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CHAPTER 1

GENERAL INTRODUCTION

1.1 INTRODUCTION TO THE SUBJECT MATTER

The aim of this thesis is to review and assess the degree of organisational project management maturity of the strategic national departments of the South African Government. The attention of the research was focused on those departments which are involved in Public Private Partnership (PPP) projects.

To achieve the objective of this study it was important to examine the literature and theory on Project Management with specific focus on the following scope of study: Basic Principles of Public Private Partnership, and evaluation of organisational Project Management maturity and competence in Project Oriented Organisations in public sector.

Countries worldwide daily confront the glaring global infrastructure deficit. Evidence of the sizeable and burgeoning disparity between actual infrastructure needs and the resources that governments have historically invested in attempting to meet those needs is universal: congested roads; antiquated bridges in need of repair; poorly maintained transit systems and recreational facilities; and hospitals, schools, and waste treatment facilities all in varying stages of deterioration and urgently in need of restoration (Eggers and Startup, 2007:1). These problems in turn impose huge costs on society, from lower productivity to reduced competitiveness to an increased number of industrial accidents.

According to Daniel and Dornan (2007) the lack of dedicated public funding sources for infrastructure maintenance and development, and the burdens placed on current infrastructure by a growing global economy has long prompted policymakers in many countries, especially in Western Europe, to develop and apply alternative ways to finance and deliver needed public infrastructure and services.

Public authorities act on behalf, and in the best interest, of its citizens. The operational outlay of the public administration and the cost of supplied services to be

provided tend to be funded primarily by various forms of taxation (Forster, Veekman, & Schuurman, 2005).

Public authorities therefore need to demonstrate that they are deploying public funds in the most efficient and effective way (i.e. providing value for money) to obtain maximum social benefits. As the cost of major investment projects can be substantial in terms of required resources over the medium to long term, government policy may therefore require a thorough assessment of the various potential delivery options (Forster, *et al.,* 2005).

It is against the backdrop of these challenges and problems that governments and public Authorities are under pressure to deliver projects on time, within budget and meeting citizens' expectations, while ensuring that high quality standards are realised. Effectively chosen and delivered projects mean competitive advantage and sustained growth (Forster, *et al.,* 2005).

In order to meet these project parameters, the public authorities require sound knowledge of the design and delivery process and proficiency in contracting options and procurement strategies through which their requirements are articulated and realised - they require skills in project management (PM) targeting not only project teams but also individuals to explore responsibilities independently.

Baranskaya (2007), states that business techniques adopted by the public sector today are opposite to those techniques adopted in the past, when they tended to apply only to governmental tools. Today governments adopt not only tools and techniques, but also the spheres of the project management implementation. Project management is no longer considered a purely supportive tool; rather, it is viewed as a powerful tool for realizing the potential to bring about change. Nowadays in the governmental sphere there is an apparent tendency to outsource different functions and project management plays a great role in this area (Baranskaya, 2007). According to Baranskaya there are four main groups of relations through which project management is implemented in public administration and they are categorized into the following spheres:

- Changes in different spheres of life;

- Changes in the organisational structure of governmental bodies;
- Public Private Partnership; and
- Project-oriented branches of economy.

However, in this study the focus is only given to the last two spheres of relations through which public administration implements project management principles.

As noted by (Peters, 1999), “In the new economy, all work is project work”. “Our organisational world is no longer a pattern of jobs...Today’s organisation is rapidly being transformed from a structure built out of jobs to a field of ‘work needing to be done’” (Bridges 1993). Accordingly, many organisations are turning to management by projects as the way to succeed in this competitive world. In some organisations, project management has led to more effective and efficient delivery of products and services, more accurate budgeting and scheduling, improved productivity, improved customer relationships and increased profits (Schlichter, 1999).

1.2 PUBLIC PRIVATE PARTNERSHIP

Public Private Partnership (PPPs) in the delivery of public services have become a phenomenon which is spreading the globe and generating great interest. But why is a concept, barely mentioned a decade ago, now attracting such interest? Overall, the answer is that PPPs avoid the often negative effects of either exclusive public ownership and delivery of services, on the one hand, or outright privatization, on the other. In contrast, PPPs combine the best of both worlds: the private sector with its resources, management skills and technology; and the public sector with its regulatory actions and protection of the public interest. This balanced approach is especially welcome in the delivery of public services which touch on every human being’s basic needs (United Nations Economic Commission for Europe, 2008).

Less well understood is the revolution taking place in the way that governments are trying to narrow the infrastructure deficit. a number of countries have turned to the private sector for relief in the form of contractual Public Private Partnership (PPPs), representing a wide variety of project financing and delivery approaches to access

capital markets; implement new technology; and expedite project delivery, operations, and maintenance in a more cost-effective manner . The common element of a PPP is that the public sponsor of infrastructure projects engages the private sector to a greater degree in the performance of certain functions previously handled by the public sector. This can range from contracted maintenance services to full financing, development, operations, and preservation (Daniel and Dornan, 2007).

It is important to indicate at this juncture that this Study is neither meant to cover a detailed literature on the subject of PPPs nor exhaust all types and applications of public-private approaches to government intervention into the private marketplace, important and interesting as they may be. Also this literature review is not meant to serve as a step-by-step primer for practitioners engaged in or desiring to establish PPPs. However, the following three excellent sources should be very helpful readings for the economic development practitioner and persons engaged in or assessing PPPs:

The first source is Stainback (2000), *Public/Private Finance and Development: Methodology, Deal Structuring, & Developer Solicitation*, published in 2000. In this book, Stainback (2000) describes in a clear fashion a framework for establishing and undertaking PPP real estate projects, focusing on the various steps, components, and players involved. Drawing on his extensive knowledge and experience in the field, he includes detailed case studies and catalogues specific checklists of steps to take.

The second source is a 1999 publication from the British Columbia (Canada) Ministry of Municipal Affairs entitled *Public Private Partnership: A Guide for Local Government.* This very detailed and readable work covers the PPP process from the start to the end, including advising the decision-making process by the public entity to partner with the private sector, implementing the partner selection process, negotiating the partnership agreement and pointers on working in a partnership on the actual project. Although the legal terms are specific to British Columbian and Canadian laws, the basics of the partnership discussions are applicable to various economic development practitioners in various jurisdictions.

The third source is a chapter, written by Sagalyn (1996), entitled "Meshing Public and Private Roles in the Development Process," in the Urban Land Institute's popular economic development tome *Real Estate Development: Principles and Process*, 2nd ed., 1996. This informative work comments on the changes in development practice leading to PPP approaches, and concentrates on the process of PPP formation and the various practical problems associated with its implementation.

Projects based on principles of Public Private Partnership arrangements represent a special form of collaboration between the government or public sector organisation and business or private sector, in order to realize long-term strategic investment projects. Within this form of collaboration, the integration of resources of two main entities is applicable. These entities comprise the government or public sector with its huge potential of real estate and private business, which tends to use effective project management methodologies, and possesses resources for investing.

Saunders (2006) states that PPP agreements usually involve a government agency contracted with a private company to renovate, construct, operate, maintain, and/or manage a facility or system. While the public sector usually retains ownership in the facility or system, the private party will bear additional risks or be given additional decision rights in determining how the project or task will be carried out and completed.

However, there is no widely agreed upon contract, single definition or model of a PPP. According to (Price Waterhouse Coopers, 2002) a PPP may be defined as an:

> *"… arrangement between government (or other public sector body) and a private sector party, resulting in the private sector party providing infrastructure and/or services that are traditionally delivered by the public sector. A key element of a PPP is a transfer of risk from the public partner to the private sector partner".*

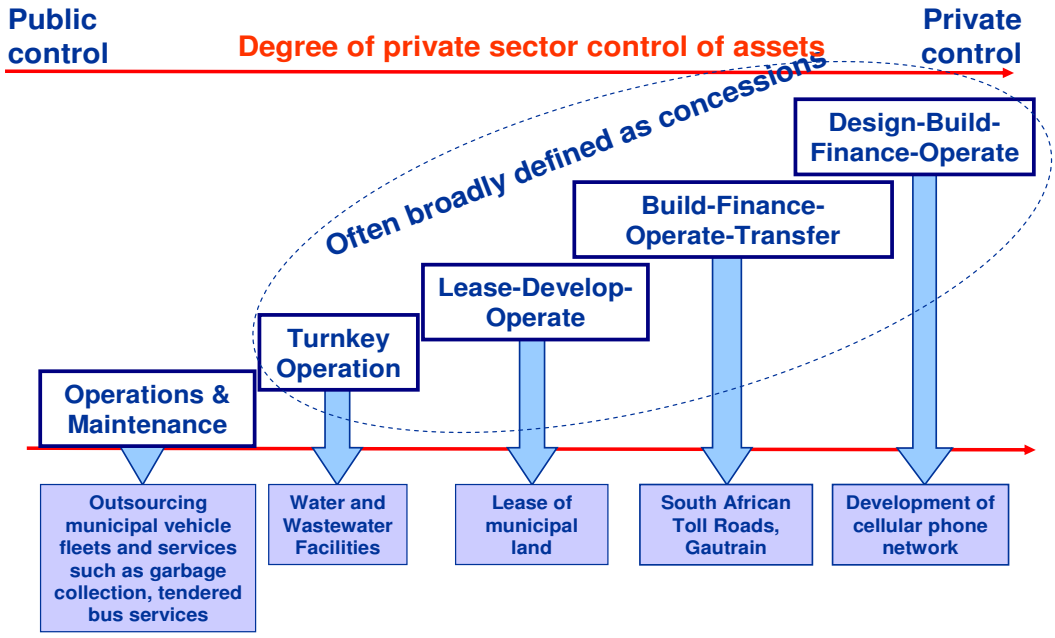
This definition emphasizes that with a PPP public and private sectors share relevant responsibilities to ensure the delivery of the project and/or its services. By expanding

the private sector role, the public sector is better able to avail itself of the technological, managerial, and financial resources to leverage scarce public funds and expedite the delivery of a project and/or services in a more cost effective manner and with reduced risk to the public agency sponsor (Daniel and Dornan, 2007).

PPPs come in various forms, depending on factors such as the initial ownership of the underlying business entity, the nature of the private sector obligations, the needs of the public sector, and whether an asset has to be built, leased or bought. Examples are BOT (Build, Operate, and Transfer), BTO (Build, Transfer, and Operate), DBM (Design, Build, and Maintain) and DBFO (Design, Build, Finance, and Operate). PPPs are also sometimes known as IPPs (Independent Power Projects) or MSPs (Municipal Service Partnerships), depending on the regulatory framework under which they fall (Rand Merchant Bank, 2006:2).

The spectrum of PPPs, depicting the above indicated forms, is shown diagrammatically in the Figure 1 below. These forms are described in some detail below in the following manner:

Figure 1-1: High-level overview of the spectrum of PPP models in South Africa.



Source: Shaw (2006:2

CHAPTER 1

Baranskaya (2007) states that not all forms of Public Private Partnerships deal with projects. Economic classification of these forms, accepted by the World Bank, includes such forms as:

• Contracts to management (in particular, rent);

• Enterprises, which were created through the process of going public or on the basis of share holding of both the government and business;

• Concessions.

Baranskya (2007) further argues that most Public Private Partnership initiatives are processes rather than projects. The first two forms of Public Private Partnership indicated above, represent processes within the partnership. These forms are widely used by governments in transitional countries. The third form (i.e. Concessions) of Public Private Partnerships refers to projects. Concessions are applied to huge strategic projects, especially in the spheres of construction of objects pertinent to infrastructure and research and developments projects.

According to Eggers and Startup (2007:10) PPPs have generally proven to be effective infrastructure delivery tools, yet in practice a number of projects fail to live up to their advance billing. Whilst there has been an increase in the number of Public Private Partnership over the past five years in South Africa, the question as to whether these partnerships have been successful has been posed from several quarters and needs to be addressed (Shuping and Kabane, 2007:151). This dissertation aims to provide some insight into this question.

Baranskaya (2007) argues that the mere identification of a potentially effective project and the prospect of achievable, desired results is not enough to develop an authentic strategic plan. It is also necessary that the project be managed efficiently and effectively in order to achieve the designed results. In order to achieve the desired results the project will need to depend on the skilled input of a diligent manager who possesses not only unique skills relevant to the tasks required, but also specialist knowledge in project management to take the project to the highest level of quality. What is more, in the case of Public Private Partnerships, it is clear that seamless transformation from project management to contract management is a

vital component. Thus, a public manager, who is responsible for such projects, needs to possess skills from both professional areas.

A thorough working knowledge in project management is essential because in order for the manager to ensure a successful outcome depends on a transparent, dedicated partnership with the government body that is controlling the development and realization of a particular project. Undoubtedly, the public manager in this case need not possess the whole totality of project management knowledge, but should have enough basic knowledge and skills in order to implement his responsibilities effectively. As for contract management knowledge, it should form the basis of the public manager's skills acumen, because he acts on behalf of the government and should coordinate the correlation between the relevant components outlined in a contract (Baranskaya, 2007).

Browne, Nemoto, Visser. & Whiteing (2003) identified the following factors as the three key reasons for undertaking a PPP:

- **Efficiency** – Making better use of resources through operational efficiency, market related incentives and competition;
- **Integration** – Effective partnerships with the private sector are a way of integrating the public and private sectors, which has the added benefit of integrating private sector experience within areas under traditional public sector management;
- **Accountability** – The ability to explicitly design PPPs to be accountable for the delivery they attain. This is generally achieved through a process of regulatory oversight, a pre-identified monitoring and review process that makes use of incentives and disincentives to promote particular goals in delivery that provide a strong mechanism of public accountability.

According to Shaw (2006:9-10) most of the challenges that remain in enhancing the use of PPPs as a means of delivering public service challenges are not so much in the set up of the PPP process but in the support and articulation of the approach that is applied, and may be described as follows:

- Government Agencies and departments lack the skills required to drive PPPs, with public officials sometimes resisting private sector participation for fear of: Loss of control; Negative implications of potential staff cuts; Negative public reaction to profit and control, and Potential risk of failure that will reflect badly on them as employees;
- Limited PPP experience creates the element of risk and fear of the unknown;
- There is often lack of overall vision and clear understanding that encompasses PPPs as a system of service delivery.

Nevertheless, there exists disparity within attitudes of public and private sectors toward project management. The difference in the nature of their tasks is at the bottom of different attitudes. While the private sector strives for improvements and project management provides an organisation with needed techniques to realize a desired change, the public sector is aimed mostly at retaining a situation rather than improving or changing it, i.e. vectors of goals are in different directions (Baranskaya, 2007). The point is that project management works only in the direction of bringing out improvements; it is inefficient when the deal calls for the retention or preservation of a project. That is one of the main constraints of project management in public administration. We should pay special attention to this constraint, because it leaves a mark on spheres of the project management implementation in public sector administration (Baranskaya, 2007).

This constraint compels a question to be asked as to whether PPP projects are successful or not. However, it is difficult to disentangle success of PPPs from success of economic development efforts by the relevant government department in general. Baranskaya (2007) states that there is growing debate about the appropriateness (as well as the success) of economic development efforts in general, and this spills over into evaluation of economic development PPP efforts. For example, was a policy, program, or project unsuccessful because it was wrong in concept, or because it's implementation was hampered by a PPP approach?

Therefore, it may be better to restate the question: "Are PPPs effective approaches to particular economic development efforts?" Even that is hard to determine since

the literature lacks specific definitions and procedures to accurately gauge feasibility and, for the most part, lacks sufficient data with which to evaluate success. While today we do have more reference points to facilitate analysis whether PPPs are effective to particular economic development efforts, it is still not clear that we have a much better understanding of defining and measuring PPP projects success (Baranskaya, 2007).

In order to evaluate the success of PPPs, there has to be some consensus on what exactly is to be measured, and whether quantitative or qualitative is the most appropriate evaluation methodology. And obviously, a real estate-based PPP development will have different measures of success than would an ongoing PPP established to help market a region to potential businesses, investors, or workers. In fact, for the latter, the mere establishment and continued existence of a PPP can be seen as successful in itself. This theory does appear to be used as a substitute measure for success, as PPPs in the Ongoing Economic Development function category are harder to quantify, primarily because their outputs are difficult to define and measure (Baranskaya, 2007).

In one of the more rigorous evaluations undertaken, Stephenson (1991:113) states the evaluation case succinctly: “Partnerships necessarily combine the relative strengths and weaknesses of each sector …; accordingly, Public Private Partnership may or may not result in efficient, effective, or distributionally-equitable outcomes depending on the interplay of local sectorial characteristics and relationships.” He defines ‘dimensions’ of PPPs and asks questions that are clearly important for evaluation, whether:

(i) they can produce efficient outcomes,
(ii) they can be considered politically effective,
(iii) the partners can overcome significant differences to create ‘viable operating entities’, and
(iv) PPP benefits are distributed equitably to citizens of the public partner’s jurisdiction.

With regard to the efficiency condition, he concludes that there are significant obstacles, primarily due to informational and incentive asymmetries, to PPPs being efficient capital-market intervention strategies.

Since PPPs are projects that are run jointly by public and private sector organisations, there is rationality in concluding that the best way to resolve the above stated conundrum and to answer the question posed regarding the success and effectiveness of these projects, one would need to assess each organisation's degree of maturity in organisational project management. Ibbs and Kwak (1998), in a study of 38 international companies, showed that there is a positive correlation between project management ability and business performance. They also showed that companies that have good project management capabilities and competences yield better results on their projects.

Therefore, if public sector organisations desire improvement on the effectiveness of their PPP projects they should improve their project management competences. To improve, organisations need to first assess their current ability to deliver projects and then create a strategic path that clearly outlines the steps required for advancement on the road to excellence. Project management maturity models may provide the answer.

Developing capabilities in project management involves a variety of tasks, which are vital components to the success of PPP projects. Participants in PPP projects should also come to terms with complex issues such as the overall nature of the industry; reconciling the objectives of stakeholders; identifying the sheer scale of some projects; the relative level of maturity of the PPP market; and the need to keep abreast with changes in industry and a commitment to ongoing acquisition of knowledge and skills. Baranskaya, (2007) maintains that numerous studies have also shown that good project management is a prerequisite to achieving value for money in PPPs.

Detailed planning and skills proficiently in project management has repeatedly been shown as critical success factors in PPP projects. Project managers are involved in all stages of the PPP process, acting on behalf of relevant public and private sectors.

However, there is a perception that project management skills in the public sector are, on the whole, inadequate to support the delivery of PPPs, particularly in relatively immature PPP markets such as South Africa. Moreover, this problem appears to be exacerbated by the failure of public sector participants to recycle and retain expertise (United Nations Economic Commission for Europe, 2008).

A PPP contract may run for 5 to 30 years or more. However, in South Africa many PPP contracts are still in their early stages, and consequently have not yet been "really-tested". Therefore it is critical for the South African Government's Public Administration Departments (SAGPAD) and private sector partners to be on familiar terms with measuring, evaluating, monitoring and controlling mutually defined objectives during the development process. These are important objectives to keep an eye on in order to alleviate weaknesses and threats that may hamper progress, and is also necessary to gauge whether participants are authentically meeting their set objectives on time, within provided budgets, meeting citizens' expectations, and accomplishing the high quality standards they set to achieve. But the critical question is how do the South African Government's Public Administration Departments (SAGPAD) and private sector partners know if their formed PPPs indeed meet their set objectives in line with the scope of their mandates.

Every organisation asks questions such as: "Are we achieving the results we desire?"; "Are we meeting the objectives of our project?"; "Are we meeting our customer's success criteria?", and "Are we achieving our desired return on investment?" (Florac, Robert, & Carleton, 1997:1).

How do you know if your projects truly are contributing to the success and business growth of your organisation? A project management maturity assessment can provide the basis to evaluate progress in pursuit of best-in-class project management status (Levin and Skulmoski, 2000:1).

This research project aims to find a conclusive answer to this question by using organisational Project Management Maturity Model (OPM3) to evaluate and assess the current level of the organisational project management maturity of a SAGID whose scope of activities and services cut across different spheres of government

(i.e. covering the national, provincial, and local spheres of government). OPM3 is an acronym for the *organisational Project Management Maturity Model* - a standard developed under the stewardship of The Project Management Institute.

Although not all organisations use project management maturity models, it is nonetheless possible to assess their maturity levels. Assessment of the maturity level of an organisation provides a good benchmark to rate the success of its operations.

Assessing an organisation's capability in project management requires a logical framework that can be used to define the nature of the organisation's project management processes. An approach which is objective and allows comparisons both within the organisational environment and across industries is needed. It is pointless to plan any journey without clear definition of the starting point. The Project Management Maturity Matrix allows for the definition of the present state of the organisation's project management processes.

Project Management Maturity models (PMMM) provide a systematic means to perform benchmarking and hence add considerable value to contemporary organisations. The maturity models provide an assessment framework that enables an organisation to compare its project delivery with best practice criterion or allows it to gauge its value against competitors, ultimately defining a structured route to improvement.

1.3 PROJECT ORIENTED ORGANISATIONS

The field of project management has extended its focus from study of a single project to the way a company or organisation uses projects to achieve its goals. Gareis (1989) had long ago coined the concept of the Project-Oriented Organisation (POO). Specifically, Gareis (2000a) developed a maturity model that tests the maturity of competencies required of a projectised organisation.

Gareis (1989) states that the specific features of such an organisation are identified in the way single projects are managed; as well as the manner in which management network of internal and external projects are executed and how they cultivate relationship building between the company and the implementation of single projects. Anderson, and Jessen (2003) argue that today projects are seen as far more than merely solving technical problems; projects are also avenues for mastering business and change. The term project maturity might be used as an indication or measurement of the organisation's ability to utilize projects for different purposes.

There is no generally agreed definition of what a *mature project-based organisation* looks like. Different maturity models embody both different concepts and different suggestions as to the route to achieve maturity (Cooke-Davies, Schlichter, & Bredillet, 2001). However, Maturity is defined by Schleicher (1999) as follows:

> *"full development or a perfected condition that connotes understanding or visibility as to why success occurs and ways to prevent common problems".*

Organisational maturity implies that capabilities must be grown over time. In terms of project management, this relates to capabilities that can produce repeatable success in project management (Schlichter, 1999).

Baranskaya, (2007) argues that public administration departments are Project-oriented branches within sectors of the economy. In this sphere these branches implement project-management principles in similar manner to that of Public Private Partnership. The only difference is the number of members allotted to a project. In contrast to a partnership project where there are at the minimum two parts--government and business--in these projects the government operates alone and is responsible for all aspects of the project. The difference also lies in the knowledge and skills acumen that a public project manager should possess. In the case of these projects the public project manager should hold a professional qualification in project management and be responsible for developing and/or implementing the project.

CHAPTER 1

Public sector organisations responsible for infrastructure development in most countries, which include infrastructure departments and other statutory organisations, qualify as project-oriented organisations (POO). According to PMI (Project Management Institute) - one of the largest and most famous institutes dealing with project management – a project is defined as:

> *"A temporary endeavor undertaken to create a unique product, service or result".*

Accordingly, due to it being a temporary endeavor, it is possible to mark out those characteristics that distinguish projects from processes, which are considered to be the basis of operational work. They are temporary in character, producing unique results and progressive elaboration (Baranskaya, 2007).

It can be concluded that while the basis of project management is the administration of a project, PMI provide the following wider definition:

> "*Project management is the application of knowledge, skills, and tools to project activities to meet stakeholders' needs and expectations from a project".*

However, APM, (2006) defines project management as follows:

> *"The process, by which projects are defined, planned, monitored, controlled and delivered so that agreed benefits are realised."*

Project management is realized thorough the application and integration of PM processes of initiating, executing, monitoring, controlling and closing (Project Management Institute Inc, 2006).

Consequently, Levin and Skulmoski's (2000) contention that the success of an organisation is dependent on being able to make predictions and commitments relative to their services and products, becomes very relevant. Thus, competence or maturity in Project Management is of interest to PM professionals at an infrastructure

department level since a PM competent or PM mature organisation is viewed as one that is better able to meet its commitments in terms of its services and products.

PM competences (PM maturity) in project-oriented organisations (POO) like the South African Government's Public Administration Departments (SAGPAD) are required not just by individuals, but also by project teams and organisations. According to Gareis and Huemann (2000) these competences have to correlate to maximise outcome. The PM competences of individuals performing project roles, such as project sponsor, programme manager, project manager or project team member, have to be in accordance with the PM competences of the organisation as a whole as documented in its procedures. The PM competences of individuals, project teams and organisations can be described, measured and further developed. As PM has to be considered as a core competence of the POO, Gareis and Huemann (2000) further argue that this collective competence has to be explicitly developed by the organisation.

The South African Government's Public Administration Departments (SAGPAD) are under pressure to improve performance in order to address developmental constraints facing the country. The fact that SAGPAD is involved in PPP projects and other development programmes, strongly suggests that they are project-oriented departments or ministries.

Specific characters of governmental projects are in the direct relation with peculiarities of the government as the specific subject of decision-making process. Apart from such characteristics as the heterogeneous object of its impact, embracing public authority and the combination of double, triple and so on standards, there is a specific context that should be taken into account dealing with governmental projects (Project Management Institute Inc,2006):

• **The existence of specific legal norms:** They determine activities of the whole society, on the one hand, and of institutions which realize projects – on the other. There are far more such legal norms than in business.

• **The existence of a wide range of stakeholders and relevant accountability to society**: Stakeholders are represented both within and outside the accountability process. While internal stakeholders consist of governmental institutions, government agencies, and public managers, and so on, the range of external stakeholders is wider and includes the mass media, citizens, interest groups, etc.

• **The usage of public resources:** Governmental projects are financed through a state budget. That is why the responsibility of a public manager increases and is complicated by the fact that it is complex to measure the success of a project comparable to a manager's input. It is also difficult to appraise a project's benefits to society because sometimes it is not possible to use such indicators as Benefit-Cost Analysis (BCA) and Return of Investment (ROI) to measure relative cause and effect. Public managers tend to estimate a project's effectiveness and benefits by qualitative indicators.

• **Difficulty in establishing priorities and differentiation of governmental projects:** This characteristic follows from the previous one. While in business the system of projects' differentiation is based on principles of cost and profit, these principles often cannot be applied to governmental projects; it is therefore necessary to establish an approach quite different from the business-related system, one which takes into consideration the interests of diverse groups of citizens. Due to the fact that government entities deal with complex problems rather than singular more pertinent ones, government departments often tend to shift their approach to a more multifaceted level of project management, in particular program management. The Project Management Institute defines 'program' as follows:

> *"Program is a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually".*

Programs may include elements of related work outside the scope of discrete projects in the program (Project Management Institute Inc, 2006). Exactly because of that tendency organisational aspects also shift to more complex level, i.e. to the level of the Program Management Office. However, the competencies relevant to public sector organisational project management (PM) are questionable in that on the

surface they appear to be fully fledged project-oriented organisations and performing as competent PM organisations, while in reality they are predominantly dependent on accidental project managers.

According to Gareis and Huemann, (2000) in order for an organisation to qualify as a Project-Oriented Organisation (POO) it requires a significant maturity level in project management; an organisation should have the following characteristics:

• defines “Management by Projects” as an organisational strategy;
• applies temporary organisations for the performance of complex processes;
• manages a project portfolio of different project types;
• has specific permanent organisations to provide integrative functions;
• applies a “New Management Paradigm” (lean management, total quality management (TQM), business process re-engineering and learning organisation);
• has an explicit project management culture; and
• perceives itself as project-oriented.

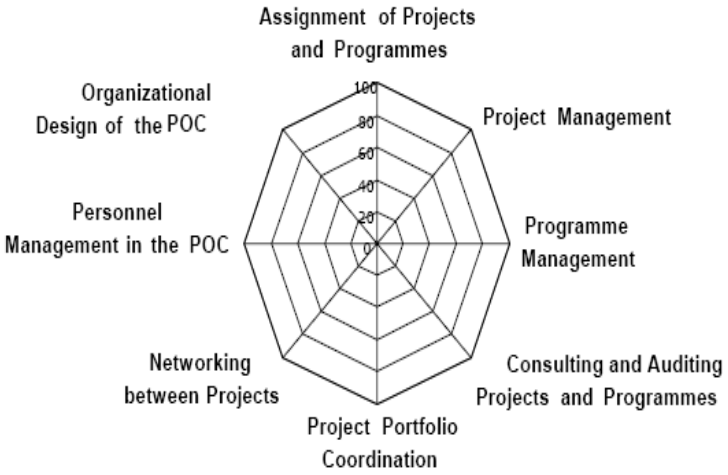
Based on the above seven characteristics, it is important that a Project-Oriented Organisation (POO) must consider projects as tools to perform complex processes and as strategic options for organisational design as indicated in Figure 1-2.

Figure 1-2: Strategy, Structure and Culture of the POO

Source: Gareis and Huemann (2000).

The Project-Oriented Organisation is characterized by specific business processes. A process model of the POO can be visualized in a spider web as indicated in Figure 1-3. The axes represent the specific processes of the POO.

Figure 1-3: Specific Processes of the POO

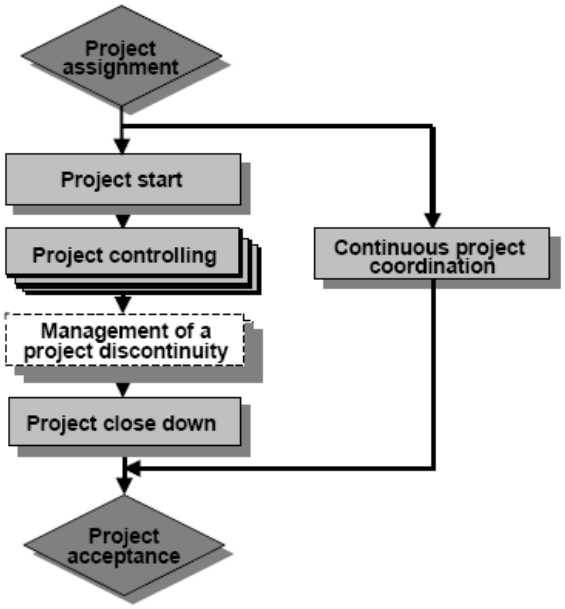


Source: Gareis and Huemann (2000).

The brief explanation of the specific processes of the POO, as illustrated in the spider web in Figure 1-3 above, is outlined by Gareis and Huemann (2000) in the following paragraphs.

Project management is the core business process of the POO. The project management process starts with the formal project assignment and ends with the project acceptance by the project owner. The project management consists of the sub-processes such as project start, project co-ordination, project controlling, project discontinuity management and project close-down. These processes are shown in Figure 1-4 . The project management process is performed in addition to the contents related processes to achieve the project results. The examples for contents related processes of an engineering project are engineering, procurement, logistics, and construction.

Figure 1-4: Project Management Process



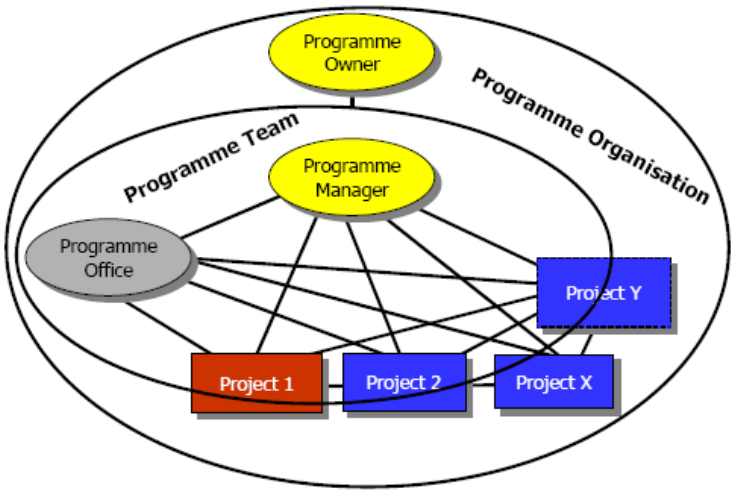
Source: Gareis and Huemann (2000).

Gareis and Huemann (2000) argue that the aspects to consider in the project management process are as follows: the project objectives, scope of work, project schedule and the project costs, as well as project organisation, project culture, and project context (project environment relationships, project sustainability, correlation to company strategies and other projects, etc.). The achievable deliverables of each project management sub-process can be compared with resource requirements for the performance of the project management sub-process.

Programme management has to be performed in addition to management of single projects of a programme. Programme management methods are similar to project management methods, i.e. there is a programme work breakdown structure, bar chart, environment analysis, etc. The programme organisation has to be designed in addition to the organisational layout of single projects.

Specific roles in a programme comprise programme owner, programme manager and programme office. This is shown in Figure1-5.

Figure 1-5: Programme Organisation Chart



Source: Gareis (2000).

Gareis (2000) is of the opinion that the advantages of designing programme organisation, instead of defining a "mega-project" with several subprojects are as follows:

- a less hierarchical organisation;
- clear structures and a clear terminology (a programme manager and several project managers instead of one project manager and 'project managers' of the sub-projects);
- empowerment of the projects of the programme by allowing for specific project cultures, specific relationships to environments, specific project organisations, etc;
- Differentiation between programme ownership and different ownerships for the projects.

Gareis (2000) states that consulting and auditing of projects and programmes are important instruments to ensure project and programme quality. The objectives of the project portfolio coordination are:

- optimizing the results of the project portfolio (and not of the single projects),
- selection of projects to be started,

- definition of project priorities,
- coordination of internal and external resources, and
- organisation of learning of and between projects.

Gareis (2000) holds that the basis for the coordination of the project portfolio is a project portfolio database, which allows the development of project portfolio reports. Typical project portfolio reports are the bar chart of projects, project profit versus risk graph, and progress chart of projects, etc.

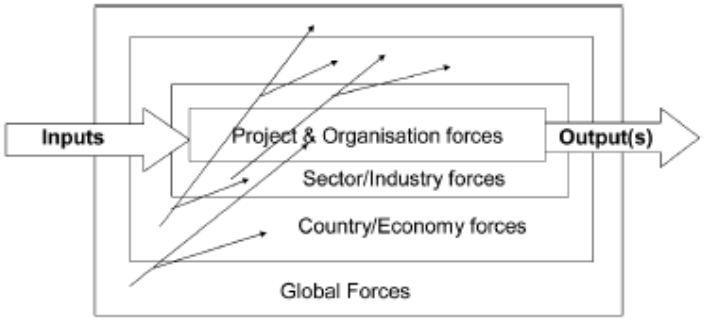
Gareis (2000) further states that networking between projects in an ad-hoc process occurs where a set of coupled projects cooperates and collaborate in order to create synergies.

Personnel management processes in the POO comprise recruitment, disposition and development of project personnel. In the POO a project management career path includes the roles of Junior Project Manager, Project Manager and Senior Project Manager (Gareis, 2000).

According to Gareis and Huemann (2000) “Management by Projects” is the organisational strategy of companies dealing with an increasingly complex business environment. This environment is affected by a number of forces originating from the project itself, the organisation sponsoring the project, and organisations involved in project implementation, the sector or industry relevant to the service or product resulting from the project, forces from the country/economy and forces coming from the world environment on economics, politics and other social pressures as indicated in Figure 1-6. By applying management by projects, Rwelamila (2007) argue that the organisation will be able to sail through the forces indicated in Figure 1-6 and pursue the following objectives:

• Organisational differentiation and decentralization of management responsibility;
• Quality planning, control and assurance by project team work and holistic project definitions;
• Goal orientation and personnel development; and
• Organisation of organisational learning by projects.

Figure 1-6: Project Management In A Complex Environment



Source: Rwelamila (2007)

Programmes and projects are perceived as temporary organisations for the performance of complex processes. The more projects of different types an organisation holds in its project portfolio, the more differentiated it becomes and the higher its management complexity becomes. In order to support the successful delivery of individual projects, and to ensure compliance of objectives of the different projects with an organisation strategy, Gareis and Huemann (2000) and Dinsmore (1999) strongly insist that the POO must adopt specific integrative structures such as a strategic centre, experts pool, a PM centre of competence and a project portfolio steering committee. Some of these permanent organisations, they suggest, might be virtual.

In order to embrace PM good practices, the POO is characterized by the existence of an explicit PM culture, made up of a set of PM-related values, norms and procedures (Gareis and Huemann, 2000). Furthermore, Gareis and Huemann (2000) argue that in order to manage a POO successfully, the application of a new paradigm is required—comprising the core concepts of lean management, total quality management (TQM), business process re-engineering and the learning organisation.

By perceiving PM as a business process of the POO, Dinsmore (1999) and Gareis and Huemann (2000) strongly suggest that the methods of process management can be applied to design the PM process. By describing the PM process, by defining

its objectives and deliverables, Gareis and Huemann (2000) argue that it is possible to measure the quality of the PM process, consisting of the following sub-processes: project start; project controlling; project coordination; management of project discontinuities; and project close-down.

1.4 Selection of Case Studies

To ensure that the researcher obtains representative data on PM competences in The South African Government's Public Administration Departments (SAGPAD), the researcher approached the South African Government's Treasury Unit responsible for PPP projects and requested a list containing all public administration departments involved in PPP projects approved by the unit. The Treasury PPP unit furnished the researcher with the list identifying all the SAGPAD involved in PPP projects. The complete list of South African Government's Public Administration Departments involved in PPPs is found in Appendix A of this dissertation.

The researcher then extensively analysed the list and thereafter established the following specific criteria which the SAGPAD had to meet in order to qualify to be part of the researcher's intended population:

- SAGPAD had to render services and activities of strategic national importance;
- SAGPAD had to render services and PPP projects which run across the entire South Africa, covering the three tiers of government (i.e. national, provincial, and local authorities).

Those South African Government's Public Administration Departments that met the above criteria to qualify to be part of the researcher's intended population were identified from the list provided by the unit. The researcher then applied a simple random sampling method to choose the appropriate sample for the purposes of this research. In terms of this method, sample members are chosen randomly from the members of the overall population.

The researcher used Microsoft Excel Spreadsheet as a tool to ensure the sample obtained was without any degree of bias and that it complied with a probability

sampling procedure. All the South African Government's Public Administration Departments that met the above indicated criteria were listed in column A of the spreadsheet; a random sorting facility was used such that any SAGID which becomes number one was chosen.

To ensure a variety of national/provincial and local government level issues were illustrated in the case studies, the researcher decided that case studies should be representative of all these spheres of government.

1.5 A Statement of the Problem

The above sections have indicated the need for excellence in project management. The South African Government's Public Administration departments also share this need. A project management maturity assessment is one way of realizing this need by determining the current state of project management and providing a structured path for improvement towards excellence.

This thesis aims to partly fulfill this gap by presenting results from a case study carried out in one of the South African Government's Public Administration Departments (SAGPAD), which is involved in implementing PPP projects. The purpose of the case study was to determine the levels of organisational project management maturity of these departments and to utilize these results to recommend an appropriate process which could be used by any public sector POO to continually improve and move gradually to higher levels of organisational project management maturity by creating a conducive environment for successful projects. A favorable environment will assist in developing these organisations' competitive position and promote their business through the implementation of various projects.

There is currently one similar study that was carried out by Rwelamila (2007) in one of the large infrastructure departments in South Africa. Through the Rwelamila (2007) study it was found that the department's programme management system was inadequate and at the lowest level of maturity (level 1 out of 5).

The researcher is not aware of any more studies that deal with practical examples about the workings of The South African Government's Public Administration departments or public authorities in general. Therefore, a distinct gap exists as to the maturity of the South African public Sector organisations, especially those involved in PPP projects.

In truth, the modern business landscape brings to light that organisations are changing in fundamental ways within a short space of time and that this phenomenon is occurring at a fast pace — structurally, operationally, and culturally — in response to globalization, new technology, competition, and the world economy that is at a historic turning point. The researcher further considered the fact that organisations are under pressure to improve performance in order to remain within mainstream markets and to attempt to continually improve their status so that they may sustain continued success in an ever-changing, ever-demanding global marketplace. The challenge realized by all participants is to strive on daily basis to improve on their projects or program delivery in order to attain competitive advantage and sustained growth.

Contemporary organisations also do not stand still. The business landscape is in constant flux and change inevitably occurs with time. Thus, according to Pennypacker and Grant (2003), any assessment made is merely a snapshot of maturity as it is depicted at one particular point in time. Therefore, the organisational project management assessments performed by Rwelamila (2007), may be outdated by now, which prompts the necessity for more recent studies.

Therefore, in light of these factual considerations, the researcher deemed it appropriate to evaluate without delay the current levels of organisational maturity of South African Government Public Administration Departments.

This research project focused on reviewing and analyzing the Organisational Project Management Maturity status of randomly selected South African Government's Public Administration Departments (SAGPAD). The targeted departments are involved in PPP projects, which both from the scale of work they are involved in and the importance of their activities countrywide, cover the three tiers of the public

sector—local authority, provincial and national). Two assessment methods were applied in this regard, with a view to assess the selected SAGPAD's degree of Organisational project management maturity and to try to highlight a path for improvement of its overall effectiveness. The first method implemented is known as the OPM3 (Organisational Maturity Assessment Model) Self-assessment maturity survey and structured open-ended interview questionnaire. This method of research further aims to present the results and findings from the analysis depicting the degree of organisational project management maturity of a randomly selected SAGID involved in Public Private Partnership (PPP) Projects. The findings are used to recommend appropriate steps which should be taken by the relevant SAGID to ascend with ease to higher levels of organisational project management maturity, thereby creating an environment to administer successful projects or 'building a project management centre of excellence'.

The research questions used in this study emerged from the aims and objectives of this research endeavour. The study, which is both quantitative and qualitative in nature, focused on the following core research question:

What is the degree of organisational project management maturity of the South African Government's Public Administration Departments involved in PPP projects?

The study of one major Public Administration Department of the South African Government involved in PPP projects--reviewed from the perspective of both the scale of work it is involved in and the perceived importance of its activities countrywide-- (covering the three tiers of the public sector—local authority, provincial and national), it is hoped that the researcher has succeeded in drawing inferences about the degree of ogranisational project management maturity of the entire South African Public Administration Departments in general.

The sub problems that support the answer to the main question are:

i. Are South African Government's Public Administration Departments project-oriented organisations?

ii. Why was The Agency established, what are its objectives and to what extent have they been met?
iii. What are The Agency's key performance indicators?
iv. What are the strengths and weaknesses of The Agency relevant to carrying out projects?
v. What is the overall measure of the current organisational project management maturity of The Agency?
vi. What is the next step in the path to attain a higher degree of organisational project management maturity?
vii. Can a degree or level of The Agency's Organisational project management maturity be disentangled from that of its PPP projects?
viii. Can the degree of The Agency's Organisational project management maturity be used as a measure of the overall success and effectiveness of its PPP projects?
ix. What should be done to improve project management competences of public sector organisations involved in a PPP projects regime in South Africa?

1.6 The Purpose and Objectives of the Study

The primary objective of the present study is to assess and evaluate the degree of project management maturity of the SAGPAD, involved in PPP projects against the scope of their mandate and set strategic objectives using OPM3 Self-assessment survey model and open-ended structured interviews. Based on the assessment findings the researcher made recommendations as to what should be done to improve the degree of organisational project management maturity, which was found to be low.

Thus the objectives of this study were to:

- Determine the degree of project management maturity demonstrated by The Agency relative to a body of identified best practices and capabilities and thereby obtain an indication of the maturity of South African public sector organisations.

- Determine if the respective SAGPAD are conducted as a project-oriented organisation.
- Identify areas of project management excellence displayed by The Agency and those in need of improvement.
- Based on the research findings, make recommendations for the relevant SAGPAD to build upon their strengths and improve on their weaknesses.
- Provision of insight into good practice processes necessary to maximise achievements and limit negative impacts that prevent achievement of higher levels of organisational project management maturity.
- Establish a foundation for continued improvement in project management of PPPs linked to the overall contributions and objectives of the business.
- Determine the success rate of PPP projects handled by the SAGPAD.
- Contribute to the body of knowledge and debate the usefulness and effectiveness of PPP projects in South Africa.
- To provide direction for further research on the subject and contribute to the theory and practice knowledge base on organisational PM competences/maturity fundamentals.

The immediate benefit of the present study is that it will help to determine not only the level of organisational project management maturity of The Agency but also that of the entire South African Government Public Administration Departments. This will identify the extent to which these organisations have incorporated project management best practices into their way of conducting business. It will also propose what the next step on the road to achieve a higher level of competency or identify what the degree of organisational project management maturity should be.

The broader benefit of the present study is that it is intended to increase a broader understanding among stakeholders in public and private sectors of better project management practices to service delivery approaches; the aim is also to report to stakeholders the importance of refining the sustainability and efficiency of public services and point out possible areas for improvement.

1.7 Research Proposition

The underlying proposition for this research is as follows:

> *The level of organisational project management maturity of the SAGPAD has moved to the second level (i.e. Planned/ Measure stage) of progressive stages on the maturity ladder.*

1.8 Limitations of the Study

The present study has the following limitations:

- It involves a study of a single organisation, namely The Agency.
- It should be noted that given the political nature of government departments, information required to provide a comprehensive evaluation of PPP projects is often incomplete, not available, or restricted. Therefore not all documents could be assessed nor could all interviews be held.
- The researcher was limited by a predetermined time frame within which this research had to be finalized and consequently the thoroughness that is needed in a research exercise of this nature was compromised.
- Certain information could not be made available to the researcher because of its level of confidentiality.
- Consequently, information presented in this dissertation is based on the best available public information on each assessed project. This information is reflected in the case study that has been undertaken.

1.9 Scope and Methodology of the study

This study focused on two areas. The first is the measurement of organisational project management maturity while the second pertains to the validation of organisational project management maturity and is based on real projects. The

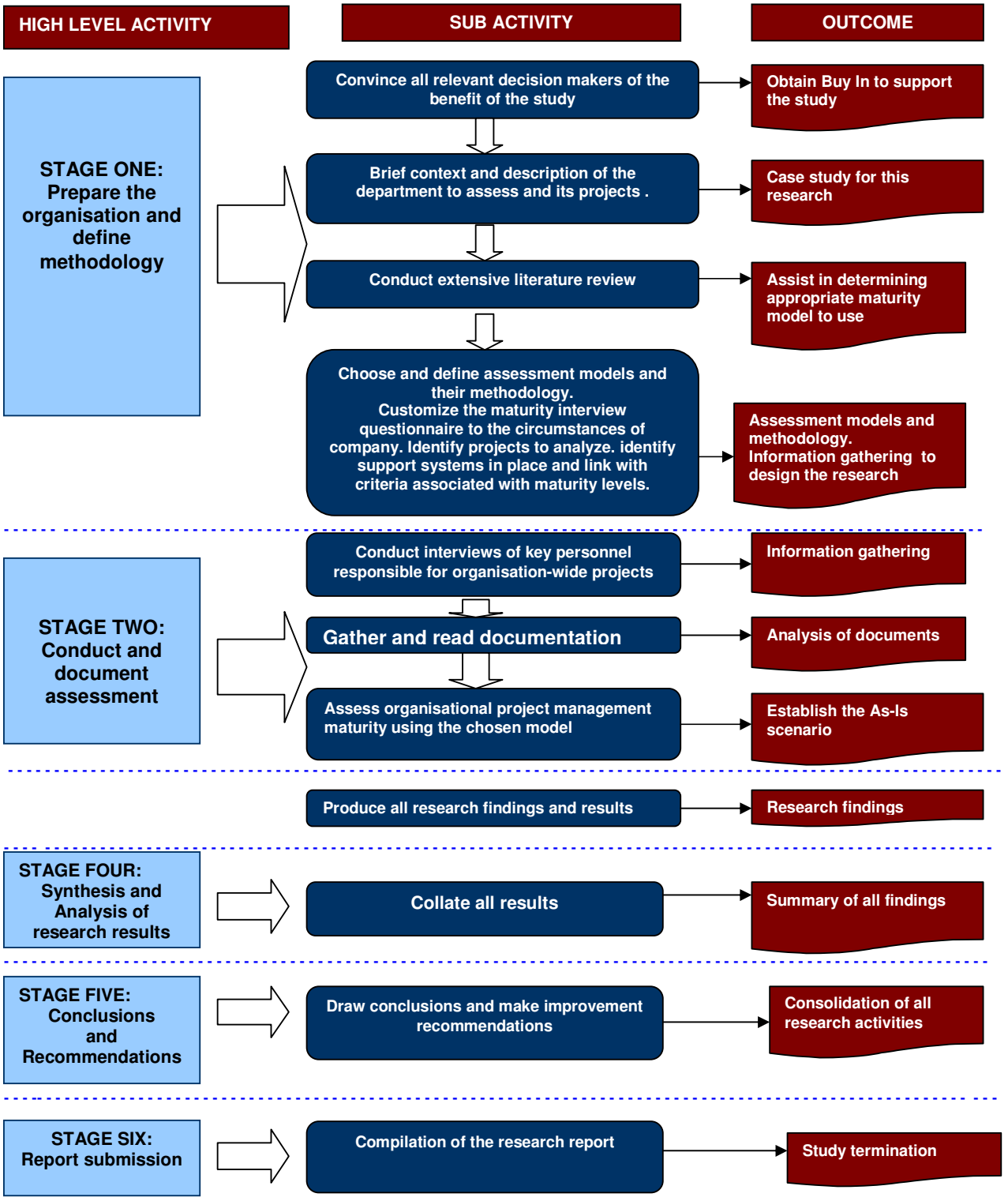
following steps represent the action plan pursued and the methodology applied in this research report:

Firstly, the researcher had to convince all relevant key decision makers of the benefit of the present study.

Secondly, a brief context and description of The Agency and its projects is provided. To select The Agency the researcher assembled a list of the South African Government's Public Administration Departments that are involved in PPPs and whose activities cut across all three spheres of government at National, Provincial, and Local levels of government, from which one such department organisation was selected for developing the case study. From the chosen department's broad range of projects, a finite set was chosen for investigation using the OPM3 Self-assessment survey and open ended interview questionnaire. In some cases interviews with representatives of relevant project leaders and their team members to those projects were carried out. This was augmented with project documentation available from general industry-related literature, including literature provided by relevant project leaders, and in-house project reports. While general information is available about many PPP projects around the world, there are relatively few such projects in South Africa to choose from.

Thirdly, the researcher undertook an extensive literature review on organisational project management; maturity models and case studies, and further reviewed and summarized the available literature on the types of PPPs, their application, and management. The literature review revealed that despite there being several different maturity models in practice today, there exists no industry standard as yet. Selection of the appropriate maturity model was critical to achieving the proposed assessment objectives. The methodology used in this study is summarized in Figure 1-7 below. The methodology is divided into six stages.

Figure 1-7: Summary of the Research Methodology



CHAPTER 1

1.10 Outline of this dissertation

The thesis will consist of 6 chapters and an Appendices section. The basic structures will be as follows:

- **Chapter 2:** Theory and Practice of Project Management and Maturity Models.
  This chapter will review the theory and practice of Project Management Maturity and the benefits of using maturity models. It will also review the common maturity models in circulation.
- **Chapter 3**: Research Methodology.
  This chapter explains what methodologies were available to the researcher. It will also explain the philosophy behind the different methodologies, and their strengths and weaknesses; and will justify the researcher's choice of the case approach for the present study. This section will also detail the research design and instruments used to gather the required data.
- **Chapter 4**: Research Results.
  Research results and findings are presented in this chapter.
- **Chapter 5:** Synthesis and Analysis.
  The results and findings are analysed and put into perspective in this chapter. Possible reasons for the gaps will also be cited. All hypothesis testing will be discussed in this chapter.
- **Chapter 6:** Conclusions and Recommendations.
  This chapter will draw conclusions based on the results outlined in previous chapters and respective recommendations to achieve the next level of organisational project management maturity. Recommendations for further study are also listed in this chapter.
- **Appendices**
  The appendix will contain the raw data of the maturity model assessment results, interviews and document evaluations. It will also contain the research instruments used to collect all data.

CHAPTER 1

1.11 DESCRIPTION OF CASE STUDY ORGANISATION – The Agency

The South African Government Department chosen as a case study for the purposes of conducting this research is given a pseudonym for purposes of confidentiality. Therefore for this reason the researcher re-named the government department 'The Agency" for the purpose of this dissertation.

The Agency is one of the sixteen national South African Government's Administration Departments involved in PPP projects and is tasked to pursue certain national government strategic initiatives and objectives. Many of The Agency's operating processes and services are mandated by state law.

One striking characteristic of The Agency is the diversity of its customers and stakeholders, which include other government departments and state agencies. Another common theme that arose during the interviews was the relative newness of The Agency's Project Management Office.

One of the primary objectives of The Agency is to promote sound labour relations and equity in the South African labour market. This in turn is aimed at contributing to the national goal of strengthening the capacity of labour market institutions.

The Agency is evolving from delivering its services in the usual operational style to running its services in a project oriented organisational style. The Agency is currently running different multi-million rand projects or programs, eleven of which have been ring fenced as projects of strategic national importance. In addition to its diverse project portfolio, The Agency is also involved in a PPP project. The list of The Agency's current projects is not included in this dissertation for reasons of confidentiality. The Agency's projects indicated below are also given pseudonym for same reasons.

The Agency's projects are categorized according to different divisions, called branches, in the following manner:

(i) Planning and Market Policy Branch

There are three projects handled under this branch. These projects are:

- DG Review System,
- Restructuring of the employment factories,
- Executive dashboard.

(ii) Services Delivery Branch

There are two projects handled under this branch. These projects are:

- Employment Service System,
- Inspection and Enforcement Strategy project.

(iii) Corporate Services Branch

There is only one project being handled under this branch. This project is:

- Human Resources Development Strategy project.

(iv) Employment Creation Services Branch

There are four projects handled under this branch. These projects are:

- SSS Listing,
- Quality and occupations (QO),
- Technical Development,
- Council Re-establishment and review.

(v) Fund project

There is only one project being handled under this branch. This project is:

- Restructuring of the fund.

The Deputy Director General responsible for each branch is the project sponsor for all the projects under his jurisdiction.

The PPP projects serve as a vehicle to attain The Agency's strategic and operational objectives in terms of information technology. The PPP serves the purpose of an alternative service delivery model, underpinning The Agency's commitment to utilise IT to make provision for accessible, efficient and customer-centric services. The PPP option is regarded by The Agency as an ingenious way of achieving its objectives against the background of budgetary constraints and the requirement of specialised

knowledge and expertise needed to develop and manage a modern information technology service.

The Agency's programs require interfacing with and managing the demands of multiple stakeholders across government, industry and the community, whilst managing multiple contracts in a market that is resource limited. It is this complexity and scale which has been the driver for The Agency to seek a systematic approach to manage its business operations and projects whilst ensuring they continue to deliver quality services efficiently and effectively for Government.

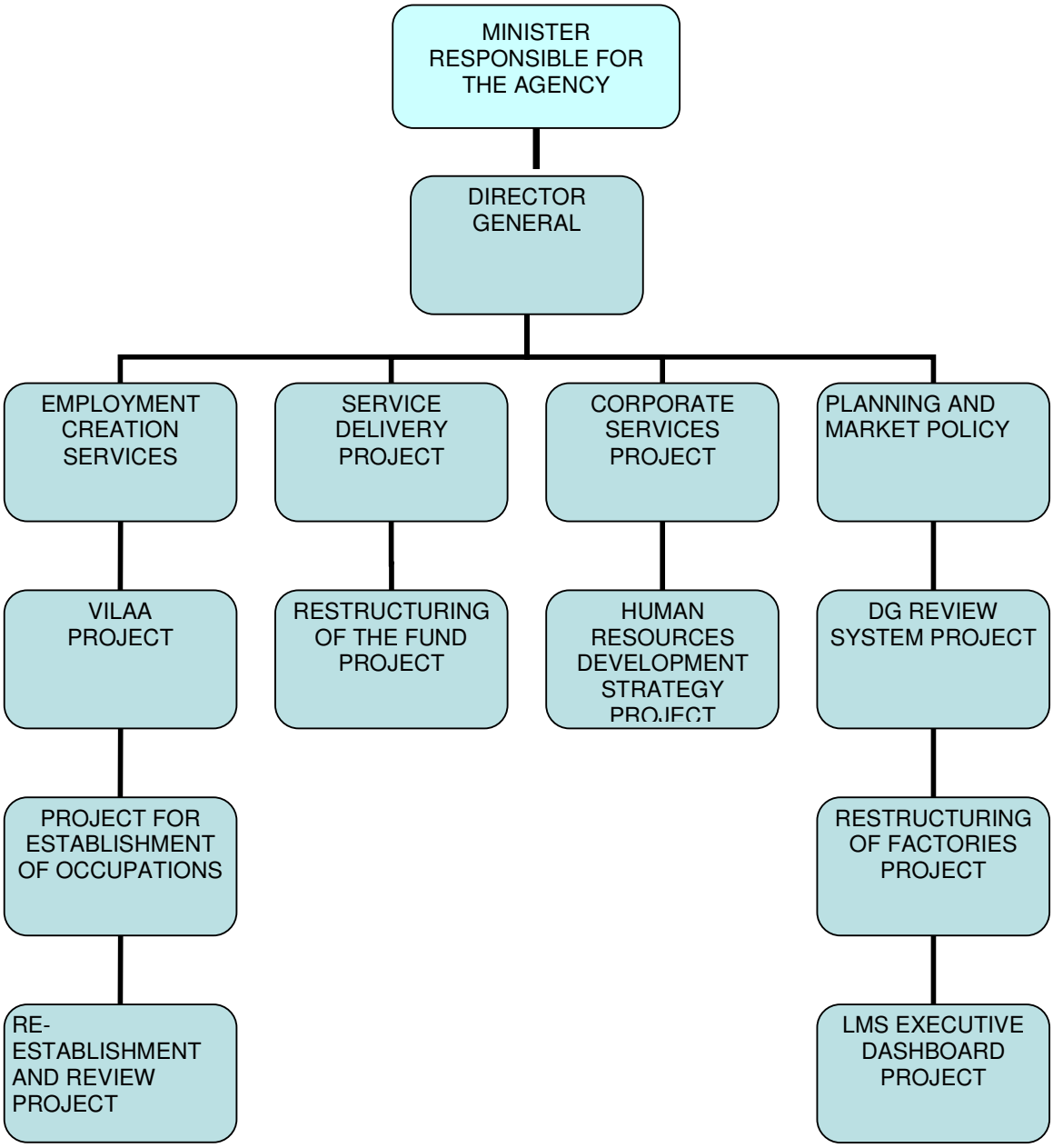
In order to achieve its strategic objectives in 2006 The Agency introduced and implemented project management as way of conducting business. The intention is enable staff to not only deliver The Agency's current core business to the highest standards, but also to enable employees to both anticipate and successfully adapt to the future needs of the business.

As part of this new system, the Executive Management Team has established a Project Management Office (PMO) within The Agency. The PMO reports to the Director General and is accountable for projects and portfolio development undertaken by The Agency and for all initiatives to improve project management performance and corporate culture.

The Agency has further formed a Project Management Steering Committee (PSC); the purpose of this working group is to oversee project implementation within The Agency. The PSC is made up of all the Project Leaders from The Agency's four national branches. The project leaders are also part of the executive management of The Agency. Also forming part of the Project Management Steering Committee are the support structures for PM implementation within The Agency. These are made up of the following task teams: Project Management Information and Communication Technology Task Team; Project Management Human Resources Development Task Team, and Project Management Support Task Team. The latter is responsible for supporting project teams in developing project plans and the implementation of best practice in project management within The Agency.

The Agency permitted the researcher to undertake a project management maturity assessment in order to determine its current state of project management maturity, identify strategies for improvement, set goals to increase maturity and develop an implementation plan to achieve these goals. The organisational structure of The Agency is as depicted in Figure 1-8.

Figure 1-8: The Agency's Organisational Structure



CHAPTER 2

THEORY AND PRACTICE OF PROJECT MANAGEMENT- WITH SPECIFIC FOCUS ON PROJECT MANAGEMNT MATURITY

2.1 Introduction

Chapter one introduced the subject matter and the research problem. This chapter covers the theory and practice of project management maturity models.

This chapter commences by covering the theoretical principles of projects and project management.

2.2 Case for Project Management

According to Desta, Root & Diederichs (2006), within the last few years organisations have come to recognize the competitive advantage that 'management by projects' can provide in fast changing competitive business environments. Hillson (2003) states that many businesses today are recognizing the power of a project based ('projectised') approach, and are steadily implementing project management as a core competence. Schwalbe (2006) defines a project as follows:

> *"A project is a finite endeavor (having specific start and completion dates) undertaken to create a unique product or service which brings about beneficial change or added value."*

This finite characteristic of projects stands in sharp contrast to processes, or operations, which are permanent or semi-permanent functional work to repetitively produce the same product or service. In practice, the management of these two systems is often found to be quite different, and as such requires the development of distinct technical skills and the adoption of separate management philosophy (Project Management Institute, 2000).

Hillson (2003) also notes that the value of a formal and structured approach to project management is becoming increasingly recognized as the discipline develops and more organisations begin to reap the benefits of proactive project based management. Graham and Englund (2004) states that many organisations are finding it necessary to implement better project management practices; this realisation often comes as a result of previously failed projects.

CHAPTER 2

Project Management Institute (2000) defines Project Management as:

> *"the application of knowledge, skills, tools and techniques to project activities to meet project requirements."*

The essence of this definition can be construed to describe Project Management as the discipline of planning, organizing, and managing resources to bring about the successful completion of specific project goals and objectives.

The primary challenge of project management is to achieve all of the project goals and objectives while adhering to classic project constraints--usually scope, quality, time and budget. The secondary--and more ambitious--challenge of project management is to optimize the allocation and integration of inputs necessary to meet pre-defined objectives. A project is a defined set of activities that use resources (money, people, materials, energy, space, provisions, communication, motivation, etc.) to achieve the project goals and objectives (Project Management Institute, 2000).

According to Project Management Institute (2000), project management is accomplished through the use of processes such as: initiation, planning, executing, controlling, and closing. The project team manages the work of projects, which typically involves: a) competing demands for: scope, time, cost, risk and quality, b) stakeholders with differing needs and expectations, c) identified requirements.

2.3 Strategic Emphasis on Projects

raham and Englund (2004), uphold that developing cooperation requires upper management to take a systems approach, which means that the organisation should view projects as a system of interrelated activities that combine to achieve a common goal; this common goal is usually the overall strategy of an organisation. Hence, a systematic approach to project management illustrates the vast and important influence of upper-management teamwork on project success.

Eisenhardt and Galunic (2000), state that the basic purpose of initiating a project is to accomplish important and specific goals. Therefore projects that are consistent with the strategic goals of the organization are likely to succeed. Strategy is about

two things: deciding where an organisation wants to go (vision) and figuring out how to get there (mission).

According to Eisenhardt and Brown (1998), the importance of giving projects a strategic emphasis should not be underestimated as it is one of the biggest contributing factors toward creating a fertile environment that nurtures and motivates project success. In essence, the successful outcome of a project relies on the fact that people allocated to teams need direction and this requires comprehensive answers to questions such as: What will the project accomplish? (To fully answer this question will require a thorough working knowledge of organisational strategy). Why is this project being undertaken? (To provide an answer to this question will typically necessitate a motivational theme). Will there be inter-project cooperation? (The answer to this question will need to incorporate an outline of how projects usually involve common resources and a description of how resources will combine and correlate; consequently, this is an essential question and will require detailed explanation).

According to Graham and Englund (2004), one of the biggest universal upper management problems experienced in terms of project management is attempting too many projects simultaneously. Upper Managers need to understand the intricacies of project management practices and support the project planning process. This planning process helps the prioritization of projects and the allocation of resources, which in turn would help resolve the problems created by simultaneously run projects. The major advantages with project planning are that it will decrease costs and time spent on carrying out projects while increasing product cost-efficiency and quality.

It is important to distinguish between a project's success and project management success. A project could vary from being successful or unsuccessful depending on the time frame in which it is viewed. Whereas project management success is generally viewed as delivering on time and within budget what the client desired and in meeting the quality parameters accepted for such a project. De Wit (1983:165) states that a project is considered successful when the expectations of key stakeholders are met; yet this degree of satisfaction can vary when considered at different times of the project time-frame.

CHAPTER 2

The issue of what makes some project managers and some organisations better at what they do in delivering projects than others has been a question that has been studied for many years. These studies have looked at critical success factors and key result areas, as well as typical project manager skills and competencies, and character traits. All studies have contributed in their own way (Project Management Institute 2003). Recently, however, the question of maturity of project management has been raised. Driven largely by the work of the Software Engineering Institute (SEI) and analyses via its Capability Maturity Model (CMM), a number of more generally applicable models for project management have been developed.

Ibbs and Kwak (2000) argue that many organisations are 'projectising' their operations and processes to facilitate planning, management, and successful completion of projects. A driving reason for such projectising is the growing pressure on managers to integrate, plan, and control schedule-intensives and one-of-a-kind endeavors in order to improve overall organisational performance.

However, it is fair to say that many organisations are uncertain, perplexed, and even misdirected about the status of current applications of project management. Moreover, the financial investment in project management tools, practices, and processes is often seen as quite difficult to justify (Ibbs and Kwak, 2000).

Cooke-Davies (2004a) states that there is an intense interest within organisations to fully grasp the challenge of how best to "measure" project performance, particularly the those concerned with governance, portfolio management and enterprise-wide project management. There are however a growing number of "maturity models" being made available to organisations, either directly or indirectly, to assist with the assessment of how "mature" an organisation is (Cooke-Davies 2004a).

2.4 Project Management Maturity in its organisational context

Webster (3:617) defines ''mature'' as being ripe or having reached the state of full natural or maximum development. Maturity is the quality or state of being mature.

Anderson and Jessen (2003) argue that if the concept of maturity is applied to an organisation it might refer to a state where the organisation is in a perfect condition to achieve its objectives. Project maturity would then mean that the organisation is perfectly conditioned to deal effectively with its projects. They further state that in the real world it is impossible to find a fully matured organisation; no one has reached the stage of maximum development and no one apparently ever will. Therefore it makes sense to talk about a certain degree of maturity and make an effort to measure or characterise the maturity of the organisation.

According to Anderson and Jessen (2003), measuring maturity will perhaps always be more subjective than objective. Some of the most important works on project maturity seems to focus primarily on what organisations and project people are doing operationally.

According to Levin and Skulmoski (2000:2) the results of a project management maturity assessment provide the opportunity to continually improve and develop an organisation's competitive position and promote its business by projects. Project management improvement, though, does not happen overnight, and it cannot be implemented on a "fad of the week" basis. If it is, it is doomed to fail. An approach to actually make the improvements to produce the desired results is needed and to ensure that there is commitment to such improvements throughout the organisation.

The Institute of Project Management holds that based on the findings of the maturity assessment, a set of recommended solutions to issues identified in the assessment report should be proposed. These recommendations typically are implemented by a series of specific projects. A proposal needs to be prepared for each possible project. This proposal should include a description of the current situation, a description and motivation of the proposed change, expected benefits, responsibilities of the people who will perform the project responsibilities; and estimated costs, resources and duration of the project. The proposal also should identify possible implementation methods such as using a pilot project or developing a prototype. All projects cannot be implemented at once. Koch and Baker (1998) state that factors to consider in selecting improvement projects include: business impact, risk, and alignment with the findings in the maturity model.

CHAPTER 2

It is interesting to examine the degree of project management maturity in a public administration of a developing country like South Africa, based on the maturity model. The project management maturity model is a widely accepted concept in business. It shows different stages of the project management development within an organisation.

The famous theorist and consultant in project management Kerzner (2004) emphasizes that "all organisations go through a maturity process" and to the researcher's point of view government is no exception. The maturity in project management is the development of systems and processes that are able to contribute to success. Kerzner (2004) however holds the view that these systems and processes do not necessarily guarantee success, they just increase the probability of success.

Dinsmore (1998a:24) defines project management maturity as:

> "….*a measure of an organisation's effectiveness in the behaviors involved in delivering projects."*

Dinsmore further argues that a maturity assessment is a way of determining the extent to which the organisation has incorporated project management into its way of working. The better the organisation or department is at delivering projects, the higher its maturity will grow.

Assessing an organisation's capability in project management requires a logical framework that can be used to define the nature of the organisation's project management processes. An approach which is objective and allows comparisons both within the organisational environment and across industries is needed. It is pointless to plan any journey without clear definition of the starting point. The Project Management Maturity Matrix allows for the definition of the present state of the organisation's project management processes (Project Management Institute, 2003).

CHAPTER 2

Project Management Maturity models (PMMM) provide a systematic means to perform benchmarking and hence are adding considerable value to contemporary organisations. The maturity models provide an assessment framework that enables an organisation to compare its project delivery with best practice or against competitors, ultimately defining a structured route to improvement (Project Management Institute, 2003).

As shown by Project Management Institute (PMI), many maturity models exist. These models will illustrate that there are differences among companies in terms of their actual utilization of projects as a means to achieve objectives. However, many of these models are rather limited in scope, having as their sole intention the categorisation of the actual behaviour of the organisation (Cooke-Davies, 2004).

The family of capability-maturity models has been developed by the Software Engineering Institute of Carnegie-Mellon University, under the original leadership of Watts Humphreys (Paulk, Curtis, Chrissis, & Weber, 1996). Drawing heavily on the concept that every process has a natural *capability* that can be assessed using statistical process control, the original software model embodied a simple principle that if organisations wish to develop predictability and repeatability in their information systems/information technology (IS/IT) production processes, then they need to develop a number of process areas, each of which consists of families of related processes (Cooke-Davies, 2004).

Paulk, *et al.* (1996) state that in turn, each of these processes needs to develop through a series of stages of maturity from informal at the lower end of the scale to highly routinized and with continuous improvement embedded at the higher end. As each process develops in this way, its capability will improve. To prevent the model from becoming excessively complex to understand, the process areas and process maturity stages are combined into a series of five levels of organisational maturity, into one of which any organisation can be categorized.

Thus, maturity is used in capability-maturity models in the very technical sense to mean “the extent to which an organisation has explicitly and consistently deployed processes that are documented, managed, measured, controlled, and continually

improved. Organisational maturity may be measured via “appraisals” (CMMI Product Team, 2002: 582).

The relationship between *capability* and *maturity* in these technical models is worth exploring, since capability is also a word that has a specific technical connotation, with its meaning differing from its use in common speech. The technical meaning has its roots in the quality movement and can be traced to the writings of authors such as Shewhart and Deming. The principle is simple: “a stable process . . . is said to be *in statistical control…*A system that is in statistical control has a definable identity and a definable capability” (Deming, 1986:321).

According to Cooke-Davies (2004), given the role that project management plays in the development of software and new products, it isn’t surprising that many of the concepts of maturity that are incorporated in capability maturity models are imported wholesale into the realm of project management maturity models.

Various claims have been made about the benefits that organisations have obtained from using particular maturity models (Peterson, 2000). The implications are that mature organisations are able to:

- Manage all the projects undertaken by an organisation effectively (Suares, 1998);
- Improve continually the performance of all projects undertaken by an organisation (Peterson, 2000);
- Improve dialogue between the project management community and an organisation’s top management (Peterson, 2000).

According to the Office of Government Commerce (2003) the introduction of two of the more recent project management maturity models, *Project Management Maturity Model*, or *PMMM* and PMI’s *OPM3* (2003), the benefits that are to be expected from using the models to improve maturity include:

- Strengthens the link between strategic planning and execution so that project outcomes are predictable, reliable and consistent, and correlate with organisational success.
- Places Best Practices and Capabilities within the context of not only Project Management, but also program Management and Portfolio Management processes.
- Provides the means to assess an organisation's maturity relative to a body of identified Best Practices and Capabilities.
- Provides a basis from which organisations can make improvements in project management maturity.
- Provides guidance and flexibility in applying the model to each organisation's unique set of needs.
- Is based on the *PMBOK Guide (2000 Edition)*, the de facto Standard for project management.
- Identifies the Best Practices which support the implementation of organisational strategy throughout successful projects.
- The creation of an organisation-wide ability for managing projects based on standard, defined project management processes that can be tailored to meet the specific needs of individual projects.
- Roles and responsibilities for carrying out all project-related activities as clearly defined throughout the organisation.
- The organisation is provided with project information from previous projects on which to evaluate project schedules and budgets, to ensure that these are realistic, and to review project performance. (Office of Government Commerce, 2002:3-4).
- "Enables the organisation to advance its strategic goals through the application of project management principles and practices. In other words, it bridges the gap between strategy and individual projects" (Project Management Institute, 2003: xiv).

In an interesting application of maturity assessments, Ibbs and Reginato (2002) suggest that, as an organisation grows in project management maturity, it obtains a better project management performance at a lower cost.

These all sound like excellent benefits, although in sounding a warning note that maturity models may not be the silver bullets that some hope for, Thomas and Jugdev (2002) examine maturity models (MMs in the language of their article) from the viewpoint of four different resource-based models, in order to assess whether or not the possession of a higher maturity level in project management confers a competitive advantage on an organisation. The article concludes that MMs possess some but not all of the characteristics of a strategic asset and thus cannot, in and of themselves, confer competitive advantage. This conclusion is based in part on their observation that although "MMs are a component of project management [these are] not a holistic representation of the discipline".

Thomas and Jugdev (2002) hold the view that In the meantime, the benefits that project management maturity is claimed to provide, all relate to improvements in project success.

Judev and Thomas (2002) as well as Combe (1998) point out that most models encourage formality. This is because maturity assessments are based on formal documentation of project management practices and moving to the next level of maturity involves having more extensive documentation, more procedures and more standards in place. This however, leads to the concern that those pursuing excellence may be overloaded with excessive paperwork.

2.5 Models for Project Management Maturity Assessment

The best-known maturity model was created by the Software Engineering Institute (SEI) – a federally funded research and development centre sponsored by the US Department of Defense – at Carnegie Mellon University. SEI's 'vision' is "The right software, delivered defect-free, on time and on cost, every time" and its role is to help organisations achieve this by providing both technical and management practice guidance (SEI, 2004).

The Project Management Institute (2002) state that there are many maturity models in use today. According to Cooke-Davies (2002) there are some 30 models in circulation. The list of the most common used maturity models is found in Appendix B of this research report.

A number of concerns have been expressed by Cooke-Davies, Schlichter, & Bredillet (2001) about this proliferation of project management maturity models, they argue for example that: “unfortunately there is no consensus as to the contents of an organisational project management maturity model, or even the principles on which such a standard is constructed”.

Jugdev and Thomas (2002) argue that there is no one particular model which is universally accepted. This is possible because according to Ibbs and Kwak (2000), there are no universally accepted methodologies for impartially measuring project management practices and also because according to Cooke-Davies (2004a), maturity models do not have a theoretical basis. The absence of a generally accepted definition of what is involved inevitably inhibits the value of any maturity model to the whole of an organisation.

The two models that have received the greatest attention in the research literature so far have been the Berkeley PM Process Maturity Model (Ibbs and Kwak, 2000) and the PM Solutions Project Management Maturity Model (Pennypacker and Grant, 2003). Like other project management maturity models, each of these assesses the maturity of processes derived from the Project Management Institute’s (PMI) *A Guide to the Project Management Body of Knowledge (*PMBOK® Guide) (2000) areas, using a scale of maturity that combines and blurs the distinction between *capability levels* and *maturity levels*.

Other project management maturity models follow more closely the principle of adding incremental process areas as an organisation increases in maturity (Office of Government Commerce, 2002), although these inevitably develop their own definitions of the process areas that relate to each maturity level.

According to Levin and Skulmoski (2000:2) the maturity models provide a framework to help enable organisations to increase their capability to deliver projects on schedule, within budget and according to the desired technical performance. Maturity models provide a progressive standard to help organisations continue to improve their project management processes. An assessment of project management

maturity collects evidence by evaluating an organisation's performance against requirements (as set forth in the maturity model) and then making a judgment of whether a certain level of maturity has been achieved. By using a project management maturity model, you can "take the temperature" of your organisation's project management efforts.

Levin and Skulmoski (2000:2) hold the view that a project management maturity assessment provides the basis for a larger, more significant initiative. It serves as the basis for guiding a subsequent project management improvement effort. The assessment provides a useful "road map" direction or "guide book" about what improvements should be tackled first.

Levin and Skulmoski (2000) further argue that since the improvement program is tied to the assessment itself, the assessment findings help communicate the need for the changes to the rest of the organisation and help to promote buy in and commitment for the improvement initiatives. Important improvement issues will not be overlooked. It enables organisations to:

- Become project-based with predictable results,
- Identify strengths and weaknesses in project management;
- Establish uniform principles and processes and integrate them throughout the organisation,
- Provide the organisation with the necessary know-how to improve its competitive edge by implementing effective project management processes,
- Establish a foundation for continued improvement in project management linked to the overall contributions and objectives of the business,
- Target those specific initiatives that provide the next foundational level in an organisation's continued project management development.

These imply that organisations, regardless of their maturity, will each measure the same things (performance of the same group of processes); what will distinguish the maturity of an organisation is the score that is revealed by the measurement.

This research report covers seven maturity models which the researcher is of the opinion that there are widely used in modern project management literature. Two of

these models are organisationally focused Maturity Models (i.e. OPM3, and PM3M3) and the other five models are project based and these are: PMMM Maturity Model; Kerzner Maturity Model; PM Process Maturity Model; Capability Maturity Model (CMM), and MicroFrame's Maturity Model.

2.5.1 Organisational Project Management Maturity Model (OPM3*)*

Introduction

In 1998 a program was chartered by the Institute of Project Management to develop an international standard for industry and government. The Organisational Project Management Maturity Model, or OPM3, was then conceived of as a project management corollary to a variety of maturity models in the marketplace. Most of these maturity models are used to improve an organisation's quality, infrastructure or processes (Project Management Institute, Inc, 2003). OPM3 is an acronym for the "*Organisational Portfolio, Program, and Project Management Maturity Model"*.

The OPM3 was developed with the widespread participation of the larger PM community. Over 800 professionals from over 34 countries contributed to its development. With the avid volunteer support of senior project management professionals, the creation of OPM3 became a multi-year virtual project (Project Management Institute, Inc, 2003).

The OPM3 project team reviewed twenty-seven such models, many with specific areas of focus such as information technology and quality improvement. None of them adequately addressed project management. The research team concluded that a new model was needed if project management was to enjoy the clarity of purpose and standards that other models created in other focus areas of the enterprise (Project Management Institute, Inc, 2003). The OPM3 model was designed to achieve the following:

- to help organisations assess and improve their project management capabilities as well as the capabilities necessary to achieve organisational strategies through projects;

- to set the standard for excellence in project, program, and portfolio management best practices; and
- to explain the capabilities necessary to achieve those best practices

The results of the team's work were formally published in December 2003. The OPM3 model has a number of basic components:

- Best Practices in Organisational Project Management;
- The Constituent Capabilities that lead to progressive maturity and indicate the existence or attainment of Best Practices in the organisation;
- The "navigation paths" needed to traverse these Capabilities on the way to increased maturity in targeted Best Practices;
- One or more observable Outcomes signifying the existence or attainment of each Capability;
- One or more Key Performance Indicators, which are the means of measuring each Outcome; and
- Model context, including the Organisational Project Management Process and the stages of process improvement.

Together these Best Practices, Capabilities, Outcomes, and Key Performance Indicators—along with necessary narrative explanations, navigational guidelines, and description of the Organisational Project Management process—constitute OPM3.

The PMI model is designed to help organisations assess the state of their organisational project management maturity and to help them plan the path to initiate improvements. Assuming an organisation wishes to initiate improvements, OPM3 is intended to help them determine what specific Capabilities they need to acquire to achieve the desired Best Practices, and in which order, so they can advance their agenda while conserving limited organisational resources (Fahrenkrog, Wesman, Lewandowski and Keuten, 2003). However, members of the team warn, "While it [OPM3] can be a powerful reference and development tool, its effective use will require significant thought, digestion, application, analysis, and evaluation—not possible through just reading the standard."

CHAPTER 2

Overview of the model

This PMI's new organisational project management maturity model adopts its own technical meanings for maturity and capability**.**

According to Cooke-Davies (2004) no discussion of organisational project management maturity would be complete without the mention of OPM3, PMI's organisational project management maturity model. The Project Management Institute (2003) defines the organisational project management maturity:

> *"the extent to which an organisation practices organisational project management".*

In OPM3 maturity model, this is reflected by the combination of 'Best Practices' achieved within the Project, Program and Portfolio domains" (Project Management Institute, 2003: 173). This definition has something in common with capability-maturity models, but recognizes that it is applied to the field of project management.

In OPM3*,* however, the word *capability* is used somewhat differently. In OPM3, "a capability is a specific competency that must exist within an organisation in order for it to execute project management processes and deliver project management services and products. Capabilities are incremental steps leading up to one or more Best Practices" (Project Management Institute, 2003:171).

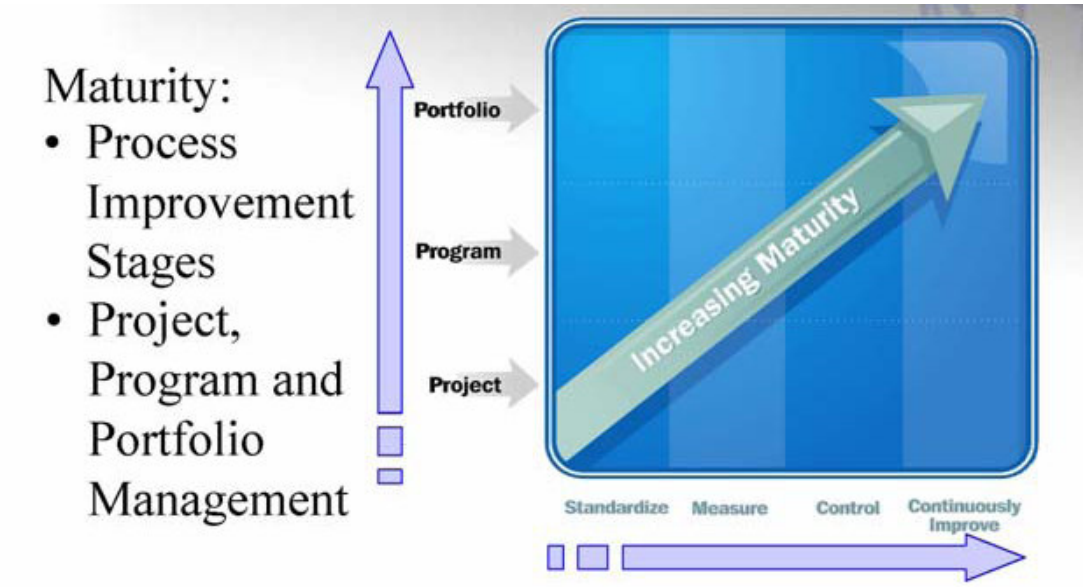
Thus, in common with the Berkeley and PM Solution models mentioned above, the same measures are used by organisations at all levels of maturity. Furthermore the scores obtained are indicative of the maturity of an organisation. The organisational Project Management Maturity Model (OPM3) falls naturally within the sequence of Standards published by the Project Management Institute (PMI).

As with other PMI Standards, OPM3's intent is not to be prescriptive by telling the user what improvements to make or how to make them. Rather the intent is simply to offer the Standard as a basis for study and self-examination, and to enable an

organisation to make its own informed decisions regarding potential initiatives for change (Project Management Institute, 2003).

The progression of increasing maturity designed into OPM3 consists of several dimensions, or different ways of looking at an organisation's maturity. One dimension involves viewing Best Practices in terms of their association with the progressive stages of process improvement--from ***Standardized*** to ***Measure*** to ***Control*** and to ***Continuously Improve***. Another dimension involves the progression of Best Practices associated with each of the domains; first addressing Project Management, then Program Management, and finally, Portfolio Management. Each of these progressions is a continuum along which most organisations aspire to advance. Also within these two dimensions is the progression of Incremental Capabilities leading to each Best Practice. This can be graphically described as shown in Figure 2-1 below:

Figure 2-1: The Organisational Project Management Maturity Model (OPM3).



Source: Project Management Institute (2003).

OPM3 seeks to create a framework within which organisations can re-examine their pursuit of strategic objectives via Best Practices in organisational project management. This Standard is an initial statement on this Model, identifying and

organizing a substantial number of generally accepted and proven project management practices, and providing a means to assess an organisation's maturity against the Best Practices identified in this standard (Project Management Institute, 2003).

Finally, with the result of such an assessment, an organisation can decide whether to plan for improvements – and how to approach these improvements – to increase its maturity by developing more of the capabilities identified by the Standard. According to Project Management Institute (2003:171), the OPM3 is comprised of three general elements as shown in Figure 2-2 and these are:

Knowledge, presenting the contents of the Standard;
Assessment, providing a method for comparison with the Standard; and
Improvement, setting the stage for possible organisational changes.

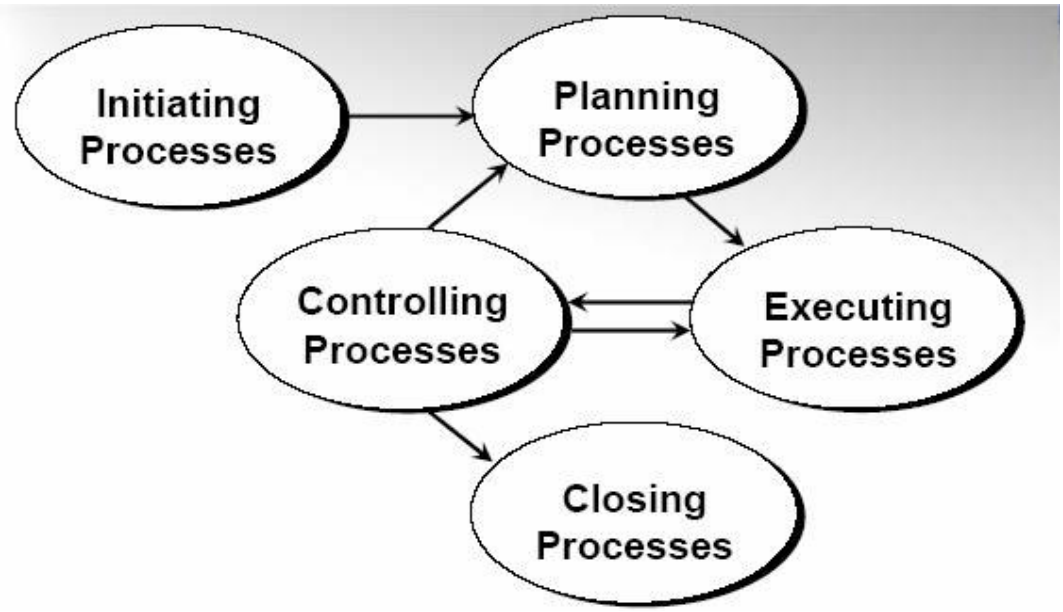
Figure 2-2: Three General Elements of the OPM3 Standard

Source: Project Management Institute (2003).

The OPM3 Knowledge Foundation is the first part and is a perquisite for the other two elements. The Assessment needs to be done with the help of the tool that accompanies the Knowledge Foundation. The Knowledge Foundation contains the complete list of Best Practices. It also has the list of questions for Self-assessment.

The Capabilities Directory and the Improvement Directory are present in the tool that also helps to navigate through the model (Project Management Institute, 2003:171). According to The Project Management Institute (2003), OPM3 was intentionally designed without an overall system of "Levels" of maturity. Establishing specific maturity levels can be relatively straightforward if the progression of maturity is one-dimensional. For example, as discussed above, there is a progression of four stages of process maturity from process standardization through to continuous process improvement. OPM3, however, is multi-dimensional. In addition to the three dimensions described above, OPM3 also categorizes the Capabilities in terms of their association with the five Project Management Process Groups [Initiating, Planning, Executing, Controlling, and Closing (IPECC)], permitting evaluation of a fourth dimension of maturity. Figure 2-3 is a depiction of IPECC dimension – 5 Process Groups from PMBOK used for Project, Program and Portfolio Management and Figure 2-4 below depicts OPM3's multi-dimension level of maturity.

Figure 2-3: IPECC dimension – 5 Process Groups

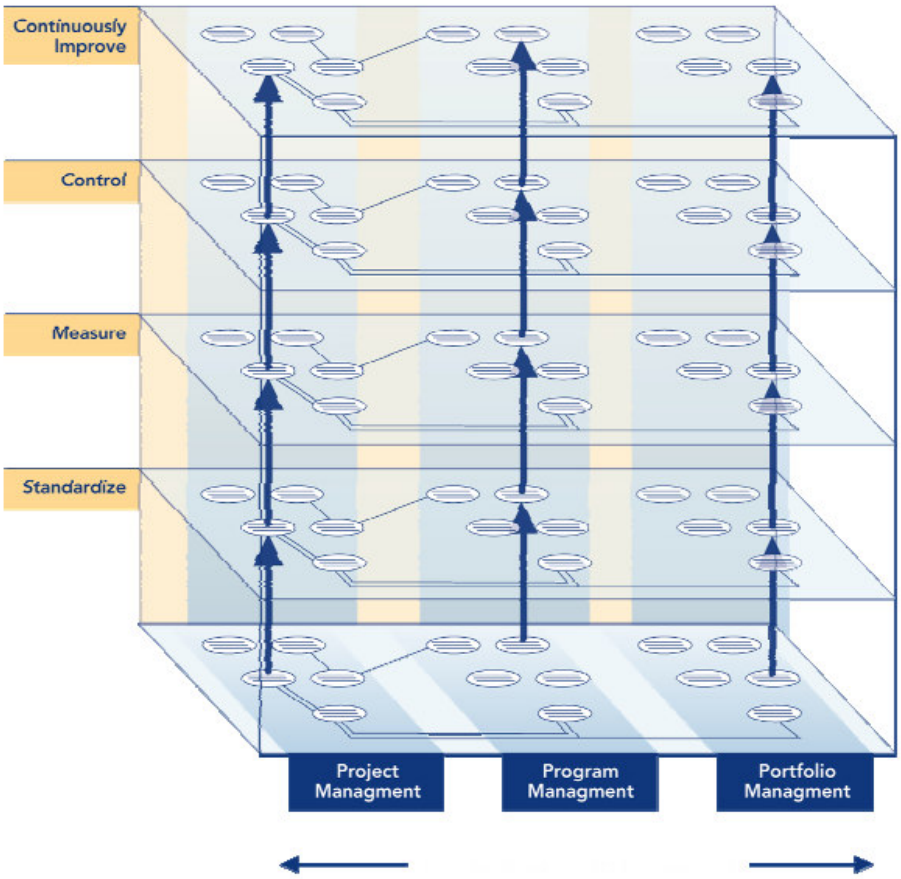


Source: Project Management Institute (2003).

Multiple perspectives for assessing maturity allow flexibility in applying OPM3 to the unique needs of an organisation. This approach also produces a more robust body

of information than is possible with a simpler, linear system of levels, giving the organisation greater detail in support of decisions and plans for improvement.

Figure 2- 4: OPM3's Multi-Dimension Level of Maturity



Source: Project Management Institute (2003).

2.5.2 Portfolio, Programme and Project Management Maturity Model (P3M3).

Introduction

The Portfolio, Programme and Project Management Maturity Model (P3M3), described in this document, is an enhanced version of the Project Management Maturity Model developed by Office of Government Commerce. The enhanced version of the Project Management Maturity Model is based on the process maturity

framework that evolved into the Software Engineering Institute's (SEI) Capability Maturity Model (CMM). However, since P3M3 was designed SEI has overhauled radically their set of Maturity Models to create CMMI (Office of Government Commerce, 2006).

Similar to the SEI-CMM, the Portfolio, Programme and Project Management Maturity Model (P3M3) is described by a five level maturity framework. These levels constitute the structural components that comprise the P3M3 (Office of Government Commerce, 2006).

The P3M3 describes the portfolio, programme and project-related activities within key process areas that contribute to achieving a successful project outcome. The P3M3 recognises not only the programme and project management activities being carried out at the individual programme and project level, but also those activities within an organization that provide focus and help sustain efforts to build a programme and project infrastructure of effective programme and project approaches and management practices. In the absence of an organisation-wide programme and project infrastructure, repeatable results depend entirely on the availability of specific individuals with a proven track record; this does not necessarily provide the basis for long-term success and continuous improvement throughout the organisation (Office of Government Commerce, 2006).

The levels described within the P3M3 indicate how key process areas can be structured hierarchically to provide transition states for an organisation wishing to set realistic and sensible goals for improvement. The levels facilitate organisational transitions from an immature state to become a mature and capable organisation with an objective basis for judging quality and solving programme and project issues (Office of Government Commerce, 2006).

An organisation that is judged immature in programme and project management terms may deliver individual programmes and projects that produce excellent results occasionally. However, managers are more likely to work in a reactive mode, i.e. focused on solving immediate issues. Programme and project schedules and budgets are likely to be exceeded because of the lack of sound estimating

techniques. If deadlines are imposed, programme and project deliverable quality is likely to be compromised to meet the schedule. For example, verification and validation activities, including reviews may be skimped or dropped if the programme and projects fall behind schedule (Office of Government Commerce, 2006).

A mature organisation has an organisation-wide ability for managing programmes and projects based on standard, defined programme and project management processes. These processes can be tailored to meet specific organisational needs. The programme and project approaches are communicated to programme and project team members and stakeholders, and activities are carried out in accordance with the plans and defined processes (Office of Government Commerce, 2006).

Overview of the model

The Portfolio, Programme and Project Management Maturity Model (P3M3) can be used as the basis for improving portfolio, programme and project management processes. It is structured with five levels of maturity, which are:

- Level 1 - initial process;
- Level 2 - repeatable process;
- Level 3 - defined process;
- Level 4 - managed process;
- Level 5 - optimised process;

These five levels constitute the structural components that comprise the P3M3 and can be characterised as outlined in Table 2-1 below.

Table 2-1: The Structural Components that Comprise the P3M3 Model

Maturity:	Project	Programme	Portfolio
Level 1 - *initial process*	Does the organisation recognise projects and run them differently from its ongoing business? (Projects may be run informally with no standard process or tracking system.)	Does the organisation recognise programmes and run them differently to projects? (Programmes may be run informally with no standard process or tracking system.)	Does the organisation's Board recognise programmes and projects and run an informal list of its investments in programmes and projects? (There may be no formal tracking and reporting process.)
Level 2 - *repeatable process*	Does the organisation ensure that each project is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or co-ordination between projects)	Does the organisation ensure that each programme is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or co-ordination between programmes)	Does the organisation ensure that each programme and/or project in its portfolio is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or co-ordination)
Level 3 - *defined process*	Does the organisation have its own centrally controlled project processes, **and** can individual projects flex within these processes to suit the particular project?	Does the organisation have its own centrally controlled programme processes **and** can individual programmes flex within these processes to suit the particular programme?	Does the organisation have its own centrally controlled programme and project processes **and** can individual programmes and projects flex within these processes to suit particular programmes and/or projects. And does the organisation have its own portfolio management process?
Level 4 - *managed process*	Does the organisation obtain and retain specific measurements on its project management performance **and** run a quality management organisation to better predict future performance?	Does the organisation obtain and retain specific measurements on its programme management performance **and** run a quality management organisation to better predict future programme outcomes?	Does the organisation obtain and retain specific management metrics on its whole portfolio of programmes and projects as a means of predicting future performance? Does the organisation assess its capacity to manage programmes and projects and prioritise them accordingly?
Level 5 - *optimised process*	Does the organisation run continuous process improvement **with** proactive problem and technology management for projects in order to improve its ability to depict performance over time and optimise processes?	Does the organisation run continuous process improvement **with** proactive problem and technology management for programmes in order to improve its ability to depict performance over time and optimise processes?	Does the organisation run continuous process improvement **with** proactive problem and technology management for the portfolio in order to improve its ability to depict performance over time and optimise processes?

Source: Office of Government Commerce (2006).

2.5.3 SEI Capability Maturity Model (CMM)

Introduction

Between 1986 and 1993, as part of its efforts to improve management practice, The Software Engineering Institute (SEI) developed a framework of five stages of evolution in levels of capability called a Capability Maturity Model (CMM)® (SEI, 1993). SEI describes a model as a simplified representation of the world; its Capability Maturity Models (CMMs) are defined as containing "the essential elements of effective processes for one or more bodies of knowledge" (SEI, 2002). "These elements are based on the concepts developed by Crosby (1979), Deming (1986), Juran (1988), and Humphrey (1989)".

The basic SEI framework describes an evolutionary improvement path that organisations should take through five stages of maturity: initial level, repeatable level, defined level, managed level and optimizing level.

Harpham, and Kippenberger (2004) state that SEI's first model was for developing and managing software (SW-CMM) but it subsequently developed a Systems Engineering Capability Maturity Model (SE-CMM), an Integrated Product Development Capability Maturity Model (IPD-CMM), a Software Acquisition Capability Maturity Model (SA-CMM) and a People Capability Maturity Model (P-CMM).

The Capability Maturity Model® (CMM®) for software is a widely accepted set of guidelines for developing high-performance software organisations. Patterson (1993) argues that this increasing applicability of a generic model has led some to believe that it is even more widely applicable: "Although the Software Engineering Institute adapted its maturity model to assess software development processes, it seems to be useful for understanding any kind of process in any environment." (Patterson, 1993).

In the development of the CMM, Paulk, Weber, Garcia, Chrissis, & Bush (1993:7) define a maturity level as:

> "…*a well defined evolutionary plateau toward achieving a mature software process."*

CMM sees maturity as performing a set of activities to a given level of capability and is determined by calculating the average quotient of the responses to a set list of questions.

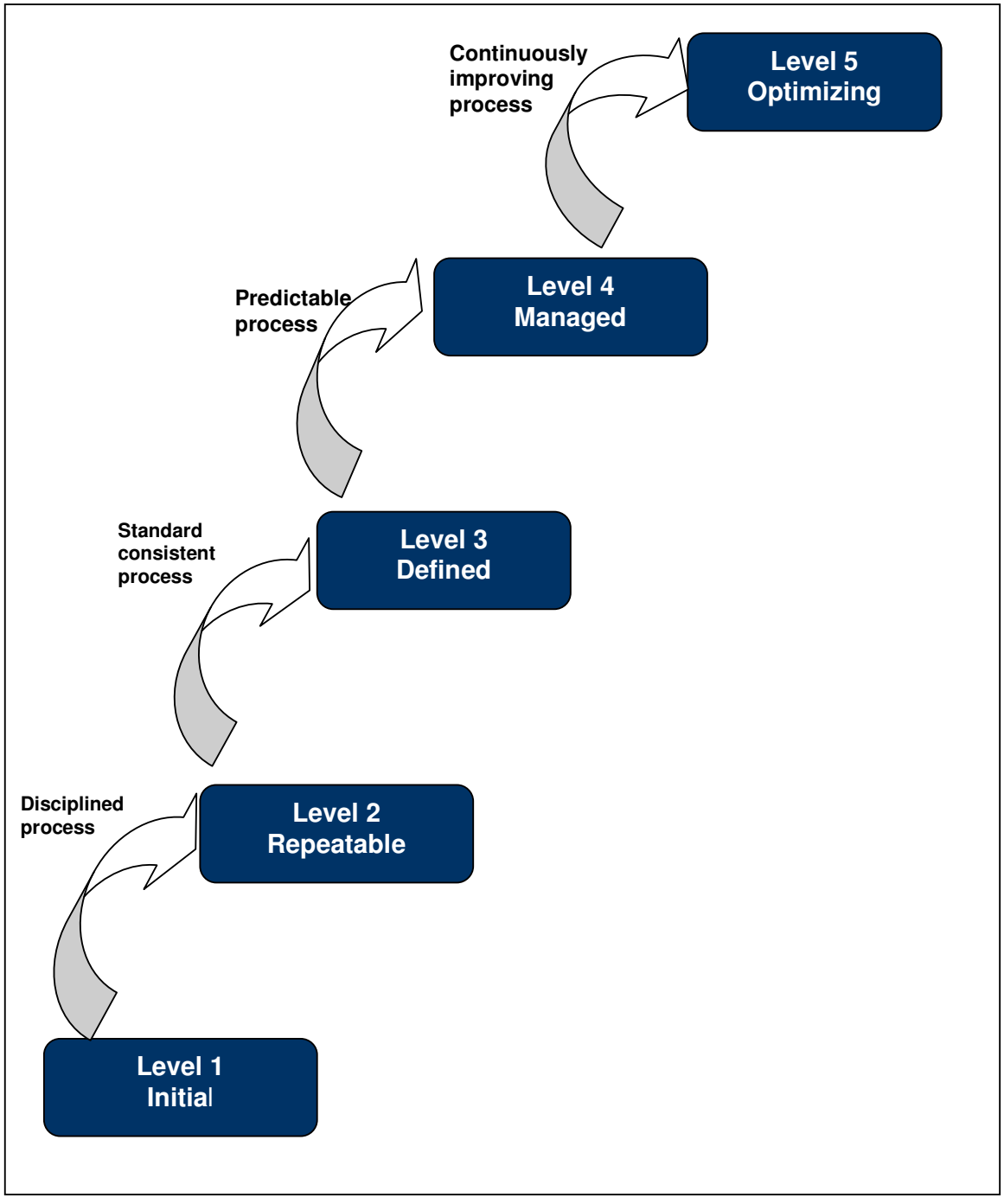
Overview of the model

Paulk *et al*. (1993) further structured the internal architecture of the model along the lines illustrated in Figure 2-5. In this structure, each maturity level is composed of Key Process Areas. Each Process Area consists of a cluster of activities; when these activities are collectively executed they achieve the goals necessary for enhancing process capability. The Key Process Areas are the essential actions. Each Process Area is divided into five sections called Common Features. These Common Features specify the key practices that, when collectively addressed, accomplish the foals of the Key Process Areas. These practices indicate whether the implementation or institutionalisation of a Key Process Area has been effective, repeatable and lasting.

Each Key Process Area is described in terms of key practices that describe the activities and infrastructure required to implement and institutionalise the key process area. The model, and not the questionnaire, was seen as the vehicle for driving this performance improvement. Paulk *et al*. (1993) claim that CMM is a normative model yet has the flexibility to be customized. It is now clear that it is biased towards the software development process with limited applicability to project management in general. This explains the abundance of maturity models as indicated by Cooke-Davies (2004a).

Figure 2-5 graphically illustrates the model while Table 2-2 provides further details on the definition of the various maturity levels. The capabilities institutionalised at each level of maturity are shown as comments alongside the arrows in Figure 2-5.

Figure 2-5: CMM for Software Development



Source: Paulk et al.(1993).

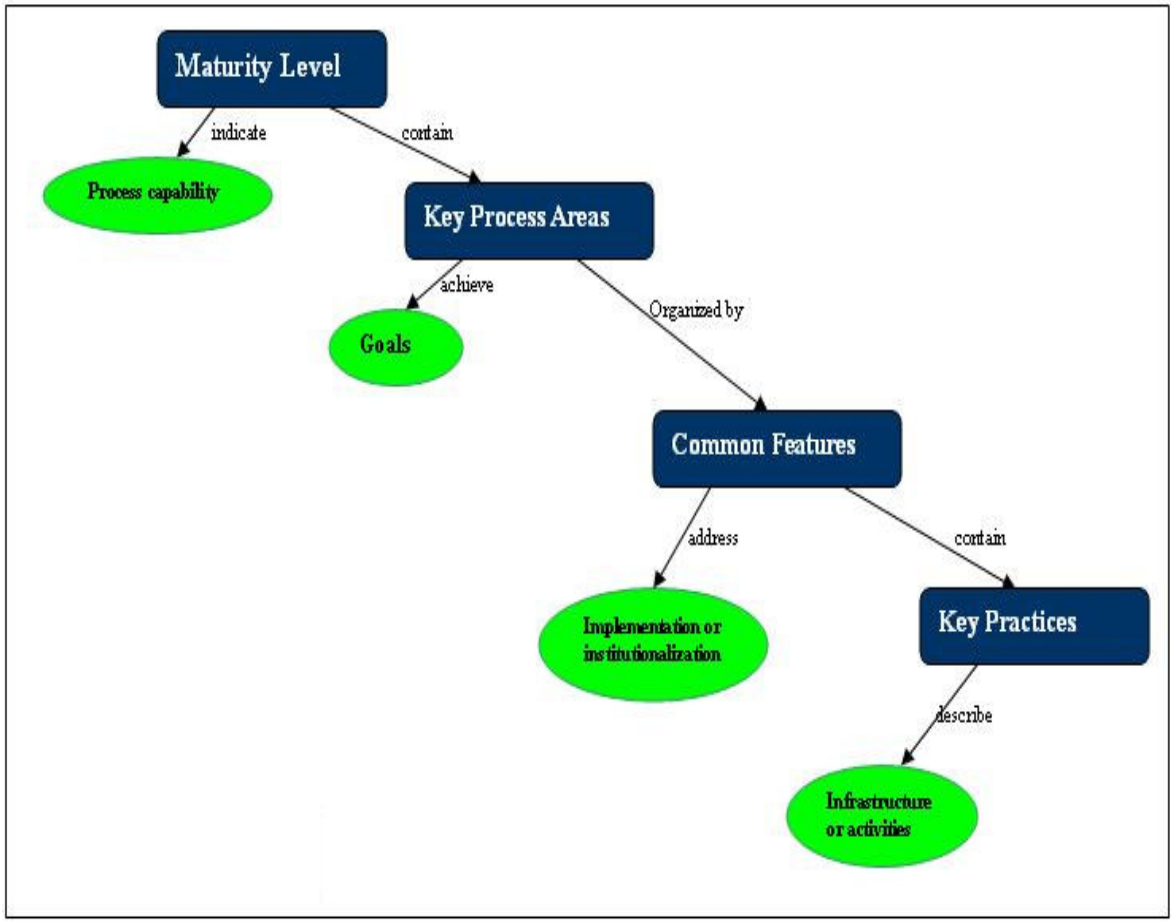
Table 2-2: Description of the CMM levels

LEVEL	NAME	CHARACTERISTICS
Level 1	**Initial**	This is the lowest level of Project Management Maturity. Project management is done on an Ad Hoc basis. Success at this Level is due to the heroics of individuals. Few processes are defined at this level.
Level 2	**Repeatable**	Project management processes and practices are in place to track time and cost.
Level 3	**Defined**	Processes are fully documented. All projects use a common process.
Level 4	**Managed**	Documented is used in a meaningful manner to find the root cause of problems.
Level 5	**Optimizing**	Deals with ongoing improvement. Continuous improvement is established.

Source: Paulk et al.(1993).

In spite of the limitations of CMM, subsequent models have borrowed considerably from it. This will become evident from the rest of this section that will summarise other models in use.

Figure 2-6: Internal Structure of CMM



Source: Paulk *et al*. (1993).

2.5.4 Project Management Maturity Model (PMMM)

Introduction

Fincher and Levin (1997) proposed their PMMM on the basis of goals that an organisation may use to assess their maturity level. By focusing on the weak areas identified in a comparison exercise evaluating the suggested goals, it is possible to identify where improvements may be initiated to improve project management performance.

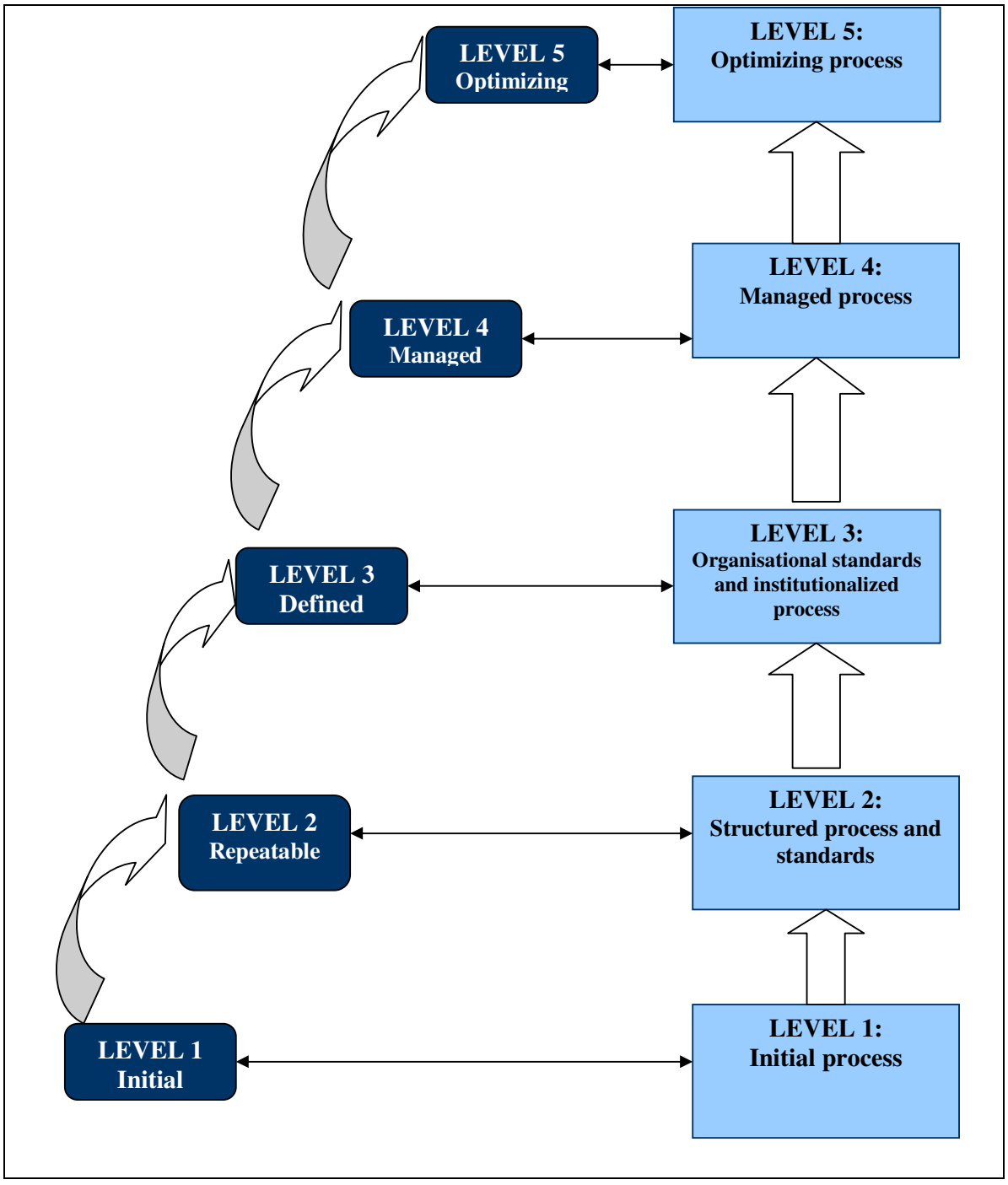
Overview of the model

PMMM (Figure 2-7) is derived from the CMM and therefore bears many of the characteristics of the CMM. It defines maturity as the maturity of activities that are preformed in the project environment and consists of 5 (five) levels that follow the sequential characteristics of CMM. It has defined the levels differently (Table 2-3). Thus, the levels of PMMM appear to have a one-to-one mapping in the CMM.

All nine of the PMBOK areas of knowledge are included at each level in this model. It is a fairly close adaptation of the SEI CMM, so it too has five levels and their definitions reflect the same types of goals as the CMM. An analysis of these levels by Skulmoski (1997) suggests that there are inconsistencies between the different levels in the model. There is no evidence that the model has been empirically tested. Mastery of the PMBOK effectively constitutes level 4, so it does not challenge the status quo in any significant way.

The underlying structure of this model is based on the nine knowledge areas of the PMBOK (Project Management Institute, 2000) and three additional areas (management oversight, project office and professional project management development) that are required for maturity. These additional three areas, according to Crawford (2002), are essential ingredients for institutionalizing project management. They are not included as separate knowledge areas. Instead, they are woven into the nine knowledge areas. Thus, PMMM sees maturity as the development of expertise, skills and knowledge in these areas.

Figure 2-7: Mapping of CMM to PMMM



Source: Crowford (2002).

Table 2-3: Definition of the Levels of PMMM

LEVEL	NAME	CHARACTERISTICS
Level 1	**Initial Process**	There are no established practices or standards and individual project managers are not held accountable by any specific standards. Documentation is loose and Ad Hoc.
Level 2	**Structured Process and Standards**	Many project management processes exist in the organisation but they are not considered an organisational standard. Documentation exists on these basic processes
Level 3	**Organisational Standards and Institutionalized Process**	All Project management standards are in place and are organisational standards. Almost all projects use these standards with few exceptions. Management is regularly involved in the input and approval of key decisions and issues.
Level 4	**Managed Process**	Metric becomes the norm for managerial decision making. These help to make decisions based on past performance efficiency and prediction of future performance.
Level 5	**Optimizing Process**	All processes are in place and are actively used to improve project management processes.

Source: Crowford (2002).

2.5.5 Project Management Process Maturity Model (PM)^2

Introduction

This is the last of the PMBOK-based models. It was developed by Ibbs and Kwak (1997) and is described in a PMI publication. This is the most comprehensive of the PMBOK-based models; it is based on a study that was intended to identify the organisational and financial benefits of Project Management.

The authors looked at 38 organisations and assessed their maturity, using a simple and prescriptive model. This model was developed to help project managers assess organisational maturity and return on investment (ROI) that might accrue from this process. The model is loosely based on SEI's CMM.

PM^2 is also referred to as the Berkeley Project Management Process Maturity model (Kwak and Ibbs, 2000b). PM was developed by a research team at the University of California at Berkeley as part of the study that investigated the link between ROI and project management maturity. Ibbs and Kwak (2000b) are of the opinion that the model was needed because other models were skewed towards specific industries, such as Software or specific phases of the project life cycle (such as new product development). They required a model for their investigation that could measure maturity across industries.

Quality management theories and practices influenced the fundamental idea of the $(PM)^2$ model. Crosby (1979) presented the five incremental maturity stages for adopting the quality concept within the organisation. Deming (1986) introduced continuous process improvement practices for better quality management within the organisation.

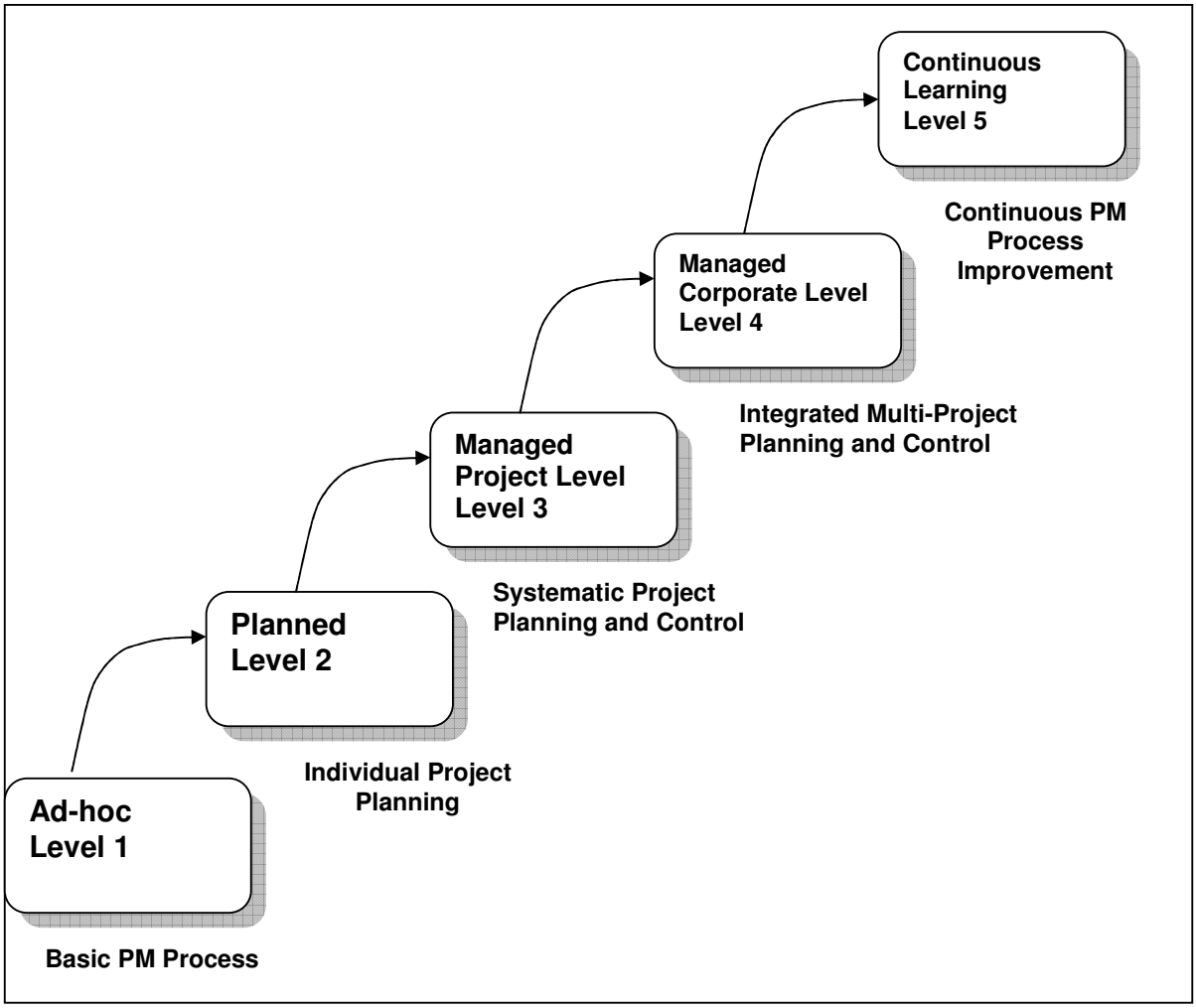
Overview of the model

The $(PM)^2$ model is developed by integrating previous maturity models that measure the PM levels of different companies and industries. The model becomes the basis to evaluate and position an organisation's current PM maturity level. It illustrates a series of steps to help an organisation incrementally improve its overall PM effectiveness (Kwak and Ibbs, 2000b).

The $(PM)^2$ model breaks PM processes and practices into nine PM knowledge areas and five PM processes by adopting PMI's PMBOK (PMI, 2000). This allows an organisation to determine the strengths and weaknesses of current PM practices and focus on the weak PM practices to achieve higher PM maturity (Kwak and Ibbs, 2000b). Each PM maturity level contains key PM processes, organisational

characteristics, and focus areas (Kwak and Ibbs 2000b). The model is graphically displayed in Figure 2-8 while Table 2-4 summarizes key aspects of the $(PM)^2$ model.

Figure 2-8: Project Management Process Maturity Model $(PM)^2$



Source: Kwak and Ibbs (2000).

Measuring maturity using this model involves answering a 148-question questionnaire. The questionnaire consists of three categories of questions (i.e. strengths in terms of PMBOK, general organisational information and organisational project management processes).

An advantage of using this model is that it is proprietary and has seen limited use in the open literature.

Table 2-4: Major Organisational Characteristics of $(PM)^2$ Model

LEVEL	NAME	CHARACTERISTICS
Level 1	**Ad-Hoc stage**	There are no formal procedures to execute projects. Documentation is loose and Ad Hoc.
Level 2	**Planned Stage**	Project management processors are partially recognized and controlled by project managers. Project management possessors are efficient for individual project planning but not for controlling the project or any portfolio of projects.
Level 3	**Managed Stage**	Project management processors become more robust and demonstrate systematic planning and control characteristics.
Level 4	**Integrated Stage**	The organisation can plan, integrate, and control multiple projects efficiently. Project management processors are well defined, quantitatively measured, understood and executed.
Level 5	**Sustained Stage**	Organisations at this stage continuously improve their project management processes and practices.

Source: Kwak and Ibbs (2000).

2.5.6 Kerzner Maturity Model

Introduction

Kerzner (2004) and the International Institute for Learning (IIL) view project management as a core competency that many companies must develop in order to remain competitive in the market place. In this context, project management maturity models are important strategic tools for senior management, allowing an organisation to benchmark its capabilities in respect of project management. As

such, a project management maturity assessment model is a tool for establishing project management excellence, which is considered a core condition for success.

This assessment framework is based on Kerzner (2004) five-level project management maturity model. Several years in development, the Kerzner maturity model is the result of real-life application within a number of world-class organisations. The tool has been industry validated and is fully aligned with the PMBOK® Guide. Kerzner (2004) is widely regarded as one of the world's most knowledgeable authorities on project management strategies and methodologies.

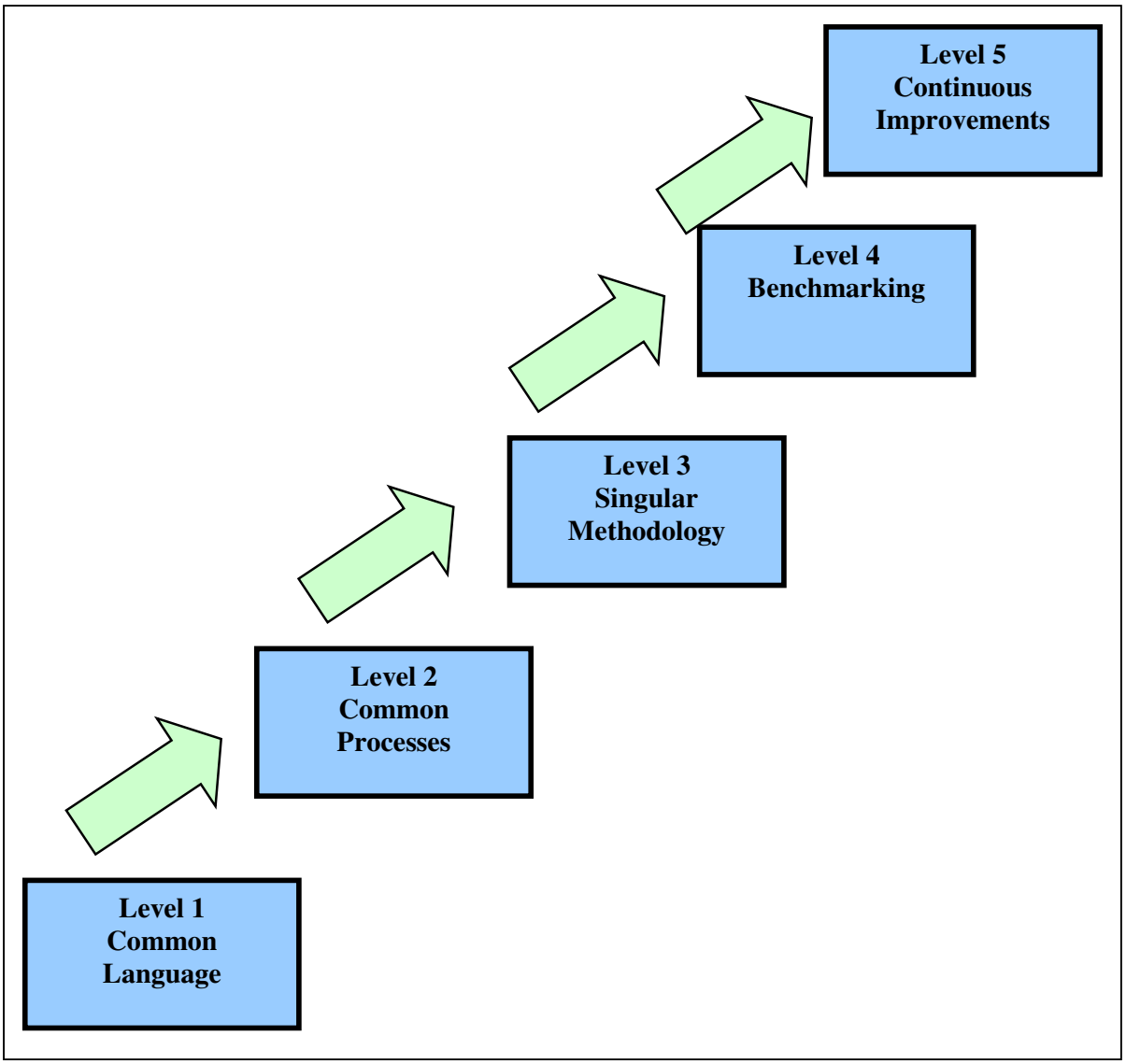
Like $(PM)^2$ and CMM, Kerzner's maturity model defines five levels by which an organisation is ranked from insufficient project management processes to adequate project management processes leading to continuous improvement.

Overview of the model

The Kerzner (2004) model bears a number of similarities to CMM. It is a five level model with continuous improvement at the upper most level. However, this model allows for some degree of overlapping of the maturity levels. Yet, even though overlapping does and can occur, the order in which maturity levels occur cannot change. Furthermore the top three levels form a continuum with benchmarking and continuous improvement forming the input to the singular methodology that is continuously updated. When an organisation reaches this level of maturity, it means it has institutionalized project management to the extent that its continuous process improvement cycle is self- sustaining (Kerzner, 2005).

The five levels of this model are graphically displayed as shown in Figure 2-9 and described as shown in Table 2-5.

Figure 2- 9: Kerzner Maturity Model



Source: Kerzner (2005).

Table 2-5: Kerzner's maturity levels

LEVEL	NAME	CHARACTERISTICS
Level 1	**Common Language**	The organisation recognizes the importance of project management and the need for a good understanding of the basic knowledge on project management.
Level 2	**Common Processes**	At his level, the organisation recognizes that common processes need to be defined and developed so that project success can be repeated.
Level 3	**Singular Methodology**	The organisation defines a single methodology for project management in order to take advantage of the associated synergistic effect.
Level 4	**Benchmarking**	The organisation recognizes that process improvement is necessary to maintain competitive advantage.
Level 5	**Continuous Improvement**	At this level, the organisation evaluates the information obtained through benchmarking and decides how to improve its processes.

Source: Kerzner (2005).

2.5.7 MicroFrame's Self-assessment Tool

Introduction

MicroFrame Technologies, together with Project Management Technologies, have developed and made available on the Internet a Self-assessment tool for project management maturity. The Self-assessment tool comprises 50 multiple-choice questions (Enterprise Planning Associates, 2000). The results determined through this quick Self-assessment exercise ranks assessments in one of five categories outlined in Table 2-6.

Table 2-6: MicroFrame's Maturity Model

LEVEL	NAME	CHARACTERISTICS
Level 1	**Ad-Hoc**	The project management process is described as disorganized, and occasionally even chaotic. Systems and data processes are not defined. Project success depends on individual effort. Chronic cost and schedule problems.
Level 2	**Abbreviated**	Some project management processes and systems are established to track cost, schedule, and performance. Underlying disciplines, however, are not well understood or consistently followed. Project success is largely unpredictable and cost and schedule problems are the norm.
Level 3	**Organized**	Project management processes and systems are documented, standardized, and integrated into an end-to-end process for the company. Project success is more predictable. Cost and schedule performance is improved.
Level 4	**Managed**	Detailed measures of the effectiveness of project management are collected and used by management. The process is understood and controlled. Project success is more uniform. Cost and schedule performance conforms to plan.
Level 5	**Adaptive**	Continuous improvement of the project management process is enabled by feedback from the process and from piloting innovative ideas and technologies. Project success is the norm. Cost and schedule performance is continuously improving.

Source: Sonnekus and Labuscagne (2004).

2.6 Project Management Surveys

There are many maturity surveys which have been conducted in different countries assessing maturity of different industries. In this section few surveys are covered and the summary of their key results are indicated.

The researcher firstly covers the survey held by Sonnekus and Labuscagne (2004) in South African companies operating within the IT industry. This survey has been widely published in open literature.

Sonnekus and Labuscagne (2004) assessed the success rates and maturity of IT project management in South Africa. They developed their own five-level maturity model by adapting and modifying existing models. They collected the required data by contracting 90 Honours students to interview 800 IT project managers. The study confirmed Ibbs and Kwak's (2000) reaching a conclusion that risk management was the least mature of the knowledge areas. However, scope management was found to be the most mature aspect within the IT project industry.

Sonnekus and Labuscagne (2004) also found that the managers perceived their maturity to be higher than what it actually was. The actual maturity of the industry was 3,00 on a 5 point scale. Sonnekus and Labuscagne (2004) also showed that there is a link between project management maturity and project success rate. Sukhoo *et al*. (2005) duplicated this study on the Mauritian IT sector. He found that the perceived maturity was less than the actual maturity and that the average maturity in the Mauritius IT sector was 3 on a 5 point scale.

PriceWaterhouseCoopers (2004) conducted a worldwide survey to assess the state of project management of companies from different industries. They applied an Internet-based instrument (developed internally) consisting of 50 questions to gather information about project management from top, senior and project managers from different industries. No face-to-face interviews were performed. PriceWaterhouseCoopers state that the average maturity of companies was 2,5 (on a 5 point scale) while only 13% are at level 5.

Ibbs and Kwak (2000) developed their own model (PM) for studying the relationship between project management maturity and return on investment. In their work, they designed a maturity questionnaire. Thirty eight (38) large international companies from four different industries were surveyed. Follow up sessions were used in order to clarify questions. Ibbs and Kwak found that maturity levels ranged from a low of 3,06 to a high of 3,36, while the measured maturity of risk management was found to be the lowest of all knowledge areas; time management was assessed to have the highest maturity of the knowledge areas.

Cooke-Davies (2004c) is of the opinion that assessment of an organisation should typically involve more than five people to obtain a statistically significant result. He argued that responses from ten to fifteen individuals should ideally be used to determine the maturity of an organisation. The sample used should also be representative of project personnel. He further held the view that obtaining more than fifteen respondents may be impractical. Furthermore, the use of follow-up interviews is recommended to clarify discrepancies and to ensure consistency.

Bolles (2002) concurs with Cooke-Davies' latter recommendation. McCauley (1993) stresses the importance of evaluating multiple projects to measure organisational maturity accurately.

2.7 Chapter Summary

This chapter covered and examined basic principles of project management and its peculiarities in project oriented organisations. This chapter further analyzed project management literature with particular focus on the concept of project management maturity and project maturity assessment models.

This chapter covers a number of commonly used maturity models, most of which are found to be based on the Capability Maturity Model.

This chapter ends by covering surveys conducted to measure maturity levels of different organisations within diverse industries.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology which was applied by the researcher to find answers to the research questions. This chapter further displays the systematic process that was followed to reach the conclusion and that acceptable research methodologies were observed and applied.

The primary objective of the present study is to assess and evaluate the degree of project management maturity of the SAGPAD, which are involved in PPP projects against the scope of their mandate and set strategic objectives using OPM3 assessment model.

The research proposition that is being tested in the present study is summarized as follows: The level of organisational project management maturity of the SAGPAD has moved to the second level (i.e. Planned/Measure stage) of progressive stages of the maturity ladder.

3.2 Research Methodologies: Theory and Practice

3.2.1 Introduction

Most researchers believe that no matter what paradigm is chosen to undertake research certain values should be adhered to regarding the control of bias and the maintenance of objectivity in terms of both the research process itself and the conclusions drawn. It is the application of these values through the process of information gathering, analysis and interpretation that enables it to be called a research process.

There are several methods of collecting information and interpreting answers to questions—conducting research is one option. According to Kumar (2005), the difference between a research survey and other methods of obtaining answers to questions is that in a process classified as research, one needs to work within a framework containing a set of philosophies, use methods that have been tested for validity and reliability, and attempt to be unbiased and objective.

CHAPTER 3

Kumar (2005) states that the part to finding answers to research questions constitute research methodology.

Kumar (2005) argues that a research study can be carried out with the following four objectives:-

- To describe a situation, phenomenon, problem or issue (descriptive research);
- To establish or explore a relationship between two or more variables (core relational research);
- To explain why things happen the way they do (explanatory research); and
- To examine the feasibility of conducting a study (exploratory research).

Kumar (2005) states that from the point of view of the mode of enquiry, there are two types of research: *quantitative* and *qualitative*. The main objective of qualitative research is to describe the variation in a phenomenon, situation or attitude, whereas quantitative research, in addition, helps the researcher to quantify or measure the variation (Kumar, 2005).

There are many definitions of qualitative research; Strauss and Corbin (1990:17) define it as

> "*any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification".*

Berg (2001) differentiates between qualitative and quantitative research by identifying qualitative research as referring to meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things, whereas quantitative research as referring to counts and measures of things. Denzin and Lincoln (1994:4) state that qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and situational constraints that shape inquiry. Researchers seek answers to questions that stress how social experience is created and given meaning. In contrast, quantitative studies emphasise the measurement and analysis of causal relationships between variables, not processes. Inquiry is purported to be within a value-free framework.

CHAPTER 3

Kumar (2005) argues that quantitative and qualitative research methodologies differ in the basic philosophy that underpins their mode of inquiry; to some extent this also applies to the method, model and procedure used. Though the research process is broadly the same in both models, quantitative and qualitative research methodologies are differentiated in terms of the methods chosen for data collection, the procedures adopted for data processing and analysis, and the style of communication of the findings (Kumar, 2005).

Kumar (2005) states that if any research problem lends itself to a qualitative mode of inquiry the researcher is more likely to use unstructured interviews or observations as a method of data collection. When analyzing qualitative-related data the researcher goes through the process of identifying things and describing what information has been gleaned from interviews or observation rather than subjecting data to statistical procedures (Kumar, 2005).

Research methods are generally categorized as being either qualitative or quantitative. There are various methods and procedures used both by quantitative and qualitative researchers.

Kumar summarizes the differences between these two research categories as outlined in Table 3-1.

The choice of methods and procedures is influenced by qualitative or quantitative distinctions. The applicability and use of methods covered in this dissertation are not extensive and exhaustive due to time constraints and keeping within the parameters of the required number of pages allocated to this study to document research findings.

Table 3-1: Differences between Qualitative and Quantitative Research Categories

DIFFERENCE WITH RESPECT TO	QUANTITATIVE RESEARCH	QUALITATIVE RSEARCH
Underpinning philosophy	Rationalism: "that human beings achieve knowledge because of their capacity to reason" (Bernard 1994:2)	Empiricism: "the only knowledge that human beings acquire is from sensory experiences" (Bernard 1994:2)
Approach to enquiry	Structured/rigid/predetermined methodology	Unstructured/ flexible/open methodology
Main purpose of investigation	To quantify extent of variation in a phenomenal situation of issue .	To describe variation in a phenomenon, situation, issue etc.
Measurement of variables	Emphasis on some form of either measurement or classification of variables	Emphasis on description of variables
Sample size	Emphasis on greater sample size	Fewer cases
Focus of enquiry	Narrows focus in terms of extent of enquiry, but assembles required information from a greater number of respondents	Cover multiple issues but assembles required information from fewer respondents
Dominant research value	Reliability and objectivity (value free)	Authenticity but does not claim to be value free
Dominant research topic	Explains prevalence, incidence, extent, nature of issues, opinions and attitudes; discovers regularities and formulate theories	Explores meanings, experiences, perceptions and feelings
Analysis of data	Subjects variable to frequency distributions; cross-tabulations or other statistical procedures	Subjects responses, narratives or observation data to identification of things and describes these
Communication of findings	Organisation more analytical in nature, drawing inferences and conclusions, and testing magnitude and strength of a relationship.	Organisation more descriptive and narrative in nature

Source: Kumar (2005).

Kumar (2005) provides a good summary of the methods that are found under each of the above indicated research categories. Such methods are covered in the paragraphs below.

3.2.2 Quantitative Methodologies

Kumar (2005) states that qualitative research involves methodologies such as *closed surveys, structured interviews* and *sociograms* (diagrammatic representations of interactions between individuals), which enable data (concrete or conceptual) to be collected, measured and compared with a standard. In general, quantitative methods can be used to draw statistical inference—that is, drawing empirical conclusions about an entire population based on a sample. The examples of these methodologies are summarized by Kumar (2005), as follows:

(a) Survey: is a methodology which can use different instruments such as observation, interview or a written list of questions called a questionnaire. Surveying is the process of conducting a study from representative samples of specific broad populations (for example, women in the workforce, Year 9 students, and recent immigrants). If a questionnaire is used, it may be comprised entirely of closed questions, multiple-response questions, Lickett scale questions (differential sliding scale or rating scale questions), open-ended questions, or may be a combination of all question styles. Data recording sheets for observation or a short list of structured interview questions are two other instruments that can be used during a survey.

The strong point of surveys is that this form of investigation demonstrates high construct validity when the right controls are in place and they have high reliability when the sample is representative of the population they are studying. They are cost effective and enable the researcher to reach a wider audience. A self administered survey is convenient for reaching busy executives and allows employees to complete the lengthy survey at their own convenience. Mail surveys provide the benefit of anonymity. This enables responses to be more open and frank.

Typically, errors with surveys arise when the sample is not representative of the population; there are errors with the instrument or the response rate is low. Ideally, all surveys should aim for a random sample of the population they are studying. Surveys cannot be long or complex and the researcher has to be aware that responses can often be from extremes of the population. Surveys also lack depth and detail. Another limitation of this method of conducting research is that surveys are a function of the questionnaire and method used to gather the data. Since there may or may not be personal contact with respondents, these methods miss contextual factors. Surveys also need as large a number of respondents as possible.

(b) Observation: This methodology involves watching and recording behaviours within a clearly defined area. The researcher plays the role of passive observer and is, therefore, outside the action/s being observed and recorded.

(c) Questionnaire: a commonplace instrument for collecting data beyond the physical reach of the researcher, that is, from a large or diverse sample of people. It is an impersonal instrument for collecting information and must, therefore, contain clear questions, worded as simply as possible to avoid any confusion or ambiguity since the researcher probably will not be present to explain what was meant by any one particular question. The questionnaire should be designed to fulfill a specific research objective; it should be brief and the sequence of the questions logical.

(d) Statistical analysis: examining data to interpret meaning, make generalisations and extrapolate trends. Often the data is presented in graphical form and because these data are expressed in the language of mathematics, they should be evaluated and interpreted by means of appropriate mathematical or statistical procedures.

3.2.3 Qualitative Methodologies

Kumar (2005) states that these methodologies involve a phenomenological perspective whereby researchers aim to understand, report and evaluate the meaning of events for people in particular situations, that is, how their social world is structured by the participants in it. The focus of qualitative methodologies is the way in which participants (rather than the researcher) interpret their experiences and construct reality. Some examples of a survey conducted using qualitative methodologies are an unstructured interview, focus group, open-ended

questionnaire and participant observation. The examples of these methodologies are summarized by Kumar (2005), as follows:

(a) Interview: an interview may be tightly structured, semi-structured, unstructured, in-depth or conversational. This methodology involves the researcher and the interviewee in a one-to-one situation and may be quite time consuming. The researcher may interview several people at different times using the same interview question schedule.

In the interview, the researcher is able to ask probing, follow-up questions and open ended questions. Therefore the interview can be tailored to the situation and to the respondent. In this instance, the interviewer also has the opportunity to clarify questions and misunderstandings as the interview progresses. It is not possible to achieve this in other methods such as surveys.

(b) Participant observation: the researcher is immersed in the action being observed but his/her role as researcher is not obvious. An example of participant observation methodology occurs when the researcher goes into a shopping centre in a wheelchair or joins a group in order to study its position within a particular environment and tests various objective and subjective responses. Researchers using participant observation must be aware of the ethical implications of this methodology. A methodology wherein the researcher's role is more in the open is known as *participant-as-observer methodology*. In this, the researcher still participates in, as well as observes, the action being studied but does so with the knowledge of other participants.

(c) Ethnographic study: the systematic collection of data derived from direct observation of the everyday life of a particular society, group or subculture. This methodology requires the researcher's immersion in the culture/subculture under study and is an interactive process. The researcher is interested in understanding the customary actions, beliefs, knowledge and attitudes of the social group as these are reflected in the ways of engaging in everyday life.

(d) Focus group: a small group of about 3 - 8 persons whose members are brought together by the researcher for an in-depth discussion of a specific issue or topic. The researcher plans an interview schedule and organises the time and place. A tape

recorder is essential for the success of the utilisation of this methodology. The techniques of conducting the focus group are similar to conducting an in-depth interview; the researcher needs, however, to be able to manage up to eight people talking about the issue or topic.

(e) Action research: is an informal, qualitative, interpretive, reflective and experimental methodology that requires all the participants to be collaborative researchers. Action research is carried out by people who usually recognise a problem or limitation in their workplace situation and, together, devise a plan to counteract the problem, implement the plan of action, observe what happens when change is put into operation, reflect on these outcomes, revise the plan, implement it, reflect, revise and so on until consensus is achieved based on a functional success-oriented way forward. Action research can be thought of as a spiral of planning, acting, observing and reflecting, occurring through time until the most desirable outcomes for all participants are achieved.

When done properly, action research methodologies have high construct validity. Their source of error is the probability of the researcher getting emotionally involved and hence introducing bias into the research results.

(f) Case studies: according to Yin (1994), case study (CS) designs are ideal research models to use when a detailed study of a phenomenon in its real life setting is to be explored. In CS research, data is collected from various sources using diverse data collecting techniques and methods. Barnes (2001) states that ethnography, interviews, questionnaires and document analysis can occur when using CS research to gather data.

Perry (2001), in his review of case study methodologies, found that case studies were initially criticized for being sloppy, influenced by bias views, and providing little basis for generalization.

Yin (1994), points out that even though the sample may not be representative of an entire population, knowledge gained from a study of a single or limited number of subjects (or units) may yield valuable insights about a phenomenon previously

unknown. In the absence of other challenging data, the results may also be extended (with care) beyond the boundaries of the research sample.

3.2.4 Literature Reviews

According to Cooper (1988), a literature review uses as its database reports of primary or original scholarship, and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second, a literature review seeks to describe, summarise, evaluate, clarify and/or integrate the content of primary reports.

The review of relevant literature is nearly always a standard chapter of a thesis or dissertation and is applied for both qualitative and quantitative research methodologies. The review forms an important chapter in a thesis where its purpose is to provide the background to and justification for the research undertaken (Bruce 1994). Bruce, who has published widely on the topic of the literature review, has identified six elements of a literature review. These elements comprise a list; a search; a survey; a vehicle for learning; a research facilitator; and a report (Bruce 1994).

These reviews are typically used in state-of-the-art reviews; integrative literature reviews; and critical literature reviews. The sample for this review is usually based on theoretical considerations. This type of study is limited to the existing data but can provide the foundation for future research.

3.2.5 Secondary Data Analysis

This type of method works with existing data to test hypotheses. The research questions are descriptive or casual. No sampling is done and the researcher works with available data. There is no control over the data since the researcher is limited to the available data.

3.2.6 Document Evaluation

Document analysis is the gathering of information used in a formal description of the text; it also refers to studying and analyzing of the data, followed by processing and understanding of the contents in the documents so that conclusions may be drawn (Springer, 1998).

The collection and examination of documents are often an integral part of qualitative research. For instance, according to Bryman (1989), although research on the eight dying organisations was primarily based on interviews, he also used a number of documentary sources.

The materials employed in document analysis comprise of a number of different types of information: written material such as letters, reports to shareholders, memorandums, chief executive speeches, and company records that provide data on absenteeism, profitability, size, budgets, newspaper articles, company newsletters, closing plans and contracts. Moreover, the materials can be relatively recent or historical (Bryman, 1989).

Confidentiality is especially relevant when document analyses are used as a data collection method. Martin (2000) stipulates that due to the sensitive nature of some documents, the consultant should reach an agreement with the client concerned as to which documents should and should not be examined or used in the research report.

Maxwell's (2003) biggest concern lies within the unreliability and validity of document analysis as a data collection method.

Document analysis is important as it can fulfill a number of functions for the qualitative researcher. Information on issues that cannot be readily addressed through other methods is provided (Byrman, 1989). That is, historical information which would otherwise be too expensive to obtain through experiments, surveys or research. Document analysis is an important mechanism for checking the validity of information derived from other methods; for example if an interviewee states that

company sales have increased, the actual sales Figures can be checked to validate this information.

Byrman (1989) argues that documents can contribute a different level of analysis from other methods (for instance the gap between official policy and practice).

3.3 Blending of Quantitative and Qualitative Research

The definitions of quantitative and qualitative research provided under paragraph 3.2.1of this dissertation, seem to suggest that many researchers identify quantitative research with numbers and relationships between variables whereas qualitative research more with the exploration of ideas, concepts and meanings. This differentiation often results in qualitative research being criticised for it being nonscientific and thus invalid.

As in any research approach if careful and rigorous design is not accomplished, qualitative research can be wrong (Miles and Huberman, 1994), and of course, some qualitative research projects have been poorly conducted (as have some quantitative studies), but it would be disturbing if research academics dismiss the entire qualitative school of thought just because some studies inadequately applied the paradigms and the methods (Berg, 2001).

It is a common misconception that reliability and validity can not be achieved in qualitative research. Reliability and validity within this context make up the components of qualitative objectivity. Berg (2001) defines the terms *"Reliability*" and *"Validity*" in the following manner:

> *"reliability is the degree to which the finding is independent of accidental circumstances of the research"* and,
>
> *"validity is the degree to which the finding is interpreted in the correct way*".

Good qualitative research can be rigorous and if carried out correctly should be extremely systematic and have the ability to be reproduced by subsequent researchers (Berg, 2001). There is now a plethora of academic literature informing of systematic processes that ensure valid meaning and reliable knowledge can be

drawn from qualitative data (Miles and Huberman, 1994). It is therefore argued that within this framework, qualitative research has the ability to answer a wide-ranging number of research questions, which may not be effectively addressed by traditional quantitative analysis. Table 3-1 highlights how different qualitative research techniques can assist in exploration, explanation, description and prediction. This further demonstrates the opportunities available to researchers and academics in widening the types of research questions being addressed by the discipline by embracing an expanded methodological base.

Table 3-2: Qualitative Research - Matching Research Questions with Research Strategy.

Purpose of the study	*Research Question*	*Research Strategy*	*Example of Research Techniques*
EXPLORATORY • To investigate little understood phenomena • To identify /discover important variables • To generate hypothesis for further research	• What is happening in the industry? • What are salient themes, patterns, categories in participants' meaning structures. • How are these patterns linked with one another?	• Case study • Field study	• Participant observation • In-depth interviewing • Expert opinion • Focus groups
EXPLANATORY • To explain the forces causing the phenomenon in question • To identify plausible causal networks shaping the phenomenon	• What events, beliefs, attitudes policies are shaping this phenomenon? • How do these forces interact to result in the phenomenon?	• Multiple case study • History • Field study • Ethnography	• Participant observation • In-depth interviewing • Survey questionnaire • Document analysis.
DESCRIPTIVE • To document the phenomenon of interest	• What are the salient behaviours, attitudes, events, structures, processes occurring in this phenomenon?	• Case study • Field study • Ethnography	• Participant observation • In-depth interviewing • Document analysis • Unobtrusive measures • Survey questionnaire
PREDICTIVE • To predict the outcome of the phenomenon • To forecast the events and behaviours resulting from the phenomenon	• What will occur as a result of this phenomenon? • Who will be affected? • In what ways?	• Experiment • Quasi Experiment	• Survey questionnaire(large sample) • Kinesics • Content analysis

Source: Marshall and Rossman (1989).

Not only can qualitative research be used alone to answer specific research questions but there are a growing number of academics that are now recognising the advantages of integrating both qualitative and quantitative research methods by way of triangulation. Triangulation is broadly defined by Denzin (1978: 291) as:

> *"the combination of methodologies in the study of the same phenomenon"*.

It is largely a vehicle for cross validation when two or more distinct methods are found to be congruent and yield comparable data. Jick (1979) argues that triangulation may not be suitable for all research purposes, however, it is argued that it heightens qualitative methods to their deserved prominence and at the same time, demonstrates that quantitative methods can and should be utilised in complementary fashion. Kummerow (2000) is one of the academics that have recognised the benefits of such an approach and published the following in an essay examining "Graaskamp on Research Methods":

> *"My personal view is that qualitative and quantitative methods are complementary and that methodological mutual respect is as valuable as racial or religious tolerance. Not only are diverse methods interesting in themselves, combining methods may lead to greater understanding and better outcomes both in research and practice. Most real-world decisions would be improved by information from both qualitative and quantitative research".*

In this essay Kummerow (2000) recommends a problem-solving research approach combining both qualitative and quantitative approaches. He comes to this conclusion by recognising the inherent limitations of econometric models in particular highlights issues relating to data limitations, misspecification, pretest bias, structural change and "*other concerns that impose limits on what models can tell us*" he recognises these limits to be inherent in the nature of reality.

Kummerow, (2000) states that other areas where econometricians recognise qualitative research as being useful is in seeking out "left-out variables". Rao and Miller (1971) clearly state that:

> *"…the true regression specification can be estimated only when the researcher knows the truth and has data on all variables to estimate it. A common situation is one in which the researcher has "left out" variables either because he is unaware of their presence in the true specification or because he does not have data for including them in the estimated equation".*

Rao and Miller (1971:29) further indicate that current models in many cases still have a certain amount left unexplained, could qualitative approaches bring to the fore unexplained issues? According to Levy and Schuck (1999) an example of this is the issue of appraisal smoothing in property market, in-depth interviews with valuers and clients have allowed academics to understand more fully the valuation process, which may account for one aspect of appraisal smoothing. It would have been difficult to uncover this process without the use of in-depth interviews with the players involved in the process.

Levy and Schuck (1999) further states that forecasting models are another area where qualitative approaches may be of benefit. In many cases forecasting models capture past trends in order to forecast, this will inevitably leads to purely quantitative approaches being slow to reflect behavioral changes in the market. Qualitative methods allow the research to explore more deeply possible issues for change and thus may be effective in shedding light on potential changes.

3.4 Research Method and Research Instrument

3.4.1 Introduction

As already indicated in the preceding paragraphs, Kumar (2005) argues that quantitative and qualitative research methodologies differ in the philosophy that underpins their mode of inquiry as well as to some extent, in methods, models and procedures used.

Barnes (2001) points out that every research method has advantages and disadvantages and that there is no one right approach to doing research. Some

approaches are probably more applicable than others and this may be determined by the specific objectives and purpose of the research itself.

In the present study the researcher opted to adopt a hybrid approach (i.e. applying both quantitative and qualitative research methodologies) by way of triangulation. Triangulation is broadly defined by Denzin (1978: 291) as:

"the combination of methodologies in the study of the same phenomenon".

According to Denzin(1978) triangulation is largely a vehicle for cross validation when two or more distinct methods are found to be congruent and yield comparable data. The advantage of this approach is that it utilizes the strengths of both methods.

The primary foundation of this study was focused on conducting a qualitative research through a case study. However, in pursuance of the triangulation approach the researcher applied a two-phased design model. Simply put, a qualitative is followed by a quantitative study, and this sequencing implies comparable standards for methodological rigor. However, the disadvantage of this approach is the potential for disjointed results. Despite this shortcoming, however, the two-phase design holds great promise for enhancing the body of knowledge of organisational research.

In this study the quantitative assessment should be considered a *support* tool for making an overall assessment. It is not therefore the sole criterion. Where the results of the *quantitative* assessment are marginal or where the inputs are uncertain, then more weight should be given to the *qualitative* assessment.

The following methods were therefore used to deal with respondents within the research territory:

- Literature review (theory and practice) of Organisational Project Management Maturity and its applicable models.
- Self-administered assessment survey using OPM3.

- The Project Management Maturity Matrix Interviews using open-ended questionnaires to define the present state of The Agency's project management maturity processes.
- Document evaluations.

The reasons for using the case study methodology for this study is because the phenomenon being researched is too complex and could not be adequately researched using other methods. This decision is in line with Yin's (1994) views which articulate that, case study designs are the ideal research design to use when a detailed study of a phenomenon in its real life setting is to be done.

Further consideration was given to the fact that the research question involved establishing the degree of organisational project management maturity for the entire South African Government administration departments but only one organisation was studied as a unit of analysis. Therefore, it became inevitable to use the case study approach as the only appropriate method. However, Yin (1994), points out that even though the sample may not be representative of an entire population, knowledge gained from a study of a single or limited number of subjects (or units) may yield valuable insights about a phenomenon previously unknown. In the absence of other challenging data, the results may also be extended (with care) beyond the boundaries of the research sample.

The Agency was randomly chosen from the list of South African Government Administration Departments. As already indicated in paragraph1.5 of this dissertation, random selection was made only from those departments which met the following criteria:

- The departments had to, amongst other projects, be involved in PPP projects,
- The departments' nature of projects and activities had to be of national importance,
- The departments' projects and activities had to run across the entire country (covering the three tiers of the public sector— national, provincial and local authorities).

The researcher, therefore, had reasons to believe that the above criteria made generalization of the results of the present study beyond the sample of the present study to the entire South African Government Administration Departments defendable.

There are advantages in applying this method because of its flexibility in that, in case research, data is collected from various sources using various data collecting techniques and methods. Barnes (2001) supports this view in his statement that within case studies, ethnography, interviews, questionnaires and document analysis can occur.

Though, Perry (2001) found that case studies were initially criticized for being sloppy, influenced by bias views, and providing little basis for generalization, Yin (1994) has shown that the case study method has a long and respected history in the social sciences.

Yin (1994), for example, points to the classic case studies by Whyte (1943) and Allison (1971). According to Perren and Ram (2004), the philosophy and implications of the case study method have received considerable attention in the methodological literature (e.g. Eisenhardt, 1989; Gibb and Wilkins, 1991; Ragin and Becker, 1992; Stake, 1994; Gomm *et al*., 2000; Perren and Ram, 2004; Priest *et al*., 2002a and b; Stake, 1995; Yin, 1994).

There have also been seminal examples of case research within both the management and the methodological literatures.

The researcher is of the strong opinion that the case study method used to carry out this study is defensibly sound and the manner of its selection is objectively balanced. Furthermore, three different approaches were used to analyse and interpret data. These are: grounded theory analysis, content analysis and narrative analysis.

The reason the researcher used grounded theory to analyse and interpret the study data is because according to Larsson and Lowendahl (1996), an underlying assumption in grounded theory is that social phenomenon are complex and

correspondingly, the specific steps taken to study these complex social phenomena need to be flexible(i.e. reflexive).

According to Larsson and Lowendahl (1996), grounded theory has been the dominant qualitative method used in studies published in organisational sciences and its dominance has been continuing unabated.

Instead of the term content validity the researcher decided to use the term content analysis. Lee (1999) states that evidence for this form of validity may be established if the procedures followed in constructing a measure are judged to derive “clearly and in a compelling fashion” from a meaningful conceptual domain. Lee (1999) further states that the inference of content validity is based on qualitative judgment that the testing plan designed to map the conceptual domain and the resulting measurement instrument overlap substantially. Therefore content validity is an essential qualitative judgment about content coverage.

3.4.2 Data Collection Strategies

(i) Literature review: the researcher undertook an extensive literature review covering project management; project management maturity, and project management maturity models. This involved the examination of both past and current studies related to project management maturity and, as appropriate, built on that prior research through a literature review.

Literature revealed that there are several different maturity models in practice and no universally accepted industry standard as yet. Selection of the appropriate maturity model was critical to achieving the assessment objectives. Given the fact that in the present study the researcher opted to adopt a hybrid or two-phase methodological approach by way of triangulation, the researcher chose two maturity assessment models, one of quantitative nature and one of qualitative nature.

The qualitative model chosen is called The Project Management Maturity Matrix. The full description of this model is found in Appendix C of this dissertation. This model

allowed the researcher to define the present state of The Agency's project management

processes. This model, which identifies the stages of an organisation's journey to improved project management, is similar to the Carnegie Mellon Software Engineering Institute (SEI) Capability Maturity Model (CMM), used for maintaining software engineering best practices. The cornerstone of such models is the introduction of project management systems and standards at the "Planned Level" found in the Project Management Maturity Matrix.

Like $(PM)^2$ and CMM, the Project Management Maturity Matrix model defines five levels against which an organisation is ranked from lacking project management processes to continuous improvement. This model's five levels of maturity start from first level "Ad Hoc", second level "Planned", third level "Managed", fourth level, "Integrated", and to the fifth level "Sustained" that can be found in other process maturity models. The full description of these levels is shown and described in Appendix D of this dissertation.

The quantitative model chosen is a more recently published standard called OPM3 (Organisational Project Management Maturity Model) from the Project Management Institute. OPM3 was used as a Self-assessment survey tool for collecting and capturing of information from respondents.

The Project Management Maturity Matrix assessment methodology mirrors much of the OPM3 standard but it has three important exceptions:

- OPM3 uses terminology that is very specific to the PMI Body of Knowledge. In less mature organisations this can actually be a barrier to communication so the researcher used a more colloquial form of questionnaire as the basis for the interviews,
- OPM3 uses as one of its dimensions a continuum of maturity comprising project, program and portfolio. Initiatives currently under way at the PMI are developing separate Program and Portfolio Management models. The implication is that the OPM3 model is still evolving,

- The Project Management Maturity Matrix assessment methodology was adapted to score both Portfolio and Program Management as specific dimensions.
- The rating scale for OPM3 comprises four levels (Standardize, Measure, Control and Continuously Improve). The Project Management Maturity Matrix model's scale uses the five CMM levels (Ad Hoc, Planned, Managed, Integrated, and Sustained).

Therefore the above cited tools were both utilized for this study. The purpose of assessment for both models is to provide a description of the current state of organisational project management maturity of The Agency under study. Detailed information about each model is covered under paragraph 2.5 of this dissertation.

(ii) OPM3 Self-assessment surveys: The OPM3 Self-assessment survey tool was chosen because of the following benefits and advantages it brought to the study:

- its suitability for achieving the purpose and obtaining the results for this study when compared with the other existing models.
- OPM3 is a massive best practices database, containing more than six hundred best practices in project management contributed by volunteers around the world. The best practices are grouped and linked in chains according to their dependencies on other best practices, in increasing levels of "maturity". Each best practice that is put in place creates a foundation for moving to the next level best practice, gradually advancing the project management maturity of the organisation's enterprise unit as a whole.
- OPM3 differs from other 'maturity models' in its flexibility. Since different industries and organisations will emphasize different best practices, OPM3 allows the user to determine which chains of dependent best practices are most relevant and important to the organisation. It is the chains of dependent practices that reflect maturity levels, not the model itself.
- The actual "tool" associated with OPM3's best practices database is at the present time a single user interface in the form of a questionnaire. The questionnaire can be completed by a single person or a small group. It uses answers to a high-level management questionnaire to generate maps and charts that provide insight into the organisation's use of project management.

CHAPTER 3

The OPM3 Self-assessment is a series of 151 Yes or No questions falling into one of three categories: project, program and portfolio management. The results are produced in three forms: two radar graphs and a listing of capabilities. On the first graph, the organisation's maturity is broken down into three axes: project, program and portfolio. The second graph provides the results on a four-point radar graph reflecting the organisation's maturity stages (Standardize, Measure, Control, Continuously Improve). Finally, the model produces a generalized list of capabilities where the assessed organisation is capable and where improvement is needed. Based on this the authors managed to arrive at a high level understanding of where The Agency stands in terms of maturity level (expressed as a percentage of continuum) and in terms of domain and stage of improvement.

The list of OPM3 Self-assessment questions are found in Appendix F of this dissertation. Questionnaire responses entered into OPM3 are used to generate radar charts and bar diagrams. The users can use these diagrams to compare their organisation's responses with the practices of other organisations that manage projects and programs. The radar charts illustrate how specific responses can be grouped by how projects are managed and the bar charts display how processes are improved. Some organisations may discover their emphasis is primarily on the way:

- Individual projects are managed (projects),
- Groups of projects are managed (portfolios),
- Projects contribute collectively or severally to the achievement of common goals (programs).

The bar charts display the emphasis of the responding organisation on the common process management categories:

- standardizing, measuring, controlling and improving processes,
- organisational elements,
- business elements to put the processes in place: policy, standards, training and tools,
- actionable elements the PMO will use to implement the changes: methods, procedures, techniques (such as the PMBOK and other PM practices).

Although charts display user responses and provide insight into organisational best practices, they cannot convey whether the configuration of emphasis is the right one for any single organisation, or the best approach to make improvements.

The OPM3 Self-assessment survey was conducted only at the Head office level of The Agency. Two persons who were given the Self-assessment survey questionnaire to answer. These were the Executive Manager responsible for Project Management Office, and her assistant. The two respondents were recommended by The Agency's Senior Executive Management Team because of their (i.e. respondents) senior positions and because they are responsible for the implementation of project management organisation-wide. The researcher ensured that both respondents became comfortable with the concepts of organisational project management and maturity by providing them with the OPM3 directories which explain all the key concepts a day before the actual survey took place. The researcher further granted the two respondents access to OPM3 online so that they could read the first worksheet –instructions, including "How to Take the OPM3 Self-Assessment" and "How to Interpret the Results."

The two respondents were given the Self-assessment survey questionnaire to complete in full and independent of each other and then upon completion the researcher collected the questionnaires. The researcher then in the presence of the two respondents compared and collated the responses given by the respondents and where different responses were given, the concerned questions were debated by the two respondents until consensus was reached for the correct response. This was done to avoid the respondents furnishing exaggerated responses and to ensure the accuracy of the data. All the 151 questions were answered in full by both respondents.

Each survey lasted for about 1h30min per respondent and about 2 to 3 hours were spent clarifying conflicting responses given by respondents. The finally agreed set of responses were then taken by the researcher and were loaded into the OPM3 Self-assessment tool in the presence of the respondents using the drop-down "Yes or No" menu in accordance with the respondents' responses to each question. The purpose of using the OPM3 Self-assessment survey was to establish The Agency's

current status of organisational Project Management Maturity. When all the 151 answers given by the respondents were loaded in the OPM3 Self-assessment survey, the researcher clicked the " Get Result" button to produce the OPM3 Self-Assessment reports.

The results provided two lists- one indicating the Best Practices that The Agency appears to demonstrate, and the other indicating those Best Practices that The Agency does not demonstrate. These lists appear in numerical order, by unique identifier. The Best Practices are grouped in the order in which they are associated with each of the four stages of process improvement.

The result also generated four charts/ graphs showing, based on the respondents' responses, the following:

i. the organisation's overall position on a continuum of organisational project management maturity,
ii. the organisation's maturity in terms of each domain,
iii. the organisation's maturity in terms of each process improvement stage,
iv. a composite view of graphs ii and iii.

The results of the survey are covered under paragraph 4.1 of this dissertation below and are shown by graphs and radar diagrams generated by the OPM3 Self-assessment survey and displayed in Figures 4-1; 4-2; 4-3,4-4, and 4-5 accordingly.

(iii) Interviews: In order to conduct meaningful and effective interviews the researcher decided to use and applied an open-ended interview questionnaire. The questions were adopted from a questionnaire which was developed by a certain US based project management consulting firm called Project Assistants, Inc (2005). The original questionnaire contains a total of 161 questions. The researcher modified the questionnaire by reducing the number of questions to 124. The questions which were cancelled from the list were only those that were aimed at soliciting the information which is covered by other questions. This reduction was done to avoid unnecessary duplication. The list of open- ended assessment questionnaire is shown in Appendix E of this dissertation.

CHAPTER 3

Six projects out of eleven projects were selected by the Executive Management Team as the sample group for the assessment because they are regarded as of high priority national interest. These projects represent various scopes of works, stages of lifecycle and contract models. A key to the assessment was to interview the Project Managers as well as other team members for each project. This provided insights from the various specialist services as well as project delivery within The Agency. The selected projects were:

- NSB Listing,
- Council for occupations (CO),
- Artisan Development,
- Council Re-establishment and review,
- Restructuring of the fund,
- Restructuring of the factories.

The interview questions were aimed at evaluating seven key competencies to score project management capabilities and maturity level. These competencies include: *Knowledge Management*; Process *Standards; Methods and Procedures; Technologies; Decision Support; Portfolio and Resource Management; Professional Development, Continuous Process Improvement and Program Management.* An open questioning method was used to explore interviewees understanding and application of the seven project management knowledge areas in relation to the sample projects, as well as generally in their role. Individuals were asked to define their key activities and describe the processes, tools and information they used at each stage of the project lifecycle.

The above competencies were summarized in the following manner:

- Knowledge Management – the science and art of transforming tacit knowledge (employee experience and expertise) into explicit knowledge in a manner that is accessible to everyone who needs it to make informed decisions.
- Process Standards, Methods and Procedures – consistency in methodology.
- Technologies – tool standardization and utilization.
- Decision Support – the availability of timely and accurate project information sufficient to allow management to make sound business decisions.

- Portfolio and Resource Management – the ability to simultaneously manage all resources for multiple projects.
- Professional Development – providing the opportunity for continued project management training.
- Continuous Process Improvement – a procedure that systematically assesses group performance, provides a path to improvements in estimating, planning, tracking and reporting project information and rewards improvement.
- Program Management – the ability to manage a group of related projects in a coordinated way to obtain benefits and control not available from managing them individually.

To effectively assess the above competences, the 124 interview questions were therefore divided into seven key competencies and nine sub-components in the following manner:

a. Knowledge Management: 4 questions.
b. Process standards; Methods and Procedures: 77 questions. These questions were further divided into the following nine sub-components:
   i. Project Integration Management (12 questions),
   ii. Project Scope Management (5 questions),
   iii. Project Time Management (11 questions),
   iv. Project Cost Management (12 questions),
   v. Project Communications Management (7 questions),
   vi. Project Risk Management (12 questions),
   vii. Project Quality Management (4 questions),
   viii. Project Human Resources Management (6 questions),
   ix. Project Procurement Management (8 questions),
c. Technologies: (8 questions),
d. Decision Support: (7 questions),
e. Portfolio and Resource Management: (14 questions),
f. Professional Development: (6 questions),
g. Continuous Process Improvement and program management: (8 questions).

The scores were derived from a judgment-based scoring system, based on a qualitative, subjective assessment to help determine a baseline understanding of The Agency's current state of project management maturity. The researcher used PMBOK as a standard against which any comparative judgment was placed.

The answers to the above questions were first scored as indicated in the paragraph below. The total scores under each competence were averaged and then the averaged totals were mapped along the Project Management Maturity Matrix model found in Table 4-2 of this dissertation below.

The assessment evaluated The Agency's project management maturity based on seven key project management maturity competencies or dimensions of a mature project-driven organisation. A judgment-based scoring system was used to record the organisation's present level of performance using the following rating scale: *Ad Hoc***;** *Planned; Managed; Integrated, and Sustained.*

The open ended interview questionnaires were used to collect as much information as possible. Therefore, the researcher through the help of the Executive manager responsible for PMO managed to secure a total of 6 (six) interviews with 6 different project managers responsible for different projects. This face-to-face contact was also very important to engage participants, build ownership and identify champions. The data gathering task of this phase of the engagement was carried out during interviews with the following persons: The National executive project manager responsible for the

organisation-wide project management office; the assistant manager in the project management office, and three national project managers from different divisions and levels within The Agency's organisation. Prior to interviews taking place with the identified respondents, the researcher e-mailed a one-page fact sheet explaining the objectives of the assessment, why it was being undertaken, and how it would be conducted. This enabled the smooth flow of interview sessions as all respondents understood the purpose of interviews.

The researcher visited the interviewees during their office hours on different days. Each interview lasted approximately 2 (two) hours and all the respondents answered all the questions. The process involved a focused discussion addressing each of the process maturity dimensions. The questions used to focus the discussions were based on the standard open ended interview questionnaire. This questionnaire was shared with the National executive project manager during preparation for the assessment. Scheduling of the interviews was carried out by the researcher with the assistance of the National Executive project manager. The style of discussion was deliberately open to encourage sharing of opinions and examples of current project management practices.

The researcher asked the primary questions and documented information against the relevant knowledge area using the structured interview questionnaire. This provided a checklist to ensure that all the seven key competencies and the nine knowledge area sub-components were addressed.

The researcher asked follow-up questions to cover all areas where it was necessary. Based on this information, a rating of maturity was assigned for each relevant project management knowledge component or sub-component. Any components that were not applicable to a role were not scored. The researcher compared responses to the characteristics of maturity levels as defined in the assessment tool. This discussion expanded the definition of each maturity level and after the first two interviews, gave greater definition to assist in future scoring. The ratings were discussed immediately after the interview, to ensure accuracy and avoid confusion between interviewees.

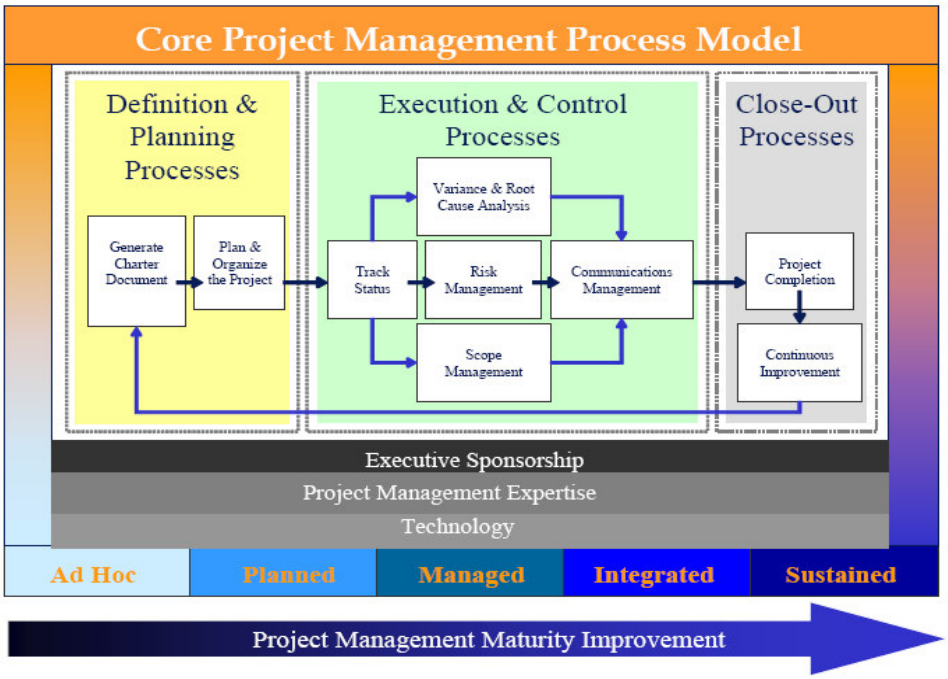
A brief rationale statement was documented to justify the ratings for each component. Identified improvement opportunities were recorded in a separate sheet of thesis along with examples of equivalent best practices.

The primary objective of the interviews was to use the Project Management Maturity Matrix model to establish a current baseline or “known state” of the current level of organisational project management process maturity, based on the “Core Project Management Process Model” as outlined in Figure 3-1.

CHAPTER 3

The results of achieved through the open-ended interview are covered under paragraph 4.2 of this dissertation below and are reflected in Tables 4-1, and 4-2 respectively.

Figure 3-1: Core Project Management Process Model



Source: **Project Assistants, Inc (2005).**

(iv) Document reviews: the researcher also conducted secondary analysis for the data collection for this research. Therefore in order to access documented information on the case study a combination of research approaches was utilized. In the first instance extensive use was made of secondary sources such as academic studies; verification of artifacts like process documentation; policy statements and procedures; all project management related documents including those of the PPP projects and supplemented with electronic and print media sources. This was complemented by a range of semi-structured interviews with key persons already indicted in the preceding paragraph.

Site visits to places where the projects are actually carried out was undertaken to get first hand experience of delivery sites and facilities of the projects.

The Agency has got a Project Management Office with documentation to manage the scope of the organisation's objectives, functions and responsibilities of project managers. The researcher reviewed The Agency's documentation relating to project management. The researcher also reviewed a number of project management reports on the sample projects which assessed compliance with the Project Management procedures. Respondents were asked to bring to the interview examples of any key documents they used in managing aspects of their projects.

3.4.3 Chapter Summary

This chapter has reflected different types of research designs and methodologies available for conducting an effective research. The researcher decided to conduct a qualitative research through a case study. However, in pursuance of the triangulation approach the researcher applied a two-phased design model. Simply put, a qualitative which is followed by a quantitative study, and this sequencing implies comparable standards for methodological rigor.

The reasons for using the case study methodology for this study is because the phenomenon being researched is too complex and could not be adequately researched using other methods. There are practical limitations in that it would be impossible to

study all the South African Government Administration Departments involved in PPP. Therefore only one South African Government Administration Department, The Agency, was selected to be studied.

The specific methodologies involved assessing organisational project management maturity of The Agency using OPM3 Self- assessment model and Project Management Maturity Matrix model. Like $(PM)^2$ and CMM, the Project Management Maturity Matrix model defines five levels against which an organisation is ranked from lacking project management processes to continuous improvement. The process of triangulation is the basis of this study because data from various sources

are used to reach conclusions. The data was specifically obtained from the following sources:

- OPM3 Self-assessment survey to assess the actual maturity,
- Open ended interviews with key project leaders to assess seven specific knowledge areas,
- Documentation review in order to validate maturity levels on selected projects.

Practical validation was done on six real projects which are of national strategic importance. These projects were:

- NSB Listing,
- Council for and occupations (CO),
- Artisan Development,
- Council for Re-establishment and review,
- Restructuring of the fund,
- Restructuring of the employment factories.

The details of these projects are found in paragraph 1.11 of Chapter one. In the next chapter the research results are presented.

CHAPTER 4

RESEARCH RESULTS

4.1 Introduction

Chapter 3 covered the research methodologies used for gathering and analysing the research data. This chapter presents the set of results obtained from the application of the OPM3 Self-assessment survey and open-ended interview methodologies. As already indicated in Chapter 3, for the purposes of the present study the researcher opted to adopt a hybrid approach (i.e. applying both quantitative and qualitative research methodologies) by way of triangulation. However, quantitative and qualitative research methodologies differ in the philosophy that underpins their mode of inquiry as well as to some extent, in methods, models and procedures used.

Therefore, because of the hybrid approach applied, there are two set of results presented in this chapter. The first set of results covered under paragraph 4.2 illustrates results produced through the application of a quantitative research methodology using OPM3 Self- Assessment survey. These results are outlined in graphs/charts appearing in Figures 4-1, 4-2, 4-3, 4-4, and 4-5.

The second set of results covered under paragraph 4.3 illustrates results produced through the application of a qualitative research methodology using open-ended structured interviews. The detailed averaged scores for each of the assessed seven knowledge maturity dimensions are outlined in Table 4-1 and are mapped against the Project Management Maturity Matrix as shown in Table 4-2.

The analysis and synthesis of these results and the proposition validation are covered in Chapter 5 of this dissertation. Most of the raw data is attached as part of the Appendices section of this dissertation.

CHAPTER 4

4.2 OPM3 Self- Assessment survey results

The purpose of applying the OPM3 Self-assessment survey was to assess The Agency's current state of maturity in organisational project management in relation to the Best Practices that comprise OPM3 model. The results of the OPM3 assisted in informing the organisation as to where it stands on a general continuum of organisational project management maturity, viewed overall, and in terms of maturity within each domain and the process improvement stages.

The OPM3 Self-assessment survey further produced a high-level or "executive" view- resulting report containing a list of Best Practices which the organisation currently appears to demonstrate, and a list of those Best Practices it appears not to demonstrate, relative to those in OPM3, according to the responses given by the respondents to the survey. The Best Practices which the organisation does not demonstrate are referred to as "target Best Practices." The report containing these Best Practices was produced by the OPM3 Self-assessment survey tool but because of its length it is not included in the Appendices section of this dissertation.

However, the report of Best Practices which The Agency appears to have achieved based upon the answers provided by the respondents to the OPM3 Self – Assessment survey is found in Appendix G of this dissertation. This dissertation also displays each Best Practice's mapping to domain and stage of process improvement.

The OPM3 Self-assessment produced the final results as shown by the graphs/charts appearing in Figures 4-1, 4-2, 4-3, 4-4, and 4-5 and indicating results in the following order:

i. Figure 4-1, is the organisation's overall position on a continuum of organisational project management maturity,
ii. Figure 4-2, is the organisation's maturity in terms of each domain,
iii. Figure 4-3, is the organisation's maturity in terms of each process improvement stage,
iv. Figures 4-4 and 4-5 are the composite view of Figures 4-2 and 4-3.

The key to reading spider diagrams in Figures 4-2 and 4-3 below is the amount of white space, which is an indication of where improvements can be made.

Figure 4-1: **The Agency's overall position on OPM3 continuum of Best Practices.**

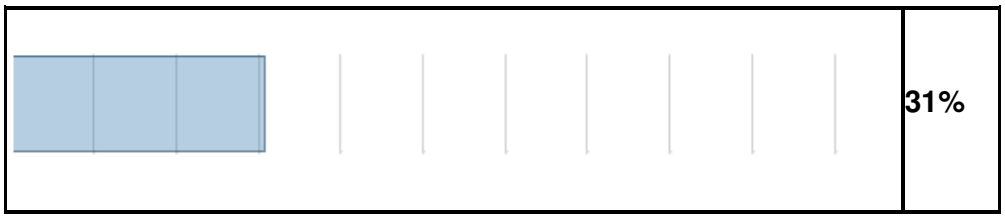


Figure 4-1 above displays a graphical representation of the percentage of Best Practices the organisation appears to have achieved based upon the answers provided by the respondents to the questions on the OPM3 Self-assessment survey. In other words, the continuum represents an organisation's overall position of organisational project management maturity. Each grey line within the bar chart represents 10% of the total number of Best Practices achieved.

The Agency's percentage of Best Practice achieved is annotated to the right of the bar chart. This graph indicates that The Agency's overall organisational project management maturity on an OPM3 continuum is 31%.

Figure 4-2: The Agency's position on OPM3 continuum
Project/ Program/ Portfolio (PPP)- Domains.

Project	Program	Portfolio
56%	23%	15%

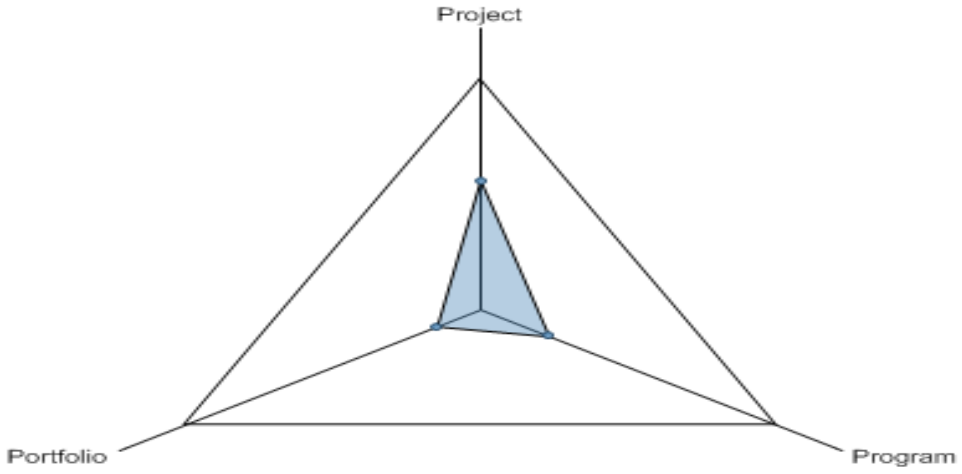


Figure 4-2 above is a PPP spider diagram which graphically displays a representation of the percentage of Best Practices the organisation appears to have achieved in terms of each domain (Project Management, Program Management, and Portfolio Management), based upon the answers provided by the respondents to the questions on the OPM3 Self-assessment survey. This diagram indicates that The Agency has achieved 56% of Best Practices on OPM3 continuum on the management of its projects; 23% of Best Practices on OPM3 continuum on the management its programs, and attained 15% of Best Practices on OPM3 continuum on the management of its portfolios.

Figure 4-3: The Agency's position on OPM3 continuum Standardize/ Measure/Control/ Improve (process improvement stages).

Standardize	Measure	Control	Improve
40%	30%	21%	24%

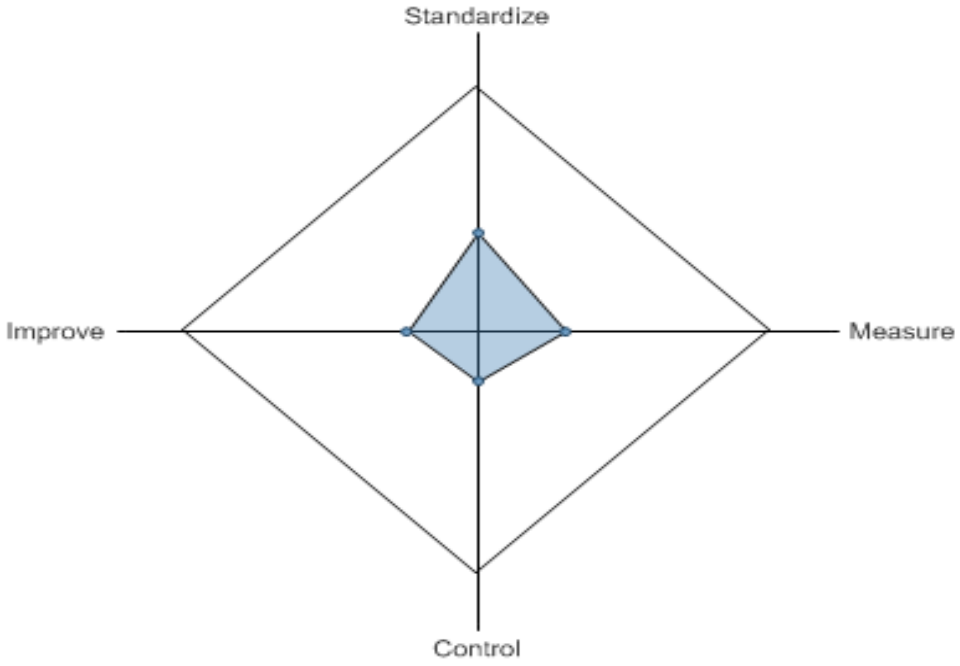
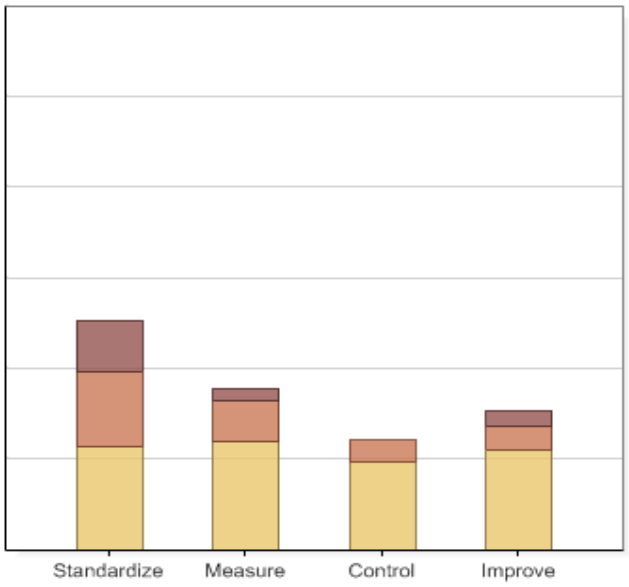


Figure 4-3 above is a SMCI spider diagram which graphically displays a representation of the percentage of Best Practices the organisation appears to have achieved in terms of each stage of process improvement (Standardize, Measure, Control, and Continuously Improve), based upon the answers provided by the respondents to the questions on the OPM3 Self-assessment survey.

This diagram indicates that The Agency has achieved at each stage of process improvement the following scores: 40% of Best Practices at standardize level; 30% of Best Practices at Measure level; 21% of Best Practices at Control level, and 24% of Best Practices at Continuously Improve level.

Figure 4-4: The Agency's position on OPM3 continuum PPP/SCMI.

Project				Program				Portfolio			
S	M	C	I	S	M	C	I	S	M	C	I
57%	60%	48%	56%	42%	22%	12%	12%	28%	7%	0%	9%



Project Standardize: 57%
Project Measure: 60%
Project Control: 48%
Project Improve: 56%

Program Standardize: 42%
Program Measure: 22%
Program Control: 12%
Program Improve: 12%

Portfolio Standardize: 28%
Portfolio Measure: 7%
Portfolio Control: 0%
Portfolio Improve: 9%

Figure 4-4 above is a PPP/ SMCI bar chart representation which combines the organisation's maturity by domain (Project Management, Program Management, and Portfolio Management), and stage of process improvement (Standardize, Measure, Control, and Continuously Improve) within one Figure. This represents The Agency's composite view of diagrams in Figures 4-2 and 4-3 above.

Figure 4-5: The Agency's position on OPM3 continuum SCMI/ PPP.

Scores											
Standardize			Measure			Control			Improve		
Proj	Prog	Port	Proj	Program	Portfolio	Project	Program	Portfolio	Project	Prog	Port
57%	42%	28%	60%	22%	7%	48%	12%	0%	56%	12%	9%

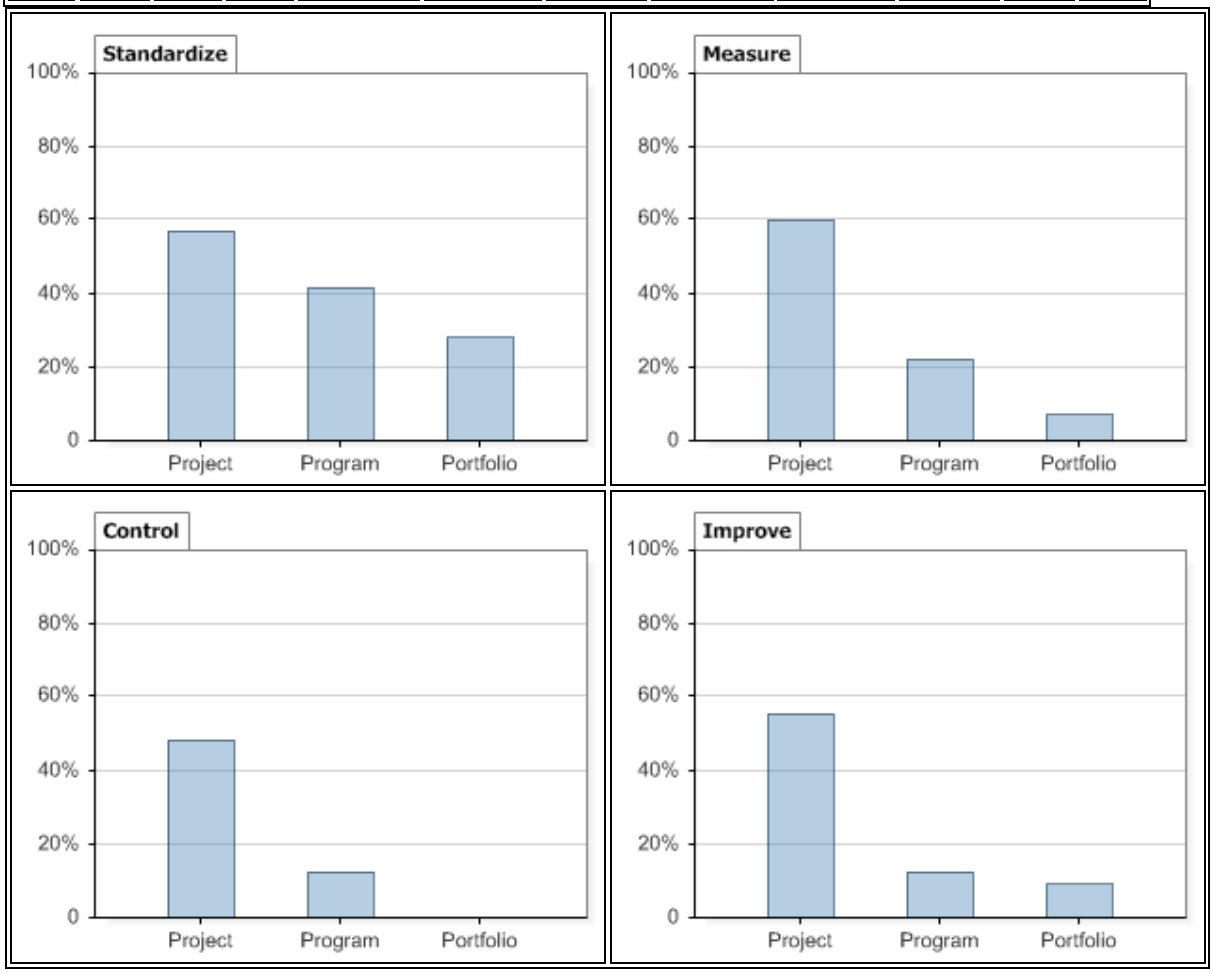


Figure 4-5 above is a SMCI/PPP bar chart representation which combines the organisation's maturity by stage of process improvement (Standardize, Measure, Control, and Continuously Improve), and domain (Project Management, Program Management, and Portfolio Management) within one Figure. This represents The Agency's composite view of diagrams in Figures 4-2 and 4-3 above.

4.3 Open-ended structured Interview results

CHAPTER 4

Based on the open-ended structured interviews and documentation review, the researcher assessed The Agency's project management maturity in relation to the seven key competences and the nine sub-components of project management body of knowledge (PMBOK) areas. Both the seven key project management maturity competencies and the nine sub-components were weighted by their criticality to an effective and mature project-driven organisation.

The scores were derived from a judgment-based scoring system, based on a qualitative, subjective assessment to help determine a baseline understanding of Agency's current state of project management maturity. As the information is intended to benefit the entire South African Government Administration Departments the comparative judgment was made based on project management best practices displayed in the seven key competences and the nine sub-components of project management body of knowledge (PMBOK) areas. It is on this baseline assessment that recommendations for maturing of The Agency's project management practices will be based.

A judgment-based scoring system was used to record the organisation's present level of maturity using the following rating scale: *Ad Hoc; Planned; Managed; Integrated, and Sustained.*

The subjective judgment-based numeric scores assigned to each response to the interview questions are values ranging between 1.0 and 5.0, where 1.0 is the lowest score given where the organisation displays a deficiency or absence of a project management capability which informs the existence of the key competency under consideration. The scores are incremental from 0.1 to 5.0 with 5.0 being the highest score assigned where the organisation displays to have achieved 100% of a project management capability which informs the existence of the key competency under consideration.

Consistent with the Project Management Maturity Matrix model analysis, the results were evaluated using the following maturity levels:

Score key:

Level 1: Ad Hoc 1.0 – 1.9
Level 2: Planned 2.0 – 2.9
Level 3: Managed 3.0 – 3.9
Level 4: Integrated 4.0 – 4.9
Level 5: Sustained 5.0

The open-ended interview questionnaire used to assign a score to each question is comprised of 124 questions which in turn are divided according to the seven key competences and nine sub-components. The list of open- ended assessment questionnaire and allocated scores are shown in Appendix E of this dissertation.

The score assigned to each question was informed by the responses provided by the respondents to the questions asked and on the analyzed documents. The scores assigned to each response were mapped against the relevant questions under each relevant key competence and were added up and totaled per key competence.

The total average scores of each of the nine subcomponents were also added up and the sum total was in turn averaged and assigned under Process Standards, Methods and Procedures competence.

The total scores attained under each key competence were averaged and then the averaged total scores were mapped along the Project Management Maturity Matrix model found in Table 4-2 of this dissertation below.

The total averaged scores for each of the seven key competences or dimensions are indicated in Table 4-1 below and are mapped in Table 4-2 to show the current level of project management maturity of The Agency.

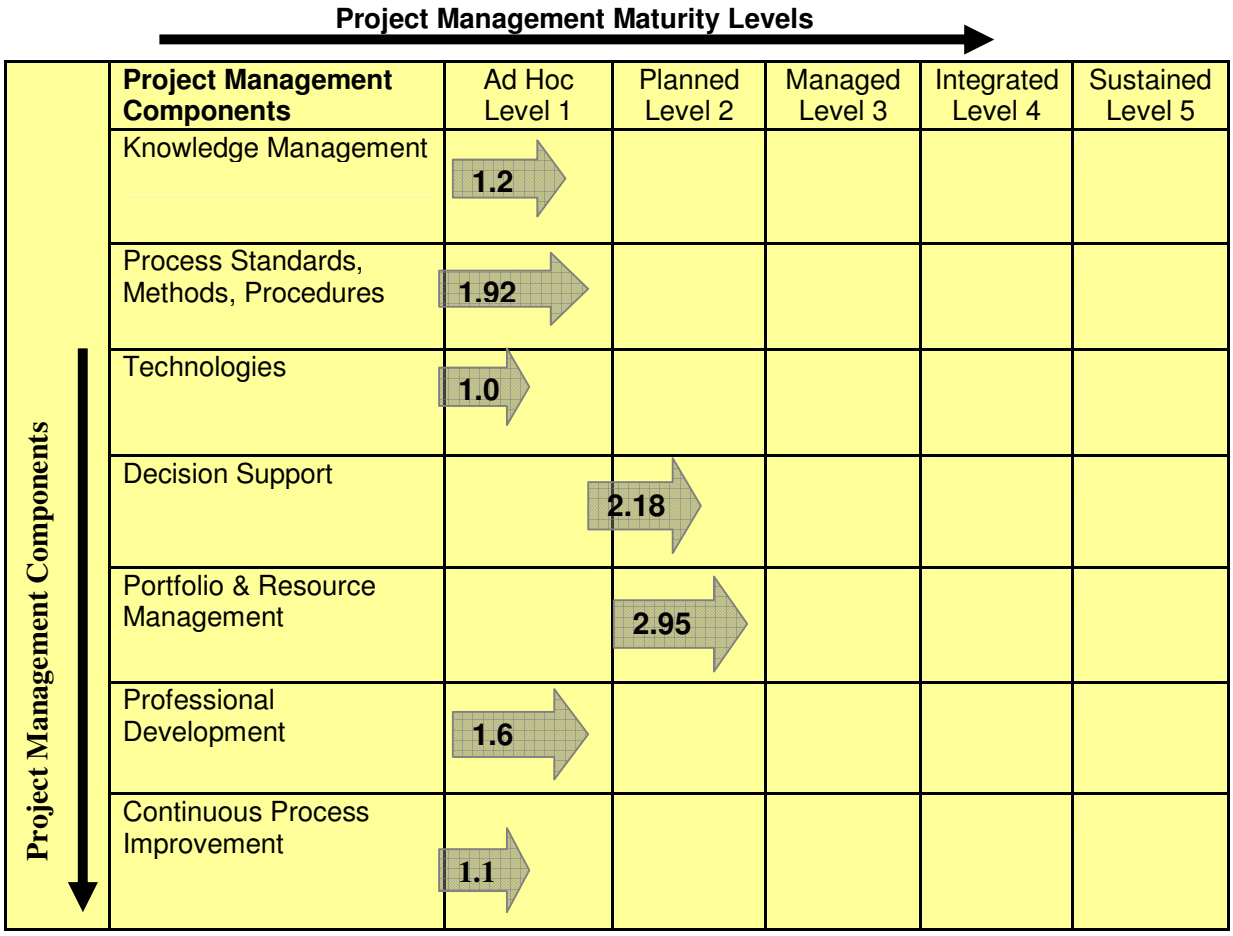
Table 4-1: The Detailed Average Scores for Each of the Assessed Seven Maturity Dimensions

Project Management Maturity Dimension	Result for The Agency
A. Knowledge Management	**1.20**
B. Process Standards, Methods & Procedures:	**1.92**
B1. Integration Management	**2.40**
B2. Scope Management	**3.60**
B3. Time Management	**1.65**
B4. Cost Management	**1.60**
B5. Communications Management	**2.54**
B6. Risk Management	**1.27**
B7. Quality Management	**1.00**
B8. HR Management	**1.85**
B9. Procurement Management	**1.37**
C. Technologies	**1.00**
D. Decision Support	**2.18**
E. Portfolio & Resource Management	**2.95**
F. Professional Development	**1.55**
G. Continuous Process Improvement	**1.13**

Source: Project Assistants, Inc (2005).

The arrows in the graph below indicate The Agency's current level of project management maturity with respect to each competency.

Table 4-2: Project Management Maturity Matrix



Source: Project Assistants, Inc (2005).

The above scores are based on the following detailed findings which were also based on the responses provided by the respondents to interview questions:

A. Knowledge Management

Average score obtained = 1.2

Knowledge Management encompasses the definition and deployment of the required processes and procedures to effectively educate and train project managers, and continuously capture and retain critical project and program information.

- Project documents are usually stored project by project but they are not shared across the organisation.
- No standard procedure of storing project information exists, resulting to Individual project managers taking what ever step they consider necessary to store such information.
- The majority of institutional knowledge resides with individuals rather than in a shared knowledge repository.
- There is no existing technical method of storing project records and therefore it is impossible to conduct search or retrieve relevant historical information. This makes it impossible even to know about existing historical project information.

B. Process Standards, Methods and Procedures

Total of average scores obtained = 1.92

Process standards, methods and procedures are necessary to effectively initiate, plan, execute, control and complete the definition, design, development and deployment tasks that are required to deliver enterprise products and services.

B1. Integration Management

Average score obtained = 2.42

Integration Management includes the processes required to ensure that the various elements of the project are properly coordinated:

- No existing organisation-wide project management culture is in place.
- Project management knowledge and training is limited to individuals involved in projects. The risk is that the execution, rollout and deployment of some projects across the organisation would suffer as a result.
- Overall project management plans (project roadmaps) are not consistently developed, published or used. This is an important gap since it means there is no formal way to coordinate the various project activities and requirements.

- There are no Project Management Change Control processes in place. Consequences of change impact on areas such as schedule, budget, scope, and resources.
- Availability or quality can not reliably be integrated with other strategic processes in an overall plan.
- Integrated project evaluation and control mechanisms do not exist (e.g. Earned Value techniques).
- Generally there is no project charter. This is a principle that is not yet established. The business case document is the basis on which project approval and prioritization is set.
- Many new processes and procedures are being developed and refined following the PMBOK structure. They are not yet widely circulated or understood by all project team members.
- The informal nature of project management support to some projects has exposed them to greater risk of failure, and to a more reactive management of project activities, issues and risks.

B2. Scope Management

Average score obtained = 3.6

Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

- There is no visible and clearly articulated process which specifies a scope management plan.
- The business case provides a good foundation for the scope of a project.
- If change is required, the approval mechanism is a Steering Committee meeting which is bureaucratic in nature.

B3. Time Management

Average score obtained = 1.65

Project Time Management includes the processes required to ensure timely completion of the project.

- Time reporting is strictly enforced for the purposes Steering Committee meetings.

  The level of detail is not sufficient for effective project management. It is typically only at the project or process level, not at the task level.
- There is no time sheet data which is integrated with project management document framework.
- Project schedule progress information is captured at the Steering Committee meetings and not at project meetings. The project manager will record this information for project status reporting but otherwise it is not circulated or used.
- Team leaders classify the work of the people in their team between projects. The workload of team members is not well estimated.
- Schedule management across departments is not enforced. The Steering Committee meeting is the only mechanism for discussing workload within the project teams.
- Activity scheduling is very informal at this point.
- Resource planning for a project is done based on the budget allocated by the government to the department and it is not a zero based budgeting process.
- Links between tasks are not formally established and communicated.

B4. Cost Management

Average score obtained = 1.6

Project Cost Management includes the processes required to ensure that the project is completed within the approved budget.

- There is no cost management system in place and this makes it difficult to manage costs adequately.
- It is virtually impossible to manage costs at the task level.
- There is no time dimension to allow tracking of cost. There is no cost budgeting.

- Except for a few projects, project managers generally have little knowledge of, interest in or control over project costs.
- Cost estimating uses a top down approach with estimates prepared at the project level. The tendency is to over-estimate the costs to avoid having to revise the project budget upward.
- Business Cases don't include required design documents. This causes a lot of cost creeping because the latest design will most likely trigger the need for more money than planned.

B5. Communications Management

Average score obtained = 2.54

Project Communications Management includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.

- There is no existing process for project communication management.
- There are no established and generally recognized communication methods for project information around The Agency.
- Project status communication is essentially hierarchical.
- Internal cross team communication occurs only through the Steering Committee meetings. These are not completely effective as a means of sharing status and commitment information. People who are not part of these meetings do not get the information.
- A major means of communication between The Agency staff is informal person to person information exchange – the grapevine. A consequence is that more social people have better information about projects and other topics. For people who work mostly or completely at other sites, this is a barrier.
- One interviewee summarized it as follows: "Communication is horrible".
- Roll-out of new ideas and changes is not well communicated.

B6. Risk Management

Average score obtained = 1.27

Project Risk Management is the systematic process of identifying, analyzing, and responding to project risk.

- There is no consistent risk management strategy. Risks are not consistently identified, documented or tracked.
- The effect of risks on projects is not included in the project calculation.
- There is no clearly built contingency into a project's cost and schedule to allow for unspecified risks.
- Certain project leaders have their own risk management process which involves communicating risks upward for resolution or mitigation via the Steering Committee Meetings.
- Communication of risk is related to a specific instance of a risk, typically via e-mail.
- Steering Committee meetings may be used in some areas to address risk planning. Even here, risks are not tracked across all projects or activities.
- There are formal risk plans for some projects but this is very inconsistent.
- The maturity of this process is very low.

B7. Quality Management

Average score obtained = 1.0

Project Quality Management includes the processes required to ensure that the project will satisfy the needs for which it was undertaken.

- There is no quality management strategy in place. Therefore different project leaders take different steps to ensure quality in their projects.
- In general product quality is "not adequately measured". In the context of projects with partially defined initial expectations, there is no stable reference point that can be used for an objective measure of quality.
- There are no metrics for service quality performance as part of the project development methodology for many projects.

B8. Human Resource Management

Average score obtained = 1.85

Project Human Resource Management includes the processes required to make the most effective use of the people involved with the project.

- There is some specific use of external contractors in all kinds of project.
- There is an obvious lack of qualified project management professionals to help carry out project management responsibilities according to best practices.
- The project team is not consistently defined and involved early on, which does not allow maximum quality to be built in the project planning process.
- Some people are “accidentally” assigned to project manager position, but not trained to be project managers.

B9. Procurement Management

Average score obtained = 1.37

Project Procurement Management includes the processes required to acquire goods and services, to attain project scope, from outside the performing organisation.

- Procurement is managed by procurement department.
- Purchase orders must be approved by the finance division.
- The Agency does not have any electronic purchase order request system.
- The Agency does not use effective performance-based incentives on its Sub-contractors and it does not have standard methods for measuring Project performance.
- Procurement management is not yet a mature and well established process.

C. Technologies

Average score obtained = 1.0

Effective technologies facilitate implementation of process standards, promote consistent application of methods and procedures, and elevate the productivity of project and program efforts.

- There is a Microsoft Project Server Software but it is under passive consideration as an enterprise wide project management system.
- There are no technological project management tools in use.

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D. Decision Support

Average score obtained = 2.18

Effective decision support procedures and tools ensure timely and accurate dissemination of critical information to project and program stakeholders, facilitate effective issues resolution, and promote quality decisions.

- Major projects are monitored for being on time and on budget only during the Steering Committee meetings.
- The clear Executive Management expectation is that project problems should be escalated early on. It is the project manager's responsibility to flag the possibility that a project will be late. If the solution is to assign more resources, this would be considered at the regular Steering Committee meetings where resource preplanning and review takes place.
- The Steering Committee serves as a convention of regular reports of project activities. These are typically monthly and are the formal means of communication of project status. They are typically sent by e-mail which makes the distribution of the information targeted rather than general.
- There is no single repository of projects and programs data that would allow for constant and timely access to current project data and information.

E. Portfolio and Resource Management

Average score obtained = 2.95

Portfolio and Resource Management facilitates effective management of corporate initiatives and corporate resources. It promotes and supports development and effective deployment of new or enhanced products and innovative solutions to optimize enterprise success.

- There is very strong and committed executive sponsorship for the institutionalization of project management best practices to projects but not throughout The Agency.
- There is no attention to Portfolio Management and Prioritisation.
- The project prioritization process does not involve any direct customer input or communication. Competing priorities are decided completely within The Agency.
- The effect of project priorities on project resources is resolved by project leaders.
- A major part of The Agency's work is operational – that is, in keeping applications and services running. The Agency distinguishes between projects and processes. The approval activities apply to projects not processes. A few interviewees were confused about the distinction between projects and processes.
- It is very difficult to make proactive and informed resource allocation decisions due to lack of integrated resource and assignment tracking system.

F. Professional Development

Average score obtained = 1.55

Professional development encompasses mentor programs to guide and coach project associates, recognition programs to enhance individual competencies and augment professionalism, and career programs to provide experienced, skilled resources to effectively manage various and complex projects and programs.

- The Agency has shown little commitment to developing project management skills, as indicated by the lack of training opportunities and the absence of a project management career path. Successful organisations recognize that project management skills are an essential core competency that requires continuous training. The Agency's failure to develop project management skills in its personnel is a fundamental cause of poor project performance.
- Development, training and professional development in project management skills are not actively encouraged and promoted within the organisation generally.
- In some areas, the reality of heavy workload constitutes a constraint in planning for and attending training activities.
- The significance of project management skills in performance evaluation is not a requirement across the organisation.
- The Agency carries out a wide range of activities, not all of which require project management skills. The relationship between roles filled and skills required is not well communicated within the organisation. There are instances of people being interested in being a project manager without information as to what that entails.
- There is no clear career path defined for Project Managers.

G. Continuous Improvement

Average score obtained = 1.13

Continuous Process Improvement ensures continuous application of best practices;

and continuous commitment to enterprise goals and initiatives, as well as stakeholder expectations.

- Project Management Process Improvement is not an established practice at The Agency.
- Process knowledge and improvement opportunities are not captured and consequently there is no organized or consistent way to store, communicate and benefit from this information.

- Post-project review meetings do not occur at all and there is no formal method for capturing delivered value.
- In some cases, Project Leaders and Managers are pulled in many different directions and have very little time to apply the normal procedures where they exist.

4.4 Chapter Summary

This chapter reflects and presents research results from both the OPM3 Self-assessment survey and the open-ended interview which is subjective based assessment.

The graphs/charts appearing on Figures 4-1, 4-2, 4-3, 4-4, and 4-5 reflects the results of OPM3 Self – assessment survey and indicating results in the following order:

- Figure 4-1, is the organisation's overall position on a continuum of organisational project management maturity,
- Figure 4-2, is the organisation's maturity in terms of each domain,
- Figure 4-3, is the organisation's maturity in terms of each process improvement stage,
- Figures 4-4 and 4-5 are the composite view of Figures 4-2 and 4-3.

The results of the open-ended interview are shown as averaged totals of all the seven key knowledge areas inclusive of the nine components. These results reflect the level of The Agency's organisational project maturity derived from subjective based assessment informed by the responses of the respondents to questions asked and documents reviewed.

Using the guidelines of the maturity levels characteristics assessment scores were outlined in Table 4-1 and then mapped along the Project Management Maturity Matrix as appears in Table 4-2 above. These Tables show the total averaged scores of maturity assigned to each knowledge area based on the responses given by respondents to all questions asked under each specific knowledge area.

CHAPTER 4

By interpreting maturity levels characteristics found in Appendix C and E of this dissertation, it was possible to assign appropriate numerical values to answers and was able to link the findings to the five quadrants where each quadrant represented a maturity level. Based on the mapping exercise, the scores as indicated in Table 4-1 were realised.

CHAPTER 5

SYNTHESIS AND ANALYSIS

5.1 Introduction

Chapter 4 represents the results and the detailed findings of the present study. In this chapter, the results presented in Chapter 4 are analysed, discussed and compared to other studies and theory.

The analysis and discussions undertaken in this chapter are divided in accordance with the two sets of results categories covered in Chapter 4, being the OPM3 Self-assessment survey which are quantitative in nature and open ended interview results which are qualitative in nature.

The research motivation and problem statement for this study are presented in Chapter one. The primary objective of the present study was to assess and evaluate the degree of organisational project management maturity of the SAGPAD which are involved in PPP projects using the open-ended structured interviews and OPM3 Self-assessment survey model. The assessment assisted the researcher to Identify areas of project management excellence displayed by The Agency and those in need of improvement.

Based on the research findings, the researcher was able to analyse and synthesize the results and make recommendations for The Agency to build upon its strengths and improve on its weaknesses.

5.2 Analysis of the OPM3 Self-assessment survey results

In order to interpret and analyze the results produced by the OPM3 Self-assessment survey model, the researcher considered the graphs and diagrams found in Chapter 4 of this dissertation and shown as Figures 4-1, 4-2, 4-3, 4-4, and 4-5 respectively. The key to reading and interpreting reports in Figures 4-2 and 4-3 of this dissertation is the amount of white space, which is an indication of where improvements can be made.

Figure 4-1, is a graphical representation of The Agency's overall position on the OPM3 continuum of organisational project management maturity. It displays the percentage of Best Practices the organisation appears to have achieved based upon the answers provided by the respondents to the questions on the OPM3 Self – Assessment survey. Each grey line within the bar chart represents 10% of the total number of Best Practices achieved.

The Agency's percentage of Best Practice achieved is annotated to the right of the bar chart. This graph indicates that The Agency's overall organisational project management maturity on an OPM3 continuum is 31%.

This percentage falls far below the 50% (fifty percent) mark on the OPM3 continuum of organisational project management maturity. Put conversely, this graph indicates that The Agency appears to be lacking on 69 percent of Best Practices found on OPM3 continuum of organisational project management maturity. Therefore The Agency has to do a lot of improvement on its project management capabilities by achieving more Best Practices, which will in turn increase its maturity to a higher percentage.

However, considering the fact that during 2006 The Agency started introducing and implementing project management as a way of conducting its business in order to achieve its strategic objectives, these results seem to be a fair reflection of the true state of affairs given the time frame since 2006 to date of assessment. Project management maturity is a process and not a quick-fix event.

Figure 4-2 found in paragraph 4 of this dissertation is a PPP spider diagram which graphically displays a representation of the percentage of Best Practices the organisation appears to have achieved in terms of each domain (Project Management, Program Management, and Portfolio Management), based upon the answers provided by the respondents to the questions on the OPM3 Self-assessment survey. This diagram indicates that The Agency has achieved 56% of Best Practices on OPM3 continuum on the management of its projects; 23% of Best

Practices on OPM3 continuum on the management its programs, and attained 15% of Best Practices on OPM3 continuum on the management of its portfolios.

The results presented by Figure 4-2 are self explanatory and it appears that The Agency's project management capabilities are more focused at projects level as shown by its achievement of 56% of Best Practices on OPM3 continuum on the management of its projects. It is clear from this diagram that The Agency still need to do a lot of program and portfolio improvement planning as these two domains fall far below the 50% (fifty percent) mark on the OPM3 continuum of organisational project management maturity. This further indicates that projects are not well coordinated, such that both programs and portfolios are aligned to mature in line with the maturity of individual projects.

Figure 4-3 found in paragraph 4 of this dissertation is a SMCI spider diagram which graphically displays a representation of the percentage of Best Practices the organisation appears to have achieved in terms of each stage of process improvement (Standardize, Measure, Control, and Continuously Improve), based upon the answers provided by the respondents to the questions on the OPM3 Self-assessment survey.

This diagram indicates that The Agency has achieved at each stage of process improvement the following scores: 40% of Best Practices at standardize level; 30% of Best Practices at Measure level; 21% of Best Practices at Control level, and 24% of Best Practices at Continuously Improve level.

The results of this diagram clearly indicate that The Agency is still at the Standardize phase (Level one) of process maturity ladder. This conclusion is drawn based on the displayed results showing that the organisation has achieved the higher score of 40% of Best Practices at standardize level when compared with other stages of process improvements.

However, it is important to point out that the results display that The Agency has achieved a higher percentage (i.e. 24%) of Best Practices at Continuously Improve level when compared with the percentage of Best Practices it has achieved at

Control level (i.e. 21%). One might expect that the indicator of maturity would be higher for Control level than for the Continuous improve level of process improvement. However, according to OPM3 knowledge base, one may find that the indicated maturity does not follow the expected pattern. For example, the assessment of Portfolio Management may be higher than that of Program Management contrary to what may normally be expected. This may be due to the organisation having some prioritization or planning processes and financial or legal controls in place.

Likewise, the process management graph may not necessarily indicate an increasing level of maturity, moving from Standardize to Measure, Control, and Continuously Improve. For example an organisation may have several financial and legal controls in place, which may result in higher maturity indication for Control stage than for Measure stage of process improvement.

Figure 4-4 found in paragraph 4 of this dissertation is a PPP/ SMCI bar chart representation which combines the organisation's maturity by domain (Project Management, Program Management, and Portfolio Management), and stage of process improvement (Standardize, Measure, Control, and Continuously Improve) within one Figure. Therefore, this chart shows the organisation's maturity in terms of the three domains of project, program and portfolio within each process improvement stage. This represents The Agency's composite view of diagrams in Figures 4-2 and 4-3 above.

It appears from the results presented in Figure 4-4 that The Agency's project management maturity level is higher on projects management and is lower programs management and very low on portfolio management. This is evident from the percentages of Best Practices which The Agency has achieved in the following manner: 60%, 57%, and 56% on all projects at Measure, Standardize, and Continuously Improve stages of process improvement respectively. However, the percentages of Best Practices which The Agency has achieved for programs are 42%, 22%, and 12% at Standardize, Measure, and Continuously Improve stages of process improvement respectively. The variation in percentage of Best Practices

which is above 50% on all projects across process improvement stages indicates that there are pockets of project management excellence within The Agency.

The percentages of Best Practices which The Agency has achieved for portfolios are 28%, 7%, and 9% at Standardize, Measure, and Continuously Improve stages of process improvement respectively.

It is therefore clear from the percentages scores indicated by this chart that the majority of The Agency's project management activities are in the project domain but are almost evenly spread through each of the four process improvement stages; less of its Measure process improvement stage is performed than the Standardize stage at each of the three domains; and Standardize processes exceed the Measure and Continuously Improve processes in the Portfolio domain with no activities at Control level of maturity ladder in the Portfolio domain. From the analysis of the results of this chart, the researcher concluded that The Agency is at Standardize or Ad-Hoc stage of process improvement maturity (Level 1).

Figure 4-5 found in paragraph 4 of this dissertation is a SMCI/PPP bar chart representation which combines the organisation's maturity by domain (Project Management, Program Management, and Portfolio Management), and stage of process improvement (Standardize, Measure, Control, and Continuously Improve) within one Figure. This represents The Agency's composite view of diagrams in Figures 4-2 and 4-3 above. The interpretation the results presented by this Figure would be similar to that accorded to Figures 4-4 above because they present the same results in different formats.

From the analysis of all the graphs and diagrams presenting the results, the researcher concluded that The Agency is at ad-hoc or standardized stage of maturity (Level 1). There is a lot of project management improvement that still need to be done in order for The Agency to move to the second level of process maturity ladder. There are certain capabilities and Best Practices that are needed at Level two of maturity but which The Agency does not display or demonstrate. This deficiency, demands of The Agency to work on identifying and improving the lacking Capabilities

and Best Practices so that it comfortably climb to level 2 (Measure/Planned) of process maturity.

The researcher's conclusion in this regard is further justified by the fact that The Agency scored 31% mark of Best Practices on the OPM3 continuum of organisational project management maturity. This level of organisation project management maturity falls far below the 50% mark on the continuum of organisational project management maturity, and has areas needing improvement in all three domains and all four stages of process improvement.

5.3 Analysis of the Open-ended Structured Interview Results

Paragraph 5.2 is the analysis of the OPM3 Self-assessment survey result which is quantitative in nature and this paragraph is the analysis of the open-ended interviews results which is qualitative in nature.

In order to adequately examine, analyse, and interpret the data the researcher investigated the project management maturity levels according to each of the seven project management knowledge areas, nine sub-components, and further broke down the data by projects, and functional area. The open-ended interview assessment evaluated The Agency's project management maturity based on seven project management maturity components or dimensions of a mature project-driven organisation. A judgment-based scoring system was used to record the organisation's present level of performance using the following rating scale:

1 = **Ad Hoc** (No formal/standard processes applied),
2 = **Planned** (Formal/standard processes rarely/occasionally applied),
3 = **Managed** (Formal/standard processes irregularly/inconsistently applied),
4 = **Integrated** (Formal/standard processes frequently applied and sporadically integrated throughout the organisation),
5 = **Sustained** (Formal/standard processes consistently applied and integrated throughout the organisation).

CHAPTER 5

The numeric values assigned to each response to the interview question were 1 to 5. Both the seven key project management maturity competencies and the nine sub-components were weighted by their criticality to an effective and mature project-driven organisation. Consistent with maturity model analysis, the results were evaluated using the following maturity levels:

Score key:
Level 1: Ad Hoc 1.0 – 1.9
Level 2: Planned 2.0 – 2.9
Level 3: Managed 3.0 – 3.9
Level 4: Integrated 4.0 – 4.9
Level 5: Sustained 5.0

The numerical values assigned to each given response to the interview questions were added up per knowledge area and the total was averaged. The averaged total scores of all the seven key knowledge areas were outlined in Table 4-1 and then mapped along the Project Management Maturity Matrix as appears in Table 4-2 above.

By interpreting maturity levels characteristics found in Appendix C and E of this dissertation, it was possible to assign appropriate numerical values to answers and was able to link the findings to the five quadrants where each quadrant represented a maturity level. Based on the mapping exercise, the scores as indicated in Table 4-1 were realized.

Each of the seven project management knowledge areas and nine sub-components assessment results are briefly discussed below based on the detailed findings indicated in paragraph 4.3 of this dissertation.

(i) Knowledge Management.

The Agency got a low score of 1.2 in the area of knowledge Management. This score is equivalent to 24% of the overall total score of 5 points assigned as the maximum point achievable.

Knowledge management has low project management maturity levels, the possible reason for this low score is because there is no existing technical method of storing project records and therefore it is impossible to conduct search or retrieve relevant historical information. This makes it impossible even to know about existing historical project information.

(ii) Process Standards, Methods and Procedures.

This dimension is comprised of nine sub-components and the score of 1.92 is a low score and indicate a low project management maturity level. This score is equivalent to 38.4% of the overall total score of 5 points assigned as the maximum point achievable. This indicates that the organisation as a whole does not possess sufficient project management capabilities required for the effective application of all the nine sub-components.

A significant and well-supported effort is under way to establish common Agency wide project management processes. These are not well established yet. Nor are the methods for promulgating, enforcement and usage tracking of these processes. Time and Cost tracking processes are sufficient only for the most general level of control of project resources and costs.

Amongst the nine sub-components, the highest project management maturity was achieved in Scope Management and the lowest maturity is in Quality Management sub-component. Each of the nine sub-components is analyzed below in detail.

Integration management: The Agency got a score of 2.4 in Integration management sub-component. This score is equivalent to 48 % of the overall total score of 5 points assigned as the maximum point achievable.

The reason for the poor performance in this sub-component is partly because there are no overall project management plans (project roadmaps) that are consistently developed, published or used. This is a serious gap since it means there is no formal way to coordinate the various project activities and requirements.

Project Cost Management: The Agency got a score of 1.6 in cost management sub-component. This score is equivalent to 32 % of the overall total score of 5 points assigned as the maximum point achievable.

One possible interpretation of this low maturity result is that cost management may not be as important in the government sector as in other project management knowledge areas. This may well be because The Agency makes money not from finishing within budget, but rather by completing the project and requesting another money from the state coffers.

To affect cost estimating The Agency uses a top down approach with estimates prepared at the project level. The tendency is to over-estimate the costs to avoid having to revise the project budget upward.

Project Scope Management: The Project Scope management sub-component has the highest project management maturity level in which The Agency received the highest score of 3.6 points. This score is equivalent to 72 % of the overall total score of 5 points assigned as the maximum point achievable. One possible interpretation for this excellent performance is that The Agency through its Steering Committee has been able to control and maintain its projects scopes.

Project Quality Management: The Agency in Project Quality management sub-component got the lowest project management maturity level in which it obtained the lowest score of 1.0 points. This score is equivalent to 20 % of the overall total score of 5 points assigned as the maximum point achievable.

The reason amongst others that resulted to such poor performance in this sub-component is because there is no quality management strategy in place. Therefore different project leaders take different steps to ensure quality in their projects.

Project Human Resource Management: The Agency in Human Resource management sub-component got the lowest project management maturity level in which it obtained the score of 1.85 points. This score is equivalent to 37 % of the overall total score of 5 points assigned as the maximum point achievable.

This poor level of maturity is attributed to the obvious lack of qualified project management professionals to help carry out project management responsibilities according to best practices for The Agency.

Project Communications Management: The communications management maturity for The Agency was higher with point 2.54, ranking second only to scope management among the nine sub-components of eight project management knowledge areas. This score is equivalent to 50.8 % of the overall total score of 5 points assigned as the maximum point achievable.

The reason for this score is partly because Internal cross team communication occurs only through the Steering Committee meetings. These are not completely effective as a means of sharing status and commitment information. People who are not part of these meetings do not get the information.

Project Risk Management: Risk management's project management maturity level was low at 1.27 among the other nine sub-components. This score is equivalent to 25.4 % of the overall total score of 5 points assigned as the maximum point achievable. This low level of maturity may be attributed to the fact that there is no consistent risk management strategy. Risks are not consistently identified, documented or tracked.

Project Procurement Management: Project Procurement management's project management maturity level was low at 1.37 among the other nine sub-components.

This score is equivalent to 27.4 % of the overall total score of 5 points assigned as the maximum point achievable. This clearly indicates that procurement management is not yet a mature and well established process at The Agency.

(iii) Technologies.

The Agency got a lowest score of 1.0 in the knowledge area of Technologies. This score is equivalent to 20% of the overall total score of 5 points assigned as the maximum point achievable.

The reason for such low project management maturity level in this knowledge area is because there are no technological project management tools in use by The Agency.

(iv) Decision Support.

The Agency got a low score of 2.18 in Decision Support project management maturity level. This score is equivalent to 43.61% of the overall total score of 5 points assigned as the maximum point achievable.

The clear Executive Management support and involvement by way of regular Steering Committee meetings, where resource preplanning and review takes place, is the reason for the better performance in this knowledge area.

(v) Portfolio and Resource Management.

Portfolio and Resource management's project management maturity level is the highest score got by The Agency among all eight knowledge areas. This is the only knowledge area where overall project management maturity rating was 2.95. This score is equivalent to 59% of the total score of 5 points assigned as the maximum point achievable.

Objectively speaking this score is still low because it is less than 60% of the total score of 5 points assigned as the maximum point achievable. The reason for this is that there are inherent differences between the project plans, which are used

primarily by The Agency to manage project schedules and the resource plans, which is needed to manage organisation resources. This is the key reason that The Agency's organisational project management systems fail to provide effective resource planning. Therefore, some work (resource demand) is not captured in project plans.

Resource management to support portfolio decisions is essentially short term in nature and does not help to balance out the workload in the medium term.

Effective resource planning tools and methods are the key enablers for designing an achievable portfolio and resource management.

(vi) Professional Development.

The Agency got a low score of 1.55 in Professional Development project management maturity level. This score is equivalent to 31% of the overall total score of 5 points assigned as the maximum point achievable.

The reason for such poor performance in this knowledge area is because The Agency has shown little commitment to developing project management skills, as indicated by the lack of training opportunities and the absence of a project management career path. Successful organisations recognize that project management skills are an essential core competency that requires continuous training. The Agency's failure to develop project management skills in its personnel is a fundamental cause of poor performance in this area.

Other reasons for such poor performance in this knowledge area is because decisions about assignment of individuals to some projects, particularly as project managers, are based more on availability than on required skills. Project management skills are encouraged within The Agency although there is no consistent definition or career path for a project manager.

(vii) Continuous Process Improvement.

The Agency got a score of 1.13 in the knowledge area of Continuous Process Improvement. This score is equivalent to 22.6% of the overall total score of 5 points assigned as the maximum point achievable. This low score indicates that The Agency has got a low project management maturity level in this knowledge area. This low maturity was caused by the fact Project Management Process Improvement is not an established practice at The Agency.

The above results are not surprising because The Agency has recently introduced its project management office for the purposes of establishing and improving project management in the organisation. This office functions like a centre of excellence. The above results may have a number of possible interpretations. It may also mean that the introduction and roll out of the formal project management is still at its infancy stage given the period of its introduction.

The implications of these findings are that pockets of excellence exist in the organisation, which is indicative of lower maturity level as described by Kerzner (2001).

However, The Agency approach to project management was found to be operating at Ad Hoc or Standardize level (Level 1) as depicted by Table 4-2 above.

However, it is clear from Table 4-2 above that although The Agency is at Ad Hoc/ Standardize (level 1) stage of project management maturity, The Agency seems to posses certain key project management competences found at Planned /Measure stage (Level 2) of project management maturity. These key competences are seen in two key knowledge areas of project management, being Decision support, and Portfolio and Resource Management.

From the analysis of these results it became clear that The Agency has to identify all the lacking key project management competences, capabilities, and Best Practices

that need to be developed in order to push The Agency up the maturity ladder to fully occupy the level 2 phase of maturity.

Considering all the results as shown by the scores in both types of assessments which were conducted it can be reasonably deduced that The Agency is on the verge of entering level two. The organisation as a whole, however, does not display the characteristics required for advancement to level two. Even though it displays some of the characteristics of level two, the sequential nature of the maturity models means that the most probable maturity level of the organisation is level one.

There is a lot of project management improvement that still need to be done for The Agency to move to level two (Planned/Measure) of organisational project maturity ladder. There are certain capabilities and Best Practices that are needed at Level two of maturity which The Agency still lacks.

The underlying proposition to be verified was the following:

> *"The level of organisational project management maturity of the South African Government's Public Administration Departments has moved to the second level (i.e. Planned/Measure stage) of progressive stages of maturity ladder".*

This proposition means that The Agency has completely met the entire level one and level two requirements or characteristics and that it is encroaching upon level three.

According to Kerzner (2001), an organisation qualifies for being considered to be in level one even if the number of incomplete key knowledge areas does not exceed two. Level two is the stage where the organisation makes a determined effort to use project management and to develop processes that support its use. However, The Agency still lacks satisfactory support systems to fulfill the requirements of level two. The bureaucratic nature of The Agency appears to be the biggest stumbling block to climbing with ease to level two.

The results of organisational project management maturity assessment conducted on The Agency using both the OPM3 Self-assessment survey model and open-

ended structured interviews have disproved the above proposition in that they showed The Agency to be still at first level (Ad Hoc/Standardize stage) of progressive stages of maturity ladder". Therefore the proposition was rejected.

Therefore It is finally concluded that The Agency is at level 1(Ad Hoc/ Standardize stage) of project management maturity. Consequently the researcher's proposition that the level of organisational project management maturity of the SAGPAD involved in PPP projects have moved to the second level (i.e. Planned/Measure stage) of progressive stages of maturity ladder is rejected.

Therefore the proposition that The Agency is at second level (Planned/Measure) of process improvement is rejected and the conclusion that The Agency is at the first level (Ad Hoc/Standardize) stage of maturity ladder is upheld.

5.4 Overall Perspective of Maturity as Reflected by both Models

It is interesting to note that the results of The Agency's level of maturity produced by open-ended interviews are similar to those produced by the OPM3 Self-assessment survey. Both models gave results to the effect that The Agency is at level one (Ad Hoc/Standardize) stage of project management process maturity. However, in this study the quantitative assessment was considered a support tool for making an overall assessment.

The reasons for the similarity of the results from the two models is explained by considering and comparing the results as reflected by each model under each knowledge area and sub-components which were assessed. The comparison of the results produced by both models is undertaken in the following paragraphs and is done per each specific knowledge areas or Best Practices assessed by the two models.

Appendix G which contains the list of Best Practices which The Agency appears to demonstrate, relative to those in OPM3, is used in this comparison. These result of these Best Practices are compared with the results reflected by the open-ended

interview conducted at The Agency. The comparison covers only the Seven knowledge dimensions and their nine sub-components as follows:

- **Knowledge Management Dimension:** The results of the interview method show this dimension to be at Ad Hoc level (level 1) of maturity with very low score of 1.2 points. This point is very low and it indicates that this dimensions is as is if it does not exist in The Agency. OPM3 survey results indicates that The Agency does not demonstrate this Best Practice at all. Because of the volume of the Best Practices not demonstrated by The Agency their list is not attached to this thesis.
- **Process Standards, Methods, Procedures:** This dimension is comprised of nine sub-components. The Interview results reflect that the combined total average score of these subcomponents is 1.9 points and that this dimension is still at Ad Hoc level of maturity. The OPM3 survey results indicate that the eight of these sub-components are all at Standardize phase of maturity, except Scope Management sub- component which is reflected to be at Measure phase of maturity. This outcome is congruent to the interview result in that the interview results also reflected Scope Management at a very high score of 3.6 points.
- **Technologies:** The Interview result reflects this dimension to be at Ad Hoc level (level1) of maturity with very low score of 1.0 point. The OPM3 survey results indicate that The Agency does not demonstrate this Best Practice at all. According to OPM3 this Best Practice does not exist at The Agency. Therefore the results of both models are congruent to each other regarding this knowledge dimension.
- **Decision Support:** The interview results reflect this knowledge dimension to be at Planned level (level 2) of maturity and with the score of 2.18 points. This dimension in the OPM3 language is termed as “Establish Executive Support” and is reflected to be at standardize (level 1) phase of maturity. Therefore the two results are not congruent to each other with regard to this knowledge area. However, it is important to highlight that according to OPM3 results this knowledge dimension seem to have progressed to Portfolio domain. This level of domain advancement is compensating against the perceived law maturity stage.

- **Portfolio & Resources Management:** The interview results reflect this knowledge dimension to be at Planned level (level 2) of maturity and with the score of 2.95 points. This dimension in the OPM3 language is termed as "Select Projects Considering Human and Financial Resources" and is reflected to be at Measure level (level 2) of maturity. Therefore the results of both models are congruent to each other regarding this knowledge dimension.
- **Professional Development:** The interview results reflect this knowledge dimension to be at Ad Hoc level (level 1) of maturity and with the score of 1.6 points. This dimension in the OPM3 language is termed as "Educate Executive" and is reflected to be at Standardize level (level 1) of maturity. Therefore the results of both models are congruent to each other regarding this knowledge dimension.
- **Continuous Improvement:** The interview results reflect this knowledge dimension to be at Ad Hoc level (level 1) of maturity and with the score of 1.1 points. This dimension in the OPM3 language is termed as "Capture and Share Lessons" and is reflected to be at Continuously Improve (level 3) of maturity. These results are not congruent and the only possible explanation for this wide disparity of these results in this knowledge dimension can be that the respondent exaggerated the Agency's competence during their assessment of this knowledge area.

Therefore considering the above comparison it is clear that the results reflected by the two models are about 95% in agreement. The differences are only seen in the Continuous Improvement and Decision Support knowledge areas but the results of the rest of the knowledge areas are congruent to one another.

5.5 Chapter Summary

The Agency is clearly trying its best to practice project management; the maturity assessment and Self-assessment survey shows that The Agency has taken strides to handle its projects though its current bureaucratic structure. Other identified project management deficiencies have worked against the progression of The Agency to level 2 of maturity ladder.

The results obtained from the two models are surprisingly similar. The results therefore indicate that the organisation as a whole is at level one. Comparing results from both models shows that the organisation does possess certain level two qualities and characteristics but it has not reached full maturity required for level two.

For reasons outlined in paragraphs 5.2 and 5.3 above, The Agency has not fulfilled the requirements of level two and is thus still at level one. In order to progress to level two The Agency has to fill the identified gaps that still exist at level one and thereafter it may strive to complete level two.

The result that The Agency is not at level two of maturity ladder is consistent with the results of Rwelamila (2007) who found that the average maturity of South African Government Infrastructure Departments was in level one. The probable reasons for this situation is the misunderstanding of the nature of project-oriented approach, the government departments tend to manage projects on the basis of managing operations, what arises a great number of problems and the rupture with the approach. Thus, the pressure for change and improvement is much greater in the government sector in order to cash up with the strides of private sector project management maturity levels.

In summary, the implications of the results and analysis when related back to the research questions listed in Chapter one (paragraph 1.6) are as follows:

- The Agency is one of the largest and most strategic national departments of the South African Government. A reasonable inference can be drawn that The Agency's level of maturity is a high probable reflection and indication of the level of maturity of the other government departments. Thus degree of the organisational project management maturity of the South African Government's Public Administration Departments involved in PPP projects is also at level one of maturity ladder.
- The South African Government's Public Administration Departments are not yet project-oriented organisations.

- The objectives for which The Agency was established have not been adequately met because of the low level of project management maturity of The Agency.
- The Agency does possess certain strengths on project management competences and capabilities yet there are still many weaknesses which need further project management improvement planning.
- The overall measure of current organisational project management maturity of The Agency is level one (Ad Hoc/ Standardize stage) of process development.
- The next step in the path to higher degree of its organisational project management maturity is level 2.
- The degree or level of The Agency's Organisational project management maturity can not be disentangled from that of its PPP projects and therefore by implication the PPP projects handled by the South African Government's Public Administration Departments are also at level one of project management maturity.
- The degree of The Agency's Organisational project management maturity can be used as a measure of the overall success and effectiveness of its PPP projects.

Based on the outcome of the assessment results of The Agency, it is clear that there is a necessity for various government departments to develop project management improvement plan that will assist to improve project management competences of the public sector organisations involved in the PPP projects regime in South Africa.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The primary objective of the present study is to assess and evaluate the degree of project management maturity of the South African Government Public Administration Departments which are involved in PPP projects using OPM3 Self-Assessment survey model and open-ended structured interviews. This objective was pursued by way of a case study with The Agency being randomly selected as the specific case study. The results of the present study are outlined in Chapter 4 and further analysed in Chapter 5.

This chapter is a summary of the main conclusions drawn from the research results as well as the recommendations the researcher made for future research.

6.2 Conclusions

6.2.1 The Agency's Maturity level: It became evident from the analysis of the results of the present study that the researcher's proposition is not correct and that the maturity of The Agency is at Ad Hoc/Standardized (level one) of maturity ladder.

6.2.2 Industry Maturity Level: For reasons presented in Chapter three, the results of the present study suggest that the maturity of the South African Government's Public Administration Departments involved in PPPs is also at level one.

6.2.3 Formal Project Management Processes: The results of this study and mapping summary in Table 4-2 of Project Management Maturity Matrix provide a strong indication to show that The Agency does have formal project management processes in place but that such processes still need to be effectively implemented and improved.

6.2.4 Time and Budgeting for Projects: The Agency's problems in completing many projects on time and on budget can be attributed to The Agency's shortcomings in project management. Among the deficiencies identified are an organisational structure and culture unsuited to managing projects, inadequate techniques for planning and executing projects, the lack of review processes, poor change control mechanisms, and the lack of performance metrics and risk evaluations. But unless the system is improved in several areas, The Agency will continue to have excessive cost overruns, inordinate time delays, improper project formulation, and a dissatisfied clients and stakeholders.

6.2.5 Communication Systems: The general conclusion is that communication processes of project information, particularly within The Agency are unreliable and ineffective on an Agency wide scale. There is a shortage of skilled project managers to carry out formal project management processes.

6.2.6 Coordinated Project Management Plan: The Agency supports the principle of project management expertise but does not have a coordinated plan for developing this. Resource planning focuses on tactical prioritization, not medium or long term resource needs.

6.2.7 The Agency's Project-oriented Approach: There are strong indications to suggest The Agency does not possess sufficient skills and abilities to manage its projects as a POO. Serious project management deficiencies clearly seem to exist in the following knowledge areas- Knowledge Management; Cost Project Management; Risk Project Management; Human Resources Management; Quality, and Procurement management. The absence of these systems and procedures, suggests that the project management position of The Agency need to be reassessed and the re-organisation of its framework need to be revisited.

6.2.8 Project Management Improvement Planning: It seems that the government public administration departments involved in PPP projects have started to take formal project management practices seriously and have shown their intentions to organise around projects. Adequate project management improvement planning aimed at embracing Project Management as a core competence need to be undertaken in order for these organisations to move to the next level of maturity.

6.2.9 Organisational Structure: The fundamental deficiency is Agency's organisational structure and culture, which do not provide a focus for project management. As a result, the processes used by project leaders, and their team members for planning and executing projects are inconsistent.

6.2.10 Cost and Performance Databases: Lessons learned about cost estimating techniques, project review processes, change control mechanisms, and performance metrics are not transferred from one project to another.

6.2.11 Selection and Training of Project Managers: There is no systematic program for recruiting and training professional project managers and no career path for project management.

6.2.12 Professional Development: The Agency has shown little commitment to developing project management skills, as indicated by the lack of training opportunities and the absence of a project management career path. Successful organisations recognize that project management skills are an essential core competency that requires continuous training. The Agency's failure to develop project management skills in its personnel is a fundamental cause of poor project performance.

6.2.13 Knowledge Management: Project documents are usually stored project by project but they are not shared across the organisation. There are no standard procedure of storing project information exists, resulting to Individual project managers taking what ever step they consider necessary to store such information. The Agency does not have adequate policies and procedures for managing projects information.

6.2.14 Project Integration Management: A significant and well-supported effort is under way to establish common Agency wide project management processes. These are not well established yet. Nor are the methods for promulgating, enforcement and usage tracking of these processes. Time and Cost tracking processes are sufficient only for the most general level of control of project resources and costs. There are no established and generally recognized communication methods for project information around The Agency.

6.2.15 Project Management Systems: There is a Microsoft Project Server Software but it is under passive consideration as an enterprise wide project management system. There are no technological project management tools in use. There is no single repository of projects and programs data that would allow for constant and timely access to current project data and information.

6.2.16 Portfolio and Resource Management: It is very difficult to make proactive and informed resource allocation decisions due to lack of integrated resource and assignment tracking system. Therefore, there is no attention to Portfolio Management and Prioritisation.

6.2.17 Continuous Improvement: Process knowledge and improvement opportunities are not captured and consequently there is no organized or consistent way to store, communicate and benefit from this information.

6.2.18 Best Practices: The researcher compared The Agency's project management practices with the some of the Best Practices contained in the OPM3 and standard practices used by private industry and concluded that The Agency falls far short of best practices in a number of areas such as the following:

- Lack of effective organisation-wide project management policy.
- Lack of clear definitions of responsibility and accountability.
- lack of control of changes in the scope, cost, and definition of projects.
- Lack of the state-of-the-art project management systems.
- Lack of Identification, dissemination, and implementation of lessons learned.
- Lack of assessment and management of project risk.
- Lack of setting contingency allowances based on risk.
- Lack of objective performance-based incentives.
- Lack of cost and performance databases and information systems.
- Lack of effective selection, training, and qualification of project managers.
- Lack of project management core competency and organisation

CHAPTER 6

6.3 Recommendations

The Agency's portfolio of projects is large, complex, and sophisticated. Many projects are one of a kind, involving unique systems, processes, and technical challenges. Delivering projects of this magnitude that meet baseline costs and schedules is a constant challenge that requires excellent project management. The findings indicated above and the recommendations that follow provide guidelines for lifting The Agency's project management maturity to the second level commensurate with most of the private sector industry.

No single change will raise The Agency's project management to the second level, because the problems are pervasive and cultural, and resolving them will require more than a quick fix. The Agency must undertake a broad program of reform for the entire project management process.

These recommendations for improvement are listed according to specific findings or deficiencies they would address. In order to deal effectively with the identified deficiencies with a view to improve the project management at The Agency the following recommendations are made:

6.3.1 Project Management Centre of Excellence: In order to be able to function as a POO and accomplish the department's mandate and move smoothly to higher levels of the PM maturity ladder requires the creation of an environment for successful projects or 'building project management centre of excellence.

6.3.2 Path to Level 2 Maturity: Since the organisation is at level 1, the next step in the path to full maturity is to first complete level 1 processes and thereafter aspire to completing level 2.

6.3.3 Process Standards, Methods and Procedures: As a part of its project management system, The Agency should issue fundamental policies, procedures, models, tools, techniques, and standards; train project staff in their use; and require their use on all projects.

6.3.4 Project Management Plan: The Agency should develop and support the use of a comprehensive project management system that includes a requirement for a comprehensive project management plan document with a standard format that includes a statement of the project organisation covering all participating parties and a description of the specific roles and responsibilities of each party. The Agency should further mandate a reporting system that provides the necessary data for each level of management to track and communicate the risk, quality, cost, schedule, and scope of a project.

6.3.5 Project Management Information Systems: It is recommended that PMIS (Project Management Information System) be put in place in order to facilitate the communication within the project team themselves and between the project team and external stakeholders.

6.3.6 Time-based Interface Chart: The Agency should create a time-based interface chart of all projects, listing deliverables and dependencies and skills set required. This chart should be updated regularly, and be used as a status report and troubleshooting tool.

6.3.7 Project Manager's Development Program: The Agency should establish a department-wide training program for project managers. To ensure that this program is realistic, practical, and state of the art, The Agency should enlist the assistance of a consulting organisation with a successful record of training project managers. The Agency should establish criteria and standards for selecting and assigning project managers, including documentation of training, and should require that all project managers be trained and certified. The Agency should also require that all contractors' project managers be experienced, trained, and qualified in project management appropriate to the project.

6.3.8 Continuous Improvement: The project management office should exert concerted effort to drive to continuous improvement of project management across the organisation. This is necessary in order to help create a successful environment and help guide the organisational change necessary to sustain that environment.

6.3.9 Cultural Change Programs: The office of project management should implement all project improvement programs and drive cultural changes within The Agency.

6.3.10 Assessment Metrics: Once the improvement programs are implemented, they need to be assessed to see whether they are effective. Specific metrics, small measurable quantities that have a predictive or measurement capability, need to be defined early on to provide a comparison. These metrics also need to be linked to the organisation's critical success factors. They can then demonstrate, over time, how well an organisation's management of its projects is working and can identify areas of continuous improvement to further increase the effectiveness of the organisation's competitive advantage.

6.3.11 Project Execution Support: In order for the improvement programs to be effective, the project management office must include the staff necessary to support the project managers and provide consistent methods and systems for cost estimation, risk analysis, contracting, incentives, change control, progress reporting, and earned value management. The reform will require full and continuing support of the executive management of The Agency to ensure the support of program offices, field offices, and the entire project management organisation.

6.3.12 Environment for Successful Projects: Graham and Englund (2004) suggest that a conducive environment for running successful projects must be created by senior management of the organisation. Since successful projects are a precursor to organisational success, therefore the problems in running projects will soon translate into problems in the running of the entire organisation, thus having an adverse impact on The Agency's success in a competitive environment.

6.3.13 Change to Project-based Organisation: Graham and Englund (2004) indicate further that implementing project management discipline and practices

successfully is not a quick-fix solution, but rather is a long-term, foundation-building effort. This will require significant changes at The Agency's organisational structure and obliges people at all levels in the company to learn new concepts of managing by applying new methods to complete the work they do. Careful planning with the tenacity to stay on track and not lose sight of the end goal is essential.

6.3.14 Interdepartmental Input: Successful projects require participation from many parts of the organisation. Therefore the introduction and the development of successful project management practices at The Agency can not be accomplished in one or two departments alone. Skills in managing across organisation at The Agency will need to be developed. The implementation of successful practices at The Agency will therefore require co-ordinated effort involving all departments in the organisation. This change must be systematic and system-wide.

6.3.15 Senior Management Influence: It is the primary duty and responsibility of The Agency's upper management team to create an environment that promotes project success. The conduct of upper managers influences project success or failure. Graham and Englund (2004) argue that: "although project managers are mostly closely responsible for the success of projects, upper managers ultimately create an environment for project success. The way that directors of divisions, departments, functions, and sections define, structure and act towards projects has an important effect on the success or failure of those projects, and consequently, the success or failure of the organisation.

6.3.16 Project Management Techniques: The effective use of project management techniques at The Agency can be a critical element for achieving success in its business and it will be a key weapon in their arsenal to increase customer satisfaction and be at the competitive edge.

6.3.17 Components of Environment for Successful Projects: Therefore The Agency's senior management should adopt and apply all the recommended environmental components that foster successful projects. According to Grahm and Englund (2004) there are ten components of an environment for successful projects. They further stress that these components will not stay together without the exercise and display of authenticity and integrity by the upper management. According to

Graham and Englund (2004), the components of an environment for successful projects are:

- The change to project-based organisations,
- Strategic emphasis of projects,
- Understand upper management influence,
- Develop a core team process,
- Organise for projects management,
- Develop a project management information system,
- Develop a plan for project manager selection and development,
- Develop a learning organisation,
- Develop a project management initiative,
- Develop project management in the organisation.

The researcher is of the opinion that if The Agency acts upon the findings and recommendations of this dissertation, its project performance would be significantly improved to the second level of maturity.

On the whole, it should be emphasized that all discussed above do not mean that the government public administration departments should give up other improvements in public administration and concentrate only on project management perceiving it as a panacea. The introduction of project management methodologies should proceed together with other transformations. Only in that case it will have such an effect as in the mature private sector organisations.

6.3.18 Recommendation for future research studies: The contents of this research report have highlighted two important fields which will become more important in the future for project management academics and professionals, these are the following:

- Firstly, more research is needed to fully understand the project management practices and processes more thoroughly to achieve a true project-driven organisational environment in the business world.

- Secondly from content of this thesis it has become clear that more work is needed on the definition of maturity and on understanding of how it varies among industries and project types. Such work will have value, however, only if organisations perceive maturity as an asset. Maturity models are not an adequate way of measuring organisational project management maturity, at least as they currently stand. The field of maturity models is itself far from mature, with many models based on widely differing assumptions and ranging from the overly simplistic to the overly complex. Since so many questions remain unanswered about these models, significant investment by organisations in using these as a primary vehicle for improving project success remains an act of faith.

An examination of the metrics that are used by organisations aspiring to achieve organisational project management maturity, however, suggests that the distinction between the project, program (sponsor), and portfolio (business) levels of organisational focus is a valid one that represents a real progress in the discussion about maturity.

Therefore, the project management process maturity assessment models should be continuously refined to reflect advances and progress in our project management knowledge base. The assessment models could further determine and evaluate an organisation's project management maturity more effectively. As more organisations wrestle with the concept of maturity, there is a challenge to the research community to broaden its vision from those aspects of managing projects that are common to *most projects, most of the time* so as to encompass an understanding of how maturity varies among industries and among project types.

The foregoing discussion makes it clear that both these two topics lend themselves to further investigation and study and should form the basis of ongoing research in the field of organisational project management maturity and project-driven organisations.

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APPENDIX A

NATIONAL PPP PROJECTS

NO	Project Number	National Departments	Project	Status	Transaction Advisors
1F	No 77	Department of Communication	Emergency 112 Call Centre	Feasibility Study: to be submitted for review by PPP Unit.	Utho Capital; Nokusa Consulting; SincroWave.
2F	No 75	Department of CorrectionalServices	Working Environment Service Delivery	Feasibility Study: Need Analysis completed	Ghandi Maseko Architects, Dean Zimu Consultants.
3F	No 60	Department of Correctional Services	Feasibility of 4 new prisons	Discussion with DCS ongoing.	Kagiso Financial Services; Ledwaba Mazwai; Carter Gobel Lee; P D Naidoo.
4Proc	No 38	Department of Defence	Purchase of Clinical Services in 7 districts	Procurement: RFP in preparation.	Ignis; PH Inc.
5Inc	No 85	Department of Defence SA Navy	Sea Safety Training Centre for the SA Navy	Inception: Transaction Advisors bids.	Not yet appointed.
6Neg	No 08	Department of Education	Working Environment Service Delivery	Negotiations: Sethekgo Consortiu	KPMG, Turner & Townsend, Deneys Reitz.
7Neg	No 09	Department of Foreign Affairs	Working Environment Service Delivery	Negotiations: Imbumba-Aganang	SPP Solutions ,Deneys Reitz, Vela VKE.
8Proc	No 37	Department of Justice	Management of Monies and Trust (MMT)	Procurement: RFP issued.	Ernst & Young, CSIR, Tin Can Communications,
9F	No 72	Department of Labour	Communication Technology	Feasibility Study: Completed, waiting for TA1 submission	PricewaterhouseCoopers, White and Case.
10F	No 66	Department of Land Affairs	Working Environment Service delivery	Feasibility Study: Due Diligence Land issues ongoing.	SPP Project Solutions, Vela VKE, Resolve Group,
11Proc	No 73	Department of Minerals & Energy	Independent power producer generation	Procurement: RFP issued April 2006.	PB Power; Deneys Reitz; IBM; Ebony Consultants;
12 Proc	No 18	Department of Water Affairs & Forestry	Working for Water: secondary industries	Extended scope of work. Revised TAI required.	KPMG; Stellenbosch University; Edward, Nathan & Friedland; Nosipho
13Inc	No 78	Department of Arts and Culture	National Archives Electronic Content Management Solution	Inception. Terms of reference for TA's inpreparation.	Not yet appointed
14Inc	No 84	Government Printing Works	Working environment Service Delivery	DPW Options Analysis	Not yet appointed.
15Inc	No 88	Department ofEducation	E-Education in Public Schools and Colleges	Inception.	Not yet appointed.
16F	No 87	Department of Environmental Affairs & Tourism	Working EnvironmentService Delivery	Feasibility study: Draft	BKS; Kagiso Financial Services; Ledwaba Mazwai

SOURCE: available on www.treasury.gov.za

APPENDIX B

This table is a current list of existing organisational project management maturity models.

Model	URL
A Guide to the Project Management Body of Knowledge	http://www.pmi.org/standards/pmbok.htm
AACE International's Certification Program	http://www.aacei.org/newdesig/certification
ICB - IPMA Competency Baseline	
APM BoK Review	http://www.apmgroup.co.uk
Project Management Assessment and Certification Program Europe	
Australian Institute of Project Management (AIPM). 1996. *National Competency Standards for Project Management*	http://www.dab.uts.edu.au
Software Engineering Institute Capability Maturity Models in general	http://www.sei.cmu.edu
SEI SW-CMM Capability Maturity Model SM for Software	http://www.sei.cmu.edu/cmm/cmm.html
SEI SE-CMM Capability Maturity Model for Systems Engineering	http://www.sei.cmu.edu/cmm/se-cmm.html
SEI P-CMM People Capability Maturity Model	http://www.sei.cmu.edu/cmm-p/
Microframe	http://www.pm2.com
SPICE	http://www.sqi.gu.edu.au/spice/
Trillium	http://www.sqi.gu.edu.au/trillium/
US Federal Aviation Administration integrated Capability Maturity Model	http://www.faa.gov/
PMA 2000	http://www.leshem.co.il/products/main1
Balanced Scorecard	http://www.hbsp.harvard.edu
Integrated Project Systems' model	
ESI International's ProjectFRAMEWORK.	
EFQM Excellence	http://www.efqm.org/
Malcom Balridge Award	
Hartman's SMART model	
IBM Progress Maturity Model	
Project Management Maturity Model, by Knapp & Moore Pty Ltd.	
V-Model	http://www.scope.gmd.de/ vmodel/en/
Innovation Maturity Model	http://managementroundtable.com/
PRINCE	http://www.prince2.com/
Programme Management Maturity Model	http://www.e-programme.com/pmmm.htm
PM Solutions' Project Management Maturity Model (SM)	http://www.pmsolutions.com/maturitymodel/whatismodel.htm

Source: PMI (2001).

APPENDIX C

Project Management Maturity Matrix model

Project Management Components	Level 1: "Ad Hoc"	Level 2: "Planned"	Level 3: "Managed"	Level 4: "Integrated"	Level 5: "Sustained"
Knowledge Management	No formal methods and procedures for collecting, storing, and sharing project related documents and information.	Methods and procedures to collect project documents in a central repository are defined. No formal gate keeping, review and acceptance of project related documents prior to publishing.	Documents are collected and stored in a central repository for high visibility projects. Formal gate keeping, review and acceptance of project related documents, is rolled out occasionally.	Documents are collected and stored in a central repository for all projects. Formal gate keeping, review and acceptance of project related documents, is rolled out across all projects.	Historical project information is utilized across all projects to improve planning, execution and control processes. An advanced data search engine is put in place to ease the storing and collection of information.
Integration Management	Basic project management procedures are defined and used for key projects. No formal project management procedures.	Formal project management are developed to support the existence of a small number of simple templates (typically < 50 tasks), applied occasionally.	Project management procedures are enhanced to support the maturation of all project management components applied inconsistently.	Project management procedures are improved to support the maturation of all project management components applied across all projects.	Formal contiguous improvement feedback loop exists. Lessons learned are integrated into the overall process.
Scope Management	No formal template parameters exist for defining project scope.	Simple scope management templates are defined (introducing WBS), stakeholder participation in requirements definition and deliverable approval, and change management processes are defined and deployed rarely/occasionally.	Scope templates and change management procedures are enhanced to include formal acceptance and formal scope/change management, and measurable, quantifiable objectives are clearly defined with completion criteria applied inconsistently.	Formal scope/ change management is applied to all projects. Project performance is Measure against other projects.	satisfaction surveys are conducted against measurable objectives used to improve scope definition and change management procedures. Historical project performance metrics are used to continually improve performance standards.
Time Management	No formal time Estimating techniques. Project plans are not statused for labor costs or schedule. Projects are not base-lined.	Estimating techniques for time are applied for some projects. Projects are statused for schedule, but not labor or cost, and are still not base-lined.	Actual (time) labor status introduced. Critical path is defined. Formal (time) base lining applied occasionally. Change control process for schedule revisions is applied. Labor is tracked only at the Project summary level.	Historical schedules and labor actuals are utilized to improve estimating process (perform EVA). All projects are formally base lined to enable effective measurement of variances. Labor is tracked at the WBS level of detail.	Historical variance data is utilized across all projects.

Source: Project Assistants, Inc. (2005).

APPENDIX C

Project Management Components	Level 1: "Ad Hoc"	Level 2: "Planned"	Level 3: "Managed"	Level 4: "Integrated"	Level 5: "Sustained"
Cost Management	No formal cost Estimating techniques. Project plans are not statused for non-labor costs. Projects are not base-lined.	Estimating techniques for cost are applied. Projects are statused for non-labor costs, and are still not base-lined.	Actual (cost) non-labor status introduced. Cost and labor double entries – as there is no integration into accounting systems. Formal (cost) baselining applied inconsistently. Change control process for budget revisions is applied. Costs are tracked only at the Project summary level.	Historical schedules and non-labor actuals are utilized to improve estimating process (perform EVA). All projects are formally base-lined to enable effective measurement of variances. No double entries, as there is integration into project accounting systems. Cost is tracked at the WBS level of detail.	Historical variance data is utilized across all projects.
Communications Management	No formal communication plan exists – status /progress reports, meeting minutes, etc., and no project management forms exist.	Formal status and common forms exist. Summary status is not reported to senior management.	Formal status and common forms are applied occasionally. Summary status is reported to senior management, but not all KPI's are reported to management.	Key performance indicators (KPI's) are reported to all levels of the organisation across all projects.	Key performance indicators are used to manage the entire portfolio of projects, and to help the organisation make better decisions about which projects to initiate.
Risk Management	Risks are not identified. No contingency planning.	Risks are informally documented in text, not metrics, and risk identification is not regularly reviewed. When risks are realized, contingency plans are often not followed.	Risks are formally identified irregularly/inconsistently. Contingency plans are formally documented. Metrics are captured for severity and odds of occurrence.	Risk identification, contingency planning and use of metrics to measure probability and impact are formally applied across all projects.	Historical quantitative risk scores are utilized to develop better contingency plans.
Quality Management	No repeatable process defined to ensure quality deliverables.	Basic quality process requirements are defined, and stakeholder inspection and approval sessions are introduced for critical deliverables.	Inventory of documented processes are broadened, repeatable processes are applied, and stakeholder inspection and approval sessions are documented irregularly/inconsistently.	Process refinement and use to measure defects and gather basic quality metrics are applied across all projects.	Quality metrics are used to identify defects in the process, and used to improve the process.

Source: Project Assistants, Inc. (2005)

APPENDIX C

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Project Management Components		Level 1: "Ad Hoc"	Level 2: "Planned"	Level 3: "Managed"	Level 4: "Integrated"	Level 5: "Sustained"
	Human Resource Management	Project related staffing is decentralized and not documented.	Project assignments draw upon generic resource pools. Assignments are not people or skill set specific.	Resource planning using specific skill sets is identified Irregularly /inconsistently. Plans are optimized and 'leveled' by role.	Resource planning using specific skill sets is identified for all projects. Plans are optimized and 'leveled' by named resources.	Demand and capacity historical metrics are utilized to improve HR planning and forecasting.
	Procurement Management	Cost projections are not used to anticipate Procurement needs. Procurement process is inconsistent across projects.	Basic project cost budgeting and forecasting for materials is performed, but there is no formal procurement process.	Formal procurement process used for high visibility projects – RFP, vendor selection, and managed contracts.	Formal procurement process used across all projects – including vendor inspections.	Historical procurement metrics utilized to improve the procurement process for lead times and order aggregation for volume discounts.
Technologies		No formal software tools are in place for managing projects.	Simple project management tools and templates are defined using project management software tools.	Technologies are refined and advanced with formal training on the software applied irregularly or inconsistently.	Continued refinement of the tools and technologies with training and rollout across all projects.	Continued improvement of software tools and collection of data to advance benefits and ease of accessing historical information to improve the planning, execution and control processes across all projects.
Decision Support		No formal management support or escalation procedures exist.	Simple procedures to obtain, compile, distribute and present accurate required information, and information forms and templates are defined and deployed rarely or occasionally. Escalation procedures exist for senior management.	Procedures to obtain, compile, distribute and present accurate required information, and information forms and templates are refined and deployed Irregularly or inconsistently. Summary status is reported to senior management.	Procedures to obtain, compile, distribute and present accurate required information, and information forms and templates are enhanced and deployed across all projects. Summary status is reported across all levels of the organisation.	Procedures are refined and deployed for resolving and/or escalating inter-project or portfolio issues.

Source: Project Assistants, Inc. (2005).

APPENDIX C

Project Management Components	Level 1: "Ad Hoc"	Level 2: "Planned"	Level 3: "Managed"	Level 4: "Integrated"	Level 5: "Sustained"
Portfolio & Resource	No formal guidelines and procedures for assigning resources, managing inter-project dependencies, or monitoring a portfolio of projects exist.	Procedures are defined for assigning resources. Skills are rarely or occasionally defined across all disciplines.	Procedures are deployed for assigning resources irregularly/inconsistently. Skills identified and deployed across all disciplines occasionally. Projects can be summarized to pre-established, common phases or stages. Formal, measurable criteria (KPI's) are defined for deciding if projects will permitted to pass through these pre-defined "gates" to proceed to next stage (or phase) of the project.	Procedures are deployed for assigning resources across all projects. Skills identified and deployed across all disciplines across all projects. Formal, measurable criteria (KPI's) are defined for deciding if projects will permitted to pass through "pre-defined gates" to proceed to next stage (or phase) of the project and these gating mechanisms are used to make real go/no-go decisions.	Procedures are refined and deployed for managing and monitoring inter-project, program or portfolio dependencies.
Professional Development	The role of project management is not defined. No formal guidelines and procedures exist for professional development.	The role of project management is defined, and professional development plans are identified. No formal career path/programs or reward and recognition programs are in place.	Project management education, mentoring and training programs are deployed. Career path or programs and reward and recognition programs are defined.	Project management certification program is defined and deployed. Career path/programs and reward and recognition programs are deployed.	Continued improvement of training, mentoring, skills, career programs, and reward and recognition programs.
Continuous Process Improvement	No formal procedures exist for continuous process improvement.	Formal process Improvement procedures are introduced.	Procedures for validation of current standards, processes, methods and procedures against best practices are defined and deployed.	Procedures for verification and audits of effective application of all standards, processes, methods and procedures against best practices in the organisation are refined and deployed across all projects.	Effective successful standards, processes, methods and procedures are acknowledged and retained. Ineffective standards, processes, updated or retired.
Program Management	No formal guidelines and procedures for Managing programs	Procedures are defined for coordinating activities across related projects. Existing processes are rarely/occasionally applied.	Procedures for coordinating activities across projects are deployed and managed. Program information is collected.	Procedures for coordinating activities across projects are measure. Metrics are used to improve program performance.	Program management procedures are refined and deployed for managing and monitoring inter-project dependencies.

Source: Project Assistants, Inc. (2005).

APPENDIX D

	PMMM – Maturity Level Descriptions
Level 1 – "Ad Hoc" (No formal/standard processes applied)	No formal standards, process, methods, procedures or staff to constitute a project management discipline. Standard technologies and reporting are sporadic.
Level 2 – "Planned" (Formal/standard processes rarely or occasionally applied)	Project management standards, process, methods, procedures and staff exist in the organisation but are not considered to be an organisational standard. Basic documentation exists, inconsistent management support rarely/occasionally applied.
Level 3 – "Managed" (Formal/standard processes irregularly or inconsistently applied)	All project management standards, processes, methods, procedures and staff are in place as organisational standards. Formal documentation exists, consistent management support, execution irregularly/inconsistently applied.
Level 4 – "Integrated" (Formal/standard processes frequently applied and sporadically integrated throughout the organisation)	More refined project management standards, processes, methods, procedures and staff are in place. More refined documentation, consistent management support, consistent execution, and efficiency exist across all projects. Metrics are in place to collect performance data across all projects.
Level 5 – "Sustained" (Formal/standard processes consistently applied and integrated throughout the organisation)	Lessons learned and best practices are applied to continuously improve existing standards, processes, methods, procedures and staff. Metrics are collected and applied at the project, portfolio and organisational levels. The organisation is in a position to evaluate future decisions based on past performance and maximize its competitive advantage in the industry.

Source: Project Assistants, Inc.(2005)

APPENDIX E

Assessment Questionnaire

This questionnaire is intended to facilitate the researcher in assessing the Project Management Maturity Level of The Agency under study. It also encourages discussion of existing practices and processes within The Agency. There are no 'right answers' and not all the questions may be applicable to The Agency's specific business environment. The answer may therefore well be "No" or "None".

A. Knowledge Management Dimension

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		2				Do formal methods exist to collect, store and share project related information and documentation?	
1.2	1					Is there a central project and program data repository, to capture critical project and program information, metrics, and lessons learned, and is it maintained?	
1.3	1					Are formal gate keeping, review and acceptance of project related documents rolled out across all projects?	
1.4	1					Are there formal procedures to organize, file, and store information of completed projects? Can this information easily be searched and used by everyone?	
1.5	1					Is there a requirement for Lesson Learned reports?	
TOTALS	4	2				1.2	AVERAGE SCORE

APPENDIX E

B. Process Standards, Methods & Procedures Dimension

1) Project Integration Management

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		**2**				To your knowledge, how many projects are there with and without plans (Project Manager, Scope, Time line, Risk assessment, Budget, etc.).	
1.2		**2**				Is a project plan that contains appropriate project information developed and approved for every project?	
1.3				**4**		Do standard methods and procedures exist for project development life cycles?	
1.4		**2**				Are Project Management standard methods and procedures and product development life cycle processes effectively integrated?	
1.5			**3**			Do you track issues? If so, do you have periodic meetings to review and update project issues?	
1.6			**3.9**			Are sponsors and other stakeholders involved in setting a direction for the project that will affect all stakeholders	
1.7	**1**					Are there formal procedures to assure that information is shared correctly and all decision makers have the appropriate level of information?	
1.8		**2**				Is there a project charter that contains appropriate project information developed and approved for every project setting and defining goals, objectives and scope?	
1.9		**2.9**				How are project goals defined, agreed and recorded? Is there a system to prioritize project goals and objectives?	
1.10		**2**				Is the project manager assigned early in the project, prior to the start of project plan execution?	
1.11	**1.9**					Are formal change management processes applied consistently?	
TOTALS	**2.9**	**12.9**	**6.9**	**4**		**2.42**	**AVERAGE SCORE**

APPENDIX E

2) Project Scope Management questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1				**4**		Are formal scope definition and documentation processes applied to all projects?	
1.2				**4**		Are complete work breakdown structure templates in place with documented guidelines, tools, techniques, and updates?	
1.3				**4**		Are structured, joint development sessions conducted periodically throughout the life cycle of the project, as appropriate?	
1.4			**3**			Are acceptances criteria clearly defined and include quantifiable deliverables and/or pre-defined service levels?	
1.5			**3**			What is the process for confirming that all deliverables have been accepted?	
TOTALS			**6**	**12**		**3.6**	**AVERAGE SCORE**

APPENDIX E

3) Project Time Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		**2**				To your knowledge, how many projects have been delivered on time out of the total number completed over the last 2 years?	
1.2		**2.9**				To your knowledge, how many projects are there with and without schedules (Time line for task and deliverable completion)?	
1.3	**1**					Is a complete activity sequencing process in place that involves the identification of dependencies to create a project network diagram?	
1.4	**1**					Are projects base-lined to allow tracking of variances? If so, at what level (phase, task, sub-task/detail)?	
1.5	**1**					Are estimating techniques for time applied – both duration and effort? If so, which technique is more often used?	
1.6	**1.6**					Are project tracking processes defined and operating, where actual progress is posted to project plans (tracked for labor or schedule)?	
1.7	**1.2**					Is labor tracked only at the Project summary level or at the task level of detail?	
1.8	**1.9**					Is critical path used in optimizing the schedule?	
1.9		**2**				When a project is completed, is the total actual total duration known?	
1.10		**2.5**				As part of the project tracking process, is actual work effort collected and posted to project plans?	
1.11	**1**					Are various defined estimating processes and models including historical data, top-down and bottom-up estimating and trend analysis in place to determine and/or improve task effort and task duration estimates?	
TOTALS	**8.7**	**9.4**				**1.65**	**AVERAGE SCORE**

APPENDIX E

4) Project Cost Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1	**1.2**					To your knowledge, how many projects have been delivered on budget out of the total number completed over the last 2 years?	
1.3	**1.1**					Are estimating techniques for cost applied? If so, which technique is more often used? Is there a repository data system?	
1.4	**1.7**					Are project costs estimated for all resources that will be charged to a specific project?	
1.5	**1.3**					Is an initial estimate developed or are estimates directly developed based on the scope document (WBS)?	
1.6	**1**					Are cost and labor tracked separately (double entries) because of lack of integration with accounting systems?	
1.7	**1.9**					Are change control processes for budget revisions applied?	
1.8	**1.6**					Are costs tracked only at the project summary level?	
1.9	**1**					Are resources tracked to the lowest level of the project work breakdown structure?	
1.10		**2**				When a project is completed, is the total cost known?	
1.11	**1.9**					Is a structured cost control system is in place, including fully automated tools, revised budgets, and corrective action plans?	
TOTALS	**12.7**	**4.9**				**1.6**	**AVERAGE SCORE**

APPENDIX E

5) Project Communications Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		**2**				To your knowledge, how many projects are there with and without communication plans (Formal description of what project information should be circulated, when, how and to whom)?	
1.2			**3**			Is there development and maintenance of a project folder consisting of key project documents such as project charter, mission statement, WBS, responsibility matrix, schedules, status reports, issues log and project controls or change management plans?	
1.3		**2.9**				Are there processes in place to receive, log and resolve project issues/problems in a timely manner with team members and stakeholders?	
1.4				**4.9**		Are scheduled and regular project status meetings held involving team members for the purpose of communicating project progress and status?	
1.5		**2**				Are the information needs of the stakeholders analyzed; with communication taking place on a regularly scheduled basis and in a specified format (report, presentation, etc.)?	
1.6	**1**					Do all project stakeholders (customer, technical, vendor, management) receive the communications?	
1.7		**2**				Is the overall status of the project published to all project stakeholders?	
TOTALS	**1**	**8.9**	**3**	**4.9**		**2.54**	**AVERAGE SCORE**

APPENDIX E

6) Project Risk Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1	**1.7**					To your knowledge, how many projects are there with and without risk plans (Formal descriptions and management plans of project risks)?	
1.2	**1.6**					Is there a process in place to identify, analyze, respond, monitor and control project risks?	
1.3		**2**				Are risk responses documented and mitigation strategies and contingency plans incorporated into the project plan?	
1.4	**1**					Is a change budget or contingency reserve incorporated into the project budget based on risk?	
1.5	**1**					Is the risk assessment process built into the ongoing project management and tracking process? At what point in the life of a project does this start happening?	
1.6	**1.7**					Are risks continuously reassessed and updated throughout the life of the project?	
1.7	**1**					Are risks quantified in terms of probability and consequence of occurrence, and prioritized based on these risk scores?	
1.8	**1**					Are risk events identified and assessed using historical data, team experience and other defined criteria?	
1.9	**1**					Is there a database for risks typologies and/or mitigation strategies? Are risks appropriately documented when a given project risk item is closed?	
1.10	**1**					Is there a risk management software tool in use? If so, is it integrated with the project management software tool(s)?	
1.11	**1**					Are metrics used to measure probability and impact formally applied across all projects?	
TOTALS	**12**	**2**				**1.27**	**AVERAGE SCORE**

APPENDIX E

7) Project Quality Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1	1.2					Is a project quality management plan developed to describe how the team will implement its quality policy and includes responsibilities, procedures, processes and resources necessary to implement quality management activities?	
1.2	1					Are the project's key stakeholders involved in the inspection and approval of processes?	
1.3	1					Are quality assurance activities implemented and enforced to ensure that the project will satisfy the relevant quality standards (process and deliverables acceptance criteria)?	
1.4	1					How is product quality assessed after project completion?	
1.5	1					Are quality metrics used to identify defects in the process, and used to improve the process?	
TOTALS	5.2					1.04	AVERAGE SCORE

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8) Project Human Resource Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		**2**				Is there a process defined for identifying, documenting and assessing project roles and responsibilities and for determining resource loading?	
1.2		**2**				Are project assignments drawn from a generic resource pool?	
1.3		**2.5**				Are definition of project roles (sponsor, team member, stakeholder), and responsibilities documented, communicated and reviewed throughout the life cycle of the project?	
1.4			**3**			Are specific skill sets identified for defined project roles?	
1.5	**1.3**					Are there guidelines pertaining to the availability, scheduling and communication to facilitate team formation, team building interaction and development?	
1.6	**1.2**					Are formal project reward and recognition systems to promote or reinforce desired behavior and make the link between project performance and the reward clear, explicit and achievable?	
1.7	**1**					Are demand and capacity historical metrics utilized to improve HR planning and forecasting?	
TOTALS	**3.5**	**6.5**	**3**			**1.85**	**AVERAGE SCORE**

APPENDIX E

9) Project Procurement Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		2				Are cost projections used to anticipate procurement needs?	
1.2		2.2				Is there basic project cost budgeting and forecasting for materials?	
1.3	1.2					Is there a defined procurement plan with a defined Statement of Work (SOW) template?	
1.4	1.2					Are standards defined for contract deliverables, delivery and acceptance criteria and post delivery support and maintenance?	
1.5	1					Is there is a selection process defining the monitoring and evaluation guidelines for contractors.	
1.6	1					Is the management of contracts, guidelines for contract changes, and the renegotiation of contracts a well-defined process?	
1.7	1					Is there a process for vendor qualification?	
TOTALS	5.4	4.2				1.37	AVERAGE SCORE

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C. Technologies related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1	1					Are there selected project management software tools that support the project manager in performing all project management functions including initiating, planning, executing, controlling and closing?	
1.2	1					Are project management software tools institutionalized?	
1.3	1					Are project managers and associates trained and effectively using the tools?	
1.4	1					Is there an integrated plan for the procurement and standardization of Project Management support tools such as Microsoft Project, Primavera Team Play and ABT Project Workbench?	
1.5	1					Are tools and technologies used by management and project team members to enhance the collaboration and communication required to effectively manage the organisation's projects?	
1.6	1					Are selected project management software tools compatible with existing software tools?	
1.7	1					Are project management tools integrated with other corporate systems?	
1.8	1					Are software tools used for the collection of data to advance benefits and ease of accessing historical information to improve the planning, execution and control processes across all projects?	
TOTALS	8					1.0	AVERAGE SCORE

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D. Decision Support related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1		**2**				Are standard program/project communications distributed to all project stakeholders, in scheduled, required periods?	
1.2		**2**				Is timely information disseminated in order to facilitate effective go/no-go decisions for programs or projects?	
1.3		**2.9**				Are deliverables assessed at defined gateway milestones to determine whether a project should continue or terminate?	
1.4		**2.6**				Are formal processes in place for performing variance analysis to evaluate project/program status?	
1.5			**3**			Is there a formal process in place for developing, analyzing and evaluating different project scenarios during the decision making process?	
1.6	**1.8**					Is there a formal procedure to assess the level of information to be provided to different team members and project stakeholders?	
1.7	**1**					Are procedures refined and deployed for resolving and/or escalating inter-project or portfolio issues?	
TOTALS	**2.8**	**9.5**	**3**			**2.18**	**AVERAGE SCORE**

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E. Portfolio and Resource Management related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1				4		Are project initiation requests funneled through a single location where they are screened, evaluated, and periodically prioritized utilizing documented procedures?	
1.2		2.9				Is there simultaneous monitoring and control over multiple projects or programs, and resources?	
1.3	1.5					Are resources working on multiple projects? If so, is there a formal procedure to prioritize and reallocate resources among projects and or programs? Who has responsibility for the allocation process?	
1.4		2				Are procedures deployed for assigning resources across all projects?	
1.5		2.3				Are organisational efforts made to centralize project management across departments by coordinating procedures, resources assignments and communications?	
1.6		2.9				Does the organisation have a process to continuously review, assess and prioritize corporate initiatives and project portfolios?	
1.7			3.2			Is there a formal process for selecting the projects to be executed?	
1.8		2				Are inter-project processes and procedures defined to identify links between projects and/or tasks, ensure effective inter-project communication and to establish project priorities?	
1.9			3			Do project and program managers understand how their projects fit into the organisation's overall goals and strategies?	
1.10					5	Are the organisation's executives directly involved in the organisation's project management direction?	
					5	Does the organisation have an internal project management organisation that proactively supports project management practices?	
1.11			3			Does the organisation provide selection processes for Portfolio Management including: Opportunity Screening, Project Prioritization and Key Performance Indicators?	
1.12		2.9				Are cost management processes defined for the established budgets to monitor project performance, continuously report project costs, risk criteria, forecasted payout, Net Present Value, Internal Rate of Return, break-even analysis, etc.?	
1.13	1.7					Is there a program for effective allocation of limited human, material and equipment resources defined and implemented for all projects and programs?	
TOTALS	3.2	15	9.2	4	10	2.95	AVERAGE SCORE

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F. Professional Development related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1			**3**			Do positions exist for various types of project management roles and responsibilities?	
1.2	**1.8**					Are Project Management performance and technical skills requirements defined and communicated to all project managers and associates?	
1.3	**1**					Is a project management professional career path program deployed throughout the organisation?	
1.4	**1.3**					Are designated project managers required to achieve specific, defined competencies, and/or internal certification?	
1.5	**1**					Are defined processes and procedures for training, mentoring, and developing professionals deployed throughout the organisation?	
1.6	**1.2**					Are there regularly scheduled evaluations, and reward and recognition in place for team members?	
TOTALS	**6.3**		**3**			**1.55**	**AVERAGE SCORE**

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G. Continuous Process Improvement related questions

Level of Knowledge

ITEM	1	2	3	4	5	QUESTION STATEMENT	
1.1	**1**					Are quality guidelines and processes defined and a continuous improvement plan documented and enforced?	
1.2	**1.7**					Do Document and Version Control processes exist to ensure current policies, procedures, tools and technologies are being applied?	
1.3	**1**					Are periodic process audits performed to ensure that project management lessons learned and best practices are correctly utilized and integrated into the overall processes?	
1.4	**1**					Are client satisfaction surveys conducted against measurable objectives used to improve scope definition and change management procedures?	
1.5	**1.3**					Are Project Management standard processes and procedures periodically reviewed, enhanced or retired, to ensure reflection of current best practices?	
1.6	**1.1**					Does the organisation capture, analyze and incorporate lessons learned from past projects in its project management methodologies, tools and templates?	
1.7	**1**					Is there formal evaluation of benefits realized from a project in comparison with original business objectives?	
1.8	**1**					Is there a program in place to achieve organisational project management maturity?	
TOTALS	**9.1**					**1.13**	**AVERAGE SCORE**

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OPM3 Self Assessment Survey

#	Question	Answer
1	Are the sponsor and other stakeholders involved in setting a direction for the project that is in the best interests of all stakeholders? Comments:	Yes
2	Does your organization consider risk during project selection? Comments:	Yes
3	Are your organization's goals and objectives communicated to and understood by the project teams? Comments:	Yes
4	Do the projects in your organization have clear and measurable objectives in addition to time, cost, and quality? Comments:	No
5	Does your organization continuously improve the quality on projects to achieve customer satisfaction? Comments:	Yes
6	Does your organization have policies that describe the standardization, measurement, control, and continuous improvement of project management processes? Comments:	Yes
7	Has your organization fully integrated the PMBOK® Guide knowledge areas in its project management methodology? Comments:	No
8	Does your organization use project management processes and techniques in a manner that is relevant and effective for each project? Comments:	Yes

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9	Does your organization use data internal to the project, data internal to the organization, and industry data to develop models for planning and re-planning? Comments:	No
10	Does your organization establish the project manager role for all projects? Comments:	Yes
11	Does your organization establish standard cross-functional project team structures? Comments:	No
12	Does your organization create a work environment that fosters teamwork, builds trust, and encourages project teams to take calculated risks when appropriate? Comments:	Yes
13	Does your organization have the necessary processes, tools, guidelines, or other formal means to assess the performance, knowledge, and experience levels of project resources and assign them to project roles appropriately? Comments:	No
14	Does your organization create a work environment that supports personal and professional achievement? Comments:	Yes
15	Do the project managers in your organization communicate and collaborate effectively and responsibly with project managers of related projects? Comments:	No
16	Does your organization establish and use standard documented processes at the Project level for the Initiation Processes (Initiation Process)? Comments:	Yes

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17	Does your organization establish and use standard documented processes at the Project level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
18	Does your organization establish and use standard documented processes at the Project level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
19	Does your organization establish and use standard documented processes at the Project level for the Executing Core Processes (Project Plan Execution)? Comments:	Yes
20	Does your organization establish and use standard documented processes at the Project level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
21	Does your organization establish and use standard documented processes at the Project level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	Yes
22	Does your organization establish and use standard documented processes at the Project level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	Yes
23	Does your organization establish and use standard documented processes at the Project level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	Yes

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24	Can your organization demonstrate a return on investment from undertaking projects? Comments:	No_____
25	Do the projects in your organization define and review goals and success criteria at the beginning of the project and then review them as the project progresses? Comments:	Yes_____
26	Does your organization have a standard approach for the definition, collection, and analysis of project metrics to ensure project data is consistent and accurate? Comments:	No_____
27	Does your organization use both internal and external standards to measure and improve project performance? Comments:	No_____
28	Does your organization have defined gateway milestones, where project deliverables are assessed to determine whether the project should continue or terminate? Comments:	Yes_____
29	Does your organization use risk management techniques to take measurements and assess the impact of risk during project execution? Comments:	Yes_____
30	Does your organization use a formal performance system that evaluates individuals and project teams on their project performance as well as the projects' overall results? Comments:	Yes_____
31	Does your organization establish and use measurements at the Project level for the Initiation Processes (Initiation Process)? Comments:	Yes_____

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32	Does your organization establish and use measurements at the Project level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
33	Does your organization establish and use measurements at the Project level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
34	Does your organization establish and use measurements at the Project level for the Executing Core Processes (Project Plan Execution)? Comments:	Yes
35	Does your organization establish and use measurements at the Project level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
36	Does your organization establish and use measurements at the Project level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	Yes
37	Does your organization establish and use measurements at the Project level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	Yes
38	Does your organization establish and use measurements at the Project level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	Yes

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39	Does your organization establish and execute controls at the Project level to manage the stability of Initiation Processes (Initiation Process)? Comments:	Yes
40	Does your organization establish and execute controls at the Project level to manage the stability of Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
41	Does your organization establish and execute controls at the Project level to manage the stability of Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
42	Does your organization establish and execute controls at the Project level to manage the stability of Executing Core Processes (Project Plan Execution)? Comments:	No
43	Does your organization establish and execute controls at the Project level to manage the stability of Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
44	Does your organization establish and execute controls at the Project level to manage the stability of Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	Yes
45	Does your organization establish and execute controls at the Project level to manage the stability of Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No

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46	Does your organization establish and execute controls at the Project level to manage the stability of Closing Processes (Contract Closeout, Administrative Closure)? Comments:	Yes
47	Does your organization capture, analyze, and apply lessons learned from past projects? Comments:	Yes
48	Does your organization identify, assess, and implement improvements at the Project level for the Initiation Processes (Initiation Process)? Comments:	Yes
49	Does your organization identify, assess, and implement improvements at the Project level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
50	Does your organization identify, assess, and implement improvements at the Project level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
51	Does your organization identify, assess, and implement improvements at the Project level for the Executing Core Processes (Project Plan Execution)? Comments:	Yes
52	Does your organization identify, assess, and implement improvements at the Project level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
53	Does your organization identify, assess, and implement improvements at the Project level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)?	Yes

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	Comments:	
54	Does your organization identify, assess, and implement improvements at the Project level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No
55	Does your organization identify, assess, and implement improvements at the Project level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	Yes
56	Does your organization have an organizational structure in place that supports effective communication and collaboration among projects in a program leading to improved results of those projects? Comments:	Yes
57	Do program managers assess the confidence in projects' plans in terms of their schedule, dependencies on other projects, and availability of resources? Comments:	Yes
58	Do program managers understand how their programs and other programs in the organization fit into the organization's overall goals and strategies? Comments:	Yes
59	Does your organization use a common set of processes to consistently manage and integrate multiple projects? Comments:	No
60	Does your organization establish and use standard documented processes at the Program level for the Initiation Processes (Initiation Process)? Comments:	Yes

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61	Does your organization establish and use standard documented processes at the Program level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
62	Does your organization establish and use standard documented processes at the Program level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
63	Does your organization establish and use standard documented processes at the Program level for the Executing Core Processes (Project Plan Execution)? Comments:	No
64	Does your organization establish and use standard documented processes at the Program level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
65	Does your organization establish and use standard documented processes at the Program level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	No
66	Does your organization establish and use standard documented processes at the Program level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No
67	Does your organization establish and use standard documented processes at the Program level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	Yes

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68	Does your organization evaluate metrics processes at all levels for improvements? Comments:	No
69	Does your organization establish and use measurements at the Program level for the Initiation Processes (Initiation Process)? Comments:	No
70	Does your organization establish and use measurements at the Program level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
71	Does your organization establish and use measurements at the Program level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
72	Does your organization establish and use measurements at the Program level for the Executing Core Processes (Project Plan Execution)? Comments:	No
73	Does your organization establish and use measurements at the Program level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
74	Does your organization establish and use measurements at the Program level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	Yes
75	Does your organization establish and use measurements at the Program level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control	No

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	Quality Control, Risk Monitoring and Control)? Comments:	
76	Does your organization establish and use measurements at the Program level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	Yes
77	Does your organization establish and execute controls at the Program level to manage the stability of Initiation Processes (Initiation Process)? Comments:	Yes
78	Does your organization establish and execute controls at the Program level to manage the stability of Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
79	Does your organization establish and execute controls at the Program level to manage the stability of Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
80	Does your organization establish and execute controls at the Program level to manage the stability of Executing Core Processes (Project Plan Execution)? Comments:	No
81	Does your organization establish and execute controls at the Program level to manage the stability of Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
82	Does your organization establish and execute controls at the Program level to manage the stability of Controlling Core Processes (Performance Reporting, Integrated Change Control)?	No

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	Comments:	
83	Does your organization establish and execute controls at the Program level to manage the stability of Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No_____
84	Does your organization establish and execute controls at the Program level to manage the stability of Closing Processes (Contract Closeout, Administrative Closure)? Comments:	No_____
85	Does your organization identify, assess, and implement improvements at the Program level for the Initiation Processes (Initiation Process)? Comments:	Yes_____
86	Does your organization identify, assess, and implement improvements at the Program level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No_____
87	Does your organization identify, assess, and implement improvements at the Program level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No_____
88	Does your organization identify, assess, and implement improvements at the Program level for the Executing Core Processes (Project Plan Execution)? Comments:	No_____
89	Does your organization identify, assess, and implement improvements at the Program level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)?	No_____

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	Comments:	
90	Does your organization identify, assess, and implement improvements at the Program level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	No
91	Does your organization identify, assess, and implement improvements at the Program level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No
92	Does your organization identify, assess, and implement improvements at the Program level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	No
93	Does your organization effectively consider workload, profit requirements, and delivery timeframes in deciding how much project work it can undertake? Comments:	No
94	Does your organization align and prioritize projects to its business strategy? Comments:	Yes
95	Is your organization "projectized" in that it has project management policies and values, a common project language, and use of project management processes across all operations? Comments:	No
96	Does your organization use and maintain a common project management framework, methodology, and process set for its projects? Comments:	Yes
97	Are your organization's executives directly involved in the organization's project management direction, and do they demonstrate knowledge and support of that direction?	Yes

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	Comments:	
98	Does the structure of your organization support its project management direction? Comments:	No
99	Does your organization support open communication across all levels? Comments:	Yes
100	Do people in different roles and functions throughout your organization collaborate to define and agree on common goals? Comments:	Yes
101	Does your organization set a strategy to retain knowledge of internal and external resources? Comments:	No
102	Does your organization have and support an internal project management community that proactively provides for all the roles required for portfolio management? Comments:	No
103	Does your organization encourage membership in external project management communities (e.g. professional associations or initiatives)? Comments:	No
104	Does your organization provide for the ongoing training and development of project management resources? Comments:	No
105	Does your organization have progressive career paths for project-related roles? Comments:	No

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106	Does your organization perform portfolio management including planning, risk management, procurement, and financial management? Comments:	No
107	Does your organization balance the mix of projects in a portfolio to ensure the health of the portfolio? Comments:	No
108	Does your organization's quality management system include portfolio management? Comments:	No
109	Is your organization's quality management system reviewed by an independent body? Comments:	Yes
110	Does your organization establish and use standard documented processes at the Portfolio level for the Initiation Processes (Initiation Process)? Comments:	Yes
111	Does your organization establish and use standard documented processes at the Portfolio level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
112	Does your organization establish and use standard documented processes at the Portfolio level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
113	Does your organization establish and use standard documented processes at the Portfolio level for the Executing Core Processes (Project Plan Execution)?	No

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	Comments:	
114	Does your organization establish and use standard documented processes at the Portfolio level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
115	Does your organization establish and use standard documented processes at the Portfolio level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	No
116	Does your organization establish and use standard documented processes at the Portfolio level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No
117	Does your organization establish and use standard documented processes at the Portfolio level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	No
118	Does your organization gather quality assurance metrics on its projects? Comments:	No
119	Does your organization have a central project metrics repository? Comments:	No
120	Does your organization use project metrics to determine project, program, portfolio, and organizational effectiveness? Comments:	No
121	Does your organization use formal performance assessment processes and systems to evaluate	

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	individuals and project teams? Comments:	No
122	Does your organization evaluate and consider the investment of human and financial resources when selecting projects? Comments:	Yes
123	Does your organization evaluate and consider the value of projects to the organization when selecting projects? Comments:	No
124	Does your organization have project management tools that are integrated with other corporate systems? Comments:	
125	Does your organization establish and use measurements at the Portfolio level for the Initiation Processes (Initiation Process)? Comments:	No
126	Does your organization establish and use measurements at the Portfolio level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
127	Does your organization establish and use measurements at the Portfolio level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
128	Does your organization establish and use measurements at the Portfolio level for the Executing Core Processes (Project Plan Execution)?	No

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	Comments:	
129	Does your organization establish and use measurements at the Portfolio level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No_____
130	Does your organization establish and use measurements at the Portfolio level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	No_____
131	Does your organization establish and use measurements at the Portfolio level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No_____
132	Does your organization establish and use measurements at the Portfolio level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	No_____
133	Does your organization establish and execute controls at the Portfolio level to manage the stability of Initiation Processes (Initiation Process)? Comments:	No_____
134	Does your organization establish and execute controls at the Portfolio level to manage the stability of Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No_____
135	Does your organization establish and execute controls at the Portfolio level to manage the stability of Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No_____

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136	Does your organization establish and execute controls at the Portfolio level to manage the stability of Executing Core Processes (Project Plan Execution)? Comments:	No
137	Does your organization establish and execute controls at the Portfolio level to manage the stability of Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
138	Does your organization establish and execute controls at the Portfolio level to manage the stability of Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	No
139	Does your organization establish and execute controls at the Portfolio level to manage the stability of Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)? Comments:	No
140	Does your organization establish and execute controls at the Portfolio level to manage the stability of Closing Processes (Contract Closeout, Administrative Closure)? Comments:	No
141	Does your organization have a program to achieve project management maturity? Comments:	No
142	Does your organization recognize the need for OPM3 as part of a project management maturity program? Comments:	Yes
143	Does your organization incorporate lessons learned from past projects, programs, and portfolios into its project management methodology?	No

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	Comments:	
144	Does your organization identify, assess, and implement improvements at the Portfolio level for the Initiation Processes (Initiation Process)? Comments:	No
145	Does your organization identify, assess, and implement improvements at the Portfolio level for the Planning Core Processes (Project Plan Development, Scope Planning, Scope Definition, Activity Definition, Activity Sequencing, Activity Duration Estimating, Schedule Development, Resource Planning, Cost Estimating, Cost Budgeting, Risk Management Planning)? Comments:	No
146	Does your organization identify, assess, and implement improvements at the Portfolio level for the Planning Facilitating Processes (Quality Planning, Organizational Planning, Staff Acquisition, Communications Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Procurement Planning, Solicitation Planning)? Comments:	No
147	Does your organization identify, assess, and implement improvements at the Portfolio level for the Executing Core Processes (Project Plan Execution)? Comments:	No
148	Does your organization identify, assess, and implement improvements at the Portfolio level for the Executing Facilitating Processes (Quality Assurance, Team Development, Information Distribution, Solicitation, Source Selection, Contract Administration)? Comments:	No
149	Does your organization identify, assess, and implement improvements at the Portfolio level for the Controlling Core Processes (Performance Reporting, Integrated Change Control)? Comments:	No
150	Does your organization identify, assess, and implement improvements at the Portfolio level for the Controlling Facilitating Processes (Scope Verification, Scope Change Control, Schedule Control, Cost Control, Quality Control, Risk Monitoring and Control)?	No

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	Comments:	
151	Does your organization identify, assess, and implement improvements at the Portfolio level for the Closing Processes (Contract Closeout, Administrative Closure)? Comments:	No ____

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