

**PROJECT PORTFOLIO MANAGEMENT'S CONTRIBUTION**

**TO EFFECTIVE STRATEGY EXECUTION**

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## Projek portefeulje-bestuur se bydrae tot effektiewe strategie uitvoering

In die studie is die komponente van 'n effektiewe projek portefeulje-bestuur proses ondersoek ten einde eerstens, te verstaan wat projek portefeulje-bestuur behels en tweedens, hoe effektief dit in Suid Afrikaanse maatskappye aangewend word in die bestuur van Informasie Tegnologie projekte. Dit was duidelik uit die literatuurstudie dat daar sekere onderliggende komponente is wat, as deel van 'n groter geheel, die projek portefeulje-bestuur metodologie daarstel.

Gedurende die studie is die volgende beginsels en komponente ondersoek:

- Die moderne portefeulje-bestuur beginsels wat in finansiële bestuur geld en waarop die projek portfolio-bestuur benadering gegrond is;
- Die verskeie komponente van projek portefeulje-bestuur;
- Die Vermoë Volwasse Model oftewel die sogenaamde "Capability Maturity Model" (CMM) is gebruik om te verstaan of die organisasie wel in staat daartoe is om projek portefeulje-bestuur effektief toe te pas; en
- Laastens, of die organisasie se projek portefeulje-bestuur metodologie ondersteunend tot die organisasie se strategie uitvoering bydra.

Die ondersoek is voorafgegaan deur 'n omvattende literatuurstudie wat fokus op die kenmerke van projek portefeulje-bestuur, die omvang van die verskillende projekbestuur Vermoë Volwasse Modelle en laastens, die gebeurlikheids strategie modelle soos die Gebalanseerde Telkaart oftewel die sogenaamde "Balanced Scorecard" wat oor die laaste dekade ontwikkel is, alhoewel dit nog nie oral ge-implementeer is nie. 'n Empiriese studie is uitgevoer om die omvang van die gebruik van projek portefeulje-bestuur in Suid Afrikaanse maatskappye te bepaal asook hoe effektief dit aangewend word. Die terugvoer wat verkry is, is aan die hand van die voorskrifte van die projek portefeulje-bestuur beste praktyk, die Vermoë Volwasse Model asook die gebeurlikheids strategie bestuurstoepassing, ontleed. Ten einde te verstaan tot watter mate die plaaslike tendense geldig is, is vergelykings gedoen met die resultate van internasionale ondersoeke. Hierdie internasionale ondersoeke is gedurende die laaste paar jaar gedoen ten einde die effektiwiteit van projek en program bestuur in ondernemings te bepaal. Die resultate daarvan kan as insette gebruik word ten einde maatskappye se interne projek portefeulje-bestuur praktyke beduidend te verbeter.

Uit die studie is bevind dat projek portefeulje-bestuur, soos in Suid Afrika toegepas, tans nie effektief tot strategie uitvoering bydra nie.

Ten einde die volle omvang van die projek portefeulje-bestuur toepassing in die Suid Afrikaanse konteks te verstaan behoort 'n omvangryke studie, soortgelyk aan die internasionale studies, geloods te word. Die resultate van so 'n studie sal waarskynlik beter korreleer as wat in hierdie studie die geval was.

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## CHAPTER 1: Nature and scope of the study

### 1.1. Introduction

Strategy has been around for millennia as is evidenced by literary works such as *The Art of War* (Michaelson, 2001) written by the practical philosopher Sun Tzu about 500 B.C. This 7,000-word work has been used extensively by Japanese and Chinese strategists throughout the centuries. In his works, Tzu not only discussed attack, but also the options of strategic withdrawal. Tzu placed emphasis on the importance of the higher strategy, indicating various options including withdrawal could be considered as long as it supports the higher strategy. However, in order to be ready to engage the enemy, it is crucial to have an assessment available of prevailing conditions. Tzu's view was as follows:

*"War is a matter of vital importance to the state; a matter of life and death, the road either to survival or to ruin. Hence, it is imperative that it be thoroughly studied. Therefore, to make assessment of the outcome of war, one must compare the various conditions of the antagonistic sides in terms of the five constant factors.*

1. *moral influence*
2. *weather*
3. *terrain*
4. *commander*
5. *doctrine*

*These five constant factors should be familiar to every general. He who masters them wins; he who does not is defeated."*

The above translation is then embroidered on to make it relevant to modern day business parallels:

1. Moral influence means a "spirit of mission." The strength of the commitment should be such that the appropriate fighting spirit is awakened and the appropriate commitment to achieve the goals is obtained. This "spirit of mission" is improved by the facilitation of aligned commitment through the existence of a motivating climate.
2. Weather equates to "outside forces." Globalisation, technological development, regulatory requirements and the quest for being a social responsible business are outside forces.
3. Terrain is the "market place." The terrain should be known; strategies should consider and accommodate the scene of the action, for example place, people, price, promotion and relevant regulations.
4. Commander has an equivalent in "leadership." Leadership is still part of the essence of a good strategy in that they not only create the "vision", but also generate the energy of the employees to be committed and to accept full ownership of it.
5. Doctrine is comparable to "guiding principles." The principles that determine success must be understood and applied. These principles are evident in companies where a shared value system is fundamental to the operation and the employees live the values combined with good work ethics, instead of having to adhere to a rules book. Sun Tzu believed that although the general set the

overall strategy, the commander at the grass root level had to act within the constraints of the reality at the time in the effort to achieve the objective.

Given the above framework; albeit centuries old, it is as relevant today as it was in 500 B.C.. The application of this work on strategy can be used in the strategising of waging a war or as a basis for strategy development in the business environment of today in the 21<sup>st</sup> century.

In modern day business management, environmental assessments are as inherent in strategy development, review and adjustment to ensure maximum returns for example Return on Investment (ROI) or improved shareholder value. Assessments are the methodologies used to obtain more information and could be external or internal. Typical assessments include the SWOT (internal and external environments) and PEST (external) analysis methodologies. These methodologies enable the business to gain a better understanding of where it finds itself regarding strategy, products, pricing, leadership and shared value systems. The internal assessment would typically focus on the strengths and weaknesses of the organisation while the external assessment would focus on the opportunities and threats applicable to the organisation.

However, due to the modern day expectation of performance, assessments are often ignored in order to act even before proper planning has been done. This phenomenon manifests itself when the difference between “urgent” and “important” becomes muddled and the priorities for focus become skew. In dealing with the four generations of time management, Covey (2004:149-171) discusses the focus areas between the “important” versus the “urgent” with the associated results of each particular focus area. According to Covey “important” has to do with results and normally contributes to your mission, values and high priority objectives. “Urgent” on the other hand, deals with visible matters and are normally handled through “reaction” rather than “action”.

This phenomenon also reflects itself in the portfolio of projects that organisations execute every year. Dozens and even hundreds of projects are executed annually by companies, however, we find that these projects are not necessarily aligned to and/or supporting the business or business strategies. Many of these projects are being done because they are the “pet” projects of powerful stakeholders or the project extent and scope is purely just not understood properly enough, especially in the case of Information Technology (IT) projects. Due to the technical extent and rapid developing rate of Information Technology (IT), business stakeholders do not always keep up to date with the trends and therefore, the associated business benefits that could be reaped from such projects. Hence, when these type of projects end up on the table for discussion, prioritisation and decision making, the mere fact that the extent of the project is not comprehended leads to useful IT projects being cancelled or indefinitely put on ice. The projects that do get attention are those projects that are more comprehensible and more visible and in most cases more “urgent” than “important”.

## **1.2. Problem statement**

The problem is that the projects executed within organisations are not necessarily appropriately aligned and supportive to ensure that business strategy is executed facilitating optimum Return on Investment (ROI) or shareholder value.

Project portfolio management is a methodology providing the necessary mechanism to bridge the divide between project and strategy execution. However, for project portfolio management to be effective, certain degrees of project management maturity levels need to be achieved before real benefits can be derived.

Common challenges that face organisations not utilising a project portfolio management methodology due to lack of visibility into their IT portfolio are:

- ❖ No formal process for aligning IT investments with business strategy;
- ❖ Not able to prioritise project requests from businesses competing for scarce resources;
- ❖ Inefficient and over-allocation of the scarce resources (money, people, time);
- ❖ Allocation of scarce resources to “urgent” projects instead of “important” projects;
- ❖ No accountability of the business benefits through project life cycle through to post implementation level (only important while project is in execution stage);
- ❖ High project failure rate; and
- ❖ Regular exceeding of available budget, time overruns and other tying down of resources.

### **1.3. Goal of study**

The main goal of the study is to develop an understanding of the degree to which project portfolio management contribute to effective business strategy execution within the South African context.

To achieve the main goal, it is necessary that the following sub goals be achieved:

- ❖ to perform a detailed literature study with respect to project portfolio management, project management capability maturity models (PMcMM) as well as business strategy;
- ❖ to understand the current state of IT projects relative to business strategy in South African companies; and
- ❖ to reach conclusions containing guidance for improvements towards the ideal state of project portfolio management in organisations.

### **1.4. Scope of study**

The scope of the study will be discussed in terms of the IT projects which will be investigated and a definition of the field of study.

#### **1.4.1. Organisations which will be investigated**

As the extent of this study needs to be constrained to ensure manageability for the purposes of this research study, it was decided to focus on the information technology industry; regardless whether it is an IT product or service company per se, or purely a business unit of a company. The reason for the focus is that empirical study questionnaires will be distributed electronically via e-mail to a target group of 42 people and the intention is to obtain as representative a response as possible. The target group covers both major and medium companies in South Africa covering various industries. The targeted respondents represent different roles and levels of involvement throughout their respective project management environments.

#### **1.4.2. Defining the field of study**

The study focuses on understanding the extent that effective project portfolio management contributes to effective strategy execution. In order to be able to do that, the study will focus on three primary areas, that is the project portfolio management model, the Project Management Institute's Organisational Project Management Maturity Model (OPM3) and the ESI International's ProjectFRAMEWORK™ project management maturity model, as well as the Balanced Scorecard for business strategy will be used as reference framework within which the study will be conducted.

#### **1.5. Research methodology**

This study is initiated by defining the typical strategy / project alignment problems that face companies within South Africa. The following research techniques will be used:

- ❖ A detailed literature study of:
  - Project portfolio management;
  - Project management capability maturity models;
  - Business strategy; and
  - The integration between all the above.
- ❖ The compilation of the questionnaire based on the key areas identified during the literature study.
- ❖ The questionnaires will be distributed to a database consisting of 42 people in various blue chip companies covering various industries in South Africa. This sample will consist of project management and IT management team members that are involved with IT projects and that have more than 2 years experience. No interviews, formal or informal will be conducted.
- ❖ All information gathered by means of these questionnaires will be interpreted against the theoretical background gained from the literature research in an attempt to suggest process improvements to ensure optimal project portfolio management.
- ❖ The results obtained from this study will also be compared against the high level results of similar international studies done by PriceWaterhouseCoopers (PWC) and KPMG.

#### **1.6. Limitations of the study**

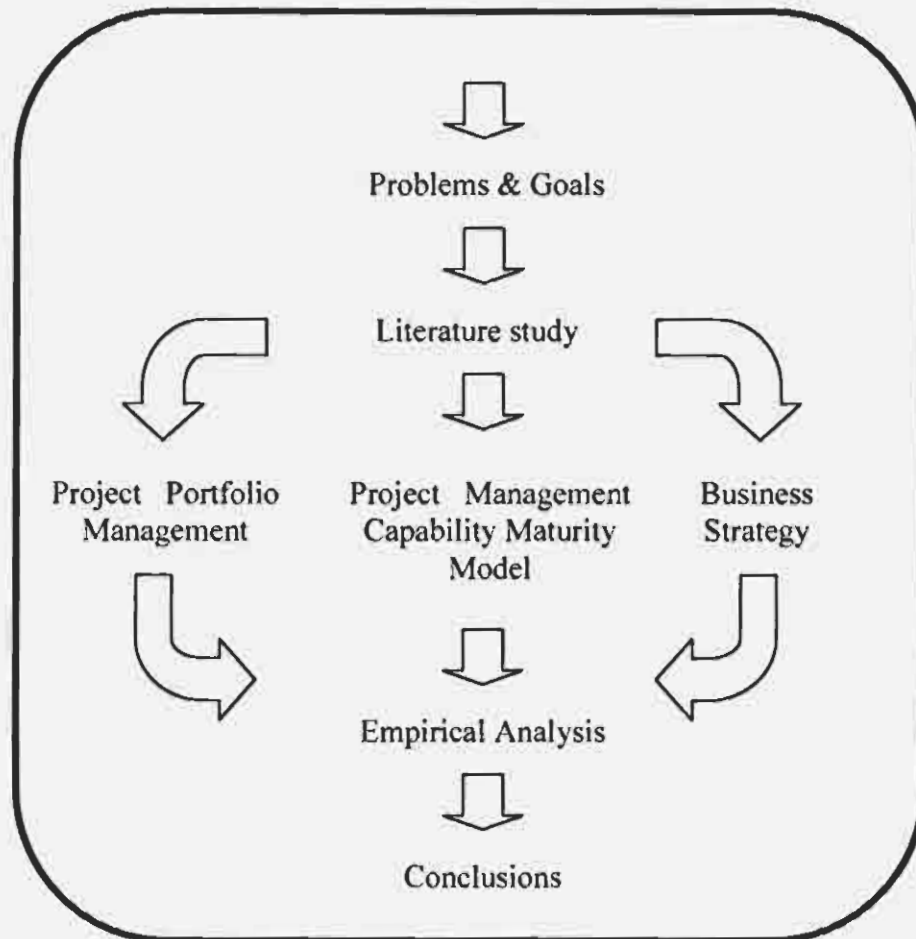
The limitations of this study:

- ❖ To ensure that it is contained and manageable, it will be confined to South African companies with the specific focus on IT projects.

## 1.7. Layout of the study

A graphical layout of the study is displayed in Figure 1.1.

**Figure 1.1: Layout of the study**



**Source:** Flowchart developed by the author

The layout will now be discussed:

### ❖ **Problems and goals**

Chapter 1 presents the problem, the main goals and the sub goals of the study.

### ❖ **Literature study**

The literature study is divided into three areas. The first area, chapter 2, discusses project portfolio management. The second area Chapter 3 will discuss the project management capability maturity model and the third area, Chapter 4, will discuss business strategy.

### ❖ **Empirical Analysis**

Chapter 5 will cover the detailed explanation of the research methodology that will be followed. The results of the completed questionnaires will be provided and the results from surveys done by PWC and KPMG in project and programme management will be briefly discussed to provide context to this study results.

❖ **Conclusions and recommendations**

Chapter 6 will provide the conclusions and recommendations based on the results of the research, the literature study, and the results from the available surveys done by PWC and KPMG in project and programme management and the comparison of such with the study survey results.

## CHAPTER 2: Project Portfolio Management

### 2.1. Background

The Federal Chief Information Officer Council (2002:2) postulates that according to project portfolio management dogma, project portfolio management has its roots based on the origins in the modern portfolio theory (MPT) as described by Harry Markowitz in his seminal paper entitled "Portfolio Selection" that was published in the *Journal of Finance* in 1952. The modern portfolio theory describes how an investor will develop a portfolio of investments ensuring an optimal return given a specific risk level. The concept of risk and return was born.

McFarlan (1981) published an article in the *Harvard Business Review* in which he explored that the manifestation of failed IT projects over a period of 10 years. He identified the three main deficiencies as follows:

- ❖ IT and general management's failure to consider the individual project risk;
- ❖ IT and general management's failure to consider the aggregate risk of the portfolio of projects; and
- ❖ The lack of recognition that different projects require different managerial approaches.

In the same article, McFarlan proposed a methodology to assess risk, for both individual projects as well as for a portfolio of projects as part of the selection and management of IT projects. Once the risk profile of individual as well as the portfolio of projects is known, business managers can then allocate the appropriate resources to mitigate the risks and where applicable, delay actions that could result in more risk; thus managing and maintaining business acceptable risk levels.

During the mid 1990's, the broader use of the principles of portfolio management were introduced, especially in IT projects. The United States General Accounting Office (GAO:1994) reached a point where they decided that it was not worth their while to understand the causes of failure for the federal government initiatives, but rather to learn from leading private and public organisations. Research was conducted regarding the information management practices of senior management teams in 10 leading organisations. The five private and five state government organisations examined, have received recognition from peers and independent researchers regarding their progress in managing information in order to improve efficiencies such as service quality, cost reduction, workforce effectiveness and productivity. In one of the case studies, it was found that one specific organisation was managing information systems projects as investments, facilitating careful project proposals, selection, execution and better benefit realisation. In 3 years this company has been able to realise an increased return on investment on information systems projects almost 14-fold.

During 1996, the United States published and promulgated various policy documents as well as laws regarding the governance of IT projects, from project initiation through to post project review evaluations. The Information Technology Management Reform Act (ITMRA) (GAO:1996) was introduced specifying new guidelines on how IT-related projects were to be selected and managed. The requirements in this act closely parallel the investment practices followed by leading organisations. This introduced a more structured approach to project management regarding information systems projects,

and in particular the application of a portfolio management methodology. The Cohen-Clinger Act (GAO: 1997) was also passed requiring United States government agencies to use capital planning and investment processes to reach decisions regarding IT spend; to measure the performance outcomes of IT projects and by holding Chief Information Officers (CIO's) accountable for technology investments. According to Hoenig (GAO, 1997:15-16) the implementation of the above laws and guidelines created the environment within which more project benefits could be derived based on the investment principles. This should result in a higher degree of project success with optimum utilisation of resources, while minimising the associated risks.

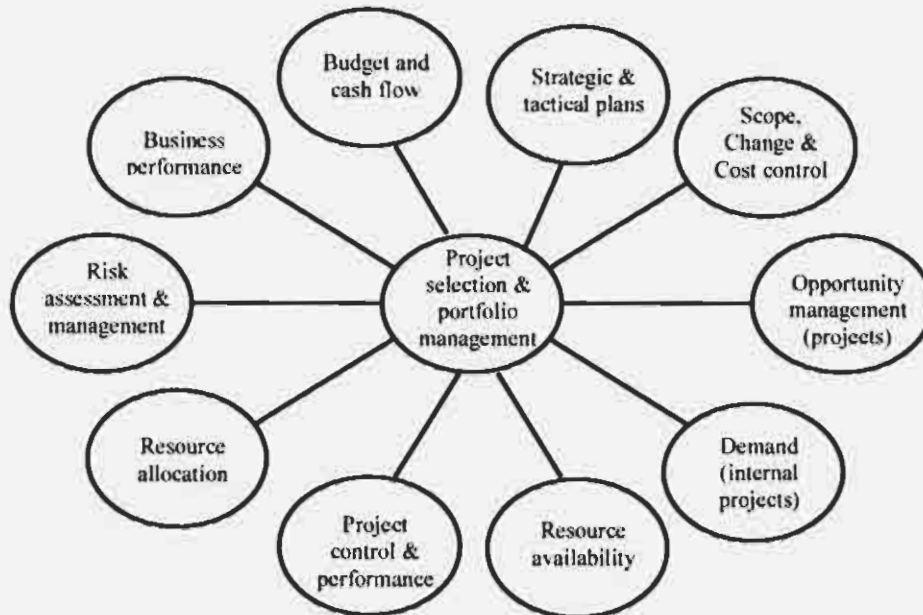
On the financial side, Markowitz and Sharpe (Brigham & Ehrhardt, 2005:147) developed a tool called Capital Asset Pricing Model (CAPM) to analyse the relationship between portfolio risk and rates of return. Brigham and Ehrhardt (2005:147) provide the following definition "*the relevant risk of an individual share is its contribution to the risk of a well diversified portfolio*". In essence it means that when an investment is made, its risk could be halved by *diversifying* the risk, in other words, by spreading the risk. The result is that a *stand alone risk* for a single investment will become a *relevant risk* when it is added to the portfolio, thus contributing to the portfolio's overall risk. The determinant factor regarding an investment is the long term objective of the investor as that will determine what investments will be contained in the portfolio and how the risk will be treated.

From both a financial as well as a project management approach, the scenario has been set for using a project portfolio management approach.

## **2.2. Project Portfolio Management Model**

Project portfolio management is often referred to in literature as the "*the bridge between strategic planning and tactical project execution*". However, Levine (2005:90) argues that if we accept that it is a bridge as per the above quotation, then we also acknowledge that a gap exists and nothing is done about it. In order for any enterprise to be successful, the two diverse functions of strategic planning and tactical operations need to be brought together to work seamless creating the necessary support base for operations. The only way to integrate these two worlds is through the establishment of effective project portfolio management which would result in distinct roles working together harmoniously, within a shared system and for a common cause. Levine continues and argues that project portfolio acts as a hub rather than a bridge (See Figure 2.1.). In the hub, project portfolio management acts as the nucleus that brings operations and projects together. This result in ensuring complete communication between all stakeholders, the optimisation of scarce resources, the improvement of probability for project success and being able to minimise the associated risks by making the necessary trade offs as required.

**Figure 2.1: Project portfolio management as a hub**



**Source:** Adapted from Levine H. A.: *Project portfolio management: a practical guide to selecting projects, managing portfolios, and maximising benefits*. (San Francisco : Jossey-Bass, 2005) 538 p.

Now that the concept of project portfolio management has been ring fenced, it is necessary to understand the processes that make project portfolio management an effective approach.

Although various literature sources depict various combinations of components to project portfolio management, it all comes to the same basic concepts as proposed by the CIO Council (2002:4):

- ❖ Define goals and objectives – clarity need to exists on what the portfolio is expected to achieve in the long term;
- ❖ Make necessary trade offs – this is necessary to ensure that the portfolio is optimised;
- ❖ Deal with the associated risk – in other words, select a portfolio of projects where the identified risks are dealt with in such a manner that a diversified portfolio is achieved, either through elimination or mitigation;
- ❖ Monitor portfolio performance – monitor on an ongoing basis to ensure that the expected portfolio behaviour is achieved; and
- ❖ Achieving the desired objective – confidences that it is possible due to the application of the appropriate governance processes.

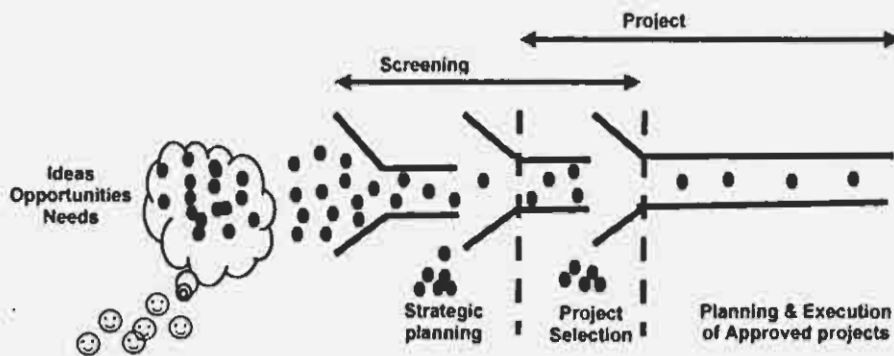
To ensure that the above is achievable, a structured approach is necessary to ensure that once candidate projects have been identified, they are dealt with appropriately.

### **2.3. Project Portfolio Management Processes**

During this study it was found that there is quite a synergy between strategic technology management and the information technology project portfolio management models. Authors such as Christensen (Burgelman et al., 2004:1066), Levine (2005:21) and Bonham (2005:64) are all in agreement that once

candidate projects are identified, it is necessary to proceed with an evaluation process to ensure that only strategically and acceptable risk based projects are allowed to become part of the portfolio. The high level process from project identification through to the point of project execution is depicted in Figure 2.2.

**Figure 2.2: The initial processes of project portfolio management**



**Source:** Adapted from R.M. Wideman, *A Management framework for project, programme and portfolio integration* (New Bern, N.C.: Trafford Publishing, 2004) 169 p.

What is evident from the model in Figure 2.2., is that once candidate projects have been identified, some evaluation and selection process needs to be done to ensure that only projects that are suitable, based on benefits generation as well as fitting the require risk profile, is taken into the project portfolio for execution.

According to Levine (2005:68), the objective of project portfolio management is to prioritise work that adds the most value to the organisation. The following components must be addressed:

- ❖ Ranking of value and benefits;
- ❖ Estimate of total costs;
- ❖ Appraisal of risk;
- ❖ Inventory of availability of resources; and
- ❖ Idea of the capacity that is available for new or additional projects.

### **2.3.1. Financial evaluation**

Various mechanisms are normally applied in the evaluation and ranking of candidate projects. In most instances a business case will have to be developed in order to be able to comprehensively understand the full resource implication, potential benefits to be derived as well as the risks associated with the particular initiative.

The relationship between this initiative and the current portfolio of projects should be clearly defined including the impact it will have on the portfolio as such, for example will it be necessary to re-organise the resources applied to current projects in the portfolio or will it be necessary to go through an exercise to diversify current portfolio risk.

These mechanisms are typically portfolio management mechanisms that are as much applicable to financial investment initiatives as to information technology initiatives. Such financial mechanisms are typically Time Value of Money (TVM) related with examples such as Net Present Value (NPV), Internal Rate of Return (IRR), Return on Investment (ROI), Total Cost of Ownership (TCO), Analytic Hierarchy Process (AHP) and finally the Efficient Frontier Technique. (Note: for detail see *Definitions*).

### **2.3.2. Benefits realisation**

Traditionally projects have been measured against the ‘quality’ of the project (PMI, 2003:8), meaning how well the ‘triple constraint’ (project scope, time and cost) or sometimes called the ‘iron triangle’ has been managed. Generally it means that a high quality project would deliver the required service or product within budget and on time. However, too often information technology project implementations are hailed as successful because the technical part is working very well, but the intended business value is not unlocked due to business not being able to leverage off the technical solution to obtain positive business results.

The business benefits of information technology projects are not only based on the successful implementation of the technical solution but rather in the business processes that are enabled. Therefore, it is important to also identify and measure benefits; both tangible and intangible; and include the results as part of the ongoing measurement process when re-evaluating the project portfolio diversification and project correlation dimensions.

The standard for portfolio management (PMI, 2006:27) defines benefits in two categories of benefits, namely qualitative and quantitative benefits. Qualitative benefits are defined as:

- ❖ Strategic alignment;
- ❖ Risk reduction;
- ❖ Legislative requirements;
- ❖ Platform development; and
- ❖ Business opportunity.

and Quantitative benefits are defined as:

- ❖ New revenue generation;
- ❖ Cost reduction;
- ❖ Return on investment (ROI);
- ❖ Internal rate of return (IRR);
- ❖ Net present value (NPV);
- ❖ Reduced cycle time; and
- ❖ Quality improvements.

According to Phillips et al (2002:142) there are essentially two dimensions of benefits, those that can be easily measured (hard data) and those that are more difficult to manage (soft data). Hard data are normally a common measure for organisation performance, relatively easy to convert into financial values and easy to measure and quantify while soft data are normally difficult to measure or to quantify directly, fairly subjective and usually more behaviour oriented.

Hard data are defined as having four main categories of benefits: increased output, quality improvement, time savings and cost savings (effectiveness). Soft data on the other hand consists of improved work habits, improved organisation climate, the degree and improvement of customer delight (satisfaction/dissatisfaction), facilitating employee development and creating the environment for innovation (efficiency).

The tracking of benefits should not be contained to the project phase only, as quite a number of projects only realise direct and indirect financial benefits long after the project phase has been concluded. However, the relative fit between the actual benefit realised with the original benefit estimated, should be used for benchmarking purposes in future estimate exercises.

### **2.3.3. Strategic evaluation**

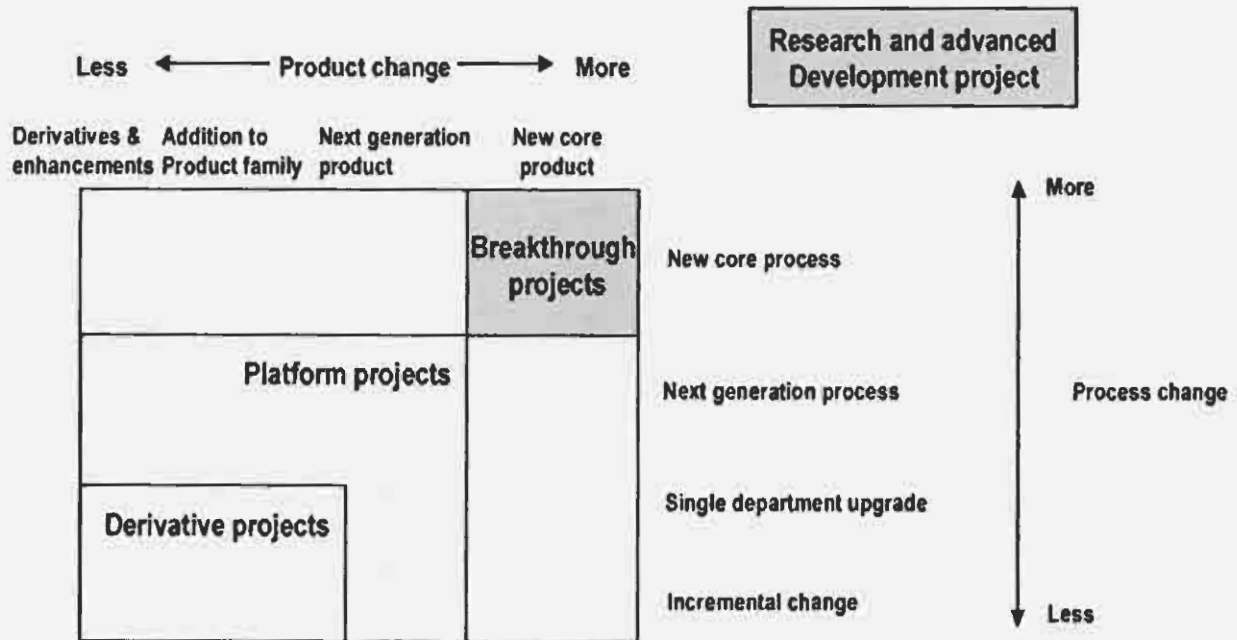
While information technology project portfolio management applies ongoing portfolio risk diversification, a similar process in high-technology initiatives is used to ensure that strategic action and strategic intent stays aligned. Once a lead or lag develops between the strategic actions and strategic intent, *strategic dissonance* (Burgelman et al, 2004:478) occurs. Once *strategic dissonance* is evident, new strategic intent from management is necessary to lead the project out of strategic dissonance, however, the success will depend on how well management can capitalise on the conflicting information that is available at the time. The occurrence of *strategic dissonance* signals a *strategic inflection point*. According to Burgelman et al. (2004:479), although a *strategic inflection point* has a rigorous mathematical meaning; it could be defined informally as replacing one winning strategy with another. This situation has a direct impact on the profitability of the business units or organisations as a whole.

In both the above methodologies, the essence comes down to the same thing. The projects being conducted and the associated project behaviour that manifest itself must be monitored regularly to ensure that any diverse impact does not have a material effect on the outcome. Should any deviation from the project scope be identified, corrective action needs to be applied. The effect of market forces on the initiative or project, both internal as well as external to the organisation, must be understood and monitored as it will potentially have a major impact on available competencies and eventually, the competitive advantage of the organisation.

### **2.3.4. Balancing of portfolio**

In considering the portfolio contents, it necessary to focus on the type of projects contained in it. Christensen (2004:1054) proposes a model consisting of five types of development projects as depicted in Figure 2.3.

Figure 2.3: The mapping of various types of projects



Source: Adapted from Burgelman, R.A., Christensen, C.M., Wheelwright, S.C. *Strategic management of technology innovation*, 4th ed. (New York, N.Y.: McGraw Hill Irwin, 2004). 1208 p.

For the purpose of this study the *Research and development projects* and *Alliances and partners* components will not be discussed. The three relevant types of projects are:

- ❖ Derivative projects – primarily maintenance oriented, small enhancements and add-on’s;
- ❖ Platform projects – because these projects are normally between the maintenance and new products type of projects, it is typically more process or product enhancement and improvement oriented;
- ❖ Breakthrough projects – these projects represent fundamentally new technology or products from the existing products or functionality. Because of the newness of the technology, it is important to understand the project risk, both financially as well as technically as these projects involve major business process, product and operations changes.

Arto et al (2001:33) supports the view that the type of project is an inherent component of the management decision that is to be made whether to include or exclude the project in the portfolio. The type of project is to be considered as part of the prioritisation exercise and will be instrumental in which project bucket the project is positioned. The relationship of the project to portfolio will depend on the organisation’s strategy and to what degree the decision was made to keep to which type of project.

The organisation’s preference based on strategy, financial constraints, capacity and resource availability will determine the “mix” of projects in the portfolio, for example Company A may decide their information technology projects must consist of 75% maintenance, 10% process improvements and 15% new product or system development or implementation projects. The contents of the project portfolio will then be structured within these guidelines.

In addition to the above preference for project type, the risk profiles of projects also need to be considered as part of balancing the profile. Normally the cost estimates of information technology projects are based on expected value and return on investment, including additional information such as estimates of time to market, pricing projections and market research. Normally the results are expressed in some sort of metric such as:

- ❖ Net Present Value (NPV): it is the present value of cash inflows minus the present value of cash outflows over a specific period. This analysis is sensitive to the reliability of future cash inflows that the project will yield.
- ❖ Expected Commercial Value (ECV): based on decision tree analysis, this metric considers the future stream of earnings from projects, the probabilities of both technical and commercial success, along with commercialisation and development costs.

Although risk for software projects are normally expressed qualitatively, it could also be expressed quantitatively where net present value and the expected commercial value could be calculated using a range of values for example optimistic, pessimistic and most likely result. These results could be used as input for simulation exercises, such as the Monte Carlo simulation model which would produce a distribution curve or histogram and finally, risk could be calculated as a standard deviation.

As the project under consideration is part of the portfolio of projects, the correlation between the projects in the portfolio must be considered before the final selection decision is made. Correlation in portfolios is the relationship that exists between co-varying things. The relationship is based on the reason that should one thing change; the other thing will change either accordingly or to the opposite extent. As the theory on investment diversification dictates, the assets or projects in the portfolio should not be too closely related or correlated in how they behave should there be a change in the business environment or should a project not be successful. Examples here are typically projects that are necessitated by regulations such as the Basel II Accord and development projects to improve market share. In this example, the regulatory projects are compulsory while the market share projects based on business requirements; however, both these kinds of projects consume resources and could therefore create constraints, resulting in certain behaviour.

The projects that fit the requirements for a diversified project portfolio should be considered; but it is important that the project behaviour is monitored over time to ensure that the diversification is maintained. Corrective action should be instituted where behaviours change to the extent that the project portfolio contents do not correlate too closely.

### **2.3.5. Project selection frameworks**

Artto et al (2001:28) discuss three different project selection frameworks developed by various people. These frameworks are:

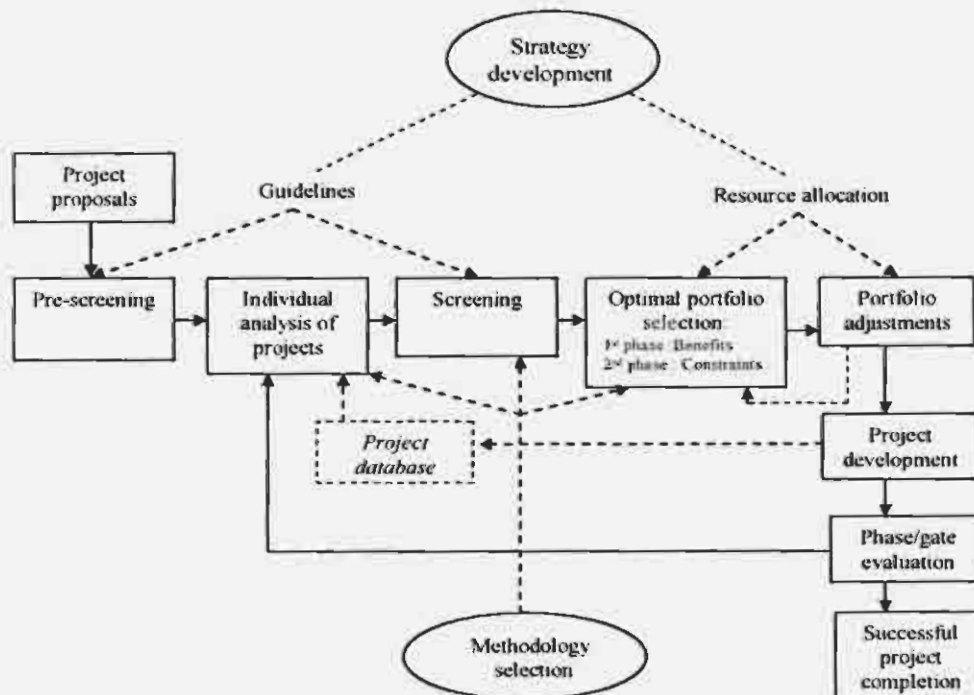
- ❖ *Strategic buckets model by Cooper, Edgett and Kleinschmidt;*
- ❖ *The strategy table model by Spradlin and Kutolowski; and*
- ❖ *Framework by Archer and Ghasemzadeh.*

For the purpose of this study, only the framework by Archer and Ghasemzadeh will be discussed in broad terms. This framework consists of three major phases:

- Strategy development – details of strategy at the various levels throughout the organisation should be available, both at organisation level as well as at business unit level. The assumptions, dependencies, constraints and risks should be well known considering both internal (micro) as well as external (macro) business factors, for example the SWOT and PEST analysis.
- Individual analysis of projects – most important in this component is to have common selection criteria that are applied in the selection process. At the time that the evaluation is done, all the projects in the portfolio need to be reviewed fully regarding status, resource consumption, progress status and effectiveness. At this time, poor projects should be eliminated from the portfolio. If a high number of projects need to be evaluated, this framework proposes that a screening process be implemented to ensure that poor projects are eliminated long before it gets to the actual selection process. This will prevent effort to be spent on something that is not viable to the organisation.
- Optimal portfolio selection – this phase is based on the simultaneous comparison of all the projects in the portfolio. The interdependency between the projects are key as that might have an undue influence in the final ranking of the projects. The risk and correlation profile between projects will also determine the outcome in optimal portfolio selection.

The framework by Archer and Ghasemzadeh as briefly described can graphically be depicted as follows (See Figure 2.4.):

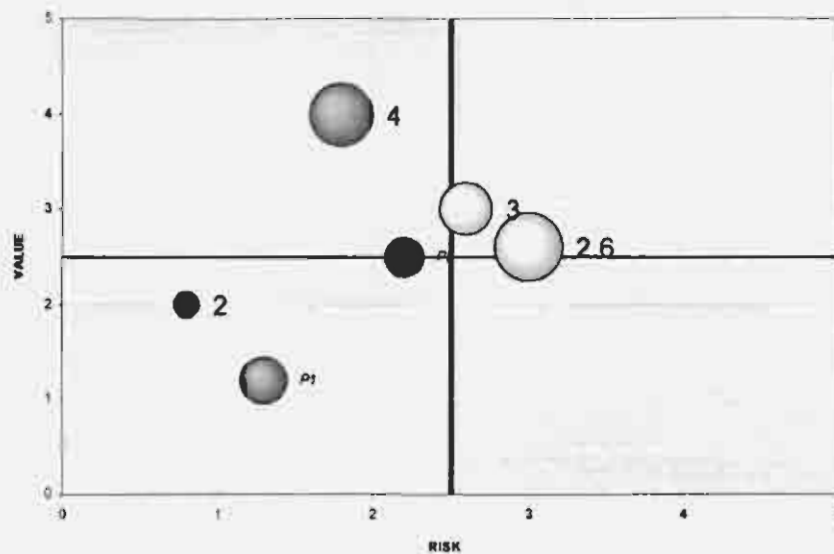
**Figure 2.4: Archer and Ghasemzadeh Framework**



**Source:** Arto, K. A., Martinsuo, M., Aalto, T. *Project portfolio management: strategic management through projects.* (Helsinki : Project Management Association Finland, PMS Finland. 2001) 176 p.

Once the project selection has been concluded, tools depicting results such as the so-called bubble diagrams or GE/McKinsey type matrices could be used to display the projects depicting portfolio risk and reward as well as the financial dimension. Such a diagram is displayed in Figure 2.5.

**Figure 2.5: GE/McKinsey matrix / bubble diagram – Risk vs. Value**



**Source:** Adapted from Arto, K. A., Martinsuo, M., Aalto, T. *Project portfolio management: strategic management through projects.* (Helsinki : Project Management Association Finland, PMS Finland. 2001) 176 p.

These bubble diagrams provide an inherent amount of data, for example in Figure 2.5 the size of the bubble indicates the project budget amount while the quadrant indicates in which the bubble is, depicts the degree of risk. In this diagram, the bubbles in the top right hand quadrant depict high value projects with an associated high risk. Similar diagrams can be developed regarding the project types, market share and competitive position, to name a few.

#### 2.4. Summary

Research done by Benko and McFarlan (2004:34) reveal inter alia, the following:

- ❖ Project investments are often not aligned with organisation strategy – an appropriate evaluation and balancing methodology will ensure that the resources are allocated to the projects that are most important while cancelling or stopping projects that does not meet the criteria any longer; and
- ❖ Short term efficiencies and long term shareholder value could be realised through pursuing a portfolio of projects that will allow the organisation to be able to capitalise or to adjust better to the ever changing business environment.

It is clear that project portfolio management, if implemented and utilised optimally, would benefit any organisation considerably. The application thereof would imply that available resources (money, people) would be channeled into specific projects and initiatives (projects in portfolio) supporting the business strategy in such a controlled and structured manner that a negative result (risks) would be managed in

such a way (minimised/mitigated/diversified) that it would not have a material impact on the organisation's operations. This proactive approach would ensure that the organisation continues to operate at a competitive level.

What is evident from the study is that, in order for project portfolio management to be effective, certain processes and disciplines need to be in place to support the whole initiative. This discipline and processes is supported by the level of project management maturity that exists in the organisation. When reviewing white papers published by project portfolio management software tool vendors, it is evident that there is still a long way to go for project portfolio management to become an established competency.

## CHAPTER 3: Project management capability maturity model

### 3.1. Background

During the early 1980's, the Software Engineering Institute (SEI) developed a Capability Maturity Model (CMM) for Software to support organisations in improving the process of how they develop and maintain software. Humphrey (1990) discussed a software maturity framework with specific reference to the ability to achieve repeatability within established statistical control metrics. This approach supports the organisation's effort to not only be able to reproduce products according to plan, but to improve the organisation's ability to produce better products. Once the future performance is predictable within established statistical control, the process is deemed to be stable or under statistical control. When this stable state is achieved, the probability of achieving the same product by repeating the same process will be high. In order for any maturity model to be successful, certain basic principles need to be in place (Humphrey, 1990: 4). They are:

- ❖ The current status of the process needs to be understood;
- ❖ A vision of the desired process needs to be developed;
- ❖ The list of required process improvement actions needs to be established based on priority;
- ❖ A plan needs to be produced in order to accomplish the required actions;
- ❖ The necessary resources must be committed in the execution of the plan; and
- ❖ Start the process all over again.

The above iterative process is aligned with W. Edward Deming's Plan-Do-Check-Act cycle and at the same time, it forms the basis for a continuous process improvement.

The general principle when applying a maturity model is to establish where the organisation is in terms of current processes and what the objective for improvement should be. The gap between the AS-IS and the TO-BE would then become the objective; the appropriate process improvement to be achieved must be defined and appropriate action plans developed and implemented. The process then repeats itself again.

Humphrey (1990:5) proposes the following process maturity levels:

- ❖ Initial – in principle this level would be achieved once the organisation is in a position to provide rough estimates of schedules and costs and there is a good probability that it be achieved;
- ❖ Repeatability – the probability of being able to obtain the same results based on the application of rigorous project management practice governing commitments, costs, schedules and change control.
- ❖ Defined – the processes have been developed to the point where it is standard operating procedure. During this stage utilisation of more complex technology could be introduced.
- ❖ Managed – at this stage the ability exists to apply comprehensive measurements to analyse the trends. Based on this intelligent analysis, significant quality improvements could be introduced that will contribute substantially to process improvement.
- ❖ Optimising – the organisation has now achieved the stage where the basis is in place that enables continuous improvement and optimisation of the process.

During the same period that the Software Engineering Institute developed the software capability maturity model, the Project Management Institute developed the first project management body of knowledge that was published in 1987. Subsequently, the project management body of knowledge has been revised and updated twice; in 1996 and 2003. These various editions of the project management body of knowledge formed the basis for the development of the project management process related maturity models through the late 1990's into the early 2000's: examples of these are the Organisational Project Management Maturity Model (OPM3) and the ESI International's ProjectFRAMEWORK™ to name a few.

### **3.2. Project management maturity model**

ESI International developed the ProjectFRAMEWORK™ during the late 1990's to enable organisations to implement project management best practice through an incremental process of improvement. Due to the close alignment with the Software Engineering Institute's software capability maturity model, it is not surprising that ProjectFRAMEWORK™ also adheres to a 5 levels of maturity model.

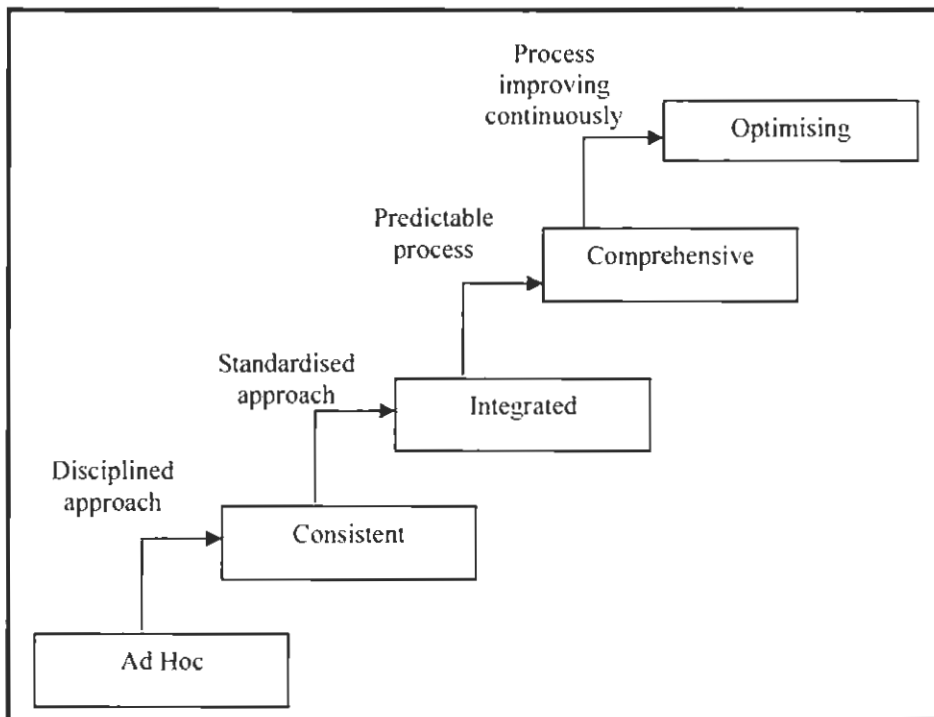
These 5 levels of maturity are:

- ❖ Ad Hoc – at this stage the application of consistent project management processes is based more on individuals being able to apply certain project management principles to independent projects; management also do not actively support any formal project management processes.
- ❖ Consistent – a project management methodology is implemented and supported by management. The relevant policies, processes and procedures are developed and implemented while the relevant stakeholders are trained.
- ❖ Integrated – at this level, project management processes are standardised, documented and totally aligned with the nine PMBoK™ knowledge areas while standard processes are closely aligned with the five PMBoK™ process groups.
  - The nine knowledge areas are:
    - Project integration management;
    - Project scope management;
    - Project time management;
    - Project costs management;
    - Project quality management;
    - Project human resource management;
    - Project communications management;
    - Project risk management; and
    - Project procurement management.
  - The five PMBoK™ process groups are:
    - Initiating;
    - Planning;
    - Executing;
    - Controlling; and

- Closing.
- ❖ Comprehensive – at this stage, project management has been implemented extensively throughout the organisation. The stakeholders are all deemed partners and advanced project management tools are utilised. At this time, projects are linked to and also support the organisations’ business strategy.
- ❖ Optimising – the objective at this stage is to use innovative ways and means to improve the organisation’s project management capability overall.

If the two maturity model frameworks dealt with up to now are considered: that is the software maturity model (Humphrey) on the one hand and ESI’s model; there is no material difference in approach – only the benchmark criteria differ; the levels of maturity defined are the same by different names. However, the focus for the ESI framework is project management based; portfolio management is not considered. A graphic presentation of the ProjectFRAMEWORK™ would typically be as displayed in Figure 3.1. The increasing levels of maturity are indicated with the associated levels of process capability that is institutionalised as progress to higher levels of maturity is achieved.

**Figure 3.1: The five levels of project management capability process model as per ESI’s ProjectFRAMEWORK™.**



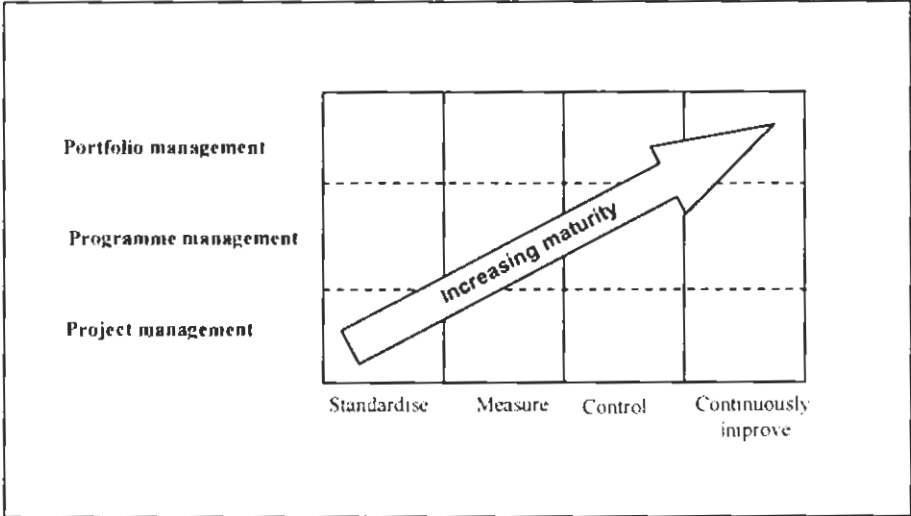
**Source:** Adapted from Humphrey, W. S. *Managing the software process*. (Software Engineering Institute, Addison Wesley Longman, Inc. 1990) 494 p.

The above maturity levels will be explored during the empirical study as these are the maturity levels that are currently known in the market place.

The Project Management Institute launched an initiative in 1998 to develop the organisational project management maturity model. In essence, they opted to retain the five PMBoK™ process groups: initiating, planning, executing, controlling and closing. The final result of this initiative ended in a multi dimensioned maturity model that is based on best practice for various domains such as project management, programme management and portfolio management. In another view, best practice regarding the progressive stages of process improvement is addressed, from standardising, to measuring, to control and eventually continuously improving. Within the framework of the various domains and the various stages of process improvement, the incremental improvement of capability is achieved.

Graphically, the organisation project management maturity model would be presented as follows in Figure 3.2. The benefit of such a multidimensional model is that the organisation that wants to develop its project management maturity will have the flexibility to address the particular areas of improvement that are particular to it. The one dimensional model such as the software capability maturity model will not allow the various perspectives to be addressed at the same time.

**Figure 3.2: Organisation project management maturity increases along a continuum**



**Source:** Project Management Institute. *Organisational project management maturity model*. (Project Management Institute, Newton Square, PA. 2005) 179 p.

For the purpose of this study, the above material was included to indicate what the latest thinking is regarding the project management maturity models. It is important to understand as this model will provide a better aligned and comprehensive model. However, especially in the South African business context, this model may be too recent to include in the survey done for this study.

**3.3. Summary**

The project management capability maturity provides any organisation the ability to move towards a more mature project management organisation. It must be stressed though, that it is an expensive, long and hard exercise that is required. It is important to note that the same rule from the software capability

maturity model applies to the various project management maturity models in that it is NOT possible to skip any one level. It is an inherent characteristic and a progressive model that evolves over time as capabilities develop and processes improve.

Given the extent and framework of the organisational project management maturity model, it is evident that an organisation will only be able to implement and practice effective portfolio management based on a relatively high level of project management maturity.

## **CHAPTER 4: Business strategy**

### **4.1. Background**

“In war, more than anywhere else in the world, things turn out differently from what we expected, and look differently up close from how they looked at a distance.” *Carl von Clausewitz (1780 – 1831)*

These words were said in a time when conflict existed especially between the different aristocracies. In war, the general with the best strategy on the day may win the battle, but if the strategy is not sustainable and adaptable, that same general who won the battle, may still lose the war. Decisions are made based on the best information that is available at the time: the intelligence used during any war is often contradictory and sometimes just wrong. The commanders must therefore make decisions based on their inner convictions even if the intelligence available, are not good. A decision made, based on correct information on one day may not be as applicable the next day due to a rapidly changing environment or situation.

Conflict today is still as evident although the focus has moved from war to economic activities, which is not necessarily any less revolutionary.

Von Clausewitz’s theory on war focused on the big battle as a way to win, while Sun Tzu believed that it was possible to avoid fighting through planning the right strategy before the battle. A combination of the two schools is most probably more effective. The best organisations develop win-win strategic initiatives, doing their planning so well that they are sure to win. When competition is encountered, the implementation of their strategies is so good that they will win anyway.

During the past century, business strategy has developed through various phases and various environments. The wars during the period had a tremendous impact on increased speed of technological developments with the associated corporate growth increasing the demand for better and more appropriate corporate strategy. According to Lynch (2000:48), corporate strategy developed from a competitor focused approach during the 1980’s to an approach with emphasis on internal resources during the 1990’s. Practices such as Management by Objective (MBO) and other similar initiatives such as the Quality Circle approach was developed to ensure participative management from internal resources in order to ensure maximum business participation.

### **4.2. Business strategy**

With globalisation happening at the speed of light and the number of emerging markets developing, uncertainty in the economic space just became a bigger issue by the day. Due to the degree of uncertainty, a contingency approach to strategy has evolved and developed over time resulting in learning organisations.

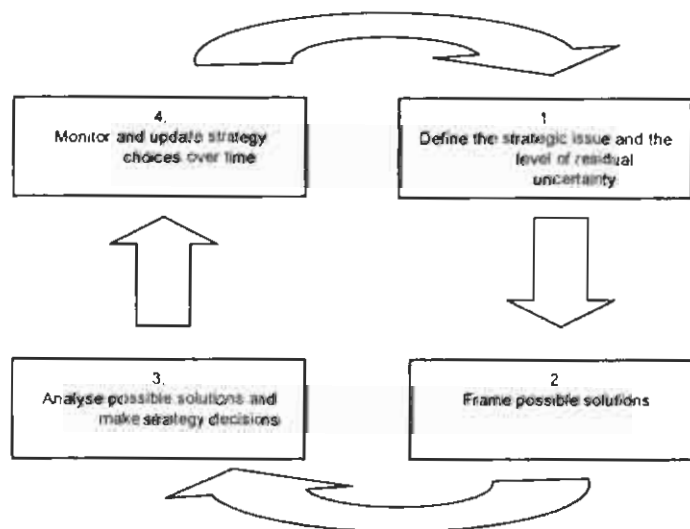
The demand for scarce and skilled business resources is growing simultaneously and possibly at a higher speed due to the competitive nature of business. This necessitates the need for the same resources to be utilised effectively to achieve the optimal benefit and profitability from economic activity.

By the turn of the millennium, the speed of the economic race has increased, especially due to the rate of Information, Communications and Technology (ICT) development as well as the proliferation in utilisation of the world-wide-web. Uncertainty has now become a way of life, in all walks of life and in particular, in the business environment. New approaches to strategy management are required and as such have been developed and implemented during the last decade.

Courtney (2001) proposes a contingent strategy methodology in dealing with uncertainty in the business place. His proposed methodology is especially more applicable to organisations where technological change and developments have a high impact resulting in ever changing environments, products and services. Courtney continues and discusses the concept of various levels of residual uncertainty, from level 1 where the future is clear, level 2 where there are various options available but only one option is the correct one, level 3 where only a representative set of outcomes within a possible range of outcomes can be defined and lastly, level 4 where future outcomes are unknowable and unknown. Various tools and techniques are proposed for use by management as such for general business strategy formulation, implementation and measurement.

Courtney (2001:12) proposes a four step process to deal with strategy in the uncertain conditions prevalent today. See Figure 4.1.

**Figure 4.1: An iterative four-step process for strategy under uncertain conditions**



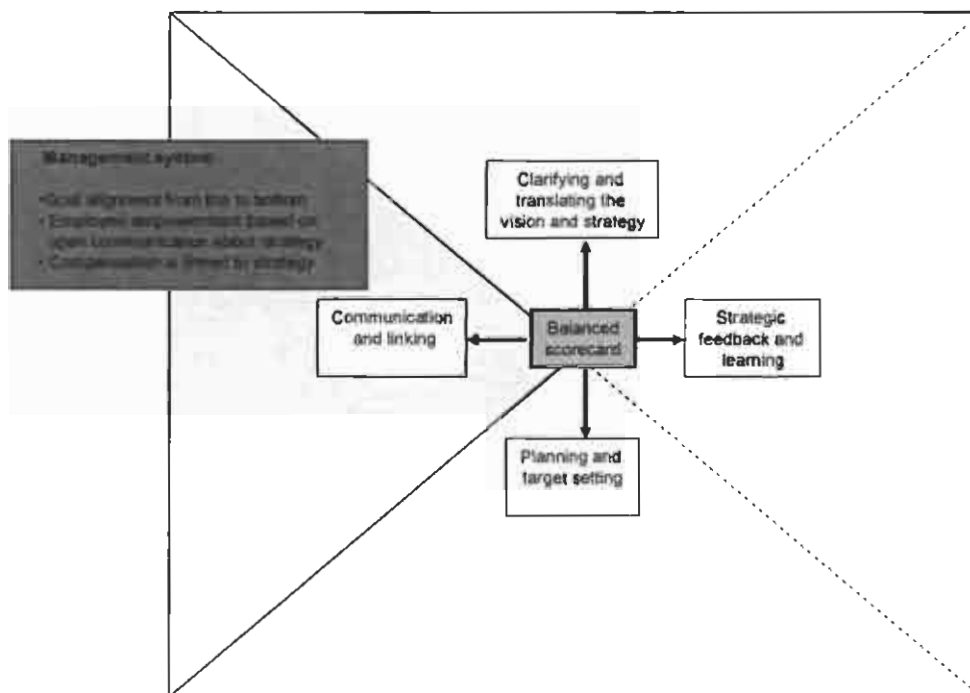
**Source:** Adapted from Courtney, H. *20/20 foresight: crafting strategy in an uncertain world*. (McKinsey & Company, Harvard Business School Publishing, Boston, MA, 2001) 207 p.

The proposed process is one of defining the strategic issue with the associated level of residual uncertainty. Based on the defined strategic issue and the level of residual uncertainty, certain options are explored and possible solutions are defined. These solutions are then analysed and based on the outcome, strategic decisions can then be made. Over time, the outcome of the strategy implementation must be

monitored to ensure that the results are as expected. If not or the results are not achieved, corrective action must be developed and implemented. The loop will then proceed as per Figure 4.1.

The Balanced Scorecard approach (Norton & Kaplan, 1996:200) and methodology was developed over the late 1990's and evolved into a fairly full blown strategic model with application not confined mainly to technology related industries. The proper implementation of the balanced scorecard will provide the organisations with the ability to align strategy from the top to the bottom of the organisation, while the long term vision and strategy will be shared by all; all employees will be encouraged to participate in realising said strategies while successful participation will be incentivised and rewarded accordingly. In essence, a model of communication and linking is proposed – see figure 4.2.

**Figure 4.2: A different management system – communicating and linking**



**Source:** Adapted from Norton, R. S., Kaplan, D. P. *Balanced scorecard: translating strategy into action*. (Harvard Business School Publishing, Boston, MA, 1996) 322 p.

In 1998 GAO (1998:31) proposed a balanced scorecard approach in measuring the contribution of information technology to mission outcomes and performance improvement and in the process give recognition to the impact of the information technology support role. Through the utilisation of this proposed model, the organisation will be able to:

- ❖ Establish integrated fit between the business strategies and the information technology strategies;
- ❖ Provide visibility on how well the overall portfolio of information technology investments are being managed;
- ❖ Establish and confirm whether information technology spending is in line with expectations;

- ❖ Ensure cost effective results consistently produced; and
- ❖ Ensure that the business value and cost effectiveness of information technology is maximised.

At the same time, by using the Balanced Scorecard model, it will be possible to link strategy through to the supporting projects at the lowest levels. Purely by following the scorecard structure levels, it will be possible to develop the project portfolio levels based on the principles the organisation may adopt regarding their project management office structures. It will also be possible to link projects to the employee's Key Performance Area's and once that is done, it is fairly easy to link to the reward and remuneration system of the organisation.

It will be possible to roll projects up into programmes and programmes into a project portfolio(s), depending on the size of the organisation. By doing this it will be possible to obtain an extensive view and structure of the portfolio of projects within the organisation.

#### **4.3. Summary**

Based on the review of the balanced scorecard model in the forgoing points, it is again evident that in order to be effective and efficient, a structured and transparent approach is required to ensure optimum results.

In the bigger business picture, and because of the nature of the balanced scorecard model, the proper application of it will ensure that the organisation and its processes will be well structured and all initiatives will be aligned with the organisations strategy.

This state of the organisation will then require a high level of capability and maturity, while ensuring proper governance in terms of strategic aligned information technology projects executed, thus providing the required basis for effective project portfolio management.

## **CHAPTER 5: Empirical study**

### **5.1. Introduction**

In chapters two, three and four the first objective was achieved through the detailed literature study on project portfolio management, the project management capability maturity model and business strategy. The second objective, which is to understand the current state of project portfolio management and the associated components in organisations, will be achieved by performing a survey on the various organisations. The high level results from two (2) international surveys done by KPMG International and PriceWaterhouseCoopers will be incorporated into this study in order to create a comparison of current South African project portfolio management practice to the international project portfolio management practice.

### **5.2. Questionnaire design**

The questionnaire was designed with the purpose of obtaining data regarding specific focus areas in order to be able to determine whether project portfolio management contributes to effective business strategy execution.

These focus areas are also used to compare the results from this study with the high level results from international surveys done by KPMG International and PriceWaterhouseCoopers.

The areas that the questionnaire was focused upon were:

- ❖ Industry – to ensure that a fair cross-section of industries are covered and that major and smaller companies are included, resulting in a more representative survey sample;
- ❖ Organisation – to obtain an understanding how formal the project management office structure is as well as at what level it operates, with the associated decision delegation structure;
- ❖ Performance criteria – to determine what the average main project performance criteria are and what the main criterion is for a project to be deemed successful;
- ❖ Methodology – to determine what best practice model the organisation's project management model is aligned with and to what extent it supports a project portfolio management model; what benefits the application of the relevant methodology offers; what impact the utilisation of the indicated methodology has and finally, which project management areas could still be improved;
- ❖ Project management tools – the identification of basic project management tools and how effective it is perceived to be utilised and the identification of additional software tools in order to identify project portfolio model components such as advanced "what if" modeling tools;
- ❖ Project success/failures – to obtain data regarding the number of projects being undertaken, the number that are completed, the number cancelled or put on hold, the number of projects completed but not deemed successful and the primary reason for projects not being successful;
- ❖ Compliance with policies and methodologies – determines who monitors the compliance to the project management policies and methodologies and whether compliance to it is linked to the company review and reward systems;

- ❖ Project management maturity – an indication of the level that the respondent believes the project management maturity level is within the organisation, with measurement of the extent of process by elimination of poor projects, the tracking of project benefits and whether the results of the project benefits are used as a baseline knowledge base for future projects or not;
- ❖ Strategy linked to projects – determine whether IT projects are linked to strategy; what the impact is that the projects in the project portfolio have on the competitive advantage of the organisation, determine whether the project decisions are aligned with strategic business goals, whether the project mix in the IT project portfolio is reviewed regularly and whether the current business strategy is based on the balanced scorecard methodology or a similar model.

### 5.3. Questionnaire analysis

The questionnaires were distributed via e-mail to various projects stakeholders in a number of South African blue chip companies. These participants were briefed on the objective of the survey and it was requested that the questionnaire be completed within two weeks. This control measure enabled the author to determine the turnaround time for the questionnaire completion without compromising on the time constraints.

During the two week period, some of the participating respondents faxed the completed questionnaires back once they had completed it, while the rest of the questionnaires were collected from those that participated.

The answers contained in the questionnaires were analysed to identify the current status of the contribution of the project portfolio management to business strategy execution. The author's objective was to investigate the necessary data to obtain an indication of whether project portfolio management practice does support business strategy execution.

### 5.4. Preliminary data analysis

Table 5.1. shows how many questionnaires were distributed, not received back and analysed. The industry analysis is also indicated for those questionnaires received back.

Table 5.1. Questionnaire feedback

Industry	Questionnaires distributed		Questionnaires not received		Questionnaires analysed	
	Number	%	Number	%	Number	%
	42	100	27	64	15	36
Financial services					3	20
Services					4	26
Telecommunications					6	40
Mining					1	7
Transport					1	7

For purposes of the following analysis, the 15 respondents were used in all the subsequent analyses.

The companies, which were represented by the respondents, were 67% in the category of organisation with annual revenue bigger than R 2 billion and more, while 23% represented the category of organisation with annual revenue of less than R 2 billion rand, but more than R 500 million.

The respondents represented the role of project manager by 47%, other project stakeholders by 33%, programme manager by 7% and project portfolio manager by 14%.

A total of 36% of the questionnaires distributed, were analysed.

## **5.5. Results of gathered data**

The results of the data will be represented in the following manner:

- ❖ The purpose of the key area;
- ❖ The result for each question will be described; and
- ❖ An analysis will be provided regarding the respective results.

### **5.5.1. Organisation**

#### **5.5.1.1. Purpose**

The purpose is to determine how formal any project management office is within the organisation structure; for example, whether it is formally indicated in the organisation's structure or not. The level of the project management office is indicative of how the project management office organisation is structured while the delegation structure is a clear indication of how much authority resides with the project management office role.

#### **5.5.1.2. Analysis**

*Question 4: Does your company have a formal project management office?*

More than half (53%), of the respondents indicated that such a formal project management office is indicated in the organisation structure, 27% of the respondents indicated that the project management office exists to manage IT projects exclusively, while 20% of the respondents indicated that it supports multiple business areas, like IT, logistics and marketing.

*Question 5: At what level does your project management office operate?*

More than half (60%), of the respondents indicated that the project management office operates at programme level, meaning managing various projects that roll up into programmes. A total of 27% of the respondents believed that the project management office operated at a project portfolio level while 13% of the respondents indicated that it operates at project level.

*Question 6: Which organisation structure is most descriptive of your project management office?*

A third (33%), of the respondents indicated that a strong matrix organisation structure is followed, meaning that a project manager's authority in the execution of projects is moderate to high. The

remainder of the respondents believed that the authority of the project manager is moderate to little or none (27% of the respondents), low to moderate (27% of the respondents) and limited at 13% of the respondents.

### **5.5.2. Performance criteria**

#### **5.5.2.1. Purpose**

The purpose is to establish what is deemed to be the performance criteria for the project management office. The various functions that a project management office normally offers have been defined and the respondents had the option to select all the appropriate functions that they believe is applicable to the project management office in their relevant organisations. This is necessary to establish which kind of service the project management office delivers to the project community within the organisation.

As part of the above, it also analyses the performance criteria as practiced for project success.

#### **5.5.2.2. Analysis**

*Question 7: The Information Technology project management office normally offers numerous functions. Please select the applicable options that relate to your organisation.*

Project management governance received the highest rating (87% of the respondents), with project tracking and reporting at 73% of the respondents, project coordination, communication, project risk management and project configuration management in the mid 50%'s of the respondents while project portfolio management lags behind at 47% of the respondents.

By drawing an inference, this means that the project management office provides the structures, policies, processes and procedures regarding the management of projects within the organisation because that constitutes the appropriate governance.

*Question 8: Which is the single most important measure of success for your Information Technology projects?*

The delivery to business requirements (60% of the respondents) was deemed the most important measurement of project success. The standard project management criteria of project delivery on time (20% of the respondents), within budget (13% of the respondents) and with the relevant project quality (7% of the respondents) have been listed as well. The implication of this could be that projects are deemed successful even if it did not adhere or achieve any or all three cornerstones of project management; time, budget and quality.

### **5.5.3. Methodology**

#### **5.5.3.1. Purpose**

The purpose of exploring the project management methodology is in order to understand the project management approach as applicable to the respondent's organisation. The results indicate whether a best practice project management methodology has been adopted, the level of formal project portfolio management practices that has been implemented, the benefits that are currently achieved by utilising the

methodologies, the impact these methodologies have on the project management function's ability to achieve project success and finally, the identification of which areas could still be improved in the project management function.

The extent and depth of best practice methodology utilisation will be a good indication of the ability of the respondent's organisation to execute project portfolio management activities.

#### 5.5.3.2. Analysis

*Question 9: Does your company follow a stage-gate approach in the execution of your Information Technology projects, meaning that certain milestones or deliverables need to be achieved before the next stage can start?*

Most of the respondents (87%), agreed that their company does follow a stage-gate process.

*Question 10: Which project management methodology is being used by your project management office to execute projects?*

The majority of the respondents (PMBok® – 47% & ERP specific – 13%) indicated that a best practice methodology is being used by the project management office to execute projects. The rest of the respondents (40%), indicated that they use methodologies that are homegrown although it is aligned with best practice frameworks such as PMBok®.

*Question 11: Which specific methodology do you have in place to optimise your project portfolio ensuring risk is minimised and return on investment is optimised?*

Less than half (47%), of the respondents indicated that an economic model consisting of net present value, internal rate of return and return on investment is used, while the other 53% of the respondents indicated that no formal methodology is used.

*Question 12: According to your view, what is the most advantageous application that the above methodologies offer you?*

Most of the respondents (53%), indicated that these implemented methodologies enable the project management office to develop appropriate business cases including resource requirements resulting in better planning. 40% of the respondents indicated that these methodologies support improved project execution while 7% of the respondents believed that a more efficient level of project risk analysis and management is achieved.

*Question 13: What impact does the utilisation of these methodologies have on your ability to achieve successful projects?*

60% of the respondents indicated that the utilisation of these methodologies have a medium impact on project management office's ability to achieve successful projects execution, while 20% of the respondents believe that it has a low impact, and the other 20% of the respondents indicates it has a high impact.

*Question 14: Which area of project management could still be improved in your organisation? Rank in order of preference from 1 to 6 with 1 being the area that could improve most and 6 being the area that needs the least improvement.*

The results have been tabulated and summarized per improvement area with the majority respondent choices in the order of 1 to 6 as follows:

- ❖ Change management, effective project implementation and optimisation of positive organisational response – 33%
- ❖ Quality management – reduced rework, minimum bugs – 26%
- ❖ Project risk management – identification and mitigation – 40%
- ❖ Issue management – issues impacting project delivery – 40%
- ❖ Communication between stakeholders – 33%
- ❖ Project financial management – budget versus actual – 47%

#### **5.5.4. Project management tools**

##### **5.5.4.1. Purpose**

The purpose is to establish what basic project management tools are being used by the various respondents' project management office. In order to be able to execute project portfolio management, more sophisticated toolsets such as "what if" and dashboard reporting mechanisms are required rather than the more conventional project resource scheduling and costing mechanisms. It may well be that more sophisticated toolsets are implemented but it might not be used to the full capability due to shortcomings on the organisation's side in terms of processes and procedures.

##### **5.5.4.2. Analysis**

*Question 15: Which project management tools are used by your project management office?*

MS Project is used by the majority of respondents (73%), followed by MS Office suite (13%), while 14% of the respondents indicated that they did not know which tool set is being used.

*Question 16: How effective do you believe is the selected project management tools?*

According to 67% of the respondents the above selected tool sets are only fairly effective, with 26% of the respondents selecting very effective and 7% of the respondents stating that it is not effective at all.

*Question 17: Are any additional project-related tools used by your organisation?*

The response was varied. 33% of the respondents, selected Microsoft 2003 Enterprise Server, 13% of the respondents selected a "what if" modeling tool, 7% of the respondents selected a sophisticated dashboard tool and 7% of the respondents indicated that the project management office is using a project portfolio management tool called Mercury. 40% of the respondents indicated that their organisation does not use any additional project-related tools.

### **5.5.5. Perceived value of the project management office in the organisation**

#### **5.5.5.1. Purpose**

The purpose is to establish how the project management office is perceived within the respondent's organisation. Given the perception, the question is then also posed as to which key success factors the respondent believes is most critical to project success. Inevitably, the perception is biased because of certain key success factors not being in place.

#### **5.5.5.2. Analysis**

*Question 18: What value, do you believe, does the project management office add to the execution of projects within your business?*

The majority (60%), of the respondents indicated that the project management office contributes minor value to the organisation's project execution ability; 33% of the respondents indicated major value add and 7% of the respondents indicated no value add at all.

*Question 19: Which of the following key success factors do you believe is most critical to achieve project success? Please rank in order of importance, 1 being the most important and 5 being the least important.*

The results have been tabulated and the results summarized per key success factor with the majority respondent choices in the order of 1 to 5 as follows:

- ❖ Executive sponsorship – 60%
- ❖ Clearly defined project scope – 40%
- ❖ Leadership and team work – 47%
- ❖ Project risk management – 53%
- ❖ Transparent project reporting – 60%

### **5.5.6. Project success/failures**

#### **5.5.6.1. Purpose**

The purpose of this section of the questionnaire is to establish the fact that, although a great number of projects are executed and implemented every year, some projects are stopped while other projects are deemed not successful, even though it has been implemented. The respondents are then requested to indicate which primary reason they believe contributes to projects not being successful.

#### **5.5.6.2. Analysis**

*Question 20: How many projects have been managed by the project management office during the past year?*

The results varied, with 40% of the respondents indicating 0-20 projects, 27% of the respondents indicated more than 60 projects with one respondent indicating more than 600 projects, 20% indicated 41-60 projects and 13% of the respondents indicated 21-40 projects.

*Question 21: How many of the above projects have been completed successfully during the past year?*

Almost half (47%), of the respondents indicated 0-20 projects, with 20% of the respondents selecting 21-40 projects and 26%, more than 60 projects (up to 450 projects) respectively, and finally with 7% of the respondents selecting 41-60 projects.

*Question 22: How many of the above projects have been cancelled / stopped during the past year?*

The respondents (93%) were quite clear in the selection of 0-20 projects with 7% of the respondents selecting 21-40 projects.

*Question 23: How many of the above projects have been completed but not deemed successful during the past year?*

The respondents (93%), were quite clear in the selection of 0-20 projects with 7% of the respondents selecting 21-40 projects.

*Question 24: In your view, what is the primary reason for the above projects not being successful?*

Misalignment with strategy was the option chosen by the majority (33%), of the respondents, while the option considering poor change management, noncompliance with processes and lack of understanding as well as poor project planning and execution were selected by the second most (20%), of the respondents respectively, followed by 13% of the respondents selecting lack of executive sponsor involvement and resource contention respectively.

### **5.5.7. Compliance with policies and methodologies**

#### **5.5.7.1. Purpose**

The purpose is to establish how the policies and methodologies regarding project management is promulgated and monitored in the respondent's organisation. However, it is not possible to implement compliance to policies and methodologies without enforcing them somehow. In order to facilitate the appropriate employee behaviour, it is necessary to create the necessary reward mechanisms so as to reinforce the correct behaviour.

#### **5.5.7.2. Analysis**

*Question 25: Who monitors the compliance to project management policies and methodologies within your organisation?*

72% of the respondents selected the option of the project office management team monitoring the compliance to project management methodologies and policies at their organisations. 14% of the respondents indicated that other functions in the organisation such as Internal Audit monitors compliance, while 14% of the respondents stated that no formal mechanisms exist for monitoring compliance.

*Question 26: Is the compliance to project management policies and methodologies linked to the review / reward systems in your organisation?*

The respondents were almost 50-50 with 53% of the respondents selecting the option that compliance is a part of the project stakeholder's Key Performance Areas as used for performance evaluation, while the other 47% of the respondents indicated that compliance is not linked to the organisations review / reward system.

### **5.5.8. Project management maturity**

#### **5.5.8.1. Purpose**

This part of the questionnaire aims to establish the level of project management maturity that exists within the respondent's organisation. To validate the response in question 27 to some degree, questions 28 to 30 cover specific areas of the project management maturity model that is required before qualifying for a level 4 of project management maturity.

#### **5.5.8.2. Analysis**

*Question 27: In your view, at which level of the project management capability maturity level does your organisation execute it's Information Technology projects?*

The responses per maturity level were as follows:

- ❖ Level 1 – no project management – only ad hoc processes – 7%
- ❖ Level 2 – database of projects exists, and value is assessed for individual projects – 27%
- ❖ Level 3 – project selection occurs prior to execution – 27%
- ❖ Level 4 – projects are actively managed at department levels – 33%
- ❖ Level 5 – projects are actively managed at enterprise levels – 6%

*Question 28: Is there a process in place where poor projects could be killed during the evaluation of applicant projects or regarding projects that are not achieving their objectives and are unlikely to?*

The majority (67%), of the respondents agreed that such a process is in place while the rest (33%), stated that there is no such process in place in their organisations.

*Question 29: Is there a process in place which tracks whether the proposed project and portfolio benefits are realised?*

Most (60%), of the respondents stated that no process is in place in their respective project management organisations to track proposed project and portfolio benefits that are realised. The rest (40%), stated that such a process is in place in their organisations.

*Question 30: Is the above benefit tracking process for proposed project and portfolio benefits realisation effective to the degree that it could be used as a baseline or benchmark for future project planning?*

87% of the respondents said "No" while 13% agreed that such process is effective to be used as baseline for future project planning.

### 5.5.9. Strategy linked to projects

#### 5.5.9.1. Purpose

The purpose is to establish whether the respondents believe that the projects executed by the project management organisation are aligned with the organisation's business strategies.

#### 5.5.9.2. Analysis

*Question 31: Are your Information Technology projects mapped to business strategies?*

An overwhelming 79% of the respondents agreed that their organisation's Information Technology projects are mapped to the organisation's business strategies. 21% disagreed.

*Question 32: Does your organisation review the IT portfolio regularly to ensure that the projects in the portfolio are still aligned with business changes?*

The responses were tabulated with the following results:

- ❖ Monthly – 20%
- ❖ Quarterly – 47%
- ❖ Annually – 26%
- ❖ Other – did not know – 7%

*Question 33: In your view, what impact does the project portfolio approach, with the associated projects, have on the organisation's ability to achieve competitive advantage?*

More than half (53%), of the respondents indicated that a project portfolio management approach has a medium impact on the organisation's ability to achieve competitive advantage, while 33% of the respondents selected high impact and 14% of the respondents selected low impact.

*Question 34: In your view, are the project decisions aligned with strategic business goals and objectives?*

The majority (73%), of the respondents believe that the project decisions are aligned with the organisation's business strategies, while 27% of the respondents believe that the project decisions are not aligned with the organisation's business strategies.

*Question 35: In your view, is the organisation's Information Technology project portfolio balanced in that it contains the right mix of projects? Examples here are a combination of maintenance, enhancements and new technology projects.*

The majority (73%), of the respondents believe that the Information Technology project portfolio is balanced with the right mix of projects, while 27% of the respondents believe that the Information Technology project portfolio is not balanced with the right mix of projects.

*Question 36: Is your organisation's current business strategy framework based on the balanced scorecard model or a model similar to that?*

A majority (73%), of the respondents responded that their organisation's business strategy frameworks are not based on the balanced scorecard or similar models while 27% of the respondents answered in the affirmative.

## **5.6. International benchmark information**

The studies done by PricewaterhouseCoopers and KPMG International during the last few years evolved from focusing initially on project management (2000) through to programme management (2003/4) resulting in the recognition of project portfolio management in 2005. The high level results from two surveys, one each from PriceWaterhouseCoopers (Nieto-Rodriguez & Evrard, 2004) and KPMG International (2005) will be used to create a basic benchmark for comparison purposes of this study.

The studies done by both the above institutions were quite extensive, while the survey done for this study was very limited due to time and content constraints. The focus will therefore, primarily be based on similar relevant high level results from these studies.

### **5.6.1. PriceWaterhouseCoopers**

Nieto-Rodriguez & Evrard (2004) conducted a survey during February to April 2004, gathering 200 responses from a group of respondents covering 30 different countries across the world, covering small to large corporations and the range of positions from top management down to project manager level.

The emphasis of this survey was to a large degree, focusing on the *maturity* of the project management organisation within the respondent organisations, as the majority of the questions (33 out of 50) related to maturity. The PriceWaterhouseCoopers maturity model was used to assess the maturity levels. This model consists of the 5 levels of maturity similar to those discussed in Chapter 3 of this study. The titles and the definitions might be different, but the essence is the same. The 5 levels as defined by PriceWaterhouseCoopers are as follows:

- ❖ Level 1 – Unreliable processes – sporadic use of project management;
- ❖ Level 2 – Informal processes – lack of formal approved methodology;
- ❖ Level 3 – Standardised processes – use of formal approved methodology;
- ❖ Level 4 – Monitored processes – an integrated project life cycle methodology is used; and
- ❖ Level 5 – Optimised processes – a regular review and renewal of the existing project management methodology is conducted.

The relevant high level key results that will be used for purposes of this study are as follows:

- ❖ There is a positive correlation between project management maturity and project performance – a higher project management maturity level will in most cases, deliver the required performance in terms of project delivery and business benefits.

- ❖ The average current level of maturity is on a level of 2.5 – informal processes as per the PriceWaterhouseCoopers maturity model. At this level of maturity, there is still a high degree of unsuccessful project delivery.
- ❖ Many of the project failures are due to an imbalanced organisation – project managers are, frequently blamed for project failures, though they do not have the degree of authority to address the factors impacting project delivery directly. It was found that 59% of the reasons for project failure were outside the sphere of control of the project manager.
- ❖ Organisational structure has a big influence in overall project performance – the alignment between the organisational structures and business requirements determines the degree of project success. The projectised and strong matrix structures have the highest probability of project success, while the other structures, that is functional structure, weak matrix and balanced matrix have a higher probability for project delivery failure.
- ❖ Implementing project management software successfully is influenced by the organisation's project management maturity level – specialised project management software create or destroys value – depending on when it is decided to procure and implement.

#### **5.6.2. KPMG International**

KPMG International conducted this survey during March to June 2005, covering more than 600 companies in 22 countries worldwide, covering small to large corporations and the range of positions from top management down to project manager level. Some of the key topics investigated were project governance, business case management, benefits realisation, project and programme management practices and project success or failure. These topics are of particular interest in this study regarding project portfolio management as each one forms an important integrated part of project portfolio management.

Some of the high level key findings from this survey are as follows:

- ❖ The organisations are not able to measure the benefits delivered from project investment – the lack of this ability translates into non-delivery of projects into strategy outcomes;
- ❖ Steps are being taken to enhance project management governance – project management maturity on the increase, business cases are common but rarely address benefits sufficiently, and project management governance diminishes beyond the project funding approval stage;
- ❖ Increased profile for project management within the organisation – up to 87% of the organisations report projects to the board, with 17% of project management offices reporting to the Chief Executive Officer (CEO);
- ❖ Once the financial allocation for the project to continue has been approved, the involvement of executive level regarding project execution and benefit tracking, diminishes;
- ❖ Only 13% of the organisations provide funding based on milestone delivery, with 61% providing funding in a lump sum;

- ❖ In 87% of the cases, the executives (project sponsors, business unit heads) are responsible for project benefit realisation, but in only 23% is the realisation of benefits linked to individual performance plans;
- ❖ Only 20% of organisations have any formal criteria to put projects on hold or to cancel them;
- ❖ At least 1 project failure was experienced by 49% of the respondents;
- ❖ Reasons for project failure indicated were: unclear/change of project scope, poor project management processes and lack of executive sponsorship and management buy-in;
- ❖ Perception - 26% of the organisations reported a negative perceived value of the project management office;
- ❖ Maturity - 47% of the organisations reported a standardised level (level 3) of maturity while 39% reported an informal level (level 2);
- ❖ Methodology – 61% reported a homegrown or hybrid model; and
- ❖ Tools – project management tools do not necessarily support the project management governance process.

### **5.7. Summary**

The results for this study were obtained through the development, distribution and analysis of a questionnaire that addresses eight (8) specific areas in order to determine what the current state of project management and project portfolio management in South Africa is.

These eight areas are:

- ❖ Project management organisation;
- ❖ Project and project portfolio performance criteria;
- ❖ Project and project portfolio methodology;
- ❖ Project and project portfolio management tools;
- ❖ Project success/failures;
- ❖ Compliance with project management policies and methodologies;
- ❖ Project management maturity levels; and
- ❖ Strategy linked to projects.

In conjunction with this result, the high level results of two international surveys done by KPMG International and PriceWaterhouseCoopers were incorporated to obtain an understanding of what correlation, if any, exists between local and international project and project portfolio management practices.

## **CHAPTER 6: Conclusions and recommendations**

### **6.1. Introduction**

In chapters two, three and four, the first objective was achieved through the detailed literature study on project portfolio management, project management capability maturity models and business strategy. The second objective, which is to understand the current state of the project portfolio management and the associated components in organisations, will be achieved by performing a survey on the various organisations. The high level results from two (2) international surveys done by KPMG International and PriceWaterhouseCoopers were incorporated into this study in order to create a benchmark for comparison of local project portfolio management practice to international project portfolio management practice.

In this chapter, the objective will be to discuss the conclusions that have been reached based on the results from the respective survey results.

### **6.2. Conclusions**

In order for project portfolio management to be effective, specific project portfolio management mechanisms must be in place, linked with the appropriate best practice project management policies and procedures, supported by the best applicable project management tools as well as supported at executive level in the organisation.

The survey outcomes are as follows at a high level:

- ❖ Project manager's authority to influence the positive outcomes of projects is at 33%;
- ❖ Although the survey results indicate that project management governance provided is at 87%, 53% reports that no formal methodology is in place to optimise the project portfolio ensuring risk is minimised and the return on investment is optimised;
- ❖ Given the above criteria, respondents indicated that the project management area that required the least improvement in the organisation is project financial management, that is budget versus planned. With no formal project portfolio management processes in place (53%) as is evident in the results of question 14, it is concerning as it is an indication that the organisations are not at the required maturity levels for effective project portfolio management;
- ❖ Project management maturity level must be at least at level 4 of the project management maturity model in order for an organisation to be able to execute effective project portfolio management functions – in the study 61% of the organisations are on level 3 and lower;
- ❖ Benefits tracking is one of the key components of project portfolio management practice – 60% of the respondents indicated that no process is in place to track benefits while 87% reported that no knowledge base of benefit tracking is maintained to serve as benchmark for future potential projects;
- ❖ A massive 67% of the respondents indicated that they believe that the IT project portfolio, as per their respective organisations, has a medium to low impact on the ability of their organisation to achieve competitive advantage;

- ❖ Only 27% of the respondent's organisations have implemented a balanced scorecard or similar strategy model.

The study survey results are indicative that current IT project portfolio management practices do not support effective strategy execution.

### 6.2.1. Benchmark comparison

Thirteen (13) specific criteria components have been selected to determine the correlation between local and international project and project portfolio management practices.

The results used are the averages as indicated by KPMG and PriceWaterhouseCoopers, and the relevant results used are either the percentages obtained itself or the result with the highest individual or combined percentages (as relevant) from the study survey. They are as follows:

- ❖ Current level of project management maturity

	Study Survey	KPMG	PWC
Result	4	3	2.5

- ❖ Project failures due to imbalanced organisation – project managers do not have the necessary authority or operate at the level necessary to control factors that impact on project delivery.

	Study Survey	KPMG	PWC
Result	60%	N/A	59%

- ❖ Alignment of business structures and business requirements determine degree of success – strong matrix and projectised structures have the highest probability for success.

	Study Survey	KPMG	PWC
Result	67%	N/A	Yes

- ❖ Project management software tools is based on project management maturity – value added

	Study Survey	KPMG	PWC
Result	86%	N/A	Yes

- ❖ The organisations are not able to measure the benefits delivered from project investment

	Study Survey	KPMG	PWC
Result	60%	Yes	N/A

- ❖ Steps are being taken to enhance project management governance – but executive involvement diminishes after initial project funding approval stages.

	Study Survey	KPMG	PWC
Result	73%	Yes	N/A

- ❖ Project stakeholders are responsible for project benefit realisation but the benefit realisation is not linked to individual performance plans.

	Study Survey	KPMG	PWC
Result	53%	23%	N/A

- ❖ The organisation does have formal criteria to put projects on hold or to cancel them.

	Study Survey	KPMG	PWC
Result	67%	20%	N/A

- ❖ At least one (1) project failure was experienced.

	Study Survey	KPMG	PWC
Result	7%	20%	N/A

- ❖ Reasons for project failure indicated were: unclear/change of project scope, poor project management processes and lack of executive sponsorship and management buy-in.

	Study Survey	KPMG	PWC
Result	67%	Yes	N/A

- ❖ Project management office function is perceived as poor

	Study Survey	KPMG	PWC
Result	67%	26%	N/A

- ❖ Project management methodology – reported a homegrown or hybrid model

	Study Survey	KPMG	PWC
Result	40%	61%	N/A

- ❖ The project management tools do not necessarily support the project portfolio management governance process

	Study Survey	KPMG	PWC
Result	53%	Yes	N/A

### 6.2.2. Results

Although there is some areas that do correlate, the overall results of the comparison do not correlate conclusively as it was not possible to measure exactly the same attributes to the same survey and sample extent.

### **6.3. Achievement of the main objective**

The main objective of this study was achieved by researching the following objectives:

- ❖ In chapters two, three and four the detailed literature study on project portfolio management, project management capability maturity model and business strategy are documented;
- ❖ In chapter 5 understanding the current state of the project portfolio management and the associated components in organisations, was achieved by performing a survey on various South African organisations. The high level results from two (2) international surveys done by KPMG International and PriceWaterhouseCoopers were incorporated into this study in order to create a benchmark for comparison purposes between current project portfolio management practice (as per survey) and international project portfolio management practice;
- ❖ In chapter 6 the conclusions that have been reached based on the results from the respective survey results are documented with associated recommendation.

### **6.4. Recommendations**

In order to really be in a position to compare the local with international project portfolio management practices, it is recommended that a separate study be done covering the whole subject of project portfolio management extensively instead of just focusing on certain areas, such as project management maturity (PriceWaterhouseCoopers). The focus of such a study should be on the broader perspective of project portfolio management similar to the survey done by KPMG to ensure completeness.

### **6.5. Summary**

In this chapter the conclusion that current project portfolio management practices do not support effective strategy execution is discussed with respect to the results from the questionnaire and based on a comparison to international survey results.

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## APPENDIX A: Questionnaire

### Instructions:

1. This questionnaire is only applicable to Information Technology related project management offices, e.g. where a company may be in any industry; the *focus* of this questionnaire is on participants that are stakeholders in and with the *Information Technology business unit, division or department*. Where the company is an Information Technology company, the questionnaire will apply.
2. Please tick or write neatly throughout the questionnaire.
3. Please keep your marks within the tick boxes.
4. You should use a pen with dark blue or black ink.
5. Please answer all the questions.
6. Relevant terms are used throughout the questionnaire. The definitions are based on the Project Management Body of Knowledge (PMBOK®) as well as other relevant industry best practice definitions.

### Demographic information:

Please provide the following information. This information will not be made available to any natural person or entity outside of the MBA candidate and the relevant study leaders as appointed by the North West University for the purpose of this mini-dissertation.

1. Name : \_\_\_\_\_
2. Date : \_\_\_\_\_
3. Contact number : \_\_\_\_\_
4. E-mail address : \_\_\_\_\_

**Industry**

1. In which industry does your organisation operate? Please select one of the following:

- ❖ Financial services
- ❖ Services
- ❖ Telecommunications
- ❖ Broadcasting, communications & entertainment
- ❖ Transport
- ❖ Mining
- ❖ Education
- ❖ Health
- ❖ Construction
- ❖ Manufacturing

2. What is the size of your annual revenue? Please select one of the following:

- ❖ R 2 billion or more
- ❖ Less than R 2 billion but more than R 500m
- ❖ Less than R 500m but more than R 50m
- ❖ Less than R 50m

3. What role do you fulfill in the Information Technology project management environment in your organisation? Please select one of the following:

- ❖ Project Manager
- ❖ Programme Manager
- ❖ Project Portfolio Manager
- ❖ Executive management team
- ❖ Other

If other, please specify: \_\_\_\_\_

**Organisation**

4. Does your company have a formal project management office? Please select one of the following:

- ❖ That is indicated as such on the organisation structure?
- ❖ Just for your Information Technology projects?
- ❖ That supports multiple business areas like IT, logistics or marketing?
- ❖ Other

If other, please specify: \_\_\_\_\_

5. At what level does your project management office operate? Please select one of the following options:

- ❖ Project level– managing a number of projects
- ❖ Programme level– managing a number of projects which roll up into various programmes
- ❖ Project portfolio level – managing a number of projects which roll up into various programmes that again roll up into a project portfolio at an enterprise level

6. Which organisational structure is most descriptive of your project management office? Please select one of the following:

- ❖ Projectised – project manager’s authority almost total
- ❖ Strong matrix - project manager’s authority moderate to high
- ❖ Balanced matrix - project manager’s authority low to moderate
- ❖ Weak matrix - project manager’s authority limited
- ❖ Functional - project manager’s authority little or none

***Performance Criteria***

7. The Information Technology project management office normally offers numerous functions. Please select the applicable options that relate to your organisation.

- ❖ Project coordination
- ❖ Project tracking and reporting
- ❖ Project communications
- ❖ Project management governance
- ❖ Risk management
- ❖ Project portfolio management
- ❖ Project configuration management
- ❖ All of the above

8. Which is the single most important measure of success for your Information Technology projects? Please select one of the following:

- ❖ Project delivery on time
- ❖ Project delivery within budget
- ❖ Project quality management
- ❖ Delivery to business requirements

**Methodology**

9. Does your company follow a stage gate approach in the execution of your Information Technology projects meaning that certain milestones or deliverables need to be achieved before the next stage can start? Please select one of the following:

- ❖ Yes
- ❖ No

10. Which project management methodology is being used by your project management office to execute projects? Please select one of the following:

- ❖ A methodology based on the Project Management Institute's Project Management Body of Knowledge (PMBOK®)
  - ❖ ERP specific methodology (e.g. SAP)
  - ❖ Other methodology
- If other, please specify: \_\_\_\_\_

11. Which specific methodology do you have in place to optimise your project portfolio ensuring risk is minimised and return on investment is optimised? Please select one of the following:

- ❖ Economic model – Net Present Value, Internal Rate of Return, Return on Investment
  - ❖ Decision analysis - Analytical Hierarchy Process, decision trees
  - ❖ Mathematical programming – linear programming, goal programming, dynamic programming
  - ❖ Interactive comparative models – Delphi, Q-sort, decentralised hierarchical modeling
  - ❖ Other
- If other, please specify: \_\_\_\_\_

12. According to your view, what is the most advantageous application that the above methodologies offer you? Please select one of the following:

- ❖ Improved project execution
- ❖ Appropriate business case development with applicable resource requirements (money, people) allowing better planning
- ❖ Efficient project risk analysis and management
- ❖ Effective issue management

13. What impact does the utilisation of these methodologies have on your ability to achieve successful projects? Please select one of the following:

- ❖ High impact
- ❖ Medium impact
- ❖ Low impact

14. Which area of project management could still be improved in your organisation? Rank in order of preference from 1 to 6 with 1 being the area that could improve most and 6 being the area that needs the least improvement:

- ❖ Change management – effective project implementation and optimisation of positive organisational response
- ❖ Quality management – reduced rework, minimum bugs
- ❖ Project risk management – identification and mitigation
- ❖ Issue management – issues impacting project delivery
- ❖ Project financial management – budget versus actual
- ❖ Communication between stakeholders

***Project Management Tools***

15. Which project management tools are used by your project management office? Please select one of the following:

- ❖ MS Office suite
- ❖ MS Project
- ❖ Project Scheduler
- ❖ Other

If other, please specify: \_\_\_\_\_

16. How effective do you believe is the selected project management tools? Please select one of the following:

- ❖ Very effective
- ❖ Fairly effective
- ❖ Not effective at all

17. Are any additional project-related tools used by your organisation? Please select any of the following:

- ❖ Microsoft Project 2003 Enterprise Server
- ❖ “What if” modeling tool
- ❖ Sophisticated dashboard reporting
- ❖ Other

If other, please specify: \_\_\_\_\_

***Perceived value of the project management office in the organisation***

18. What value, do you believe, does the project management office add to the execution of projects within your business? Please select one of the following:

- ❖ Major value add
- ❖ Minor value add
- ❖ Does not add value at all

19. Which of the following key success factors do you believe is most critical to achieve project success? Please rank in order of importance, 1 being the most important and 5 being the least important:

- ❖ Executive sponsorship
- ❖ Clearly defined project scope
- ❖ Leadership and teamwork
- ❖ Transparent project reporting
- ❖ Project risk management

***Project Success / Failures***

20. How many projects have been managed by the project management office during the past year? Please select one of the following:

- ❖ 0 – 20
- ❖ 21 – 40
- ❖ 41 – 60
- ❖ More than 60

If more than 60, please specify number: \_\_\_\_\_

21. How many of the above projects have been completed successfully during the past year? Please select one of the following:

- ❖ 0 – 20
- ❖ 21 – 40
- ❖ 41 – 60
- ❖ More than 60

If more than 60, please specify number: \_\_\_\_\_

22. How many of the above projects have been cancelled / stopped during the past year? Please select one of the following:

- ❖ 0 – 20
- ❖ 21 – 40
- ❖ 41 – 60

- ❖ More than 60

If more than 60, please specify number: \_\_\_\_\_

23. How many of the above projects have been completed but ***not*** deemed successful during the past year? Please select one of the following:

- ❖ 0 – 20

- ❖ 21 – 40

- ❖ 41 – 60

- ❖ More than 60

If more than 60, please specify number: \_\_\_\_\_

24. In your view, what is the primary reason for the above projects ***not*** being successful? Please select one of the following:

- ❖ Lack of executive sponsor involvement

- ❖ Poor project planning and execution

- ❖ Resource contention

- ❖ Misalignment with strategy

- ❖ Poor change management, non-compliance with processes and lack of understanding

***Compliance with policies and methodologies***

25. Who monitors the compliance to project management policies and methodologies within your organisation? Please select one of the following:

- ❖ Project management office management team

- ❖ Project managers

- ❖ No formal mechanism

- ❖ Other

If other, please specify: \_\_\_\_\_

26. Is the compliance to project management policies and methodologies linked to the review/reward systems in your organisation? Please select one of the following:

- ❖ Compliance is part of each project stakeholder's Key Performance Areas used for performance evaluation

- ❖ Compliance is not linked to the organisations review/reward system

- ❖ Other

If other, please specify: \_\_\_\_\_

***Project Management Maturity***

27. In your view, at which level of the project management capability maturity level does your organisation execute its Information Technology projects? Please select one of the following:

- ❖ Level 1 – no project management – only ad hoc processes
- ❖ Level 2 – database of projects exists, and value is assessed for individual projects
- ❖ Level 3 – project selection occurs prior to execution
- ❖ Level 4 – projects are actively managed at department levels
- ❖ Level 5 – projects are actively managed at enterprise level

28. Is there a process in place where poor projects could be killed during the evaluation of applicant projects or regarding projects that are not achieving their objectives and are unlikely to? Please select one of the following:

- ❖ Yes
- ❖ No

29. Is there a process in place which tracks whether the proposed project and portfolio benefits are realised? Please select one of the following:

- ❖ Yes
- ❖ No

30. Is the above benefit tracking process for proposed project and portfolio benefits realisation effective to the degree that it could be used as a baseline or benchmark for future project planning? Please select one of the following:

- ❖ Yes
- ❖ No

***Strategy linked to projects***

31. Are your Information Technology projects mapped to business strategies? Please select one of the following:

- ❖ Yes
- ❖ No

32. Does your organisation review the IT portfolio regularly to ensure that the projects in the portfolio are still aligned with business changes? Please select one of the following:

- ❖ Monthly
- ❖ Quarterly
- ❖ Annually
- ❖ Other

If other, please specify: \_\_\_\_\_

33. In your view, what impact does the project portfolio approach, with the associated projects, have on the organisation's ability to achieve competitive advantage? Please select one of the following:
- ❖ High impact
  - ❖ Medium impact
  - ❖ Low impact
34. In your view, are the *project decisions* aligned with strategic business goals and objectives? Please select one of the following:
- ❖ Yes
  - ❖ No
35. In your view, is the organisation's Information Technology project portfolio balanced in that it contains the *right mix* of projects? Examples here are a combination of utilities (maintenance), incremental upgrades (enhancements) and strategic investments or platform (new technology/processes) projects. Please select one of the following:
- ❖ Yes
  - ❖ No
36. Is your organisation's current business strategy framework based on the balanced scorecard model or a model similar to that? Please select one of the following:
- ❖ Yes
  - ❖ No

## Definitions

### **Analytic Hierarchy Process (AHP)**

The Analytic Hierarchy Process (AHP) consists of a number of process steps supported by four assumptions. The three process steps are:

*Structure* – complex problems are broken down into smaller parts and structured into hierarchically homogeneous groups. This enables decision makers to reach agreement on the nature of the problem and at the same time facilitate improved communication.

*Measure* – once the matching groups have been structured, decision makers prioritise the objectives using a simple paired comparison measurement system to determine relative importance.

*Synthesise* – based on the results achieved from the measurement process, the results are calculated and combined to determine the priorities.

The fundamental assumptions to these process steps are as follows:

*Homogeneity* – in comparing objectives and alternatives, it is necessary to compare relative homogeneous elements; in layman's terms, compare apples and apples;

*Reciprocals* – paired comparisons result in reciprocal judgments. The derived result is based on certain components making up the whole. If one piece of string is ten times longer than the other one, then the other one is automatically a tenth as long as the first because it was part of the first judgment;

*Hierarchic composition* – elements higher up in the hierarchy are independent of lower levels in the hierarchy; and

*Expectations* – the decision maker's reasonable beliefs should be reflected in the outcomes. At the same time, all relevant objectives and criteria should be included in the analysis.

(Levine, 2005:155).

### **Decision trees**

See Expected Commercial Value (ECV)

### **Efficient Frontier Technique (EFT)**

The expected returns of a portfolio of the assets is simply the weighted average of expected returns, and the standard deviation of each portfolio is computed using the portfolio standard deviation formula:  $\sigma_p = \sqrt{W_A^2 A\sigma^2 + W_B^2 B\sigma^2 + 2p_{AB}W_A W_B \sigma_A \sigma_B}$

*Where:*

$\sigma_p$  is the standard deviation of the portfolio

$p_{AB}$  is the co-variance between security A and B

W represents the weight of that security in the portfolio

(Levine, 2005:179).

### **Expected Commercial Value (ECV)**

Based on decision tree analysis, this metric considers the future stream of earnings from projects, the probabilities of both technical and commercial success, along with commercialisation and development costs. (Artto et al, 2001:36)

### **Goal Programming**

Goal programming entails the specification of several desired levels of attainment or goals and the establishment of priorities for these goals. The priorities can be expressed either as ordinal or cardinal priorities. For ordinal priorities, the most important goal is satisfied first, followed by the satisfying of as many other goals possible, in rank order. In the cases when a cardinal scale is applied, it is assumed that goal attainment is additive and an aggregate, linear objective function is developed. (Canada et al, 1996:417)

### **Internal Rate of Return (IRR)**

It is the discount rate that equates the present value of the expected future cash inflows and outflows. It measures the rate of return on a project, but assumes that all cash flows will be reinvested at the IRR rate. (Brigham & Ehrhardt, 2005:966)

### **Linear programming**

Linear programming is one of various mathematical algorithms that are available to assist management in developing capital budgets. The following assumptions support the linear programming model:

- ❖ **Linearity** – all relationships are linear in form implying proportionality;
- ❖ **Divisibility** – all variables are continuous rather than discrete;
- ❖ **Certainty** – the numerical values specified for linear relationships are for certain; and
- ❖ **Single objective** – that a single objective is specified as the outcome. In reality, management may be looking at satisfying more than one objective simultaneously. (Wisniewski, 2002:400)

### **Net Present Value (NPV)**

The present value of the projects' expected future cash flows, discounted at the appropriate cost of capital. NPV is a direct measure of the value of a project to shareholders. (Brigham & Ehrhardt, 2005:968)

### **PEST analysis**

This consists of doing an analysis of the general business environment and in particular with the focus on the political (P), economic (E), socio-cultural (S) and technological (T) aspects. (Lynch, 2000:108)

### **Programme Management**

Programme Management is the centralised, coordinated management of a group of projects in order to achieve the programme's strategic objectives. (PMBok®, 2003:16)

**Project Management**

Project management is the application of knowledge, skills, tools and techniques to achieve project objectives. The integrated application of project management processes such as initiation, planning, executing, monitoring, controlling and closing. (PMBok®, 2003:8)

**Project Portfolio Management**

Project Portfolio Management is the centralised management of one or more portfolios, covering areas such as identification, prioritisation, authorisation, management and the controlling of projects, programmes and other related work in order to achieve specific strategic business objectives. (The Standard for Portfolio Management, 2006:5)

**Return on Investment (ROI)**

Is an indicator when the investment employed is outside the sphere of control and is derived at by dividing net income by available total assets as relevant to the specific project. (Shim & Siegel, 2001:146)

**SWOT analysis**

This analysis is used in order to better understand the current status of the organisation with a view on both the internal as well as the external dimension. The internal dimension views strengths (S) and weaknesses (W) while the external dimension views the opportunities (O) and threats (T). Based on the results, strategy can be reviewed, adjusted or expanded. (Lynch, 2000:562).

**Total Cost of Ownership (TCO)**

This is the total costs that the ownership of computer hardware or software that need to be considered. It will typically include the direct investments costs, all non IT-associated costs, the cost of reengineering business processes to suit the new solutions, operations cost, labour costs and finally the cost that will be incurred when the organisation want to exit with this solution. (Levine, 2005:147).