerely request your permission to use your instrument to measure these relationships as part of my Master's Thesis.

My current thinking is to use your instrument as well as your visualization tool to add the clarity and depth required in making sense of stakeholder power, proximity and urgency influence on the selection and prioritization of projects within an IT Project portfolio?
Your sincerely

Mervyn

Appendix B: Self-completion questionnaire covering letter

I am a Masters Student specializing in Information Systems at the University of Cape Town. My research investigates the interactions between IT and business during the ongoing management

of a portfolio of IT Projects. My research aims to better understand the influence of different stakeholders in the IT Project Portfolio Management process of project selection and prioritization. (Project Portfolio Management is defined as a dynamic decision process where a list of new projects is selected, evaluated and prioritized, while existing projects are accelerated or terminated and resources are allocated or de-allocated among those projects). I am approaching you as Senior Stakeholder who participates in the PPM process of selection and prioritization of IT projects.

In taking this survey, your participation will help gain an understanding of the stakeholder influence that occurs during the selection and prioritization of IT projects within an IT Portfolio. The survey has been designed in order to take 15 min of your time, as well as keep your responses anonymous and confidential. At any time, you are free to stop the process, if you feel offended. All information will be kept confidential. All the information provided will be used for academic purposes only in accordance with the guidance and standards stipulated by the University of Cape Town Ethics Committee.

Thank you for your participation in the survey. If you are interested in a summary of the results when they become available later this year, please provide an email address under the stakeholder identification section.

The link to the survey is:

http://www.commerce.uct.ac.za/Services/SelectSurveyASP/TakeSurvey.asp?EID=52MBm4LB865BL2p9B39mB4M4BJ16

Sincerely

Mervyn Christoffels (Masters Candidate)

Approved by,

Prof. Derek Smith (Thesis Supervisor)

Appendix C: Self-completion questionnaire survey

Introduction to Stakeholder Influence Concepts

This approach to categorizing stakeholders is based on assessing the stakeholder's power to influence the outcomes of the project selection and prioritization, the legitimacy of each stakeholder relationship with the project, and the urgency of the stakeholder's claim on the project, leading to specific managerial actions. Hence, influence is understood in terms of the combination of the following elements:

Ability to Influence is based upon Power measured as a function of direction.

- Upward Direction – Senior Stakeholders that are necessary for ongoing commitment to the project
- Sideward's Direction – Peers of the project manager, essential as collaborators or competitors
- Outward Direction – Stakeholders outside of the project, such as end-users
- Downward Direction - Internal team members

Ability to Influence is based upon Proximity

- How closely associated or relatively remote a stakeholder is in relation to the project

Ability to Influence is based upon Urgency

- To what lengths are stakeholders willing to go to achieve their outcomes

Identification of the Stakeholder:

Stakeholder's Name (optional):.....

Stakeholder's email address (optional for a summary of the results):...

Role (mandatory):.....

The Survey Questionnaire

The Context: Consider your most recent participation in an IT-based project and answer the 14 questions that follow.

1. **With respect to your participation in the IT PPM selection and prioritization process, choose your degree of power measured as a function of direction.**
   - Upwards: Senior Management: Project Sponsor or Senior Executive
   - Outwards: Outside the team:
   - Sideways: Peers of the manager or the team
   - Downwards: Team members
2. **With respect to your participation in the IT PPM selection and prioritization process, what was your relationship to the organization?**
   Circle one.
   - Internal: The stakeholder is part of the organization staff structure
   - External: The stakeholder is outside the organization staff structure
3. **What was your significance to the IT Project? Circle two from the list below.**
   - Interest: a person affected by a decision related to the activity of its outcome
   - Rights: To be treated in a certain way or have a particular right protected
   - Ownership: A legal title to an asset or property
   - Knowledge: Specialist or organizational knowledge
   - Contribution: Supply of resource
4. **What did the IT project require from you? Circle one from the list below or provide an outcome not found in the list.**

- None
- Provide funding
- Provide resources other than financial
- Can influence others
- Champion or advocate
- Other (specify)

5. What was your expected outcome of the IT project? Choose one from the list below.

- Enhanced reputation
- Career advancement
- Power and influence
- More work experience
- Improve organizational reputation
- Benefits realization
- Customer satisfaction
- Delivery of project outcomes

Priorities Stakeholders

Prioritizations are achieved by rating each stakeholder on three aspects

Power: is their power to influence significant or relatively limited?

Proximity: are they closely associated or relatively remote from the activity?

Urgency: are they prepared to go to any lengths to achieve their outcomes?

6. Ratings of power.

Definition of power: is their power to influence significant or relatively limited?

Rate your stakeholder power, based upon the following ratings. Choose one from the list.

1. Relatively low levels of power
2. Significant informal capacity to instruct change
3. Some capacity to formally instruct change
4. High capacity to formally instruct change

7. Ratings of proximity.

Definition of proximity: are they closely associated or relatively remote from the activity?

Rate your stakeholder proximity, based upon the following ratings. Choose one from the list.

1. Relatively remote from the activity
2. Detached from the activity
3. Routinely involved in the activity
4. Directly involved in the activity

Ratings for urgency

To what lengths were you prepared to go to achieve your outcomes? This is calculated as a combination of

Value: how much stake does a person have in its outcome?

and

Action: A measure of the likelihood that the stakeholder will take, positive or negative, to influence the activity of its outcomes.

8. Ratings for value

Definition of value: how much stake does a person have in its outcome?

Rate your urgency, based upon value from the following ratings. Choose one from the list.

1. Very low: has very limited or no stake in outcome of activity
2. Low: is aware of the activity and has an indirect stake in activity outcome
3. Medium: has some direct stake in the outcome of the activity
4. High: sees activity outcomes as being important to self or organization
5. Very High: Has great personal stake in the outcome (success or cancellation)

9. Ratings for action

Definition of action: A measure of the likelihood that the stakeholder will take, positive or negative, to influence the activity of its outcomes.

Rate your urgency, based upon action from the following ratings. Choose one from the list.

1. Very low: is unlikely to attempt to influence the activity
2. Low: has the potential to attempt to influence the activity
3. Medium: may be prepared to make an effort to influence the activity
4. High: is likely to make a significant effort to influence the activity
5. Very High: self activated, will go to almost any length to influence the activity

Stakeholder Engagement Concepts

Building a stakeholder's engagement profile requires an understanding of the stakeholder's attitude to the project. Communication is the only tool for managing relationships around organizational activities.

Effective management of relationships includes:

- Appropriate information to stakeholders to ensure confidence in the progress and success of the activity;
- Problem solving: definition of the problem, the 'players'; the best resolution; the communication path to achieve this resolution;
- Negotiating: similar process to problem solving;
- Understanding the best format and content for each type of stakeholder (managing upwards, downwards, outwards or sideways).

10. Level of support for the activity or its outcomes.

Rate your level of support for the project. Choose one from the list.

1. Active opposition: is outspoken about opposition to the activity, and may even act to promote failure or affect success
2. Passive opposition: will make negative statements about the activity, but not do anything to affect its success or failure
3. Neutral: is neither opposed or supportive
4. Passive support: supportive, but not actively so
5. Active support: provides positive support and advocacy for the activity

11. Levels of receptiveness is defined as the degree to which a stakeholder is prepared to receive communication

Rate your level of receptiveness for the project. Choose one from the list.

1. Completely uninterested: emphatically refuses to receive information
2. Not interested: not prepared to receive information
3. Ambivalent: may agree to receive information
4. Medium: will agree to receive information
5. High: eager to receive information x

Selection and Prioritization Techniques

12. With respect to your participation in your last selecting and prioritizing of a portfolio of IT projects, a key objective would have been to facilitate the appraisal of IT Project investments, based upon their proposed outcomes. Which quantitative technique, when applied to the IT investment project, best allowed you to determine the IT project outcomes? Circle one.

- ROI – Return on Investment
- NPV/IRR – Net Present Value and Internal Rate of Return
- Payback period
- Earned Value Analysis
- DCF – Discounted Cash Flow

13. With respect to your participation in the last selecting and prioritizing of a portfolio of IT projects, a key objective was to facilitate the appraisal of IT project investments, based upon their proposed outcomes. Which qualitative technique was used to evaluate IT project outcomes? Choose one from the list.

- Existence of a project champion (top management support)
- Reasoning
- Probability of completion
- Gut feel

- Mandatory requirements
-

14. When selecting and prioritizing IT projects, which technique do you most use? Circle one.

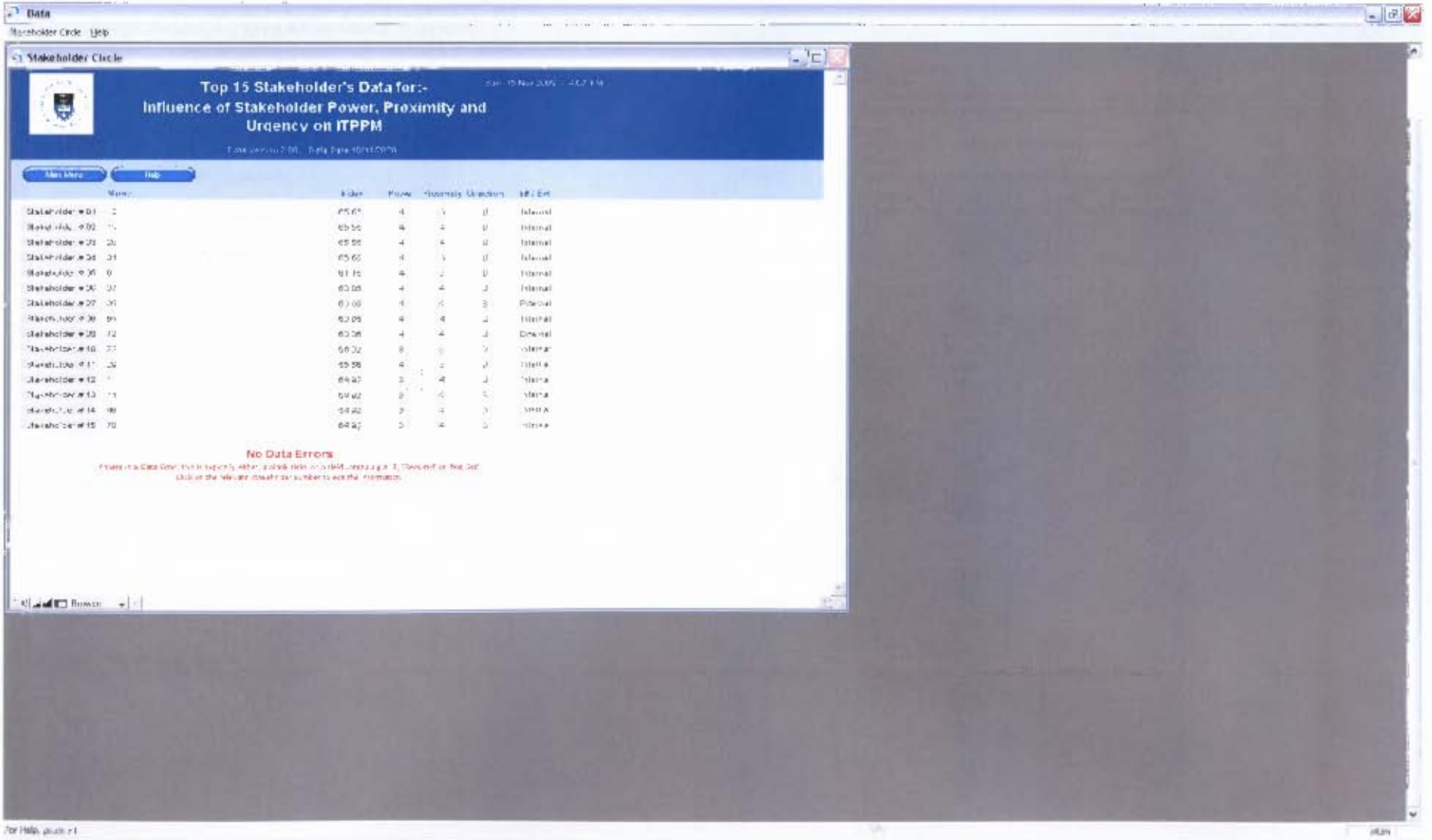
- Quantitative
- Qualitative

Thank you for your participation in this research survey. Please return the completed survey to me as requested.

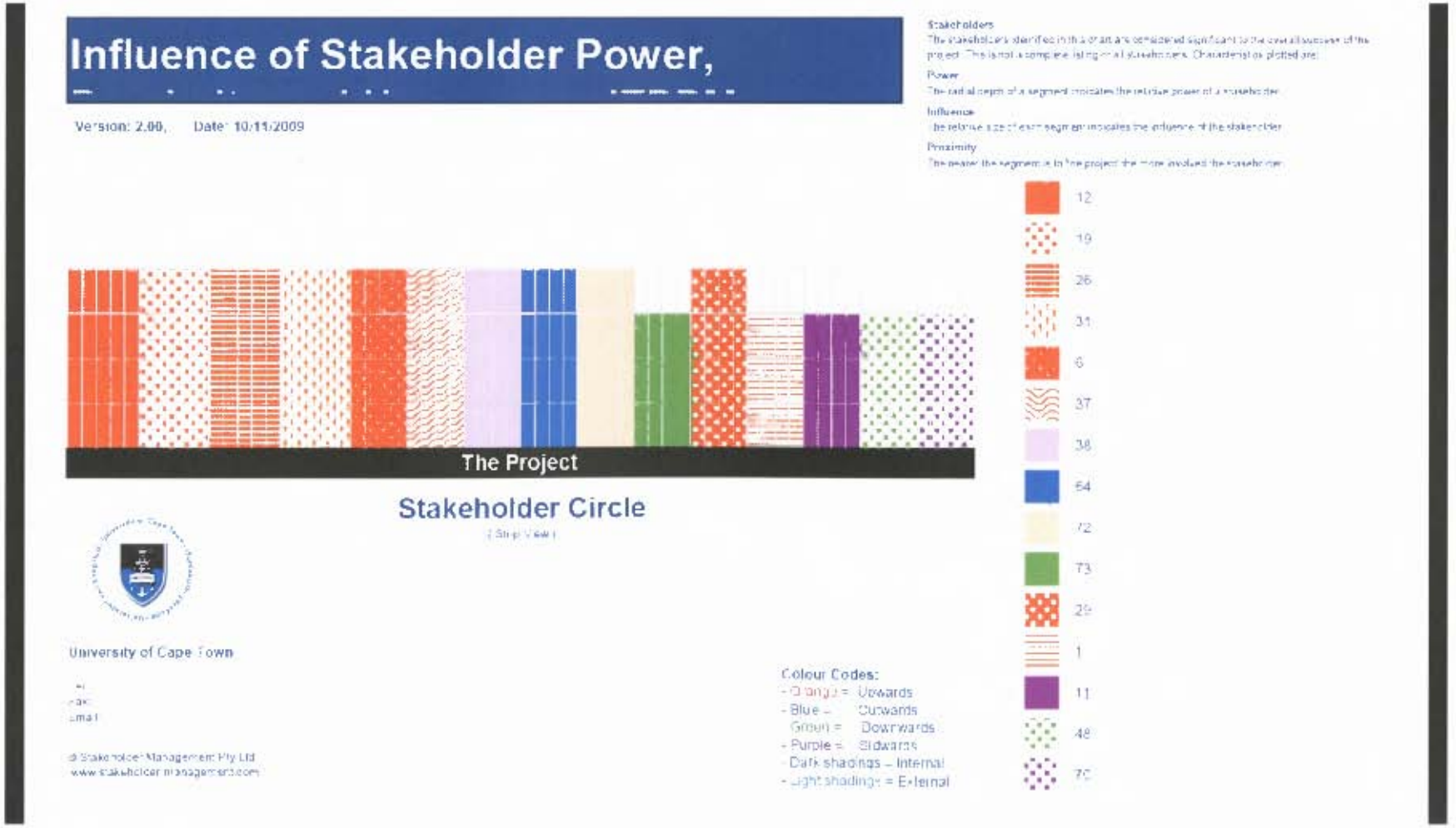
Appendix D: Self-completion questionnaire Data-set

no	power direction	relationship	significance	requirement	expected outcome	power	proximity	urgency - value	urgency - action	support	receptiveness	quantitative technique	qualitative technique	most used
1	upwards	internal	Knowledge	Resources	Delivery of Project outcomes	3	4	4	5	5	5	NPV/IRR	Mandatory requirements	Quantitative
3	upwards	internal	Interest	Advocate	Customer Satisfaction	1	1	2	3	5	4	ROI	top management support	Qualitative
4	upwards	internal	Knowledge	Resources	Customer Satisfaction	2	4	3	4	5	5	NPV/IRR	top management support	Qualitative
6	upwards	internal	Interest	Resources	Delivery of Project outcomes	4	3	5	5	5	5	ROI	Mandatory requirements	Quantitative
9	sideways	internal	Knowledge	Influence	Delivery of Project outcomes	2	4	4	4	5	5	ROI	Mandatory requirements	Quantitative
10	sideways	internal	Knowledge	Influence	Delivery of Project outcomes	2	3	4	4	5	5	NPV/IRR	top management support	Qualitative
11	sideways	internal	Interest	Resources	Delivery of Project outcomes	3	4	5	4	5	5	ROI	Mandatory requirements	Quantitative
12	upwards	internal	Knowledge	Advocate	Delivery of Project outcomes	4	4	5	5	5	5	ROI	top management support	Quantitative
13	outwards	external	Knowledge	None	Delivery of Project outcomes	2	1	1	3	3	4	ROI	Reasoning	Qualitative
15	upwards	internal	Contribution	Advocate	Benefits realization	3	3	5	4	5	5	Payback period	Mandatory requirements	Quantitative
18	outwards	internal	Rights	Resources	Benefits realization	3	2	4	3	5	5	NPV/IRR	Probability of completion	Quantitative
19	upwards	internal	Knowledge	Resources	More work experience	4	4	5	5	5	4	ROI	Mandatory requirements	Quantitative
20	upwards	internal	Ownership	Funding	Benefits realization	2	3	4	4	5	5	Payback period	top management support	Qualitative
23	outwards	external	Contribution	Resources	Benefits realization	3	1	3	3	5	4	ROI	Mandatory requirements	Quantitative
26	upwards	internal	Interest	Resources	Benefits realization	4	4	5	5	5	5	ROI	top management support	Qualitative
29	upwards	internal	Rights	Advocate	Customer Satisfaction	4	3	4	4	5	5	Payback period	Mandatory requirements	Qualitative
31	upwards	internal	Ownership	Advocate	Benefits realization	4	4	5	5	5	5	NPV/IRR	Reasoning	Quantitative
34	upwards	internal	Knowledge	Advocate	Benefits realization	2	1	3	4	5	5	ROI	top management support	Quantitative
35	outwards	internal	Interest	Influence	More work experience	2	3	2	3	5	4	ROI	Reasoning	Qualitative
36	sideways	internal	Knowledge	Influence	Benefits realization	3	2	3	4	3	5	ROI	Probability of completion	Quantitative
37	upwards	internal	Ownership	Funding	Benefits realization	4	4	4	5	5	5	NPV/IRR	Mandatory requirements	Quantitative
38	sideways	external	Knowledge	Advocate	Customer Satisfaction	4	4	5	4	5	5	ROI	Mandatory requirements	Qualitative
39	upwards	internal	Knowledge	Resources	Delivery of Project outcomes	4	1	4	4	5	5	NPV/IRR	top management support	Qualitative
40	upwards	internal	Knowledge	Advocate	Delivery of Project outcomes	4	2	4	5	5	5	Payback period	Reasoning	Qualitative
41	outwards	external	Knowledge	Resources	Customer Satisfaction	2	4	5	4	5	5	ROI	Mandatory requirements	Quantitative
42	downwards	external	Contribution	Resources	Benefits realization	1	1	3	3	5	4	ROI	Reasoning	Quantitative
43	outwards	internal	Interest	Influence	Benefits realization	2	3	4	3	5	4	ROI	Mandatory requirements	Quantitative
45	sideways	internal	Rights	Influence	Delivery of Project outcomes	1	3	4	3	5	5	Payback period	Mandatory requirements	Quantitative
46	sideways	external	Knowledge	Resources	Improve organizational reputation	3	3	2	2	4	5	ROI	Mandatory requirements	Quantitative
48	downwards	internal	Contribution	Resources	Delivery of Project outcomes	3	4	5	4	5	5	ROI	Gut feel	Qualitative
51	upwards	internal	Ownership	Funding	Power and Influence	1	2	3	2	3	3	Payback period	Reasoning	Quantitative
52	outwards	external	Knowledge	Influence	Customer Satisfaction	1	2	3	3	4	4	NPV/IRR	Probability of completion	Qualitative
53	sideways	external	Knowledge	Influence	Customer Satisfaction	2	3	1	4	5	5	NPV/IRR	top management support	Qualitative
54	upwards	internal	Interest	Resources	Delivery of Project outcomes	4	1	4	4	5	5	ROI	top management support	Qualitative
55	outwards	internal	Contribution	Influence	Benefits realization	1	1	4	3	5	4	ROI	Reasoning	Quantitative
59	sideways	external	Rights	Funding	Benefits realization	3	3	4	4	4	4	ROI	Probability of completion	Qualitative
60	sideways	internal	Interest	Advocate	Customer Satisfaction	1	1	4	2	5	5	NPV/IRR	Reasoning	Qualitative
61	sideways	internal	Knowledge	Advocate	Benefits realization	2	3	4	3	5	4	Payback period	Reasoning	Qualitative
62	outwards	internal	Knowledge	Advocate	Delivery of Project outcomes	2	4	4	1	3	5	DCF	Gut feel	Qualitative
63	sideways	internal	Knowledge	Funding	Delivery of Project outcomes	4	3	5	3	5	5	ROI	top management support	Qualitative
64	outwards	internal	Ownership	Funding	Delivery of Project outcomes	4	4	4	4	5	5	NPV/IRR	Probability of completion	Qualitative
65	outwards	internal	Interest	Influence	Delivery of Project outcomes	2	3	3	4	5	3	ROI	Probability of completion	Qualitative
66	downwards	external	Contribution	Influence	Delivery of Project outcomes	1	3	4	4	4	4	ROI	Mandatory requirements	Qualitative
68	sideways	internal	Knowledge	Resources	Delivery of Project outcomes	3	3	4	4	5	4	NPV/IRR	Mandatory requirements	Qualitative
69	outwards	external	Ownership	Advocate	More work experience	2	3	2	3	5	5	ROI	Mandatory requirements	Quantitative
70	sideways	internal	Knowledge	Advocate	Delivery of Project outcomes	3	4	4	4	5	5	ROI	Mandatory requirements	Quantitative
71	upwards	external	Knowledge	Influence	Benefits realization	2	3	4	5	5	5	ROI	Reasoning	Quantitative
72	upwards	external	Contribution	Resources	Customer Satisfaction	4	4	5	4	5	5	ROI	Mandatory requirements	Quantitative
73	downwards	internal	Interest	Influence	Delivery of Project outcomes	3	3	5	5	5	5	ROI	Mandatory requirements	Quantitative
74	sideways	internal	Knowledge	Resources	More work experience	3	4	3	4	5	5	ROI	top management support	Qualitative

Appendix E: Top 15 Stakeholders



Appendix F: Stakeholder Circle



Appendix G: Sample Role Distribution

	Stakeholder Name	Stakeholder Role
1	Pandelani	Technical product development (Network Strategy)
3	Mazen Melebari	Information security manager
4	Olexiy	Sponsor
6	Rajesh Balaraj	Sr IT manager
9	John Roby	Senior Project Manager
10	Andrew Galbus	Portfolio and Project Manager for Nursing (IT)
11	Mark Schneider	Sr. Project Manager
12	D Philip Callahan	IT Director
13	Holger heuss	Portfolio Management Consultant
15	Greg Groenmeyer	Head: Application Development
16	Thomas Pruner	Director, Corp. PMO
17	sdfsdfsadfasdf sdfasdfa	dsfsadfsadfadf
18	Brian Blanchard	CIO
19	Marko Cicin-Sain	CIO
20	Bulelani Didiza	CIO
23	Tina Angelos	Account Executive
26	Peter B. Giblett	Former CIO - Currently Cheif Executive and Ideas Officer for a
27	van Acker Bertrand	PMO Director
29	Timothy Beattie	Logistics Director
30	Laxmikanth Kandi	Manager- Product Engineering
31	Priti H. Kothari	PM in EPMO
34	Andrew Dean	Principal Consultant
35	Arthur Nieuwoudt	PDBA 2009 student @ GSB
36	Andre Fredericks	Enteprise Architect
37	Llewellyn Adamson	Regional Executive
38	Vuyiswa Raqa	Business Analyst
39	Natalie Baatjies	Strategic Business Analyst
40	Neal de Graaf	Head of Information Services a.k.a. Chief Information Officer
41	Chris Laker	Vendor, consultant, ex-program manager
42	charl du toit	Business Analyst
43	Zee Gwebu	Head: Strategy & Planning (IT)
45	Marius Koen	Lead Financial Management Specialist
46	Giovanni Mascarenhas	Head
48	Doug Falconer	Developer
49	Anthea Alexander	Accountant
51	pw	unidentified
52	Dr Lynda Bourne	CEO, Stakeholder Managment Pty Ltd
53	Jenny Sutton	Consultant
54	Loyiso	Research Input
55	Pauline Leith	Student of GSB UCT
59	Nick Malik	Enterprise Architect - Enterprise Strategic Planning
60	Gregory Tendwa	Operations manager
61	Vinnie Hrabrich	PPM Manager
62	Gaurav Bhargava	VP, Project Management
63	Kenny Roberts	Application Review Board Governance Chair for Application S
64	san retna	VP IT Effectiveness
65	Sixolile Msayi	Accounts Manager
66	Stacey	Administrative Assistant
68	Christiaan du Plessis	Project Manager
69	Quinn van Heerden	Project Manager
70	Bradley	Project Manager
71	Wolf Stinnes	Senior Solutions Architect
72	meagan hughes	programme manager
73	Nazish Mir	Project Manager
74	Martin	Management Accountant