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Implementation of Project Portfolio Management and Its Challenges: The Case of Ethio Telecom Wireless Network Program of Addis Ababa

Research project paper submitted to school of Graduate studies of Addis Ababa
University in Partial fulfilment of the Requirements for Master Degree in
Project Management.

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ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
MASTER OF ARTS DEGREE PROGRAM IN
PROJECT MANAGEMENT

Implementation of Project Portfolio Management and its Challenges: The
case of Ethio Telecom Wireless Network program of Addis Ababa

Approval Board Committee:

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DECLARATION

I, the undersigned, declare that the study entitled “*Implementation of Project Portfolio Management and its challenges on the case of Ethio Telecom Wireless Network program of Addis Ababa*” is the result of my own effort and study that all sources of materials used for the study have been acknowledged. I have conducted the study independently with the guidance and comments of the research advisor. This study has not been submitted for any degree in any university.

Addisalem Bekele

Date and Signature

LETTER OF CERTIFICATION

This is to certify that Addisalem Bekele has conducted this project work entitled “*Implementation of Project Portfolio Management and its challenges on the case of Ethio Telecom Wireless Network program of Addis Ababa*” is under my supervision. This project work is original and suitable for the submission in partial fulfilment of the requirement for the award of Master of Arts Degree in Project Management.

Abdurezak Mohammed (PhD)

Date and Signature

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Abstract

Project portfolio management (PPM) is a tool-supported process for optimally selecting and managing the organizations' portfolio of projects (Markhofer, 2013). Abundant literatures shows that the implementation of PPM is essential to maximize the ability of using scarce resource efficiently, to avoid misdirected effort in an organization, to better manage risk, to reduce project costs, primarily through elimination of duplicate effort and so forth. However, Markhofer in (2013) stated that portfolio project management can provide real value, but many organizations are finding implementing PPM difficult. The road to PPM is often rocky for many organizations and successfully implementing PPM is difficult failures are not uncommon. This study raised on the fact that different studies show it is very essential for the achievement of corporate goal of an organization but has different challenges of implementation. So that it had an objective to study the implementation of PPM practice and its challenges on a selected portfolio. The selected portfolio was the Addis Ababa Wireless Network portfolio of Ethio Telecom. It holds four projects that are highly interrelated. The data were collected from group of participants who had a direct involvement on the management of the project portfolio using census and purposive sampling. Questionnaire was prepared both on open ended and close ended type. Unstructured interview was also employed for managers of the portfolio. The data were analyzed qualitatively through description and quantitatively with the use of SPSS version 20 software using statistical tool of mean score, standard deviation and percentage. It has been revealed that how an organization manages its project portfolio is highly interrelated with its challenges. That refers to that when maturity of PPM of an organization increases, capability to handle and prevents the different challenges of PPM increases and reaping of all the benefits of PPM practice can be achieved, Effective capturing and dissemination of lesson learned and best practices of the application of PPM for all stakeholders of PPM are essential, communication regarding strategic direction of project portfolio for all the stakeholders is essential for creating a devotion to strategy throughout the structure of PPM governance, integration management is critical factor for successful implementation at the same time handling of challenges of PPM; so that the role of PMO to give an organizational focus on improving the management of project portfolio and builds up a common set of practices, principles and templates for managing projects portfolio is essential.

Key words: Project Portfolio Management, strategy, Project Management Office (PMO)

Abbreviation

CEO.....	Chief Executive Officer
CTO.....	Chief Technical Officer
HRD.....	Human Resource Division
IRR.....	Industrial Research Institute/ Internal Return Rate
KPI.....	Key Performance Indicator
NPV.....	Net Present Value
PMI.....	Project Management Institution
PMO.....	project management Office/ process management office
PPM.....	Project Portfolio Management
PPMMM.....	Project Portfolio Management Maturity Model
PSO.....	Project Strategic Office
RUN.....	Radio Access Network
SFD.....	Sourcing and Facility Division
SPSS.....	Statistical Package for Social Science
SWOT.....	Strength, Weakness, Opportunity and Threat
TEP.....	Telecom Expansion Program

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CHAPTER ONE: INTRODUCTION

1.1. Background of the study

Project portfolio management is very much a multi-faceted management discipline. Portfolio management directly impacts strategic execution resulting in greater benefit to the organization and its customers. At the same time portfolio management focuses on increasing project value, often measured financially, by selecting the best projects with the right balance of risk. Portfolio management also provides much needed organizational infrastructure to enable the organization to launch more successful projects (Tim, 2006).

Waysoki (2014), stated that a good way to outline a strategy is to ask: “How and where to commit resources?” the answer constitutes strategy. From the above two points one can understand that portfolio project management is essential input for strategy accomplishment an organization.

Very substantial and important projects (or clusters of projects) are called 'breakthrough projects'. Breakthrough project is defined as a project which will have a material impact on either the business's external competitive edge, its internal capabilities or its financial performance, or all three (Grandy, 2002). One of the important tasks of project portfolio management is to contribute to success of an organization by ensuring the company is doing the right projects to begin with.

Project portfolio management includes establishing the investment strategy of the portfolio, determining what types of projects can be incorporated in the portfolio, evaluating and prioritizing proposed projects, constructing a balanced portfolio that will achieve the investment objectives, monitoring the performance of the portfolio, and periodically adjusting the contents of the portfolio in order to achieve the desired results (Waysoky, 2014).

However, during the implementation process there are hurdles that organizations might face. These impediments are the reasons why most PPM practices fail. Understanding the common challenges of implementing PPM and ensuring that you have solutions to them or ways around them will help increase the success factor of your PPM practices (Choudhuri, 2015).

Ethio Telecom, previously known as the Ethiopian Telecommunications Corporation (ETC), is an integrated telecommunications services provider in Ethiopia, providing internet and telephone services. It is owned by the Ethiopian government and maintains a monopoly over all telecommunication services in Ethiopia and it is based in Addis Ababa . Currently it is handling a country wide program called Telecom expansion program which holds different programs under it. It is launched to achieve the telecom sector objective in growth and transformation program defined by FDRE government. It mainly targets to solve the current quality, coverage and capacity challenges. It was expected to be finalized in 2 years (Finote Telecom, 2009).

This study is on the implementation of the project portfolio management and its challenges on a selected portfolio under this country wide program. The selected portfolio to be studied is named as the Wireless Network Expansion Program of Addis Ababa. This portfolio of projects is handled by the head office of Ethio Telecom. It holds four interrelated projects under it which have an objective of expanding and improving the capacity and reliability of network transmission and developing sustainable and reliable power system to support the network element. Identification of challenges of the implementation of management of this project portfolio and coming up with better ways of handling portfolio of projects is going to be the aim of this paper.

1.2. Statement of the problem

The company profile of Ethio Telecom shows that the overall objective of the organization is to provide next generation network services based on a world class standard information technology services and to build a competent next generation network-based workforce with appropriate knowledge, skill, attitude, and work culture. This takes a great deal of understanding on how strategic business objective is cascaded down to the project and program level, and successfully implemented is critical for competitive positioning and high-performing of the organization

EPM live which is a leading management work plate form on Microsoft share point in 2016 stated that in recent years various research firms have surveyed organizations and showed that successful PPM enable organizations to execute on approximately 30% more projects and reduce project failure rates by up to 60%.

PPM model provides organizations with the functionality they need to more accurately plan their projects based on resource capacity, balanced projects to ensure strategic alignment, better estimate project costs, and increase the success of project execution resulting in overall increased value to the business (Needs, 2014).

As cited by Cooper et al (2000), a survey was conducted by IRI members regarding portfolio project management; and it was found out that portfolio management has gained prominence for a number of reasons. Some of the findings are to maximize return on R&D and technology spending, to maintain the business's competitive position, to properly allocate scarce resources, to forge the link between project selection and business strategy and to achieve a stronger focus.

However on the other hand, as noted by a recent US publication by a noted IT research firm, "90% of US companies do not employ a true portfolio management strategy" (Gartner Group, 2001). Lack of epistemological clarity also impairs appropriate debate among professionals on portfolio project management approach since it is often misunderstood or mis-stated (Norie, 2006).

Markhofer (2013), also stated that portfolio project management can provide real value, but many organizations are finding implementing PPM difficult. The road to PPM is often rocky for many organizations and successfully implementing PPM is difficult and time-consuming. Also, establishing PPM is a high-risk initiative. Failures are not uncommon.

Furthermore, studies of the challenges in organizations implementing project portfolio management are rather few (Hristova & Müller, 2003).

The above studies show that despite the importance PPM can bring about, implementation of portfolio project management usually gets difficult and misunderstood. So that, its implementation and challenges should be dealt effectively for high performing of an organization. And the fact that it has lack of epistemological clarity shows that the issue of portfolio project management implementation in the literature is open to be further researched.

From preliminary interview with Director of Program Support Office of the head office of Ethio Telecom and Project manager in the Wireless Network Expansion program, it has been found that implementation of portfolio project management of the Wireless Network Expansion program and other portfolio of projects is challenged for different reasons. Some

of its challenges are related with resource mobilization and lack of skill, knowledge and tools for portfolio project management and schedule management. This study aimed to further assess the implementation of the wireless network portfolio management and its challenges and give a relevant recommendation.

1.3. Research question

Accordingly the research is designed to answer the following research questions:

1. How was the portfolio strategy established?
2. What practices of evaluation and selection of projects to come up with a balanced portfolio were undertaken?
3. How was the management of the project portfolio practice?
4. What were the challenges of implementation of the project portfolio management?

1.4. Research objectives

1.4.1. General objective

- The main objective of this study was to assess the implementation of portfolio project management of the wireless network portfolio of A.A. and to come up with its challenges.

1.4.2. Specific objective

- To find out how portfolio strategy was established
- To find out the practice of evaluation and selection of projects to come up with balanced portfolio
- To study the management of the project portfolio practice
- To assess the challenges of the practice of portfolio project management

1.5. Significance of the study

- This paper can help executive managers, program director, program managers and project managers to have a better understanding on how portfolio project management should be conducted.
- It can help the above stakeholders of portfolio management to deal with its challenges in a better way

- It can contribute to the organization to achieve its overall objectives through showing how portfolio projects should be aligned with devised strategies of the organization.
- It can contribute to the literature in the area of application and challenges of portfolio project management.

1.6. Scope of the study

The research is conducted on portfolio project implementation and its challenges in Ethio Telecom. Ethio Telecom has a total of five zones all over the country namely; North, South, Central, Western and Eastern zones. The study is on the central zone, specifically the head office on a selected project portfolio. Although the topic portfolio project management can be studied in relation with different organizational aspects, this paper only focused on the implementation and challenges of PPM. The research is also expected to deliver a finding on the implementation and challenges of the Wireless Network program as a result of the method of the study which is case study. This is for the reason that the researcher has a constraint of time, resource and experience.

1.7. Limitation of the study

The study had some limitations. There was lack of corporation of respondents to fill the questionnaire and return it on time. This was because the project portfolio is completed and the respondents have a work load in another project portfolio. The study was conducted under a time constraint, where to study the whole organization project portfolio management was difficult, so that to select one portfolio of project has been a requirement for the study. However, the researcher managed these issues by dedicating full time on the study and using key individuals such as program manager and project managers to explain the relevance of the study for respondents and initiating them to fill the questionnaire.

1.8. Organization of the study

This research paper has five chapters. The first part is introductory part of the study. This contains background of the study, statement of the problem, objectives, significance and scope of the study. The second chapter discusses review of related literatures about portfolio project management. The third chapter is concerned with methodology of the study. The fourth chapter is about the data presentation, analysis and interpretation. Lastly, chapter five presents findings, conclusion and recommendation of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1. Theories and concepts of Project Portfolio Management

2.1.1. Introduction to project Portfolio Management

Norie (2006) cited that the origins of PPM lie in the theoretical domain of finance specifically capital allocation and investment portfolio theory. The basic notion of balancing a portfolio between risk and return is common knowledge and is understood as an overarching objective of sound financial management, both personally and corporately. This was first proposed by Markowitz (1959).

Understanding what is portfolio of projects comes before Project portfolio management (PPM). Portfolio of project is a collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet strategic business objectives. The projects or programs of the portfolio may not necessarily be independent or directly related (PMI, 2006).

Project portfolio management (PPM) has been defined by different authors in various ways. It is a tool-supported process for optimally selecting and managing the organization's "portfolio" of projects (Markhofer, 2013). It is centralized management of one or more portfolios, which include identifying, prioritizing, authorizing, managing and controlling projects, program and other related work to achieve specific strategic business objectives. (PMI, 2006).

Cooper et.al. (1997) on the other hand defines project portfolio management as a dynamic process, whereby a business's list of active new product (and R&D) projects is constantly updated and revised. In this process, new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed or de-prioritized; and resources are allocated and reallocated to the active projects.

Common topics for discussion in PPM include alignment of the projects to the organization's goals, resource allocation and total amount of projects in the portfolio, methods for project selection and prioritization (and power struggles), control and monitoring, information flow, organizational learning, challenges in the implementation and resistance to change, among others (Hristova & Muller, 2003).

Portfolio management is about resource allocation - how a business spends its capital and people resources, and which development projects it invests in. Portfolio management is also about project selection which is used to ensure a steady stream of big new product winners. And portfolio management is about strategy: it is one method by which an organization rationalizes its business's strategy (Cooper et al, 2000).

Tim (2006) also stated that one of the primary goals of portfolio management is to execute strategy. There is an important distinction between strategy creation and strategic execution. Possessing a strategy (and spending the energy to create one) is meaningless if the organization cannot accomplish the strategic goals. Although many people acknowledge that strategic projects are vehicles for accomplishing a strategy, senior leadership needs to make the right project decisions at the right time to advance the goals of the company. Hence, making smarter and better decisions is a precursor for solid strategic execution. In order to make smarter and better decisions, the right data needs to be available at the right time.

While discussing about its implementation, there are three styles of portfolio project management: Top-Down, Bottom-Up, and a mixture of both. The Top-Down style of portfolio management starts with the high-level strategic initiatives. The method of executing the Top-Down style of portfolio management is to outline the strategy of the company and its products, and then asks what projects are needed to execute the strategy (Cooper et al., 2001). The Bottom-Up approach works the opposite way, starting with the project ideas, allowing them to come from anywhere in the firm and be analyzed to determine their relevance. The last approach is to blend Top-Down and Bottom-Up, which allows projects to be drawn out by the strategy, as well as allow project ideas to surface from anywhere and be reviewed for their merits (Rosenstock, 2002).

2.1.2. Project Management, Program Management and Project Portfolio Management

A project is a sequence of finite dependent activities whose successful completion results in the delivery of the expected business value that validated doing the project (Waysoky, 2014). And when we come to its management, the literature provides project management, program management and project portfolio management so far. These sections will discuss the three management models.

In order to differentiate its management one should clearly identify the concepts of the three terms. As cited by Wideman (2014), Project is a temporary endeavour undertaken to create a unique product, service or result (That is to say, for a single project). Whereas program is a group of related projects, subprograms, and program activities managed in a coordinated way to obtain benefits not available from managing them individually and Portfolio refers to Projects, programs, sub-portfolios, and operations managed as a group to achieve strategic objectives.

Portfolio is a high level view of all the projects an organization is running in order to meet the business's main strategic objectives. It could be every project across the entire company, a division or a departmental. Portfolio management involves setting priorities based on the business leadership's agreed on objectives and then choosing programs and projects to undertake based on what will provide optimal business value, the level of risk involved, and available resources. While project management is about executing projects right, portfolio management is about executing the right projects. Whereas, program management is about the management of group of related projects that all contribute to the same business objective or benefit. The program as a whole has a clear defined goal, and each project within the program assists in meeting those goals (Bonnie, 2015).

Schwalbe (2012), stated that the main distinction between project or program management and portfolio management is a focus on meeting tactical versus strategic goals. Tactical goals are generally more specific and short-term than strategic goals, which emphasize long-term goals for an organization. Individual projects and programs often address tactical goals, whereas portfolio management addresses strategic goals.

Project and program management address questions like:

- Are we carrying out projects well?
- Are projects on time and budget?
- Do project stakeholders know what they should be doing?

Portfolio management addresses questions like:

- Are we working on the right projects?
- Are we investing in the right areas?
- Do we have the right resources to be competitive?

When we see where the difference lies between PPM and Project management, project management looks to focus on an individual project's road to completion, whereas project

portfolio management takes into consideration every project or potential project and its viability to meeting overall business goals. And there are ways in which project portfolio management support the fundamentals of project management. It helps avoids project management disasters by pointing out good projects versus bad projects, offers a clear path to prioritization that allows project managers to create flexible timetables, lists what team members and project managers are available and helps to assign monetary value to a project (Waysoky, 2014).

The concept of program on the other hand is about includes multiple related projects which together achieve strategic benefits. The portfolio includes all projects and programs in an organization. The purpose of the corporate portfolio is to determine what resources should be allocated to distinct projects and programs and whether they contribute to strategy. The portfolio is used to make decisions about the priority of projects and programs, whether they should be started, resumed, stopped, or killed a program is “a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.” As one can imagine, it is often more economical to group projects together to help streamline management, staffing, purchasing, and other work (Haarr, 2008).

Generally, by grouping projects into portfolios, organizations can better tie their projects to meeting strategic goals. Portfolio management can also help organizations do a better job of managing its human resources by hiring, training, and retaining workers to support the projects in the organization’s portfolio. Therefore, Portfolio managers need to understand how projects fit into the bigger picture of the organization, especially in terms of corporate strategy, finances, and business risks. They create portfolios based on meeting specific organizational goals, such as maximizing the value of the portfolio or making effective use of limited resources. Portfolio managers help their organizations make wise investment decisions by helping to select and analyze projects from a strategic perspective (Schewalbe, 2012).

2.1.3. Inter linkage between project portfolio management and strategy of an organization

Minztberg et al. (1998, pp. 10-15) provided interesting discussions on strategy understanding which is known as:

- **Plan:** some sort of consciously intended course of action, a guideline(or a set of guidelines) to deal with a situation; intended strategy,
- **Pattern:** consistency in behaviour, whether or not intended; realized strategy (Combination of the plan and pattern concepts explains deliberate strategy (intentions that existed previously were realized) and emergent strategy (patterns developed in the absence of intentions or despite them which went unrealized),
- **Position:** a means of locating an organization in external environment,
- **Perspective:** seeking to look inside the organization, indeed inside the heads of the collective strategist, and
- **Ploy:** a specific ‘manoeuvre’ intended to outwit an opponent or competitor.

To drive strategy execution, organizations need to develop and execute a strategy-driven project pipeline. This means project requests generally follow strategy (in response to the question “What do we need to do to implement this strategy?”). In this scenario, the exercise of aligning existing demand and ongoing project activity with the strategic agenda becomes the exception rather than the rule (Oyj, 2014).

Effective project portfolio management therefore requires a keen understanding of the relationships between strategy development and strategy implementation. The selected portfolio of projects and programs must collectively advance the organization. Project portfolio management, often referred to as simply portfolio management, is forward looking. If one can’t see the future of your organization by looking at its portfolio, there is no chance of getting there (PMI, 2015).

To look at their relationship better, the first major element of portfolio management is to identify opportunities and determine if those opportunities are in line with the corporate strategic direction. In a sense, this may be the identification and initial screening of projects before more in-depth analysis is conducted. The questions to ask are: What is the project? Does the project fit within the focus of your organization and the business strategy and goals? Several things to consider: Develop a process to identify opportunities and make it easy to follow; Establish a template for project justification as part of the process; Establish minimal acceptance criteria as part of the process; Reward ideas and suggestions-give credit where credit is due; Make sure clear strategic direction and business goals have been established (packer & Sepate, 2002)

Portfolio project management is used so to make better-informed decisions about how and where to best deploy resources. A strong portfolio management capability gives executives the power to link projects to create value for the overall organization, Furthering strategic goals and building performance-sustaining capabilities that empower the Organization (PMI, 2015).

As cited by Morgan (2013), the ultimate goal of linking portfolio management with organizational strategy is to establish a balanced, executable plan that will help the organization achieve its goals. A portfolio has relationships with its components, projects (PPM, 2013). There is simply no way for senior management to accomplish a strategic transformation without getting deeply engaged in project management.

Put simply, PPM involves managing the process of translating the strategy and objectives into the right projects and then focusing the execution of these projects on the delivery of overall strategic objectives. When implemented correctly, PPM helps managers to prioritize effort on those projects that have the greatest impact on achieving strategic objectives (Fidan & Bramwell, 2011). It can also be seen as coordinated management of one or more portfolios to achieve organizational strategies and objectives. It includes interrelated organizational processes by which an organization evaluates, selects, prioritizes, and allocates its limited resources to best accomplish organizational strategies consistent with its vision, mission and values. Portfolio management produces valuable information to support or alter organizational strategies and investment decisions (PMI, 2013).

Generally, the need for PPM, which introduce more updated analytical and managerial skills and models of strategic alignment of projects and their evaluation and selection comes from the fact that business environment is growing more complex and needs to include considerations other than just cost and profit. In addition, organizations are tending to take on more than just one project, since they have more labour, larger capital, more diverse skills, a variety of products and services, and some even work in more than just one industry. For these reasons (Yara & Kamal, 2014).

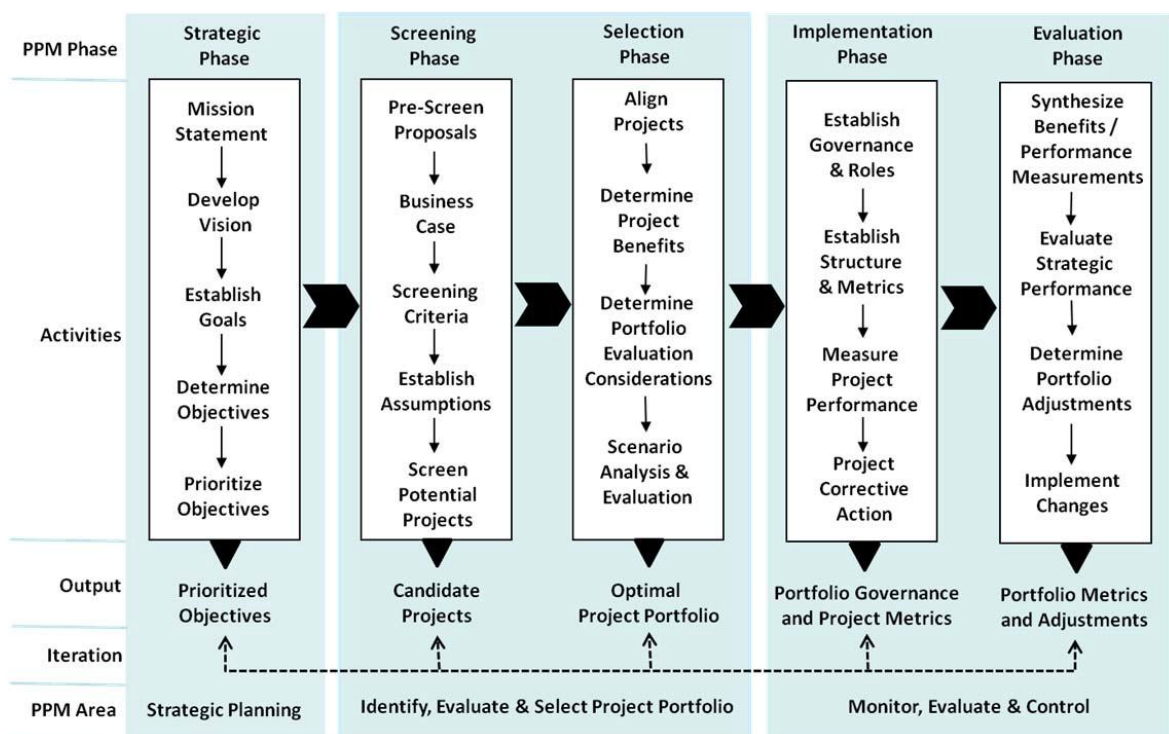
2.1.4. Implementation of portfolio project management

The foundation for implementing project portfolio information within an organization is the existence of project management at some level within the organization. The optimum circumstance is to have implemented strategic project management. Strategic project

management depends on breaking down the walls that exist between the strategic, tactical, and operational levels of the organization (Challahan & Brooks, 2004).

The model of PPM process goes from strategic planning through to portfolio evaluation and adjustment. It helps to visualise the entire PPM process and its integration with the organisation’s strategic planning process. It shows the connection to identifying, evaluating and selecting projects for the portfolio, as well as monitoring and controlling the portfolio once implemented.

Figure 2.1. PPM process overview



Source: (Bible & Bivins, 2011)

From the model it is possible to see that Portfolio project management is then an implementation process that requires a set of detailed processes to be conducted in an interrelated continuous sequence. It facilitates decision making, through evaluation, selection, prioritizing, balancing, execution of projects, harvesting of benefits and feedback of results for process improvement. It presumes that the organization has a strategic plan, along with customary mission and vision statements, together with strategic goals and objectives (Wideman, 2007).

The first step in the implementation of portfolio management is deciding the strategy for the portfolio. That strategy is an investment strategy. That is, how will the enterprise's resources be spread across the portfolio? Once this investment strategy is in place, the enterprise will have a structure for selecting the investment opportunities that will be presented in the form of project proposals. This is really a type of strategic planning phase in which the portfolio manager or the portfolio management team decides how it will allocate its project resources to various general categories of project investment (Waysoky, 2014).

The next stage of implementation of PPM is choosing the projects for a project portfolio simply means applying the criteria that have been established by strategy, balance, and maximizing value concerns of the organization. It sounds simple, but the process may be quite complex. The key to success is to have clearly defined measures against which each project must be evaluated and given a value. The values would prioritize the projects in order of the criteria. The projects would then be evaluated according to budget criteria and resources available to schedule an actual project start date (Challahan & Brooks, 2004). This stage is basically about addressing the vital question of which projects are worth of time, cost and investment performance. It is strategic question to any organizations in their selection and management of project portfolio. Both academic researchers and practitioners highlight the importance of project selection (PMI, 2006).

The proceeding tactical step in every portfolio management model involves prioritizing the projects that have been shown to be aligned with the portfolio strategy. This alignment places the project in a single funding category. It is those projects in a funding category to be prioritized. When you are finished, each funding category will have a list of prioritized projects (Waysoky, 2014).

Selecting a balanced Portfolio using the prioritized list is the next stage in PPM. There are two approaches to do that. The first one is to make one master list of prioritized projects and the other approach is to separate projects into buckets, and then prioritize the projects. Usually the second approach is preferred because prioritizing a single list, which can be long, is difficult. And this approach avoids situations in which there could be a wide variance between the resources that are being requested and those that are being offered in each category (Waysoky, 2014).

Managing active projects is the next step in the implementation of PPM. It started with giving appropriate resources to get started. All active projects should then be constantly evaluated to ensure that they continue to meet the criteria with the resources that were assigned to it. Through this practice projects can be cancelled if it no longer supports the goals or conditions change that make the project irrelevant (Bird, 2016).

The evaluation phase is what runs concurrently with the implementation phase, serves to assess the performance of the projects and portfolios and to determine necessary changes or modifications. During the evaluation phase, performance results from all projects are assembled, the results synthesised considering their relative importance, and adjustments made to address performance issues and/or changes in organisational strategy.

Further explanation about monitoring and evaluation in the process of PPM is given by Bird in 2016. Stating that throughout the implementation of PPM process, constantly examining portfolio management process to ensure that the decisions being made are in line with the organization's goal should take place. Changes to improve the process, perhaps by eliminating obstacles, improving the information or combing steps in the process should be done .

Generally, As cited by Sowden (2006), a good portfolio management will be expected to have the following characteristic.

- Focus will be on leadership and alignment with organizational strategy
- Visions and blueprints will cover the entire, defined organization
- Timescales for the portfolio may be vague, flexible and long term
- Risk will be viewed from a strategic perspective and in a business continuity context
- Integrity of the entire business transformation is managed through programmes and projects and business as usual
- Benefits orientation will be towards the organizational benefits that affect all areas and are linked to strategic organizational goals
- Stakeholder management will have a strategic and external focus

2.1.5. Models of project selection in PPM

The major area of portfolio management is the development and selection of the project portfolio. The questions to ask are: Which projects should be selected? How does the project relate to the entire portfolio, and how can the project mix be optimized? Several things to

consider: Establish a process that will help optimize the portfolio. It is not only for individual projects but also at portfolio decisions level. Selection process of PPM is basically about identifying opportunities; assessing the organizational fit; analyzing the costs, benefits, and risks; and developing and selecting a portfolio. It is concerned with fit, utility, and balance. If done effectively, portfolio management will ensure optimum use of people and resources (Pennypacker & Sepate, 2002).

The primary deliverable of the selection phase is the optimal portfolio. This does not mean that the projects with the highest relative strategic benefit are selected in turn until funding is exhausted. Rather, the portfolio selected contains the combination of projects that provide maximum total relative benefit subject to the specified budget and organisational constraints. Organisational constraints can include, among others, critical resources, project dependencies, and balance and coverage targets across competing objectives.

Many practitioners are frustrated about project selection, which often end in decisions made in exhaustion, by decree or by the loudest voice. This decision technique is commonly known as BOGSAT (Bunch of Guys/Gals Sitting around Talking, Urban Dictionary, 2012). A major reason BOGSAT fails as a decision technique is that, as psychologists have found, the average human brain can discriminate among only seven elements, plus or minus two, and can hold in short-term memory only seven objects, plus or minus two (Miller, 1994). In other words, we can remember about seven numbers in the order read to us and can discriminate or make judgments about, for example, seven musical tones, with each sound associated with a letter or number. Most business decisions can involve dozens of elements, such as ‘issues, pros, cons, objectives, criteria and so one (Forman, 2001).

Many organisations use ranking and scoring models. But rankings are ordinal numbers and thus indicate only order. If 20 projects are ranked from 1st to 20th, how much more important is the first than the second project, or the second project compared with the last project? Performing arithmetic operations on ordinal numbers yields mathematically meaningless results. Weighting and scoring are often used when there are multiple criteria, for example, least cost and highest net present value.

Strategic Alignment metrics, as the name suggests, are designed to determine the strategic fit of the projects and portfolio. These metrics require some degree of scoring, which is quite often a subjective process. If a company outlines strategic categories, then the projects that

make up the proposed portfolio can be assigned a score on these items, indicating how well it serves the strategic goal (Rosenstock, 2002).

The Value/Cost Performance metrics is one of the many model which is certainly one of the key indicators that is used in project selection. This collection of analytics is designed to point out what the company is spending money on, how that investment will return, how the spending compares with company history or competitors and how the value/cost relationship will stand across a portfolio of projects (Popper, 2000).

The different models can be used at two levels. They can be designed to measure the value of a project, or they can be used to measure the value of a portfolio. There is a purpose for both levels. Project-level analysis helps to see the value of a project, which can be used to determine if it should be considered a better investment than other projects. This type of exercise can help generate the prioritization of projects that is ultimately needed to make difficult Go/Kill decisions. However, the portfolio level view helps to decide what is the right mix of projects, one that achieves the proper balance of strategic and financial value. Generally, the entire process of selecting the right projects centres around knowing what projects, and what combinations of projects, will yield the best results for the organization. The models ways of making decisions based on facts and reasons. So that, political pressures and false urgencies are less likely to steer the company away from its maximum potential (Rosenstock, 2002).

2.1.6. Challenges of implementation of project portfolio management

An article appeared in Research Technology Management by Cooper et al, in 2000 reported an in depth research that has probed these issues, and has identified four main challenges or problem areas in portfolio management:

1. *Resource balancing*: Resource demands usually exceed supply, as management has difficulty balancing the resource needs of projects with resource availability.
2. *Prioritizing projects against each other*: Many projects look good, especially in their early days; and thus too many projects “pass the hurdles” and are added to the active list. Management seems to have difficulty discriminating between the Go, Kill and Hold projects.
3. *Making Go/Kill decisions in the absence of solid information*: The up-front homework is often substandard in projects, the result being that management is required to make

significant investment decisions, often using very unreliable data. No wonder so many of their decisions are questionable.

4. *Too many minor projects in the portfolio*: There is an absence of major revenue generators and the kinds of projects that will yield significant technical, market and financial breakthroughs.

It is possible to see that these four problems are clearly interlinked. For example, the inability to discriminate between projects invariably leads to a resource balancing problem. Insufficient resources on key projects in turn results in project teams short-cutting key activities. Cutting corners on projects results in poor information and difficulty in making sound Go/Kill decisions. Inadequate resources and poor information invariably leads to a tendency to do short-term, quick and simple projects. This way the portfolio problems continue, feeding one another.

Lack of awareness is the other challenge of PPM. Everyone should understand what's happening and what is expected of each individual. Stakeholders should be trained every now about PPM to value it. Making this a regular task will help an organization to be achieving what is intended to be achieving by practicing PPM (Choudhuri, 2015).

Another scholar also stated that one of the most common challenge faced by organizations, especially new or rapidly-growing businesses, is a shortage of people who are both qualified to manage a project portfolio and have the availability to do it. A company's top projects managers are usually busy with the day-to-day needs of critical projects and don't have time to devote to strategic, long-term considerations (Bunner, 2016).

Generally, Boneva (2014), stated that the management of project portfolios is considered as a novel and complex area in organizational practices. Hence a variety of challenges emerged, which need to be tackled by managers, along with many opportunities for increasing the organizational effectiveness.

2.1.7. Importance of portfolio project management

PPM is a key component of strategic project management. As with project management, many tools (both software and other) can assist in PPM. Installation of a software tool does not constitute PPM (Challahan & Brooks, 2004).

From the above scholars we can drive out that project portfolio management is very essential to achieve strategic objectives of project management. Needs in 2014 cited about the

advantage of PPM; some of the advantages out of the list are related with the fact that PPM minimizes risk. There are several categories of risks, including financial, governance, resource utilization, and misdirected efforts. On the financial side, good PPM policies will help you to calculate the benefits vs. cost of cancelling a poor performing project, as well as identify projects that are not contributing to corporate objectives. The sooner one identifies these wayward projects, the sooner to reduce risks. As for reducing governance risk, the goal is to build an accountability framework that ensures that the right level of compliance is followed through every project lifecycle.

The other great benefit of a PPM is its ability to maximize resources. The greater degree of visibility we mentioned earlier, both on the macro and micro level, makes it possible for you to gain the type of control over your projects that is not possible in a non-PPM office environment. A centralized approach also allows you to reduce your project costs, primarily through the reduction or elimination of duplicate effort (Needs, 2014).

The other ways of project portfolio management support is for the fundamentals of project management. It avoids project management disasters by pointing out good projects versus bad projects, offers a clear path to prioritization that allows project managers to create flexible timetables, lists what team members and project managers are available and it helps assign monetary value to a project (Waysoky, 2014).

Generally, as cited by Challahan and Brooks (2004), this importance is summarized in three groups. The first one is to link all projects to the company's strategy, which is helpful to avoid non value adding projects and achieve overall objectives of the organization. The second one is to balance the portfolio of projects the company is undertaking. This is a question of what and what project to be undertaken. PPM exercised this task by looking at on the company and its mission and objectives. The third importance of PPM is to maximize the value of the Portfolio. Maximizing the value of a project portfolio is done on linking that portfolio to the company's strategy effectively and putting into place a decision or phase-gate process that will compare projects in the portfolio against strategy and balance. PPM approves only those projects that are aligned with strategy, fit within the correct balance, and represent the maximum return

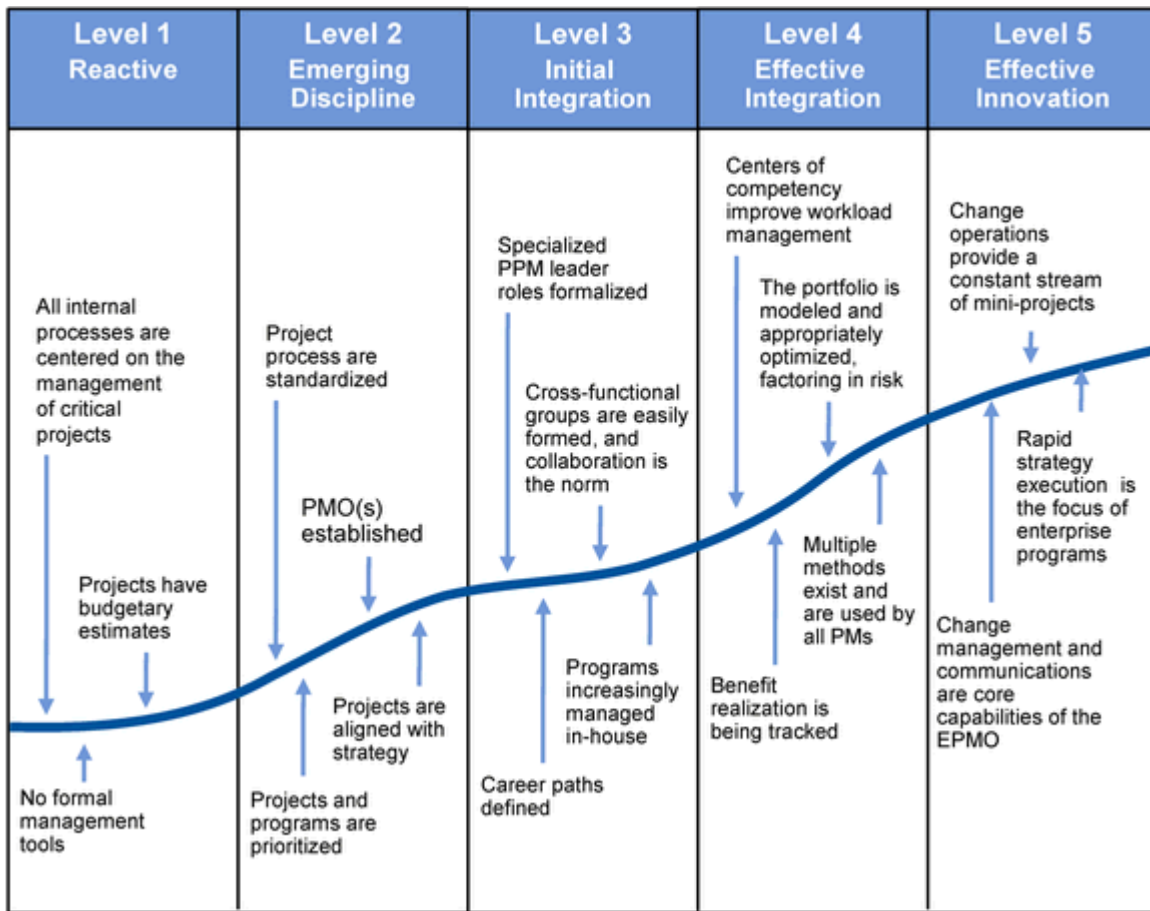
2.1.8. Maturity of PPM

The word maturity describes the state of being mature or having reached full development (Webster, 1988). As stated by Andersen and Jessen (2003), maturity is a measurement of the organization's ability to effectively use projects for different purposes in order to achieve its business objectives. They proposed three dimensions of maturity. It consists of action (ability to act and decide), attitude (willingness to be involved) and knowledge (an understanding of willingness and action) and they relate to risk and insecurity, power and responsibility sharing, hard and soft values and cooperation.

However, there seems no academic consensus for the term maturity in the PPM context so far, a rather general definition is hereby proposed by PM solution (2005), which attempts to serve on the project portfolio level. So measuring the maturity of a company that applies the project portfolio approach, maturity is understood as the degree and willingness (attitude) to which an organization applies measurable and perceived indicators to achieve specific strategic goals through the management a collection of projects portfolios.

The Project Portfolio Management Maturity Model (PPMMM) has been developed by the management consulting company PM Solutions. The model was published in 2005 and is derived from PM Solution's Project Management Maturity which became an industry standard for assessing project management maturity (PM Solutions, 2005). PPMM model is based on best practices and focuses on specific PPM-related improvement processes that support organizations to reach strategic objectives. And the better the organizational capabilities a company has in managing its project portfolios, the higher its maturity.

Figure 2.2: Maturity of PPM



Source: (PM Solution, 2005)

Another model of PPM maturity model was posted by Haukka, on PM journal in 2013. This model is Several Maturity Models regarding PM and PPM has been published. The approach of this model is little bit different compared with the others. It is mainly focusing on what an organization is getting out as a result of your PPM” instead of just describing “how well it is performing it”. This Maturity Model helps to set the objectives for PPM and describes concrete steps to develop it. The five maturity steps of the model are explained as follows.

Level 1: Awareness of ongoing projects

The first level of portfolio management maturity is reached when this aspect is in order.

- A definition of a project which should belong to portfolio. The definition should be set so that PPM will cover the most of the project type work in the organization, because small and medium sized projects are representing a big volume in a project portfolio (Project Complexity classification should be applied to make this easier) the ownership of all projects must be functioning

- Harmonized Project Management model including decision gates should be applied to all projects of a portfolio

Level 2: Awareness of status and balance of project portfolio

- The second level of maturity is reached when the portfolio reporting is working on regular basis. There is still a long way to go to the stage where projects are systematically evaluated, visible decisions are taken in gates, attention is paid to resources and the strategically most important projects are carried out without delay. When the reporting also covers forecasts of projects' real benefits and their evaluation continues till the projects are finished, only then can we start talking about advanced PPM.

Level 3: Resource management across all projects and other work

- To achieve the 3rd level means that the allocation of resources is continuously known. This cannot happen if the organization has not enough competent project managers with good skills of leading WBS development, time scheduling, work amount estimating, rolling wave planning or using PM software etc. However, the use of project complexity

Level 4: Systematic and transparent project prioritization considering the availability of resources

- To achieve the 4th level PPM Board and strategic level PMO should be established. It is, however, very important that project owners take enough responsibility when it comes to business cases of single projects. This helps PMO in its administrative role and makes it possible for PPM Board to concentrate on its main task –selecting the right projects.

Level 5: Program and project orientated organization

- Real project orientation takes place when an organization is changing its whole organizational structure to be more project and program orientated. Here the role and tasks of PMO can be changed to be part of normal management processes and routines. The ownership and management of projects is the main management approach in the organization. At this level project owners are really responsible over the final business

As maturity increases and its processes and capabilities improve, organizations are able to reap the benefits in many ways, including: a higher rate of return on investment, greater production efficiency, lower production costs, better quality outcomes, improved customer satisfaction and enhanced employee morale (Sowoden, 2013).

2.1.9. The role of PMO and PSO for the implementation of PPM

Project Management Office (PMO) in a business or professional enterprise is typically the department or group that defines and maintains the standards of process, that are generally related to project management, within the organization (Taylor, 2012). For the purpose of basic definition of PMO, the one that is provided by the Project Management Institute (2011) is accepted: "An organizing body or agency assigned by multiple responsibilities associated to centralized and coordinated management of projects". From our point of view, PMO's responsibilities can range from providing support for the management of projects to functions related to direct management of projects.

Ward, (2000) on one hand defines a project management office as "an organizational entity established to assist project managers, teams and various management levels on strategic matters and functional entities throughout the organization in implementing project management principles, practices, methodologies, tools and techniques

The PMO builds up a common set of practices, principles and templates for managing projects. Standardisation means project managers can move more easily between different projects and new project managers get up to speed faster. Creating project management templates means standard components can be reused which saves time and money as they are not created for each projects (Iplanware, 2011).

Most PMO's develop into a centre of excellence for project management and can provide guidance and coaching to novice project managers or new project managers who need to understand how the organization runs projects. In many organizations we work with, the people running projects are not always formally trained project managers and the PMO plays a key role in assisting this group (Iplanware, 2011).

As cited by Kent, (2010) the purpose or mission of a PMO should be:

- To ensure that the enterprise invests in the best set of projects and programs and realizes the most benefits possible from these investments;
- To provide an organizational focus on improving the management of projects, programs, and portfolios;
- To optimize the capability and use of scarce resources; and

- To raise strategic issues to the highest levels of the organization in order to facilitate effective decision making.

Generally, Iplanware PPM blog (2011), presented an article on the purpose of PMO for organisations that implement a project portfolio management approach. It stated that PMO has a facilitating role for the implementation of PPM process. This can include:

- Capturing project requests and ensuring each request has sufficient information to assess the project.
- Keeping an up-to-date repository of projects underway and requests pending review.
- Implementing scoring and prioritisation models to help assess which requests should be approved.
- Managing a resource capacity plan or resource forecast to help understand resource availability for projects.

When proceeding to another nature of supporting office for project management, Strategic Project Office can be mentioned. The SPO is an organizational entity responsible for mapping strategy to projects and monitoring projects and portfolios to ensure they continue to address strategic initiatives, even as these initiatives change over time. It serves as the critical link between executive vision and the work of the enterprise. The SPO, a relatively small, yet high-end and strategic group, connects executive vision with the work of the organization. While the SPO may perform traditional project office functions, it's expanded strategic functions include: assessing and promoting project management maturity; creating a project culture; integrating processes and systems enterprise-wide; ensure enterprise-wide project quality; managing resources across projects and portfolios; and project portfolio management. The last function, project portfolio management, is perhaps the single most important responsibility of the SPO. These tasks include:

- Linking corporate strategy to programs and projects. The SPO is responsible for ensuring that projects reflect the strategic goals established by top management.
- Project selection and prioritization. The SPO mixes and matches projects based on their relative levels of priority and relevance. The interdependencies among projects can only be seen from the perspective of the SPO (Pennypacker & Sepate, 2002).

From the above points it can be observed that enhancing management of a portfolio of projects can be achieved with the establishment supporting offices such as SPO and PMO. Such management strategy can give best ways to reduce project costs, speed project completion times and improve product-to-market delivery, for ultimately better profits. Along with implementing PPM, it is not only a good to get projects done on time and on budget, but it can be observed from their purposes that it helps insure that an organization is doing the right projects.

2.2. Empirical Evidences

Contrary to project management, PPM is a rather new area of interest to the academics. As such, not many studies have been executed in order to make it a well-established theoretical field. What PPM refers to is the management of portfolios or collections of projects that help ‘deliver benefits which would not be possible were the projects managed independently’ (Turner & Speiser, 1992).

Calderini (2005), presented five main goals of PPM that dominate the literature are namely defining goals and objectives, i.e. clearly articulating what the portfolio is expected to achieve, understanding, accepting, and making trade-offs, identifying, eliminating, minimizing and diversifying risk, monitoring portfolio performance, i.e. understanding the progress that portfolio is making towards the achievement of the goals and objectives and establishing confidence in achieving a desired objective.

Pm solution (2005) reported a survey on senior practitioners with knowledge of their organizations’ project portfolio management practices and their organizations’ business results. Over 90% of organizations are at Level 1 or 2 in project portfolio management maturity and none are at Level 4 or 5. The survey used PM Solutions’ Project Portfolio Management Maturity Model in the assessment. The model describes how organizations mature as they improve their project management processes. As such, it is a useful framework for organizations wishing to improve their project portfolio management processes. The result shows that the greatest benefits of project portfolio management are for organizations that better align their projects to business strategy and that they now work on the right projects. PPM practices, however, currently fall short in helping organizations kill poor projects and allocate resources optimally.

In order to for PPM provide the greatest benefit, complimentary for the above finding Brown & Grandy (2001), in their study stated that the implementation of strategy is often much more complex and difficult than its formulation either at the business or the corporate level. So, instead of spending 80 per cent of the time in strategic planning and 20 per cent in implementation development, arguably this should be 20 per cent in planning and 80 per cent in implementation.

On the other hand another study cited in Yara & Kamal (2014) by Stanleigh in 2010 revealed that many corporations are suffering from project failures, reaching up to billions of dollars in losses. A global research report done by BIA Canada showed that the major reason for these failures is the misalignment of projects with organizational strategy. One of the most profound examples for such failed projects is the Royal Dutch Shell in their Siberian liquefied gas facility, Sakhalin Energy, that had a cost doubling from \$US10 billion to US\$20 billion due to lack of the project's strategic alignment. The report also found that 68% of organizations worldwide had no techniques for project prioritization or linking tools to corporate strategy.

The above studies show that the application of the knowledge of PPM falls short in many organizations. So that how a strategy is derived down to implementation should be given a due consideration. From PPM concept and theory discussions above, it was explained that PPM is important tool-supported process for optimally selecting and managing the organization's "portfolio" of projects (Markhofer, 2013).

Choudhuri in 2015 reported his research on challenges of PPM and stated that these impediments are the reasons why most PPM practices fail. It is therefore, understanding the common challenges of implementing PPM and ensuring to have a solution to them or ways around them will help increase the success factor of PPM practices.

A study conducted by Elonen&Arto, (2003), distinguished some of challenges of implementation of PPM. These are inadequate project level activities, lacking resources, competencies and methods, lacking commitment, unclear roles and responsibilities, inadequate portfolio level activities, inadequate information management and inadequate management of project-oriented business.

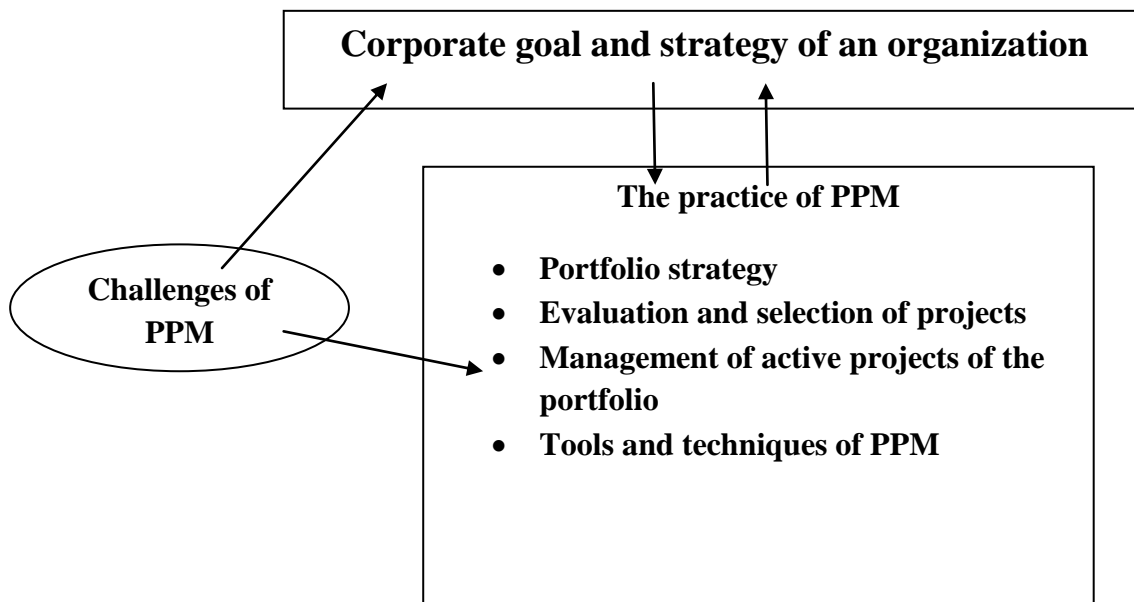
In order to help the implementation of PPM, Alexandrova, Stankova & Gelemenov, (2015), recommended that in organizational context, the management of the project portfolio could be performed in different ways, among which the most innovative and highly effective one is the establishment of the Project Management Office /PMO/. Among the new insights in project management the concept of Project Management Office emerges as an effective solution for many problems in contemporary project portfolio management.

Generally from the studies above, it can be understood that the implementation of PPM for many organization had been a challenge and many organizations maturity in its implementation have been found minimal. Furthermore, Hristova & Muller, 2003 in their research report on the implementation of PPM, they stated that studies of the challenges in organizations implementing project portfolio management are rather few. Therefore, conducting a research on the implementation of PPM and identifying its challenges is essential to come up with a good recommendation it this area.

2.3. Conceptual Framework

From the above literature, it has been tried to describe project portfolio management, its importance and challenges. This study focused on the model of implementation of project portfolio management and its challenges on the case of the Wireless Network program which can be referred as a portfolio of projects. From the different discussions above, it was claimed that the implementation of PPM has a great impact on the corporate strategy and goal achievement of an organization. The following figure presents the framework which is developed for the purpose of this study

Figure 2.3 Conceptual framework



Source :(Own survey, 2017)

2.4. Background of the organization and Wireless Network program

Ethio Telecom, previously known as the Ethiopian Telecommunications Corporation (ETC), is an integrated telecommunications services provider in Ethiopia, providing internet and telephone services. It is owned by the Ethiopian government and maintains a monopoly over all telecommunication services in Ethiopia and it is based in Addis Ababa . Currently it is handling a country wide program called Telecom expansion program which holds two programs related with information system and network improvement (Finote Telecom, 2009).

Telecom expansion program is a program driven out of the government five year telecom development and transformation plan. This program aims to increase the capacity of network and information system of the different regions of our country. The program charter was signed by the board of directors on January 17, 2014 (TEP Charter, 2013). From preliminary interview it was found out that to proceed to implementation of the program, contract negotiation with vendors takes 2 years.

The Network/Wireless program is one program out of the TEP. It has an objective of providing mobile services (2G/3G/4G) for 59 million subscribers throughout Ethiopia. For easy management of the program implementation, the whole country is divided into thirteen regions. Where the Addis Ababa Wireless Network program is one of it. For the A.A. Wireless Network program, a budget of 153 million birr was allocated. And its duration was for six months after the contract negotiation was done. The program involved four interrelated projects. These are Radio access network (RUN), Power and Environment, Core project and Microwave backhaul (Finote Telecom, 2009).

There are main actors of the program which should be described to understand how it was undertaken. The first one is the TEP Wireless office (program management office) which was responsible for the program supervision, projects coordination, high level planning, controlling and monitoring. In corporation with this office there is the CTO (chief technical officer) who is responsible for the implementation and execution of the projects technical elements and assigning of appropriate technical staff in the domain for the achievement of the project objective. Network project role out, engineering and sourcing and facility are main actors of the implementation of the projects. Network project role out and engineering have a double reporting responsibility i.e. for the TEP director and CTO. The Program director serves as a liaison between the management and the program team. Process management

office is the other one, which supports the use of tools and techniques of project management for the program and resource mobilization. At the high level of the structure there is the program steering committee and board of directors. In corporation with all the above participants there are support divisions that are responsible to provide support for the program. These are the SFD, HR, Quality and Process and Legal divisions (TEP Charter, 2013).

This paper is on the wireless program of Addis Ababa. Interview was conducted with the head of strategic and program management support office and it has been found that the program has a goal of achieving the target of GTP on mobile service as defined by FDRE government which is improving network, increase coverage and capacity on mobile service and build strong infrastructure with latest technology. It has an objective of increasing the coverage of 4G and 3G users, expanding and improving the capacity of reliability of the backbone transmission network, developing sustainable and reliable power system and swapping the old legacy equipment. In order to meet the above goals and objectives that are derived out of the organization plan and strategy, as it is mentioned above four interrelated projects are devised. The technical domain of these projects is supposed to operate in the integrated manner for the end to end wireless services. Description regarding the projects is given below from an interview with project managers of wireless network program of Addis Ababa.

The first project is named as RUN which stands for Radio Access Network. This project is about control and management of the radio resources for capacity, coverage and signal quality of the whole network. It acquires resources such as frequency, channel element for 3G and radio connectivity for 4G. It design network for improvement of capacity, coverage and customer satisfaction with a given budget.

Microwave Backhaul is the other one. The 2G/3G/4G mobile services are generated by the RAN (mobile radio) in the different geographic locations. However, the service generated shall be transported to the target location by the transmission media. This project is therefore about establishing that effective transmission media i.e. Microwave backhaul. The project performs interconnecting of mobile backhaul from different geographic location of RAN sites to each other to allow mobile service transmission up to the optical fiber location and for end to end mobile service transmission from end user to the core site.

A core network project is the third one. It is about building the central part of a telecommunication network that provides various services (voice and data) to customers who are connected by the access network. Core network is used for switch/ route Voice calls to other mobile network or fixed network based on customer need. The project also delivers the provision of Customer service request which comes from the access network to core nodes for different services like register on the network, make /receive calls which are processed in the core network and for switch data calls to VPN (virtual private networks) and internet.

The last one is Power and environment. This project holds an objective of provision of power services of all the equipment (RAN, Microwave backhaul & Core) located at different sites. Its domain also covers the tower necessary for mounting (installing) of the RAN & mobile backhaul radio.

Generally, the Wireless program holds the described four projects that feed to one another. Waysoky (2014), stated project portfolio as a collection of projects that share some common link to one another. Some of the effective links might be that the projects originate from the same business unit or functional area (such as IT), they may all be new product development projects or it may all be funded out of the same budget or from the same resource pool. From this explanation of portfolio, it can be observed that the Wireless Network program can also be identified as a portfolio of projects.

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1. Research Design

Research design that is adopted for this study is that of a case study approach. A case study design is a plan of intensive exploring and analyzing the life of a single social unit be that of an individual, a family, an institution, culture, group or even an entire community. Saunders, et al., (2007) pointed out that; the case study has considerable ability to generate answers to the question `Why? ` As well as `what? `and `how `questions. The design was also chosen by the researcher because it allows the use of different data collection techniques at different stages such as questionnaires, structured and unstructured interviews. At the top of this approach, descriptive method is employed for the study. Kothari (1990), descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual, or a group. These research designs used for the purpose of this study because mixed-method analysis helps to provide richer understanding about the phenomenon under study

3.1.2. Areas of the Study

The study is on the case of the head quarter of Ethio Telecom Wireless Network Program which is found in Addis Ababa. The choice of this area of the study was based on the fact that, the headquarter of Ethio Telecom; is the centre for the organization strategic planning and implementation plan. And also it's the centre for the initiation of different portfolio of projects.

3.1.3. Population of the Study and Sampling method

For the case of this study the target population was the participants of the selected program. Program management office, process management office, the network project role out department, engineering department, and head of strategic and program management support office are departments with their own responsibility for the handling of the wireless network project portfolio of A.A.

However, regarding the management of the project portfolio of Wireless Network program, program management office and PMO (process management office) has a direct involvement. So that Census is employed for these groups. Where the staffs are totally 40 in number. 10 participants were also involved from implementation teams using purposive sampling. The researcher included these groups in order to triangulate the result of the management response, understand how portfolio project management impacts the whole implementation of the project work and how it was perceived. As Creswell (2009), stated, this sampling method is used to choose respondents based on their convenience and availability.

3.1.4. Data Collection Techniques

Information is obtained through policies, journals, reports as well as interviews and questionnaires designed by the researcher. Questionnaires were employed to collect data concerning the implementation of Project Portfolio Management and its challenges. Each of the items in the instrument was measured on five point Likert scale. Likert items are used to measure respondents' attitudes to a particular question or statement. Likert measurements usually coded as: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. Since it is difficult to rely on one method of data collection; the researcher employed qualitative and quantitative data collection techniques in order to counterbalance shortcomings of each technique. So that in addition to the Likert scale, Close ended and multiple question type was also included in the questionnaire.

3.1.5. Types of Data

The researcher collected both primary and secondary data for answering the research questions. Combining several methods in the same single study is useful to triangulate the result of each method involved. Relying on a single method also can adversely affect the reliability and validity of the results and ultimately affecting the conclusions that will be draw and the recommendations that will be made (Currie, 2005).

3.1.5.1. Primary Data

This was collected by using Questionnaires and interview. The questionnaires method is simple to use compared to interview and observation. The method is also free from bias of interviewer, less expensive and does not exact much pressure on the respondents hence make them to be more comfortable Kothari, (2005). The questionnaire was prepared both in open

ended type of question and close ended question. The reason for this is, the open ended question is very helpful to yield rich, detailed comments while the close ended question is meant for identifying facts regarding how the implementation of PPM is practiced.

In line with this method, unstructured type of interview was used for the program manager, head of the strategic and program management support office and project managers. In this method the interviewer personally met the informants and asked necessary questions to them regarding the subject of enquiry. It gave an advantage of avoiding non-response as the interviewer personally collected the data.

3.1.5.2. Secondary Data

The researcher used secondary data due to its advantages of having fewer resource requirements in terms of time and money. The researcher therefore collected secondary data through document review. Review of different textbooks, journals, dissertations, thesis from Addis Ababa University, consolidates Ethio Telecom reports and other unpublished sources.

3.1.6. Validity and Reliability

Reliability is the degree to which an assessment tool produces stable and consistent results. Whereas validity is about how well a test measures what it is supposed to measure. While reliability is necessary, it alone is not sufficient. For a test to be reliable, it also needs to be valid (Wren & Phelan, 2006)

For validity was given a due consideration for the study, different instrument was employed in order to take the best out of data collection techniques. Open ended, Close-ended questions, semi structured interviews were developed and literature review was used as a benchmark in order to generate a valid and comparable response. Pre test on the questionnaire was also conducted in order to check the questions were understandable and clear enough for the context of respondents. And some arrangements have been taken as per the result of the pre test in order to make the instrument more valid.

Cronbach Alpha test was also employed to check reliability of each of the categories in the questionnaire using SPSS version 20 as a tool. The alpha coefficient for portfolio strategy, evaluation and selection of projects, management of project portfolio, challenges of PPM and tools and techniques of PPM were found to be 0.905, 0.915, 0.960, 0.778 and 0.671 respectively. This is generally considered acceptable, suggesting that the question items have relatively high internal consistency.

3.1.7. Data Analysis Techniques

For this research the data were gathered using questionnaires and interview and the gathered data were analyzed quantitatively using numerical value and qualitatively using a description to identify the problems. Data were analyzed and presented so as to enable the researcher to answer the research questions and meet the objective of the study from which conclusions and recommendations were drawn. It was based on the statement of the problem, research objective and research questions. In order the reader of this study to understand the data properly, the data were processed to reduce its bulkiness and minimized it in a manageable interview process.

Here the researcher cross checked the sample size as to how many respondents will give the same answers to the questions asked and whether the answers given to the questions will have close relationship in any way. The collected quantitative and qualitative data were coded, analyzed and interpreted. SPSS version 20 is used to employ statistical tool of mean score, standard deviation and percentage to make the analysis accurate, efficient and effective.

3.1.8. Ethical Issues

David & Resnik (2015), Stated that research often involves a great deal of cooperation and coordination among many different people in different disciplines and institutions, ethical standards promote the values that are essential to collaborative work. Such as trust, accountability, mutual respect and fairness.

With the consideration of the above point, research ethics was given attention while developing and administering data collection tools and techniques. This was done through obtaining consent before the research; ensuring confidentiality of data obtained and learning more about the organization's culture, going through the organization formality to obtain the required data and all the necessary absolute sensitivity and caution was exercised.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This chapter is about the presentation, analysis and interpretation of data collected using interview, questionnaire and document review regarding the implementation of the project portfolio management and its challenges in the case of Ethio Telecom. This is done by categorizing the data in different parts to analyze their implication. 50 questionnaires were distributed and a total of 30 questionnaires were returned, which is a response rate of 60%.

4.1. Characteristics of Respondent

Table 4.1. Characteristics of Respondents

ITEMS		Count	Table N %
Gender	male	26	86.7%
	female	4	13.3%
Age	under 25	1	3.3%
	25-34	13	43.3%
	35-44	8	26.7%
	45-55	7	23.3%
	above 55	1	3.3%
Level of education	college diploma	1	3.3%
	Bachelor's degree	23	76.7%
	masters Degree and above	6	20.0%
Department	program management office	12	40.0%
	Process management office	8	26.7%
	engineering department	5	16.7%
	Network project role out team	5	16.7%
Exp	0-5	4	13.3%
	6-10	9	30.0%
	11-15	7	23.3%
	16-20	2	6.7%
	more than 20	8	26.7%

Source : (Own survey, 2017)

Table 1 showed characteristics of respondents in terms of sex, age, educational qualification, department and number of years working in Ethio Telecom. With regard to sex 86.7% of the participants are male and the rest 13.3% are female. When we look at the age distribution of the respondents, participants that aged from 25 to 34 takes 43% of the whole participants and they are followed by participants that aged from 34 to 44 and 44 to 55. And the rest 3 presents are above 55. The next category is about educational qualification. Respondents with a bachelor degree are of 76.7% the total participants. They are followed by respondents with masters degree and above with 20%. The rest 3% respondents got a college diploma. From these information one can understand that majority of them are young and have a good level of education. The next variable is about department. Most of the respondents are from program management office and process management office where most important information regarding the practice of management of the project portfolio can be collected. They cover 66.7% of the total participants. The rest departments are the engineering department and network project role out team. Each of them are 16.7% of the total respondents. The last characteristics category is number of stay in the organization. From this section of the table, one can understand that majority of the respondents have a good experience in the organization to respond to the practice of PPM concept of the organization. Majority of the respondents i.e. 26% of them have 20 years and above experience in the organization. The rest respondents' information also showed that most of them have an experience with a minimum of 6 years in the organization. Generally, the respondents' characteristics imply that they can provide valuable information for the objectives of the study.

4.2. Project portfolio strategy

Table 4.2. project portfolio strategy

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
How resources of the company should be spread across Projects of the portfolio /program was clear	30	2.00	5.00	4.1000	.75886

There was clear structure for selecting project proposals for the program/portfolio	30	2.00	5.00	3.9667	.88992
Projects objectives under this program/portfolio are interrelated with the corporate goal of the organization	30	2.00	5.00	4.4000	.77013
There is a strong link between the organization strategy and the program strategy/portfolio strategy	30	1.00	5.00	4.1000	.99481
The projects are selected for the fact that they have a growth potential for the organization, in terms of revenue, customer satisfaction and so on	30	2.00	5.00	4.4000	.77013
The projects are selected for the reason of improving the existing system	30	2.00	5.00	4.3333	.75810
Valid N (listwise)	30				

Source :(Own survey, 2017)

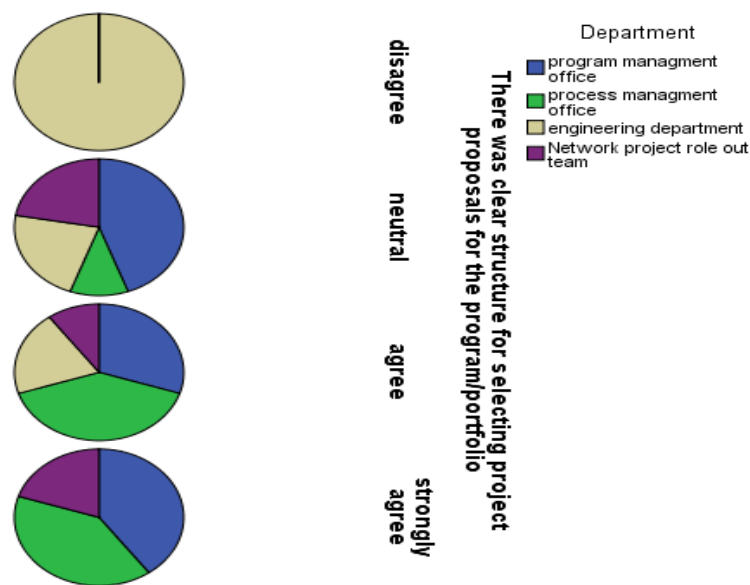
Looking back at the literature of the process of PPM, the first element in the implementation of portfolio project management is about establishing portfolio strategy before selection, evaluation and management of a project portfolio. This issue helps to understand how the organization comes up with the A.A Wireless Network portfolio.

Six items regarding this issue was given for respondents. The first item is about resource distribution of the organization. Question if the decision criteria regarding how the organization resource should be distributed was clear or not was given. And mean score is found to be 4.1. This shows that the majority lies on agreement with the statement. Therefore, it is possible to conclude that there was good ground for proceeding to the selection of which project should be undertaken. From an interview result with the head of strategic support office of the organization, it was realized that the ground for the decision making of what portfolio of projects to be undertake is provided by the Ministry of Communication and Information Technology. Since Ethio Telecom is a government owned organization, the first

GTP plan of telecommunication which aims to acquire the latest technology, expand the services in the telecom sector and focuses on increasing accessibility and quality of telecommunication services was the starting point for proceeding decision makings.

The next question item is about having a clear structure for selecting project proposals for the portfolio. The mean score is found to be 3.96. As explained in the first item, this comes from the fact that the strategic directions of the organization have been clearly made for the organization from the government. However looking at the standard deviation which is 0.88 further analysis can be made.

Figure 4.1, structure of selecting projects for portfolio



Source :(Own survey, 2017)

From the above figure, when we look at the response of the departments towards this issue, it is shown that it is the engineering and network project role out departments that chose to be neutral more than the program and process management office. From the above two items, it has been explained how the organization strategic initiative comes from. However, when it comes to departments that are required more of technical duties for the projects, one can understand that sufficient communication regarding the strategic direction of the portfolio is not met. Choudhuri, (2015), stated that lack of awareness is one of the challenges of PPM. Everyone should understand what’s happening and what is expected of each individual. Stakeholders should be trained every now about PPM to value it. And it is making this a

regular task which will help an organization to be achieving what is intended to be achieving by practicing PPM.

The third item is about if the projects under this portfolio are interrelated with the corporate goal of the organization. It is with a mean score of 4.4. From the review of Ethio Telecom (2014), the corporate goal of the organization is being customer centric company, offering best quality of service; meeting world class standards and building financially sound company. From an interview of program manager of the Wireless Network portfolio and the project managers, it has been found that the goal of the project portfolio is highly related with the company goal. Some of its goals which are highly contributory for the achievement of the corporate goal are increasing of the coverage of 4G and 3G users, expanding and improving the capacity of reliability of the backbone transmission network and developing sustainable and reliable power system.

The fourth question item is about if there is a link between the organization strategy and the portfolio strategy with a mean score of 4.1. These shows that majority of the respondents agreed that there is a strong link between the two. From an interview result with head of strategic support office, the decision regarding how the resource of the organization should be distributed i.e. portfolio strategy is highly connected with the organization strategy. In order to achieve the goal of the organization which is described in the above section, the organization devises a strategy. This is developing and enhancing network and information system, ensuring easy access and coverage to the whole population and creating a strong brand. The wireless network project portfolio is one of the project portfolio decisions to be undertaken out of this strategy. It holds an objective of enhancing the network system and has a better coverage and access for diversified telecom service.

The next two question items are regarding the specific facts behind the selection of the project portfolio. It was asked if it was for the purpose of growth potential in terms of revenue, customer satisfaction or improving the existing legacy. Its mean score found to be 4.1 and 4.3 respectively. This shows the majority chose to agree with the statements. These questions were asked in order to understand which portfolio structure model is applied in order to select projects to be incorporated in the portfolio. From the majority response it has been understood that the organization uses Boston Consulting Group Products/Services Matrix and growth/survival model. Waysoky (2004) stated that The BCG Matrix is a well-known model that has been used for several years. It defines holds categories of

products/services based on their growth rate and competitive position. Whereas Growth/Survival model is the simplest categorization model for projects. In this model Projects are either focused on growth or survival. Growth projects are those that propose to make something better in some way. And for the case of wireless network portfolio, it has been realized that growth and improvement investment opportunities were given a priority to the selection of projects to be incorporated in the portfolio.

4.3. Evaluation and selection of projects to portfolio

Table 4.3. Evaluation and Selection of projects to portfolio

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
Alignment of projects with the portfolio/program strategy was carefully evaluated	30	1.00	5.00	3.7333	1.04826
The projects proposal is screened using criteria that does not involve more of subjective decision	30	3.00	5.00	3.8000	.66436
what the company should spend on with how the project will return (benefit/cost relationship) is considered in the evaluation	30	2.00	5.00	3.9000	.92289
SWOT analysis (strength, weakness, opportunity and threat) of proposed projects from internal and external environment is effectively made prior to their selection	30	2.00	5.00	3.7333	.94443
Financial and qualitative strategic issues are given proportional weight in the evaluation of projects	30	2.00	5.00	3.9333	.90719

Selected projects under program/portfolio have good combination to provide maximum total benefit with respect to budget, organizational constraints and risk	30	2.00	5.00	3.9333	.82768
Valid N (listwise)	30				

Source : (Own survey, 2017)

This section is about the second stage of PPM model. It is about the evaluation and selection of projects to be incorporated into the portfolio. This is for the reason that even though some projects are able to align with the strategic direction of the organization but it may fail to be incorporated for other different reasons.

The first question in this category is regarding evaluation of projects alignment with portfolio strategy. It is with a mean score of 3.7. The result of the fourth question item from table 4.2 is related with this item. The fact that there is a link between the organization strategy with that of how resource should be distributed among portfolio of projects has valuable input for evaluation of projects. However the standard deviation of this item is found to be 1.04.

From an interview with the head of strategic support office it has been found that in the case of the structure of the organization project portfolio management there is no permanent centralized department for the handling different project portfolios that are introduced and to be introduced for the organization. So that after the initiation of the projects portfolio at high level, it is the program management office that come up with the high level design of the projects observing at its strategic, budget, cost and time requirement then followed by validation work by the program director and TEP steering committee. Therefore, the evaluation practice can be questioned for the fact that Waysoky stated (2014), if the person proposing the project does the evaluation; bias can arises when the proposer, having such intimate familiarity with the proposal may evaluates it subjectively, rather than objectively. At the same time there is also a strong likelihood that these types of evaluations will not be consistent across all projects.

The second question is about the criteria used for evaluation and selection of project proposals. It was asked if the criteria were objective. It has got a mean score of 3.8. However, from the above paragraph to see the fact that there was no intake person other than

the project initiating and designing department for the evaluation of the projects can imply that consistent practice of evaluation method does not take place for the Wireless Network Portfolio of projects.

The third item is regarding which specific criteria is used for the portfolio. It was asked if cost/benefit analysis takes place or not and it got a mean score of 3.9. Popper (2000), stated that this metrics is a collection of analytics designed that point out what the company is spending money on, how that investment will return, how the spending compares with company history or competitors and how the value/cost relationship will stand across portfolio of projects. Observing the mean score of the item, it can be concluded that the use of this metrics was effectively made.

The fourth item of this section is about if different aspects of internal and external environment assessment that can take place for the evaluation of projects to be selected. It holds a mean score of 3.73. From the mean score, we can take the fact that SWOT analysis was undertaken for projects evaluation.

The next question item is about if financial aspect of evaluation and strategic issues were given proportional weight for selection of the projects. It is found to be with a mean score of 3.9. This show that majority of respondent agreed with the statement. The reason is the fact that the portfolio initiation directly drives from the strategic direction of the organization. From an interview with the program manager and head of strategic support office, it has been found that at high level of the organization, strategic and internal and external environment of the investment initiative was evaluated. Financial analysis such as NPV, IRR and so on has been undertaken in collaboration with staffs assigned for the project portfolio from the finance department.

The last item of this section is regarding the combination of the projects under this portfolio. It is with a mean score of 3.9. This shows majority of the respondents agreed with this statement. From an interview of project managers of all projects. It has been found that there is a common link of strategy among the projects and the projects deliverables are highly interrelated. It was identified that the output of one project aims in maximising and contributing for the functioning of the other project. So that it can be concluded that the fact that they are combined and handled as a portfolio has been an effective decision with regard to different organizational constraints.

4.4. Management of the project portfolio

This section is regarding the third stage of PPM implementation which is about the management of active projects under portfolio. The issue of communication, monitoring and controlling, decision making throughout the execution of the projects, closing and the practice of absorbing lesson learned of the project portfolio management is analyzed.

Table 4.4.1, Communication aspect of the Project Portfolio Management

	N	Minimum	Maximum	Mean	Std. Deviation
Communication regarding strategic direction of the program for project managers was clearly made	30	1.00	5.00	4.1000	.99481
Communication regarding objective and plan of projects for their team members was made clearly	30	1.00	5.00	3.8000	1.21485
Channel of communication employed by the program/portfolio project management brings about effective risk management	30	1.00	5.00	3.6667	1.02833
Valid N (listwise)	30				

Source : (Own survey, 2017)

Questions to study if the portfolio strategic direction was clearly communicated for project managers and team members were asked. It has got a mean score of 4 and 3.8 respectively. In both cases majority of respondents agreed with the statement. However regarding this issue, from the mean score values it is possible to observe that communication for team members was not effectively made as it was made for project managers. This can also be understood from the standard deviation of the second item which is 1.2.

As cited on PMI, thought leadership series, (2015) Project managers play an important role in portfolio management, acting as the operational connective tissue. From interview held with project managers, it has also been understood that they all know the strategic goal of the organization with the execution of the portfolio. This is because the program manager was

part of TEP steering committee which involves the CEO, TEP Director, CTO, Program managers and officers from supporting divisions. However, there was a tendency of working on what is given from the higher level than understanding and having a devotion to the implementation of the strategy of the organization. This issue can take us to what Waysoky stated (2014), common problem that one usually can see is the failure of the project managers to establish a repeatable and effective communications process and full disclosure by the project manager to the team. That process begins at planning time and extends through to the closure of the project. From all the discussion of the paper, since PPM is about creating visibility and strong link between strategy and its execution, communication is its essential element and should have been made effectively for all the participants of the program.

The third item of this section is regarding if the communication channel devised for the management of the project portfolio was effective for the portfolio risk management. It holds a mean score of 3.6. From the mean score and an interview held with the project managers it is possible to see that there was a higher benefit of handling these projects as a portfolio. This is because they have a higher level of dependence and can help to prevent financial, technical and managerial risks from happening. Needs (2014), cited about the advantage of PPM; one of the advantages out of the list was related with the fact that PPM minimizes risk. It helps to prevent risks including financial, governance, resource utilization, and misdirected efforts.

From an interview with the head of strategic support office, it has been found that in the framework of the project portfolio management, other than a centralized office of PPM, there is a separate supporting office called quality and process division for risk management. It works on risk management planning and monitoring in collaboration with the portfolio main actors. In line with that the program manager and the TEP director handled the responsibility of monitoring the identified risks. Risk identification was made for all phases of the project portfolio and according to the risk management plan; risks of the project portfolio were monitored and followed at steering committee level every month. However, from the standard deviation of the item which is 1.02, one can see that there are respondents who are against the majorities who are in agreement with the statement. This can take us to see what Needs (2004), stated as a reason. That is PPM enables both on the macro and micro level to gain a good of visibility and control over projects portfolio where it is not that possible in a non-PPM office.

Table, 4.4.2: Monitoring and controlling aspect of the PPM

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
Continuous comparison of performance of projects in the program/portfolio against planned performance was made	30	1.00	5.00	3.6000	1.19193
Measurement of how close the projects are performing with planned work schedule was made	30	1.00	5.00	3.7000	1.17884
Measurement of how close the projects are spending compared to what was planned for work spending was made	30	1.00	5.00	3.6667	1.12444
Cross-checking and checking the integrity of the task status reporting by project team member for their respective project manager was effectively conducted	30	1.00	5.00	3.9000	1.24152
Merging the result of projects and taking a measure of how the program/portfolio is performing with respect to both schedule and cost was effectively made.	30	2.00	5.00	3.7000	.87691
Valid N (listwise)	30				

Source :(Own survey, 2017)

Regarding the portfolio controlling and monitoring issue, five interrelated questions were provided for respondents. The first issue is if continuous performance comparison has been made with planned performance. It is with a mean score of 3.6. From document review and interviews, it has been understood that regarding this issue, each department had their respective controlling and monitoring role. At high level the project portfolio progress was controlled and monitored by strategic and program management support office. If its progress

was towards the strategic goal of the organization or not was being followed up. The program management office also had a monitoring and controlling responsibility towards each projects performance and checking if its every tasks was being performed as per the contract and implementation plan. The engineering and network team had also their respective follow up responsibilities towards the execution of project management plan. They monitor KPI, implementation action, milestones on frequent basis. However the fact that the mean score and standard deviation which is 1.1 can show there are respondents who disagree and prefers to be neutral with this issue, can raise which tools and techniques was employed and it will be discussed in a different section.

The second and the third items asked to respondents were related with cost and scheduling monitoring and controlling. It has got 3.7 and 3.6 of a mean score. This shows that what was planned to be spent and at what pace to work on was checked with the actual schedule and cost. This shows that schedule performance index and cost performance index concepts have been employed for the project portfolio. From an interview with project managers, it was found that Ghant chart and Microsoft project software was used. However, few respondents felt to disagree and/or prefer to be neutral. Especially regarding the time management, it has got a standard deviation of 1.17. As it is going to be discussed in a different section; interview finding shows that the schedule plan is derived from the government duration requirement and it was very tight and difficult to be followed.

The fourth item of this section was regarding if there was a practice of merging the result of the four projects and measuring how the portfolio is performing with respect to planned time and schedule. It is with a mean score of 3.9. From an interview finding it has been found that the program manager was responsible to check, verify, and approve progress/performance reports and endorse progress certificate issuance to TEP director and to monitor the budget, cost and time and prepare presents and reports status report of the portfolio. However the fact that it holds a standard deviation of 1.2 and respondents who disagreed and neutral about it can imply that the problem of timely accomplishing tasks makes them question if it was being effectively made.

Table 4.4.3., Decision making through the execution of the project portfolio

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
Effective corrective measures to restore projects tasks that does not meet requirement of the plan was employed	30	1.00	5.00	3.5333	1.10589
Decision making throughout the program/project portfolio implementation gives good consideration for its alignment to strategy of the organization	30	1.00	5.00	3.8333	.98553
Mobilization and sharing of resources across projects in the program/portfolio was effectively practiced.	30	1.00	5.00	3.7333	1.11211
Valid N (listwise)	30				

Source : (Own survey, 2017)

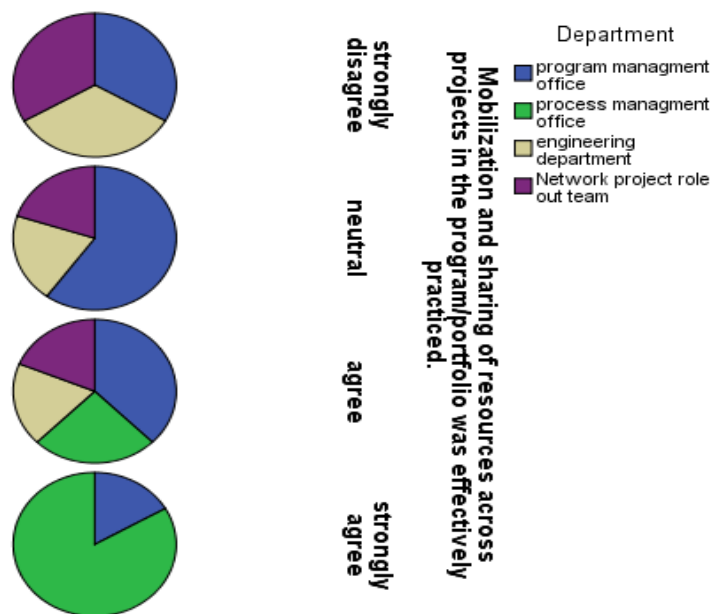
This section presents the decision making in the execution part with the use of monitoring information. It was asked if there was effective correcting action taking with the use of monitoring information. It got 3.5 mean score with 1.1 standard deviation. In this portfolio of project it was found out that it was Project managers who were responsible to bring off plan projects to on plan. Waysoky (2014) also stated that it is the responsibility of the project manager to institute corrective measures to restore the project to an on-plan status. This takes having a good follow up on task status from the project team members. However looking at the standard deviation and table 4.4.2 of item four, it was understood that because of the difficulties of coping up with the schedule requirement, few respondents felt to disagree and be neutral about the issue. From interviews with project managers, it was found out that in order to go according to the schedule plan, working overtime has been mandatory.

Question regarding if the decision making throughout the portfolio management takes a good consideration for the strategy of the organization was asked. It has got a mean score of 3.8. This is a good implication that the portfolio was managed in light with the strategy it is derived from. From document review also, it was understood that the steering committee was

responsible for ensuring the portfolio is aligned with the organizational strategy and to make recommendation on resolving strategic issues and risks. For the portfolios of the organization there is also a permanent separate strategic and program management support office. It works on planning of the organization and follow up the strategic implementation of portfolios. The Wireless Network portfolio implementation has been monitored by this office at the same time by the program manager closely. However, looking at the standard deviation of the item which is 0.98 and referring to those respondents who preferred to be neutral and disagree, it is good to refer to table 4.4.1 which is about communication aspect of the project portfolio management. The fact that communication aspect of the PPM regarding strategic direction was not made effectively seems to affect the result of this item.

In this category question regarding mobilization and sharing of resources across projects in the portfolio was effectively practiced was given for respondents. It holds a mean score of 3.7 with a standard deviation of 1.1. This show that majority of respondents tends to be in agreement with the statement. An interview with the program manager delivers an answer that is supporting to the majority of respondents. In the project portfolio there was a high level of sharing of human resources in the program management office. However, by observing the Standard deviation it is important to look at the response of every department regarding this issue. For this further analysis the following pie chart is used.

Figure 4.2, Mobilization of resources across projects



Source : (Own survey, 2017)

As it is depicted above, it the more of the engineering and network role out departments that choose to strongly disagree regarding this question. This implies that the understanding of essence and importance of portfolio project management which Cooper (2000) stated as to wisely allocating and efficiently using scarce resources is not evenly practiced by the groups of participants of the project portfolio.

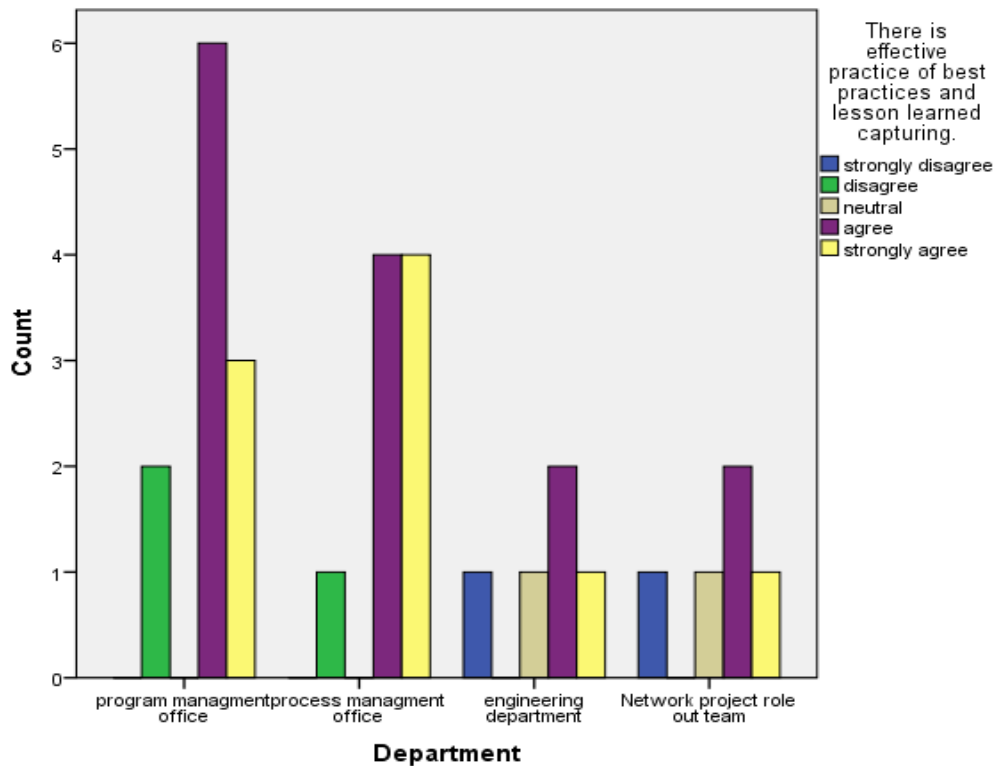
Table 4.4.4, Requirement of closing projects of the portfolio

Projects are considered finished when scope items and requirements are met.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	3.3	3.3	3.3
	disagree	2	6.7	6.7	10.0
	neutral	7	23.3	23.3	33.3
	agree	14	46.7	46.7	80.0
	strongly agree	5	16.7	16.7	96.7
					100.0
	Total	30	100.0	100.0	

Source :(Own survey, 2017)

In this section the closing aspect of the project portfolio was asked. Majority of respondents agreed that it was effectively made. Only 10% of the total respondents disagreed about the issue. And the rest 23.3% of them chose to be neutral. From an interview with the project managers, program manager and document review, there was effective and well planned out closing activities performed by the participants of the portfolio. Closure templates for the project were prepared ahead of time. It was done by the collaboration of actors of the project portfolio. The network project role out and engineering department were responsible for the proper handover of the projects to operation unit. CTO played a role of facilitation between the Network division and other platforms. From the wireless network office, the program manager and the contract manager had a responsibility of validating the deliverables and contract termination.

Figure 4.3 , Practice of best practices and lesson learned.



Source :(Own survey, 2017)

In this section the acquiring of best practices and lesson learned issues with respect to each departments is going to be analyzed. Majority of respondents which are from the program and process management offices agreed that there was effective best practice and lesson learned capturing. Whereas majority of respondents which are from Engineering and Network project role out departments preferred to be neutral and in disagreement with the statement. From document reviews it has been found that effective lesson capturing was made from each stage and aspect of the project portfolio management. However, from the above graph, it can be understood that even though there was a good lesson and best practice capturing, but dissemination of the result was not been done effectively. Waysoky (2014) stated that important questions which are related with time management of the program, cost management, value attainment, and module learned from project management methodology and the application of the methodology are important questions to be answered. However, from a document review it has been found that there was no lesson learned section regarding the application of PPM of the organization. Knowledge captured from projects undertaken should also be disseminated and shared with all other project teams.

4.5. Tools and Techniques of PPM

This section is regarding tools and techniques used through the undertaking of the project portfolio. Tools and techniques used for the evaluation of projects alignment with strategy, selection of projects to be incorporated in the portfolio, for prioritization of projects and project portfolio reporting.

Table 4.5, Tools and Techniques of PPM

ITEMS		Count	Table N %
which evaluation method is used for projects to ensure its alignment with strategy of the organization to be considered for portfolio	scoring model off compromising weighted key	4	13.3%
	graphical presentation	1	3.3%
	expert judgement	17	56.7%
	all	1	3.3%
	I don't know which tool is used	7	23.3%
others	growth vs. survival projects	0	0.0%
	investment requirement	0	0.0%
which selection method is employed to incorporate projects in the portfolio	Human resource capacity analysis	1	3.3%
	risk analysis	1	3.3%
	expert judgement	3	10.0%
	financial capacity analysis	2	6.7%
	asset capacity analysis	0	0.0%
	all	16	53.3%
	i don't know which tool is used	7	23.3%
others	Swot analysis	0	0.0%
which tools and techniques to make prioritization of projects is used	weighted ranking techniques	6	20.0%
	expert judgment	12	40.0%
	scoring technique	5	16.7%
	all	1	3.3%
	i don't know which tool is used	6	20.0%
others	risk benefit analysis	0	0.0%
	priority criteria	0	0.0%
which techniques is used for portfolio reporting	project portfolio management system	4	13.3%

	financial management system	0	0.0%
	performance measurement techniques	20	66.7%
	graphical representation	1	3.3%
	all	0	0.0%
	i don't know which tool is used	5	16.7%

Source : (Own survey, 2017)

In this section, tools and techniques which are used to evaluate a project alignment with strategy of the organization, selection of projects, propitiation of projects and portfolio reporting. The first question was regarding tools used for evaluation of projects alignment with strategy of the organization. Majority of respondents who covers 56% of the total respondents chose expert judgment. Whereas weighted comparison scoring and graphical presentations were also chosen. On the other hand there are respondents didn't know which tools and techniques were used. From their answer distribution and the fact that there are respondents who did not know which tools were used can imply that different tools and techniques which helps to evaluate projects alignment with strategy of the organization were not employed. From an interview with the head of strategic support office, it was found out that decision making regarding portfolio of projects is made at the Top level of the organization. And since there is no centralized PPM office which basically introduces other different effective tools and techniques of portfolio project management, expert judgment was more into practice. And relying only on this method is not recommended since experts' bias or sometimes insufficient knowledge may create difficulties. And for future use of decision making in expert judgement it is usually hard to document factors used by the experts to evaluate projects alignment with strategy (Albar, 2014).

The second item in this section was regarding employed tools and techniques which are used for selection of projects into the portfolio. Human resource capacity analysis, risk analysis, asset capacity analysis, financial capacity analysis and expert judgment were given in the choice. And 53% of respondents chose multiple answer 'All'. Discussion regarding risk analysis and financial capacity analysis was made in the management of project portfolio and evaluation and selection of projects sections. It has been made clear how and who made these analysis. Regarding Human resource capacity analysis it was the responsibility of CTO in collaboration with the HRD and functional leaders to assign the right expert in the different projects area of responsibility. From an interview with the project manager of Core network

project, it has been mentioned that human resource adequacy has been a challenge. From a document review of the TEP Charter also, in the lesson learned section, regarding HRM, it has been made clear that some staffs of the projects were not selected after an evaluation of their qualification for the projects. This imply that that human resource capacity analysis was not done with due care with the alignment of the project requirement.

The third item of this section was regarding tools and techniques used for prioritization of projects. 40% of respondents chose expert judgment was used. And weighted ranking and scoring technique are chosen by 20% and 16.7% respectively. The rest chose that all the listed techniques are used and 20% of them did not know which tools were employed. From an interview held with the head of strategic support office, the major priority was given for the objective imposed on the organization by the government. The objective calls for what projects to be under taken. Investment visibility study has been done for the Wireless Network portfolio. However after the portfolio has been selected, the four projects are selected for the fact that they are highly interrelated meaning one project calls for the other one for its deliverable to be functional. This is because the deliverables works together to achieve the intended objective. This shows that the selected portfolio with that of other portfolios of the organization has been prioritized. There are project portfolios that were discarded for the fact that the technology is dying, out of scope, and to be implemented when the need is raised.

The fourth item was regarding which techniques was used for the project portfolio reporting. 66.7% of respondents chose performance measurement technique was used. Even though 13.3% of respondents chose it was project portfolio management system was used, from an interview with the strategic support office of the organization, it has been found out that formal reports within the existing structure which has a reporting relationship and meetings have been used. And performance measure techniques were employed. This were Earned value and milestone trend charts. A milestone event helped the approval of several different component designs. It helped to reflect approvals have been granted. The concept of SPI and CPI has been employed from the technique of Earned value. This is about a measure of how close the project is to performing work as it was actually scheduled and a measure of how close the project is to spending on the work performed compared to what was planned for spending (Waysoky, 2014). Ghant chart have also been used. A Gantt chart is one of the most convenient, most frequently used, and easiest to grasp depictions of project activities. It can be used during planning, for resource scheduling, and for status reporting. The only downside

to using a Gantt chart is that it does not contain dependency relationships between tasks or activities (Waysoky, 2014). However, since the projects are interrelated, it would have been better if Network Critical Path Diagram is used which can help show dependencies of activities.

4.6. Challenges of Project Portfolio Management

In this section challenges that had occurred during management of the Wireless Network portfolio of projects is going to be analyzed. In order to come up with a good analysis, the above analysis of different aspects of implementation of the PPM is going to be referred and there will be an attempt of linking the implementation with challenges of the portfolio.

Table 4.6.1, Challenges of Portfolio Project Management

	N	Minimum	Maximum	Mean	Std. Deviation
Resource balancing has been a challenge	30	2.00	5.00	3.8667	1.04166
Management seems to have difficulty discriminating between the Go, Kill and Hold projects	30	2.00	5.00	3.3000	.95231
Lack of projects that bring significant technical, market and financial importance in the portfolio/program	30	1.00	5.00	2.8333	1.05318
Lack of awareness/knowledge about tools of program/portfolio of project management.	30	2.00	5.00	3.2000	.96132
Devoting to strategic and long term consideration of the program than critical needs of projects	30	2.00	5.00	3.6000	.96847
Knowledge regarding selection of right projects to the portfolio has been a challenge	30	1.00	5.00	3.2667	1.01483

Constant monitoring of team members tends to affect their work culture	30	2.00	5.00	3.2000	1.24291
Valid N (listwise)	30				

Source : (Own survey, 2017)

The first item in the section of challenges of PPM was resource balancing. Since different projects and portfolio of projects are handled at the time, this issue is usually presented in the literature as a challenge of PPM. In the case of this portfolio it holds 3.86 mean score with 1.04 standard deviation. This show that majority of respondents agreed that it has been a challenge. Cooper (2000), stated that usually resource demand exceeds supply. So that mobilization of resources should be practiced. However, from looking at table 4.4.3 of last item and why the standard deviation of appeared this way, one can understand that effective mobilization of resources in the execution stage of the projects was not evenly practiced by all groups of the project portfolio.

The second item is regarding if the management had a challenge with regard to decision on projects to go, kill and hold them. It has got a mean score of 3.3. even though the average value tend to show respondents are in agreement with the statement, since there is no centralized PPM office that works on evaluating selecting and prioritizing range of project and presenting to the management, it can imply that realization of full benefit out of implementing PPM is not prevailed. Grandy (2002), stated that One of the important tasks of project portfolio management is to contribute to success of an organization by ensuring the company is doing the right projects to begin with.

The next given item was if lack of projects that bring strong technical, financial and market importance in the portfolio had been a challenge. As explained different times in the above discussions, the Wireless Network portfolio holds projects that strongly calls and feeds to one another. Looking at how the portfolio comes to picture also, it has been discussed that its objective has a strong link with the organization strategy and gets a priority to be activated. The result of this item shows the same thing. It had 2.86 of mean score. From interviews held with project managers also, it has been understood that the projects under this portfolio has a potential of meeting demand of the society, government GDP objective, revenue generation and increasing of quality and coverage of the Telecom services.

The fourth item was regarding tools and techniques of PPM. It is with 3.2 mean score. From the different discussions above as well as the common issue the researcher observed from

interviews, it was understood that even though there is an attempt of linking projects objectives with strategy of the organization and good monitoring and controlling practice with regular meetings and observation of sites, but PPM tools and techniques are not well integrated and acknowledged in the practice of project management of the organization. From the section of tools and techniques of PPM also, the same issue can be observed. Project selection, evaluation, prioritization tools and techniques were not adequate.

The fifth item was about devotion to strategic long term consideration of the program than the critical need has been a challenge. Majority of the respondents agreed with this issue. The item holds a mean score of 3.6. From majority of respondent from table 4.4.3 item 2 discussions, it can be derived out that there was a good attempt in initiating portfolios from strategy of the organization and good controlling and monitoring of activities in line with that. However, Bunner (2016) stated that project managers are usually busy with the day-to-day needs of critical projects and don't have time to devote to strategic, long-term considerations. The same was true for this project portfolio. From an interview held with the Wireless Network project portfolio project managers, it has been understood that it was very rarely that they think of the projects activities alignment with organization strategy. However, it would have been better if all the participants share the alignment of projects with strategy and puts an effort to coordinate their activities and attempts to use resources more wisely. Roy (2004), stated that having a PPM approach helps an organization to create an atmosphere where constructive discussions can be made before the developmental process takes place and resources to be utilized to the maximum keeping in view their efficiency and dedication.

The next item was about if knowledge regarding selection of projects to portfolio had been a challenge. It holds a mean score of 3.26 with a standard deviation of 1.01. Selection process of PPM is basically about identifying opportunities; assessing the organizational fit; analyzing the costs, benefits, and risks; and developing and selecting a portfolio. It is concerned with fit, utility, and balances (Pennypacker & Sepate, 2002). From interviews held with the program manager and head of strategic support office, it was realized that all the above activities of selection of projects have been done with the case of this portfolio. However, the result of the standard deviation can be as a result of the fact that there is no centralized permanent office which basically introduces diversified ways of selection and evaluation tools and techniques.

The seventh item of this section was regarding if constant monitoring of team members have been a challenge. It has got a mean score of 3.2. From monitoring and controlling section of PPM, it has been presented that the portfolio performance were being compared consistently with that of planned performance in terms of cost and schedule, status report was continuously presented with in the reporting structure and consolidated information regarding the portfolio has been produced to evaluation the portfolio progress. Roy (2016) stated that in order to have a thorough knowledge of the projects progress towards its objectives, the constant monitoring, seems to negatively impact the work culture. From the mean score and a standard deviation of 1.2 of respondents, it can be concluded that it had been a challenge for Wireless Network portfolio too.

Table 4.6.2, Challenges of Project portfolio Management

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
Adequacy of budget to implement program/portfolio project management is another challenge	30	1.00	5.00	2.9000	.95953
Tools for program/portfolio project management is not adequate	30	1.00	5.00	3.2000	1.03057
Taking changes for improvement of process and taking corrective actions with the use of monitoring information	30	2.00	5.00	3.6000	.89443
Establishing of skilled set of people that are acquainted in their respective project responsibility and portfolio project management was a challenge	30	2.00	5.00	3.6333	.99943
Schedule management was a challenge	30	2.00	5.00	3.6667	1.21296

Flow of communication of the management of the program/portfolio	30	2.00	5.00	3.3333	.99424
Valid N (listwise)	30				

Source : (Own survey, 2017)

The first item on this table was regarding if the adequacy of budget to implement the project portfolio has been a challenge. It is with a mean value of 2.9. This shows majority of respondents tends to disagree with the statement. From an interview held with the head of strategic support office and program manager, it has been understood that budget was allocated for those projects that has been prioritized. Consideration regarding the budget to be assigned based on how the project influences the portfolio and the organization in the end was made.

The next item of challenges of PPM is about adequacy of tools of PPM. It got a mean score of 3.2. From the analysis of section of Tools and Techniques of PPM also it has been understood and found out those tools and techniques of PPM were not adequately used and familiar by most of respondents. From an interview with head of strategic support office, it was told that it would have been better if portfolio management system which can simplify monitoring and controlling, reporting, determining of status of the project portfolio and so many tasks was in place. Bunner (2016) stated that by its very nature, a project portfolio is too large and multi-faceted for any person to manage without technological tools. Enterprise project portfolio management software is the key to aligning projects with strategic goals and allowing managers and company leaders to monitor short-term and long-term results.

The third item of this table is about the challenge of taking corrective actions with the use of monitoring information. It got a mean score of 3.6. From decision making aspect of PPM section, it has been understood that there was a good practice of monitoring and use of its information. However, from the majority of respondents' response, it can be understood that the practice of taking corrective action and change management has been a challenge. From an interview held with project managers, this is for the reason that integration is highly required among the projects. Taking corrective actions as a result of uncertainties, delay as a result of different reasons and so one of one project highly affects the other projects undertaking.

The next item of the table was regarding if establishing skilled set of staff acquainted with PPM has been a challenge. It is with a mean score of 3.6. Majority of respondents agreed that

it has been a challenge. Bunner, (2016) stated that one of the most common challenges faced by organizations is a shortage of people who are both qualified to manage a project portfolio and have the availability to do it. From interview results, the researcher takes a conclusion that skilled set of staff with the knowledge regarding PPM tools and techniques is not adequately available. This implies that the fact that there is no central responsibility for PPM of the organization, there has not been enough awareness regarding its management and there has not been a training regarding this issue.

The fifth item of this table is about if time management has been a challenge. It holds a mean score of 3.66. Meaning majority of respondents agreed that schedule management has been a challenge. Looking back at the analysis of schedule management issue in the monitoring and controlling section, it has been understood that the time requirement of the government should be met, and the project managers explained in the interview that it has been very tight, and they also mentioned that integration management has been a challenge which has a direct impact on the schedule management of the portfolio since they are highly interrelated. The other issue observed in the tools and techniques section of analysis, tool used for reporting of status was Ghant chart. However, this chart has a drawback of not showing relationships among activities which prevents important decision makings regarding activities of projects.

The last item of challenges of PPM is regarding the communication flow of the management of the project portfolio. It is with a mean score of 3.3. This show that majority of respondents agreed that a communication problem has be faced in the undertaking of the project portfolio. From an interview held with project managers, it has been found that integration management has been a problem. From the above analysis of communication aspect of PPM, communication regarding strategic direction of the project portfolio has been analyzed. It was concluded that it was not made effectively for project managers and team members. From this section analysis above also regarding the concept of PPM adequate awareness should be given so that corporation and determination of participants can be achieved. Choudhuri (2015) stated that the benefit and the objective for this initiative have to be clearly communicated. This also needs a proper implementation of Project Management process at the project level to provide the data needed for the Portfolio Management.

CHAPTER FIVE

FINDING, CONCLUSION AND RECOMMENDATION

5.1. Summary of findings

The objective of this study was to study how project portfolio management is implemented on the Wireless Network portfolio of Ethio Telecom and to come across what were its challenges. The implementation of PPM in most literature is divided as to its model. It holds a practice of establishment of portfolio strategy, projects alignment evaluation with the strategy, selection and prioritization of projects for the portfolio and management of active projects of the portfolio. This study develops an enquiry using the same process of PPM implementation. In this section of the study, findings regarding how the implementation of Wireless networks portfolio were and its challenges are going to be presented.

The Wireless Network portfolio is one portfolio among the others that Ethio Telecom handles. It holds four highly interrelated projects in terms of product development and budget pool. It has been found that the project portfolio evolved from the strategy of the organization which is about developing and enhancing network and information system, ensuring easy access and coverage to the whole population and creating a strong brand. Since Ethio Telecom is government owned organization, the first GTP plan of telecommunication which aims to acquire the latest technology, expand the services in the telecom sector and focuses on increasing accessibility and quality of telecommunication services has been the starting point for proceeding decision makings of the portfolio. For the case of wireless network portfolio, it has been realized that growth and improvement investment opportunities were priorities that governs the selection of projects to be incorporated in the portfolio. However, it has been found out that sufficient communication regarding the strategic direction of the portfolio was not met. However (Rad &Lavin 2006) stated that decisions at all levels of the organization affect value creation of PPM so that communication is its essential part. It was realized that responsibility matrix and framework has been made. And from an interview with the project managers and program manager, it has been found that there was no central focus of responsibility for PPM of the organization or PMI (2011) an organized PMO assigned by multiple responsibilities associated to centralized and coordinated management of projects

On the second issue of PPM which is about evaluation and selection of projects, it has been found out that at high level of the organization evaluation of projects and the portfolio alignment with the strategy of the organization was made effectively. However Waysoky (2014) stated that if there is no intake person for the evaluation and selection of projects there is also a strong likelihood that these types of evaluations will not be consistent across all projects. So that, the same issue can be raised on the evaluation practice of the project portfolio.

For selection of projects to be incorporated into the portfolio, Cost benefit analysis, strategic consideration, SWOT analysis, human resource risk analysis, asset capacity analysis and expert judgment are tools that have been employed. However, it has been realized that more of expert judgment tool was employed for the selection of projects at the same time for the evaluation of the project portfolio alignment with strategy of the organization. Albar (2014) stated that for future use of decision making in expert judgement it is usually hard to document factors used by the experts.

Regarding prioritization of projects under portfolio, it has been found out that the four projects are selected for the fact that they are highly interrelated that their deliverables works together to achieve the intended objective. Priority was given for the objective imposed on the organization by the government and the Wireless Network project portfolio was found to be a must do type of portfolio.

The third aspect of PPM is about the management of active projects. Communication of stakeholders of PPM is also helpful for better handling of risk. Regarding risk management there is a separate supporting office called quality and process division. It has been found out that project portfolio management helped to prevent technical, financial and managerial risks. However, as cited by Needs (2004), PPM enables both on the macro and micro level to gain a good of visibility and control over projects portfolio where it is not that possible in a non-PPM office. The next management issue was regarding monitoring and controlling of the portfolio performance. Meetings, reports and observation have been used. Continuous comparison of project performance in terms of cost and schedule was made effectively. Tools such as Microsoft project Software and Ghant chart, Milestone trend chart and Earned value have been employed. Schedule management has been difficult and the requirement of the government schedule was very tight to be followed. Decision makings regarding corrective actions have been made. It has been understood that every decision making on the project

portfolio gives a good consideration for strategy of the organization. Sharing of resources across projects in the portfolio was exercised. However, it was realized that the mobilization and utilization of resources which is usually scarce is not evenly exercised among the groups of participants of the project portfolio.

For the closure of projects in the portfolio, it was identified that Closure templates for the project were prepared ahead of time. It was done by collaboration of actors of the project portfolio. Effective lesson learned and best practice capturing is the other aspect of PPM. The Wireless Network portfolio best practices and lessons were taken effectively for the phases of the projects implementation. However, the issue regarding module learned from PPM and the application of the methodology were not given attention to take a lesson.

When proceeding to the second objective of the study, challenges of implementation of PPM is found. It was realized that how project portfolio is managed/PPM is implemented in an organization is highly interrelated with its challenges. Balancing of resources was one of the challenges found as a result of failure to understand the very essence of PPM which is to wisely use scarce resources and the fact that demand usually exceeds supply among stakeholders. The management challenge with regard to decision on projects to go, kill and hold them was also the other result. This is because there is no centralized PPM office that is acquainted to work on evaluating selecting and prioritizing range of project and presenting to the management to make a decision. As a result of this issue again, tools and techniques adequacy was also a challenge.

The fact that effective communication was not made when on goes to the lower level of the organization brings a challenge in devoting to strategic long term consideration. It has been found that failure to communicate strategic direction of project portfolio can lead to lack of what Roy (2016) stated that having a PPM approach helps an organization to create an atmosphere where constructive discussions can be made before the developmental process takes place and resources to be utilized to the maximum keeping in view their efficiency and dedication.

Roy (2016) stated that in order to have a thorough knowledge of the projects progress towards its objectives, the constant monitoring, seems to negatively impact the work culture. It was realized that the same was true for the Wireless Network portfolio. Integration management was also mentioned as a challenge from project managers. The structure devised for the management of the project portfolio did not help this challenge. As a result of this a

challenge of taking corrective actions has also been difficult because of the fact that the projects are highly interrelated. So that, taking corrective actions as a result of uncertainties, delay as a result of different reasons on one project highly affects the other projects undertaking.

As a result of the fact that there is no central responsibility for PPM of the organization, there has not been enough awareness giving regarding PPM and there has not been a training and knowledge management regarding this issue. So that it appeared that establishing skilled set of staff acquainted with PPM has been a challenge.

The above mentioned lack of adequacy of tools and techniques of PPM and the challenge of integration management made schedule management to be one of the challenges for the project portfolio management.

Generally, it has been found that with very low level of maturity, PPM was implemented in the Wireless Network portfolio of Ethio Telecom. A planned out structure was established for its implementation where clear responsibility and reporting relationship prevailed. However, in the structure there was no central focus of responsibility which provides the clear picture of PPM trend of the organization, consolidated view of projects as a portfolio, effective tools and techniques of PPM. Controlling and monitoring of the implementation to make the implementation in light with the strategy of the organization was effectively done. The fact that there was a strong support and follow up from of executive manager, board of directors and TEP steering committee was the strength of the PPM.

5.2. Conclusion of the study

Project portfolio management (PPM) has been presented by different authors in various ways. It is a tool-supported process for optimally selecting and managing the organization's "portfolio" of projects (Markhofer, 2013). From review of literature on PPM, it has been understood that is very essential for furthering strategic goals and building performance-sustaining capabilities that empower the Organization, it enables an organization avoid misdirected effort and hold an essence of efficient and effective use of scarce resource.

In this study common issues of PPM were analyzed and interpreted on the selected project portfolio. These issues are alignment of the projects to the organization's goals, resource

allocation, methods for project selection and prioritization, control and monitoring, information flow, organizational learning and challenges in the implementation.

From the findings above, it is possible to conclude that how an organization implements its PPM is highly related with its challenges. Sowoden (2013) stated as maturity which is organization's ability to effectively use projects for different purposes in order to achieve its business objectives (Jessen, 2003) increases and its processes and capabilities improve, organizations are be able to reap more benefits of PPM. These implies that when an organization increases its capability on the application of tools and techniques of PPM for selection, evaluation, prioritization, management, reporting, closure and lesson learned to be in light with the strategy of an organization, it will be able to reap the benefits of PPM. This can also be understood as when maturity of PPM of an organization increases, capability to handle and prevents the different challenges of PPM increases.

Capturing of lesson and best practice out of how an organization implements its PPM is very essential for processes and capabilities improvement. Integration management was also found to be the cornerstone for different challenges. So that, organizations who think of handling projects that has a common link to each other, should think of having a PMO (centralized unit) that Project Management Institute (2011) stated as an organizing body or agency assigned by multiple responsibilities associated to centralized and coordinated management of projects where its responsibilities can range from providing support for the management of projects to functions related to direct management of projects.

A failure to communicate strategic direction of project portfolios to the strategy executing team can also be concluded as a cause for other different challenges of implementation of project portfolio. Effective communication and training on the essence of PPM and its integration with project portfolio members' responsibilities enables to create a devotion to strategy of the organization throughout the level of undertaking of the project portfolio. It also enables to achieve what Roy (2004) stated that having a PPM approach to create an atmosphere where constructive discussions can be made before the developmental process takes place and resources to be utilized to the maximum keeping in view their efficiency and dedication.

5.3. Recommendation of the study

In order to reap the best out of the implementation of PPM, the following recommendation is given in light with the finding of the study.

- From the finding of the study it was found out that not having focus of responsibility for PPM of an organization is a cause for different challenges of PPM. Therefore, establishment of well organized PMO that Kent (2010) stated that enables to handle different issue of PPM. It is helpful for integration management, develop into a centre of excellence for project management of the organization to provide guidance and coaching to novice project managers, To provide an organizational focus on improving the management of projects, programs, and portfolios, To optimize the capability and use of scarce resources; and To raise strategic issues to the highest levels of the organization in order to facilitate effective decision making.
- Communication of strategic direction of an organization to all the participants of the project portfolio is essential, for effective utilization of resources, integration of projects with organization strategy and creates a dedication among all participants. This is for the reason that communication helps the very essence of PPM which is linking strategic planning to its very detail implementation to be successful in achieving the goal of an organization.
- From this study it has been seen that even though there was lesson learned capturing for every phase and aspect of the project management, but there was a failure in dissemination of the captured knowledge for every PPM stakeholder and lesson learned capturing regarding the application of PPM of the organization was not given a due attention. Therefore, it was observed that capability enhancement regarding the issue was not prevailed. Therefore, in order to increase the capability of an organization in the management of its project portfolio, it is essential to take lessons from the practice of PPM of the organization, to identify its challenges, understand from where it is emanated from and capturing a lesson and integrate it into the system of the organization for future use. As cited by PMI, (2015) Successful organizations cultivate competencies around specific portfolio management practices and portfolio decision-making capabilities in their journey to greater maturity.

- In order to practice PPM in a better way, an organization with a shortage of people who are qualified to manage project portfolios should fill this gap. As cited by Choudhuri (2015) every stakeholder of PPM should understand what's happening and what is expected of each individual. Stakeholders should be trained every now about PPM to value it. Making this a regular task will help an organization to be achieving what is intended to be achieving by practicing PPM. Therefore, an organization should take a responsibility for the capability of its human resource in order to integrate the knowledge and value of PPM throughout the organization so that it can drive to its strategies effectively and efficiently.

5.4. Further research

This research was basically on the implementation of PPM on a selected project portfolio and its challenges. From the finding of the study it has been found out that maturity of PPM of an organization has a relationship with its challenges. Therefore, further study can be made on the maturity of PPM practice of organizations to tackle its different challenges. As well as studies on each process of PPM can be conducted so that the challenges of PPM can be addressed better.

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5. Number of years working in Ethio Telecom

- 0-5 11-15 More than 20
- 6-10 16-20

Please use a tick (√) mark to answer the following statements as SA=(Strongly Agree). A= (Agree), N= (Neutral), D= (Disagree) and SD= (Strongly Disagree)

Part 2. Project Portfolio Strategy		SA	A	N	D	SD
1	How resources of the company should be spread across Projects of the portfolio /program was clear					
2	There was clear structure for selecting project proposals for the program/portfolio					
3	Projects objectives under this program/portfolio are interrelated with the corporate goal of the organization					
4	There is a strong link between the organization strategy and the program strategy/portfolio strategy					
5	The projects are selected for the fact that they have a growth potential for the organization, in terms of revenue, customer satisfaction and so on					
6	The projects are selected for the reason of improving the existing system					
Part 3. Evaluation and Selection of Projects in the Portfolio		SA	A	N	D	SD
1	Alignment of projects with the portfolio/program strategy was carefully evaluated					
2	The projects proposal is screened using criteria that does not involve more of subjective decision					
3	what the company should spend on with how the project will return (benefit/cost relationship) is considered in the evaluation					
4	SWOT analysis (strength, weakness, opportunity and threat) of proposed projects from internal and external environment is effectively made prior to their selection					
5	Financial and qualitative strategic issues are given proportional weight in					

	the evaluation of projects					
6	Selected projects under program/portfolio have good combination to provide maximum total benefit with respect to budget, organizational constraints and risk					

Part 4: Management of Project Portfolio		SA	A	N	D	SD
1	Communication regarding strategic direction of the program for project managers was clearly made					
2	Communication regarding objective and plan of projects for their team members was made clearly					
3	Continuous comparison of performance of projects in the program/portfolio against planned performance was made					
4	Measurement of how close the projects are performing with planned work schedule was made					
5	Measurement of how close the projects are spending compared to what was planned for work spending was made					
6	Cross-checking and checking the integrity of the task status reporting by project team member for their respective project manager was effectively conducted					
7	Effective corrective measures to restore projects tasks that does not meet requirement of the plan was employed					
8	Channel of communication employed by the program/portfolio project management brings about effective risk management					
9	Merging the result of projects and taking a measure of how the program/portfolio is performing with respect to both schedule and cost was effectively made.					
10	Decision making throughout the program/project portfolio implementation gives good consideration for its alignment to strategy of the organization					
11	Mobilization and sharing of resources across projects in the program/portfolio was effectively practiced.					
12	Projects are considered finished when scope items and requirements are met.					

13	There is effective practice of best practices and lesson learned capturing.					
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Part 5: Challenges of Project Portfolio Management		SA	A	N	D	SD
1	Resource balancing has been a challenge					
2	Management seems to have difficulty discriminating between the Go, Kill and Hold projects					
3	Lack of projects that bring significant technical, market and financial importance in the portfolio/program					
4	Lack of awareness/knowledge about tools of program/portfolio of project management.					
5	Devoting to strategic and long term consideration of the program than critical needs of projects					
6	Knowledge regarding selection of right projects to the portfolio has been a challenge					
7	Constant monitoring of team members tends to affect their work culture					
8	Adequacy of budget to implement program/portfolio project management is another challenge					
9	Tools for program/portfolio project management is not adequate					
10	Taking changes for improvement of process and taking corrective actions with the use of monitoring information					
11	Establishing of skilled set of people that are acquainted in their respective project responsibility and portfolio project management was a challenge					
12	Schedule management was a challenge					
13	Flow of communication of the management of the program/portfolio					

Part 6: Tools and Techniques of program/Portfolio Project Management

1. Which evaluation method is used for projects to ensure its alignment with strategy of the organization to be considered for portfolio

Scoring model of compromising weighted key Graphical presentation

Expert judgment Please specify if other _____

2. Which selection method is employed to incorporate projects in the portfolio

Human resource capacity analysis Risk analysis Expert judgment

Financial capacity analysis Asset capacity analysis All

Please specify if other _____

3. Which tools and techniques to make prioritization of projects is used

Weighted ranking techniques Expert judgment

Scoring technique please specify if other _____

4. Which techniques is used for portfolio reporting

Project portfolio management system Financial management system

Performance measurement techniques Graphical representation

If other please specify, _____

Explain the practice of management of projects that has some common link with each other as a program/portfolio and its importance

Any other challenges you can specify emerged while managing projects that have a common link as a program and attempting to link them with the organization strategy

What is the role of your department in the implementation of management of portfolio of projects/program?

Appendix 2

Interview guide

1. How do you describe the practice of portfolio project management of your organization (structure and effectiveness)?
2. How was the decision making regarding how resources of the organization should be spread across category of investment opportunities?
3. What are your department role and your role in the implementation of handling of projects that have some common value/link with each other/ portfolio?
4. How was the practice of integrating the organization strategy with the project portfolio?
5. How do you describe the importance of portfolio project management for your organization?
6. What were the criteria used for evaluation and selection of projects to be incorporated in portfolio?
7. How was the effectiveness of the combination of the selected projects as program/portfolio for organizational fit, risk and optimum use of resource (balanced portfolio)?
8. How do you describe your tools/management of cost and schedule of projects to be in line with the program/portfolio plan
9. Explain the practice of review of program/portfolio of projects
10. How do you describe the effectiveness of structure of portfolio project management of your organization for integration management? (taking out the best out of the projects)
11. How do you describe the level in which project portfolio management is being practiced?
12. What are the challenges of implementing project portfolio management?