

INFORMATION TECHNOLOGY (IT) PROJECT PORTFOLIO MANAGEMENT PRACTICES IN SOUTH AFRICA

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ABSTRACT

Many organisations have adopted Project Portfolio Management (PPM) processes to improve the implementation of their strategies, however few organisations have achieved tangible returns on investment (ROI) from PPM. Although PPM stakeholders are aware that PPM enables the achievement of strategic objectives of the organisation, they admit to not fully being able to understand its value. This results in IT projects implementation and delivery not being aligned with the business strategies. Moreover, the performance of IT initiatives indicates an increase in their failure rate, to an extent that it is becoming a threat to the very existence of organisations. The failure of IT initiatives is perceived as the reason many organisations are not achieving their strategic vision. The South African government spends enormously on IT initiatives, but effectiveness has not kept pace with other countries. The National Development Plan (Vision 2030) forecasts that South Africa is to spend more on IT initiatives. This study aimed to assess the effectiveness of PPM practices in South African public organisations, in ensuring return on IT investments.

The methodology that grounded this research is quantitative analysis, using survey consisted of closed questions. The survey was distributed to project, programme, and portfolio management professionals as well as PPM stakeholders who takes part in portfolio management activities in their organisations. The survey requested practitioners to evaluate the maturity of their PPM practices and the overall performance experienced in their IT Portfolios. It further enabled them to establish the focus of governance mechanisms in PPM and unpacks the challenges and benefits experienced over PPM in the industry.

The study finds that majority of organisations in the public sector achieved a level 2 maturity, which implies that IT portfolios are managed for value at an individual project basis, which doesn't support their business strategies a contrast to having IT portfolio being managed enterprise wide and integrated with business to guaranty strategic alignment. The study indicates that PPM practices are not aligned to the expected strategic vision and benefits of South African entities. Furthermore, PPM doesn't reflect sensible investment and balanced portfolio priorities. Contrary to PPM standards, organisations experience difficulties in ensuring that resource allocation is effective and efficient.

The study suggests that there is a need for governance on PPM initiatives, as opportunities for risk to impede against portfolio success across the project portfolio lifecycle exists. This is evidenced by the poor performance noticed across organisations. The research indicates that Portfolio governance is mostly focused on monitoring of expenditure rather than focusing on the management of processes

and prioritization of programmes and project resources throughout the portfolio lifecycle components.

The study provides, beside the benefits of IT portfolio management, critical challenges that impede on PPM success. With the challenges identified it is therefore possible for both researchers and practitioners to relook at theories and practices with the aim of improving effectiveness.

Keywords: Project Portfolio Management, Programme management, Project management, Portfolio maturity, Portfolio governance

INTRODUCTION AND BACKGROUND

Project Portfolio Management (PPM) exists as an active method of managing and governing investments across an organisation to deliver value to the business (Cagno et al., 2007). PPM enables any IT organisation to manage all its IT programmes, projects and other works as a complete set (PMI, 2013). This allows organisations to understand its capabilities, manage the consumption experienced on their organisational resources through their programmes, and manage projects for value (Bromquist and Muller, 2006).

Researches on the performance of IT projects indicate a continuous increase in projects failure, to such an extent that it is becoming a threat to the very existence of organisations (Bloch et al., 2012). Matheson and Matheson (1998) indicate that the failure of IT initiatives is largely perceived as the reason why many organisations do not achieving their intended strategic vision and benefits. Furthermore, poor strategic management has been linked to the incorrect mix of skills in design and management of the portfolio (Jeffery & Leliveld, 2003), and inadequate involvement from organisational leadership (Kebdall and Rollins 2003).

On the other hand, it has been established that PPM practices are to some extent unsystematic and less sensible than frameworks and processes indicate (Blichfeldt & Eskerod, 2008; Christiansen & Varnes, 2008). There is a need for PPM initiatives to be governed, as many possibilities exist for risk to impact against the portfolio success at various phases of project portfolio lifecycle (Cagno et al., 2007; Knudel, 2004).

Mckinsey (2012) finds that the South African government spends more on IT initiatives, but its effectiveness has not kept pace with other countries. The South African National Development Plan 2030 (NDP, 2012), forecasts that the South African public sector is yet to spend more on information technology (IT) initiatives. The question this research strives to answer is "Does South African public organisations have effective project portfolio management practices to ensure efficient return on IT investments?"

LITERATURE REVIEW

This section intends to establish an overview of project portfolio management. Three aspects are discussed in this section: (1) a review of the PPM views, approaches, and its contribution to the organisation, (2) the maturity level of PPM practice and the overall performance in PPM implementation, (3) and the need for Governance in PPM.

Project Portfolio Management (PPM)

According to Markowitz (1952) Project Portfolio Management emanated from two main drivers: the first being the need to make sensible investment decisions, and the second being the need to improve the use of resources to ensure effective and efficient project outcome delivery (Dye and Pennypacker, 2000). Sensible decision making in portfolio management is associated with ensuring that the project portfolios selected reflect the investments the organisation is in pursuit of (PMI: 2008). This means that the balance between project selection and business priorities should be harmonized with organisational capabilities and investment needs (Archer and Ghasemzadeh, 2007; Cooper et al., 2000; Wheelwright and Clark, 1992). Through the selection and implementation of successful projects portfolio arrangements, the objective of the organisation is realized (Meredith et al., 2015). Sensible investment decisions yield success (Killen et al., 2008), and creates new market share and competitive advantage (Teller and Kock 2013, p. 820).

Project portfolio management is understood as the ability and discipline of expending a set of knowledge and techniques used on a collection of related and unrelated projects and programmes (PMI, 2013 p.11). These projects and programmes are implemented for the purpose of meeting or exceeding the needs and the expectations of an organisation investment strategy (Dye and Pennypacker, 2009) and achieve its intended set of strategic objectives (OGC, 2009) within resource and funding constraints.

The aim of Project Portfolio Management (PPM) is the selection, coordination and control of the ideal mix of resources (Ullman and Levine, 2009) for delivery of strategic objectives through a maintained and balanced set of programmes, projects and other works (Muller et al.2008; PPM, 2013). This includes activities such as discovering, positioning, sanctioning, running and controlling the collective components, their costs and related risks (PMI, 2008), in a manner to meet the desired strategic business objectives (Martinsuo & Lehtonen, 2007; McFarlan, 1981).

Within the portfolio, organisational leaders make decisions on which project or programme to approve or cancel, the ranking of programmes and projects in order to realize planned benefits (Levine and Wideman, 2005). All this done with the knowledge that organisational priorities are in competition for the same and common shared pool of scarce resources (PMI: 2013).

Research on project portfolio management emphasise the importance of assessing, ordering, and selecting projects in line with business strategy (Archer & Ghasemzadeh, 2004, Cooper et al., 2001; Englund & Graham, 1999). Project portfolio management is perceived as an important tool in ensuring that the “right projects” are selected (Cooper et al., 1999, Elonen & Artto, 2003; Fricke et al., 2000). The mixture of the right projects, placed in the portfolio is a critical component of strategic management for any organisation (Morris and Jamieson, 2005 & Shenhar et al., 2001).

The achievement of specific deliverables that support the specific organisational objectives is PPM’s contribution to the organisation. Portfolio management contributes to organisational goals when the portfolio management practice is aligned with the organisational strategies. Portfolio success therefore implies the maximization of the shareholders’ value through results achieved from the correct selection projects (Cooper et al., 2001).

Regardless of the portfolio location, scale and scope, the use of project portfolios is intended for organisations to achieve its strategic purpose make the most of its resources (Foti, 2002). Organisational goals are achieved when the right programs or projects are chosen, optimal resources perform the prioritization of the work. When the evaluation of individual projects or groups of projects set as an objective of the parent organisation to be achieved (Merredith et al., 2015, Blomquist, & Muller, 2006) is project portfolio management's contribution to organisation.

Project portfolios serve as important building blocks in the implementation of organisational strategy (Shenhar et al. 2001). In order to achieve successful portfolio management, PPM needs to contribute to the total business objectives (Cleland, 1999, Dietrich and Lehtonen, 2005 & Grundy, 2000).

Contrary to portfolio management framework and the benefits of portfolio management expressed above, PPM practice often fails and portfolio management models are criticized as not being able to achieve anticipated portfolio success (Chapanchi et, 2012; Henricksen & Traynor, 1999). Problems do occur in the implementation of project portfolio management (Elonen & Arto, 2003). Organisation experience challenges when managing diverse range of projects simultaneously (Pritling, 2010), as project are not correctly identified and selected (Elonem & Arto, 2005). Complexity is often a term used to sum up all risk experienced (Cagno et al., 2007).

Moreover, project portfolio management's frameworks do not cover all of the relevant factors in portfolio management (Blichfeldt & Eskerod, 2008). Issues such as overloaded employees working on multiple projects (Zika-Viktorsson et al.,2006), inadequate thoughtfulness and responsiveness on portfolio activities from the organisational leadership (Elonen & Arto, 2003), and management involvement where organisational leader's improvisation may lead to over-steering with negative side effects, are all harmful towards portfolio success (Leybourne & Sadler-Smith, 2006; Patanakul & Milosevic, 2006; Unger et al. 2012). These factors and many others renders PPM practice less rational than the decision centred frameworks and processes indicate (Blichfeldt & Eskerod, 2008; & Christiansen & Varnes, 2008).

Project Portfolio Maturity

A maturity model is a starting point for benchmarking the current quality level of portfolio management activities (Kirsti, 2016) against best practices. It represents a path towards increasingly organized and systematic way of doing business in organisations (Diogo & Jose, 2016). It further describes the ideal progression (Paulk et al., 1993; TJ Man, 2007; Tahri & Kiatouni, 2015) toward continuous improvement using levels (Diogo & Jose, 2016).

According to Shima el at. (2015), a maturity model is used to map, a structured pathway towards organisational improvement. A mature organisation can therefore be seen as one that is competent in meeting its needs by using standardized approaches while an immature organization lacks the implementation of these processes (OGC, 2010).

There are many Project Portfolio Maturity frameworks and recognized standards related to project, program and portfolio management. Several institutions (PMI-OPM3, SEI-CMMI-PPMMM Gartner, OGC-P3M3) and researchers (Crawford, 2002 - Kerzner, 2004 - Ibbs & Kwak, 2000 - Cooke & Davies, 2004 and others) have developed models for evaluating the maturity of project portfolio management

based on best practices to promote the continuous improvement (Shima, 2015). Some of them are discussed.

- i. **CMM Capability Maturity Model:** Developed by the Software Engineering Institute (SEI) in 1980s. It can be applied to any organisation in any field of business.
- ii. **Gartner program and Portfolio Maturity Model:** Well suited for program and portfolio management maturity, it is centred on five core dimensions namely, People, PPM practices and processes, Value and Financial management, Technology and Relationships (Gartner, 2014).
- iii. **IPMA Delta Module O - Module O (Organisation):** Centred on perspective for project management competence (IPMA 2015.)
- iv. **ISO standards:** Directed at software development and maintenance practices.
- v. **Lee Merkhofer Consulting project portfolio management maturity model** (Lee Merkhofer Consulting 2015.): The model assists with detecting performance gaps found in project portfolio management and realistic targets as well as provides practicable advice for improvement.
- vi. **P3M3 Maturity Model Office of Government Commerce (OGC):** defines a model for project management best practices, including the project management activities.
- vii. **PPM based on ABC Project Model (Haukka 2013, 3.)** This model is based on their ABC Project Model - governance model - development projects that use personnel resources.

An interpretation of maturity overview is provided in Table 1

Table1: Maturity Level Overview

Maturity	CMM Capability Maturity Model - 1980s	Gartner program and Portfolio Maturity Model (Gartner 2014.)	IPMA Delta Module O - Module O (Organisation). (IPMA 2015.)	ISO standards ISO9000	Lee Merkhofer Consulting PPM maturity model (2015.)	P3M3 Maturity Model (OGC)	PPM based on ABC Project Model (Haukka 2013, 3.)
Level 1	Initial - starting point for implementing new processes to a disordered situation	Level 1: Reactive no formal management Tools	Initial - starting point for implementing new processes to a disordered situation	ISO9000 standards are directed at software development and maintenance practices.	foundation - No clear definition for roles and	Initial -Identify projects and programs	Awareness of ongoing projects -
Level 2	Repeatable - Disciplined repetition of documented processes.	Emerging Discipline - standardized processes	Defined - Disciplined repetition of documented processes.		Projects are collected into a portfolio	Repeatable –standards minimally specified.	Awareness of the status and balance of project portfolio -
Level 3	Defined - standard process.	Initial Integration – a systematic and balanced way of working	Standardized Processes		Value Management - Proactive decision making	Defined controlled processes	Resource management across all projects and other work -
Level 4	Managed - Processes are managed, monitored and measured.	Effective Integration capability of business value generation	Managed Processes		Optimization - PPM proactively and analytically managed.	Managed –focused on process	Transparent decision making
Level 5	Optimizing - Improving the processes	Effective Innovation Change management	Optimizing Improving the processes		Core Competency –the best value for PPM	Optimizing –Proactive management of IT and improvement of processes.	Program and project orientated organisation -

This study applies P3M3, as it provides a holistic approach to the all-inclusive system made up of projects, programmes and portfolios. P3M3 has also been identified as one of the leading best management practice.

The need for Governance in Project Portfolio Management

For some time, organisations have attempted to provide solutions that support the management of concurrent projects (Gareis, 1989), and enable improved decision making on investments and strategic initiatives in an ever changing and competitive environments (Cooper et al., 2000). It thus follows that an effective portfolio management cannot exist without an active governance system.

According to (OECD, 2009) “Corporate governance provides the structure through which the objectives of the organisation can be set, and the means of attaining those objectives and monitoring performance are determined.” Governance therefore assists in ensuring consistency through a set evaluation criteria and controlling of portfolio management components by tracking and monitoring to support effective decision-making (Müller et al, 2013, p. 26). The aim of governance is to achieve continuing existence of the organisations through set of rules and decision-making structures (Verhoef, 2007).

Governance is required to encompass all work in the organisation ((PMI, 2013, Klakegg et al., 2008). This includes work in conventional organisations as well as temporary organisations (Institute of Directors Southern Africa, 2009; Heising, 2012). Governance in the project environment assists an organisation in aligning its project with the organisational strategy. This is achieved by providing a description of the means of reaching such specified objectives and management of actions directed at achieving them (PMI, 2013, p.579; Turner, 2009p.311).

Governance and Management are not similar. Governance focuses on the aspirational and ethical considerations of what is to be achieved and the reasons why it is important to the organisation whilst management focuses on how the objectives by the governing body will be achieved, who does the work and when (Muller, 2009). The role of management is therefore to make decisions in accordance to the framework set by governance (Tricker, 2012). It is then important to understand how top management make effective and sound decisions.

Governance is important to project portfolio management as its application is intended for the purpose of ensuring that an organisation makes correct decisions in the selection of its initiatives (Archer and Ghasemzadeh, 1999; Morris and Jamieson, 2004) and reach the accurate equilibrium between risk and strategic fit (Cleland and Ireland, 2007). Poskela (2009) has observed that portfolio offers sustainable ideologies that flow from the organisational arrangements down to the bottom at the level of the project and back to the top for the realisation of proceeds (Cooper, 2008). It thus follows that, should proper governancesystems be employed in the most basic stages of project portfolio management the chances for success are great (Robicchaud and Anantatmula, 2011; Heisinger, 2012; Schulze and Hoegl, 2008).

METHODOLOGY

The purpose of the study is to assess the effectiveness of PPM practices in South African public organisations, in ensuring return on IT investments “. To achieving the above-mentioned goal, the following sub questions are addressed.

- i. How mature are IT project portfolio management practices in industry?
- ii. What is the overall performance of IT project portfolio management experienced in industry?
- iii. What are the benefits and challenges to IT PPM in practice?
- iv. What has been the focus of governance mechanisms in IT project portfolio management?

The researcher made use of a quantitative approach, which was supported by a survey questionnaires, for the purpose of gathering attitudes, opinions, perceptions of participants towards PPM practice (Booyesen, 2003:129) towards. The survey was distributed via email to different PPM stakeholders, including individuals such as portfolio, program and project managers, as well as project management professionals exposed to the portfolio, program and project management within their business environments. The participants were randomly selected and the sample consisted of 50 respondents from various entities in the South African IT public sector took part into the study. The survey made use of closed questions and Microsoft Excel was used for statistical analysis.

DATA ANALYSIS AND RESULTS INTERPRETATION

It is broadly known that organisations with less mature Portfolio Management practice are least likely to achieve better project outcomes, compared to organizations with a higher maturity (Project management institute,2015).

The overall observation resulting from this study indicate that South African IT organisations in the public sector are doubtful of their performance when it comes to the success rates achieved when implementing project portfolio management. Some of the survey participants expressed that they are not aware of their organisations results achieved through their project portfolio management standards, policies and processes.

Moreover, study participants indicated that their current PPM does not reflect rational investment decisions reflective of balanced portfolio priorities and also there is no improved resource allocation that ensured the achievement of effective and efficient project and programme outcomes.

Figure 1 depict the participant per industry

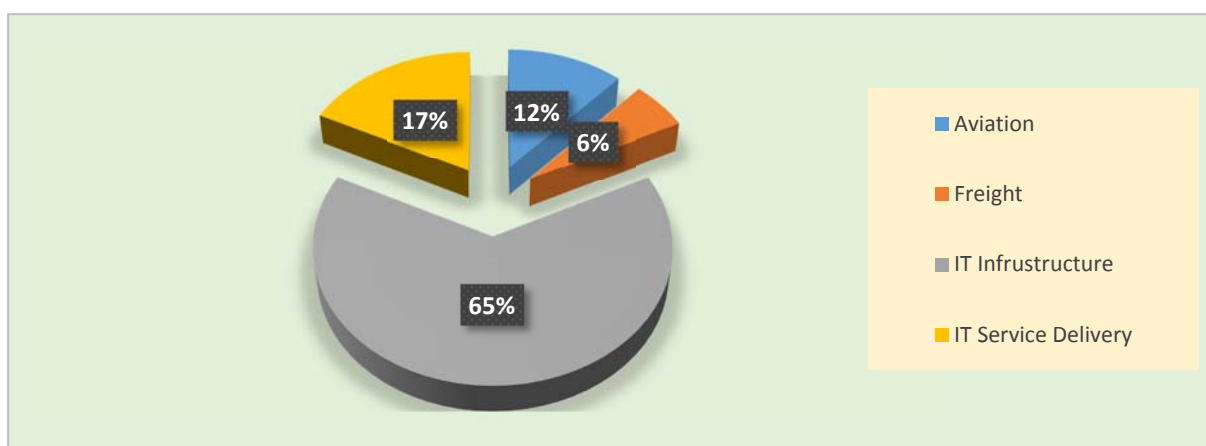


Figure 1: Survey participants

Figure 1 that the total sample consisted of IT environments found in the South African public sector. The sample further indicates that Government IT represented the majority of the study as 65% involvement of feedback provided from the questionnaire

Figure 2 Illustrate the level of qualification for the participants

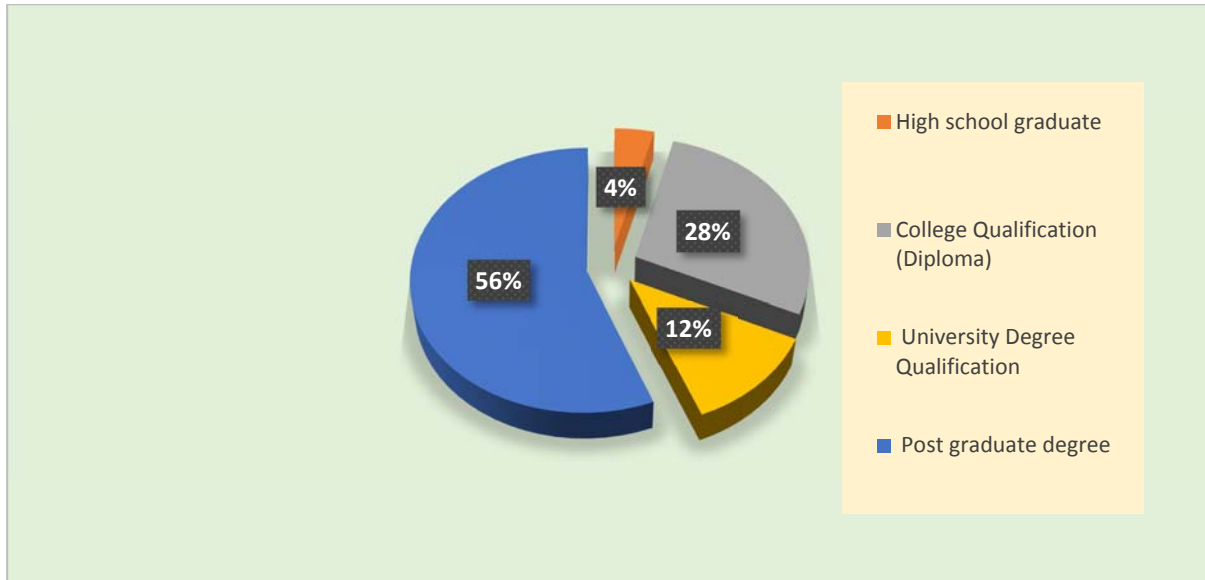


Figure 2: qualification of participants

Figure 2 reveals that IT Portfolio Management (PPM) stakeholders in the South African organizations are highly qualified, with 56% of the personnel having acquired postgraduate degrees. This is an indication that they have the necessary knowledge to deal with the complexity of strategic business decision.

Figure 3 present the maturity level of IT project portfolio management practices in South Africa

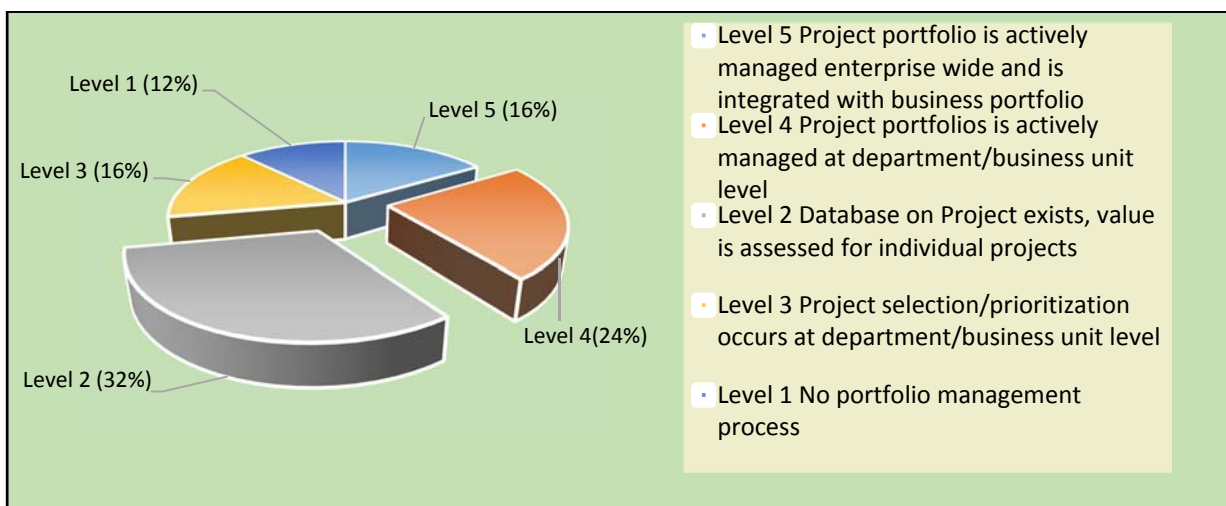


Figure 3: Maturity of Project Portfolio Management

Figure 3, indicates that (60%) of South African IT organisation achieved a maturity level of between one (1) and three (3), with the majority (53%) of them sitting at level two (2). This suggests that most

organisations only have database of their IT initiatives and that their portfolio values is assessed on an individual programme and project basis than the overall value of the entire portfolio.

Figure 4 indicates performance of project portfolio practices

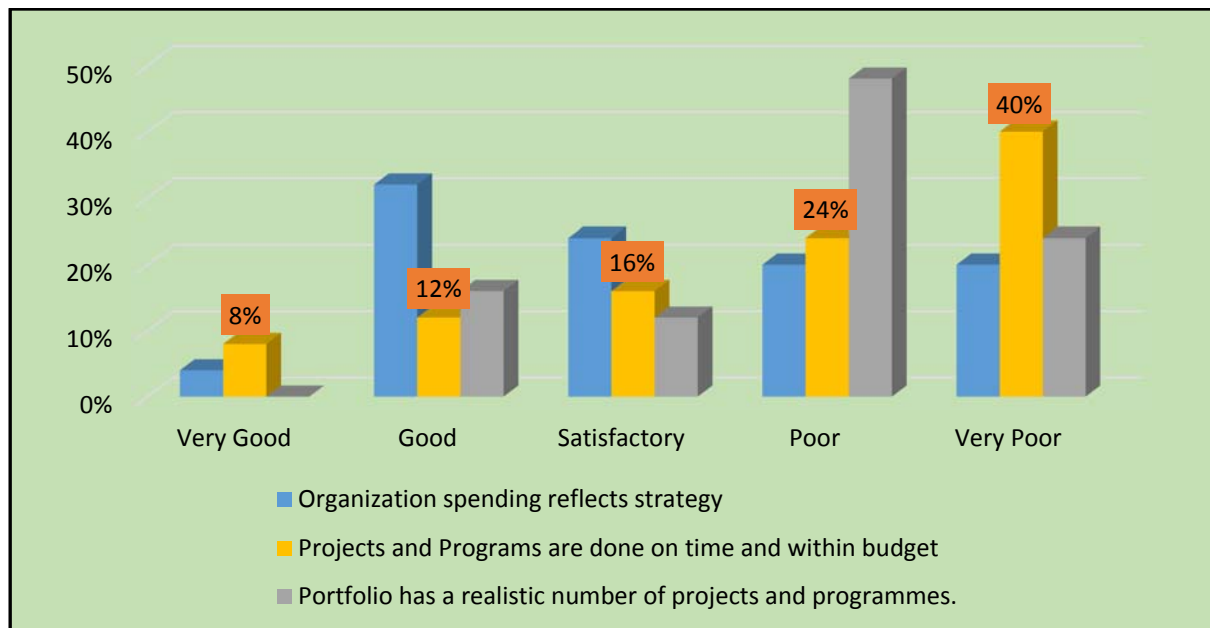


Figure 4: performance of project portfolio practices

Figure 4, indicates that most public entities invest on IT initiatives that address their strategies. This can be justified by the results presented in figure 3 that indicated that there is a greater emphasis on project portfolio planning. However, beside the fact too many initiatives are undertaken as compared to the availability of resources, figure 4also indicates that much of these IT initiatives are completed over time and over budget thus leading to poor performance in IT project portfolio.

Figure 5 Capture the challenges experienced by organisation when implementing IT project portfolio management.

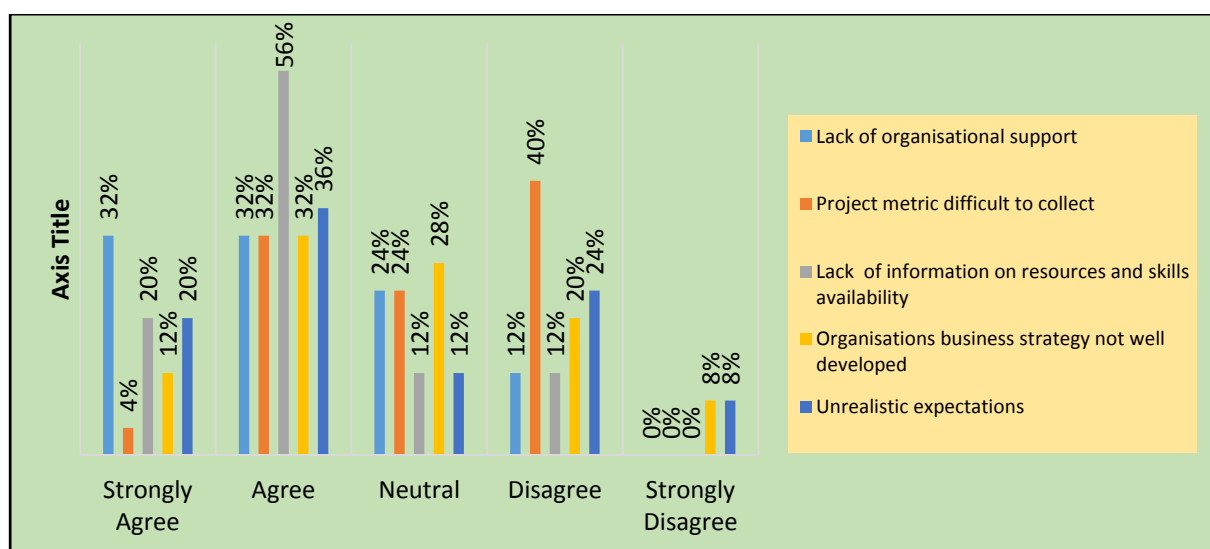


Figure 5: Challenges in implementing Project Portfolio Management

Figure 5 indicates in order of criticality, from high to low, the list of five (5) most critical challenges found in the South African IT public sector. These include, a lack of information on resources and skills availability, a lack of organisational support, the organisations business strategies not being well developed. It also indicates that project metric are difficult to collect and that there exist unrealistic expectations on project portfolio management.

An added factor to challenges is the risks experience throughout the portfolio lifecycle. Figure 9 illustrate the key risk that affect IT portfolio in South Africa. Figure 6, indicates the risks experienced in project portfolio management

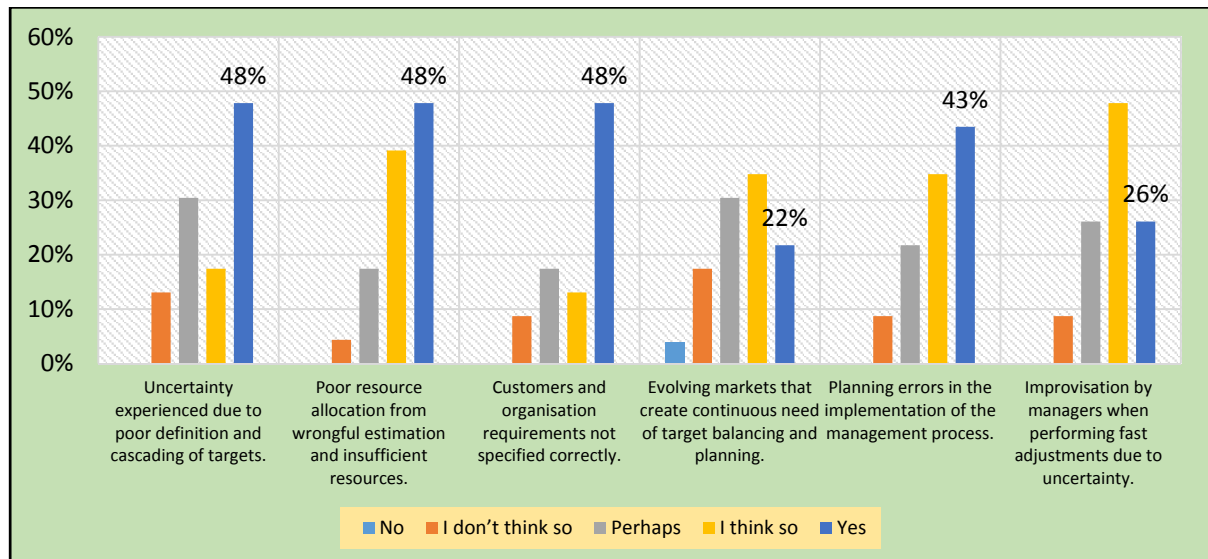


Figure 6: Risks experienced in project portfolio management

Figure 6 indicates that the highest risks identified relate to organisations experiencing include uncertainty experienced due to poor definition and cascading of targets; having customers and organisation requirements not specified correctly; and poor resource allocation from wrongful estimation and insufficient resources. These risks speaks directly to poor performance observed in project portfolio.

Figure 7 indicates the focus of Governance in Project Portfolio Management

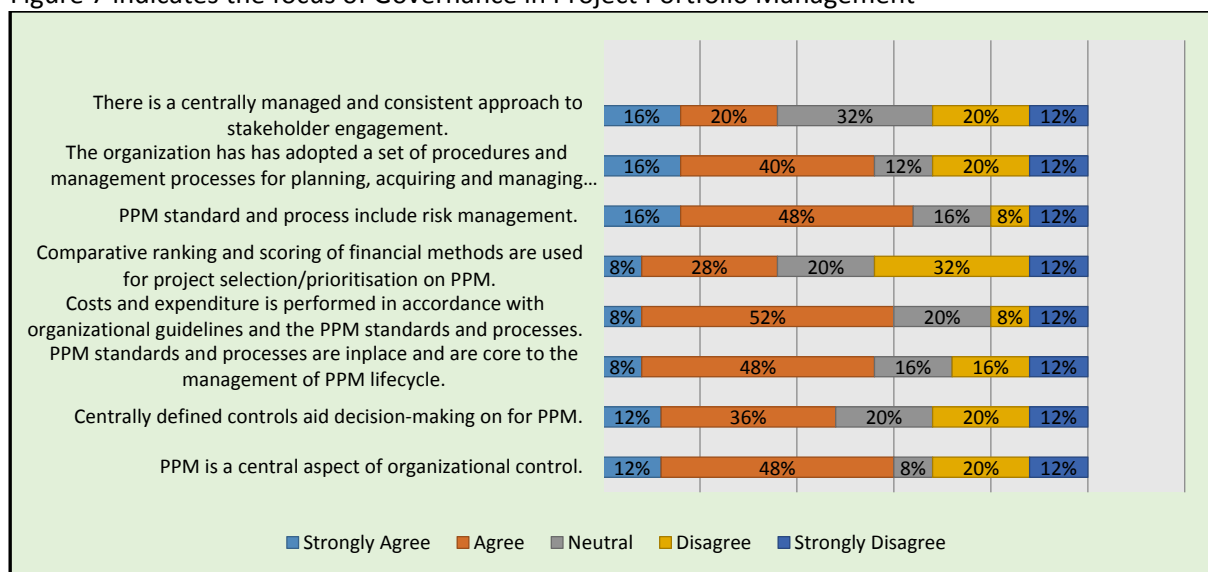


Figure 7: Focus of Governance in Project Portfolio Management

Figure 7, indicates the focus of governance in project portfolio management as practiced in the South African IT public sector. In order of agreement and of importance, from high to low, the list of eight (8) includes:

- i. Project Portfolio Management standards and processes include risk management where the management of risks are consistently assessed.
- ii. Costs and expenditure are performed in accordance with organizational guidelines and the Project Portfolio Management standards and processes.
- iii. Governance arrangement for Project Portfolio Management are a central aspect of organizational control, with demonstrate a reporting structure.
- iv. Portfolio Management standards and processes have been established and are core to the management of programme and project lifecycles.
- v. The organization has adopted a set of procedures and management processes for planning, acquiring and managing programme and project resources.
- vi. Centrally defined controls aid decision-making on for Project Portfolio Management.
- vii. Comparative ranking and scoring of financial methods are used for project selection/prioritisation on Project Portfolio Management.
- viii. There is a centrally managed and consistent approach to stakeholder engagement.

Figure 8 indicates the benefits of project portfolio management

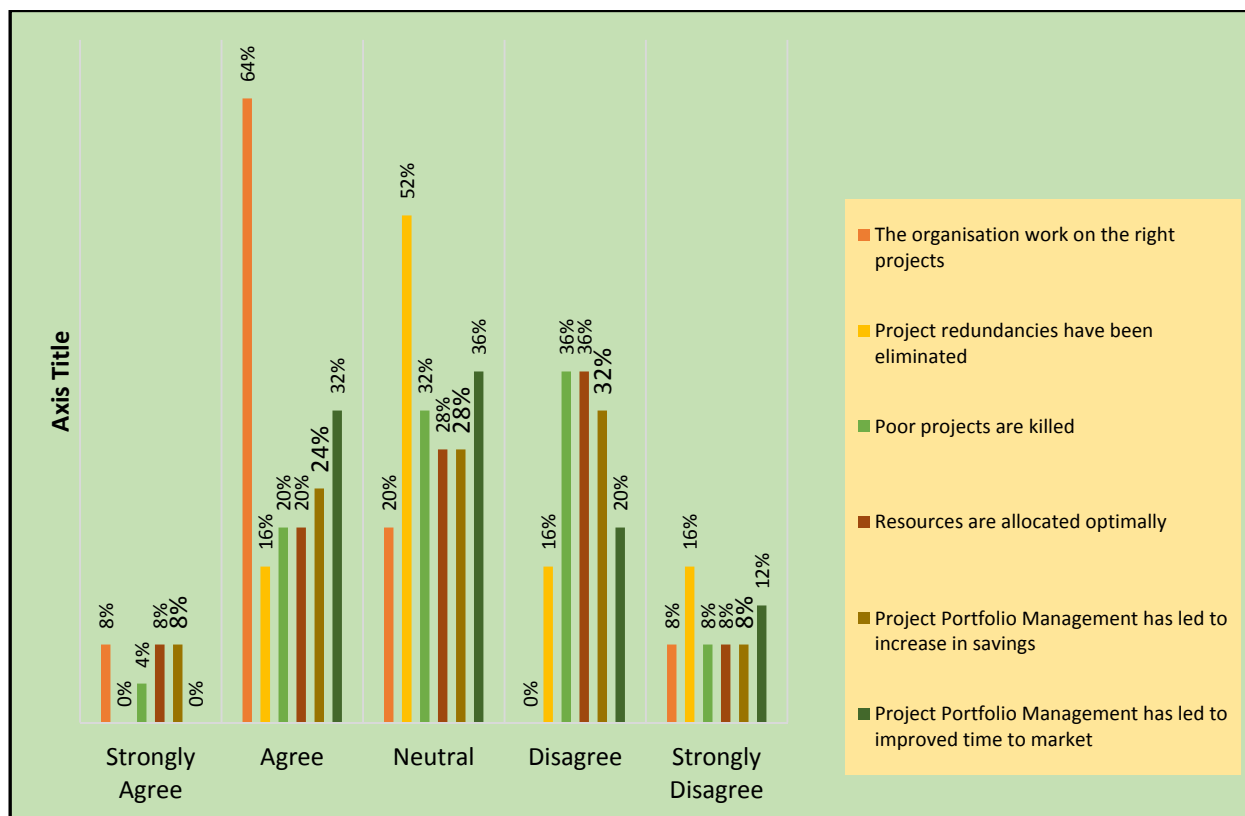


Figure 8: Benefits of Project Portfolio Management

Figure 8 indicates there South African IT public sector has succeeded in being able to choose the right project and avoid redundancy among them. This therefore explains the observation on Project Portfolio Maturity were most of organisation were ranked at level 2.

SUMMARY CONCLUSION AND RECOMMENDATIONS

The study suggests that project portfolio management practice is not aligned to the expected strategic vision and benefits of IT organisations in South African public sector. Furthermore, project portfolio management does not reflect sensible investment and balanced portfolio priorities and decisions.

Contrary to project portfolio standards, organisations have trouble in ensuring that resource allocation is effective and efficient. The study highlights that maturity of project portfolio management processes are not actively managed across the organisation; processes are not integrated with business portfolio. This suggests that portfolio's programs and projects are managed for value at an individual project basis, which does not support the business strategy.

The study has highlighted the critical challenges that hamper project portfolio success. These critical challenges suggest that, sufficient resources are not in place to achieve project portfolio objectives. Portfolio result are not timely reported to project portfolio management stakeholders. There is a clear lack of mechanism for making strategic decisions such as killing projects or putting them on hold, reallocating resources.

Although governance arrangements for IT project portfolio management are central aspect of organisational control, with a reporting structure, clear ownership and control responsibilities consistently applied, the study has found that project portfolio governance in South African IT public entities mostly focused on monitoring of costs and expenditure. There is no focus on the management processes for planning, acquiring and managing program and project resources, and nothing is done to rationally select and prioritise portfolio components.

Considerable improvement can be made in the daily management of programmes and projects that would lead to an improvement in project portfolio management maturity, performance and governance. Emphasis should be made on Portfolio Planning, Review and Tracking with involvement and stewardship of executives which would result in the realisation of intended business goals and achievement of improved rate of return on IT initiatives in South African IT public sector entities.

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