Project Management Practice and Challenges Comparative Case Study for Public Agency and Private Firm

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A Project Work submitted to Addis Ababa University School of Commerce Department of Project Management in partial fulfillment of Master of Arts degree in Project Management

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Approval by Board of Examiners

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APPROVAL

The undersigned certify that they have read and hereby recommend to Addis Ababa University School of Commerce to accept the Project work submitted by **Melkamu Gamene** and entitled **"Project Management Practice and Challenges Comparative Case Study for Public Agency and Private Firm"** in partial fulfillment of the requirements for the award of a Master's Degree in Project Management .

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DECLARATIONS

I hereby declare that this project is my novel work, I have carried out this project work independently with the direction and supervision of the research advisor Wubishet B. (PhD.) and the project work has not been submitted partially or in full by any other person for an award of degree in any other university.

Melkamu Gamene

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ABSTRACT

The purpose of this study is to assess the public agency (Information Network and Security Agency) and private firm (Deliver ICT and Telecommunication Technology PLC) project management practice in line with the ten knowledge areas of the PMBOK and also see the similarities and differences of project management practice of the two organization in Development Bank of Ethiopia Network Infrastructure and Security project. Thus, to attain these objectives and reach to conclusion, descriptive research design and quantitative analysis technique was employed. A total of 49 structured questionnaires were distributed. All the questionnaires were filled and returned. Overall mean value and percentage from each factor in specific project management knowledge area is used to analyze the similarities and differences in practicing project management techniques in the two organization. The findings show that among the ten-knowledge area, the public agency who managed the project first phase, managed to practice four of them. These are project scope, cost, procurement and resource management. For the second phase of the project, the private firm practiced project scope, schedule, cost, resource, procurement, stakeholder and integration management. The two organizations have a relative similarity in terms of practicing project scope, cost, resource management in a positive way. On the other hand, from poor project management practice perspective they have relative similarities in terms of project quality, communications and risk management. The private firm excel that of public agency in practicing project integration management. Additionally, the private firm applied the practice of stakeholder management and project schedule management and this was not the case for the public agency. Majority of the presumed challenges by the study for the DBE project were not great obstacles as response from the responder shows that most of factors were less challenging. Overall, the private firm practiced most of the factors in project management knowledge area in phase 2 project than phase 1 project by public agency. INSA need to use formal procedure to develop project management plan that holistically define, prepare, and coordinate all the plan components from all the knowledge area. Both INSA and Deliver ICT need to give more emphasis to the practice of project risk management, project quality management and project communication management by allocating proper resource and teams on the ground.

Key Words: Project management, project management practices, Project management challenges

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ACRONYMS

ANSI: American National Standard

CPM: Critical Path Method

DBE: Development Bank of Ethiopia

ICT: Information Communication Technology

INSA: Information Network Security Agency

PMBOK: Project Management Book of Knowledge

PMI: Project Management Institute

PMLC: Project Management Life Cycle

TPM: Traditional Project Management

UNIDO: United Nations Industrial Development Organization

VPN: Virtual Private Network

WBS: Work Break down Structure

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

A project can be defined as the achievement of a specific objective, which comprises a sequence of activities that consume resources. It has to be finished within a set of adherence specification, having definite start and end dates. Thus, project is concerned with defining and selecting a task which will be an advantage to the company. This advantage can be monetary, advertising or technical, that will tend to be of a long-term, oriented towards the anticipated end of life of the project (Munns and Bjeirmi, 1996).

Projects add a very big values to economic development of a company and a country at large. Many of the organizations applied project management techniques as a method of bridging the gap between fiasco and triumph in the execution of projects. Project management entails the process of regulating the attainment of the project objectives. Exploiting the prevailing organizational structures and resources, project management seeks to manage on-time delivery, within-cost disbursements and fitting performance standards. The work done in managing a project embraces identifying the requirement of work, creating the scope, assigning the resources required, planning the implementation of the work, monitoring the development of the work and fine-tuning deviations from the plan.

A project life cycle, which include starting the project, organizing and preparing for the project, implementing the project work and finally ending the project, provides the basic framework for managing a project. Predictive life cycle is an example, in which project scope, time and cost are identified in early phase of the project and that made it plan driven technique. A project life cycle can be separated by distinct phases, for example, concept development phase, design phase, build phase, testing phase and commissioning phase. These phases are distinct as each are having a variety of attributes unique to specific phase (PMI, 2017).

Project management processes are activities used to manage a project life cycle. Each of the process has an output that can be used either as input to another process or a product for a phase cycle or the whole project.

As a profession project management has knowledge area that includes recognized and good practices that are broadly pragmatic and also are innovative practices that are evolving in the profession. Project management Institute (PMI) compiled these practice in to project management body of knowledge called PMBOK. Thus, PMI identified 10 knowledge areas and each are interrelated plus each knowledge area is branded by its information chucks. (PMI, 2017).

PMBOK divides process in to five process groups also called as Project Management Process Group and defined as a rational grouping of project management processes to attain a definite project objective. These process groups are initiating, planning, executing, monitoring and controlling, and closing. The logical ordering of these processes is a function of the characteristics of the project and it is also called project management life cycle (PMLC). Plan driven project management approaches, also called traditional project management, manage a project having clear goal and solution with a PMLC process. The customer has plainly stated the goal, and the project crew has put forward how they will reach to that goal. So, little change is expected (Wysocki, 2017).

This day, in private firm and public agency project management become a method that is used to transform idea to fruitful result (Marle & Vidal, 2016). However, project implementation in private firm and public agency different from one another due to organizational structure, legal regulation, stakeholder management, procurement management and others. (Stanisław Gasik, 2016). Comparison of public and private sector project management techniques in IT projects, for design and build contractor, whom use plan driven PMLC and found that the public sector lean behind private sector in terms of budget, time and even failing to produce functional requirements by their clients (Rosacker, 2010).Further study, also showed that private sectors deal with competition, whereas public sector has little pressure. The accountability in private sector is immediate to the shareholders, the top management and even to the client whereas public sector managers are responsible to a broader group of constituents. It is the aim of this study, to see this scenario in Ethiopia context, if there is any.

1.2 Statement of the Problem

Project management and its practices are category of the broader framework of the project. Project management has a big role in achieving project success but that role is disregarded by many other

factors which are not under the authority of the project manager. Thus, deviation from the original plan is expected; to stay within the objective of the project a proper management technique is required and to align the missed objective revert action is needed (Munns and Bjeirmi, 1996). Effective or proper project management makes available a robust and viable advantage in project timely delivery, in providing service to the scope, and it avoid additional cost (Kerzner, 2017).

Development bank of Ethiopia (DBE) is established to promote the national development agenda through development finance. This highly valued objective can best be served through continuous capacity building with many types of projects. Network Infrastructure and Security project is one of the projects initiated to ease doing business to the bank, to be competent among other, to secure information transfer and storage of the bank, to give proper service to customer, and mostly to assist the bank mission in adding values to the national development agenda.

Method of procurement has process by which designers, deployers, and consultants provide services for design and deployment to deliver a complete project to the client. A design and build project are a type of procurement method where all services including design and construction are provided by same contractor (Chan and Yu 2005). Development bank of Ethiopia selected INSA as design and build contractor for Network Infrastructure and Security phase I project. For the phase II, DBE assigned a private firm named Deliver ICT and Telecommunication Technology PLC as design and build contractor.

It was found that, in general public sector project management is more complex than private sector method of project management and specifically among ten project management knowledge areas defined by PMBOK the stakeholder management, procurement management, and communication management take large stake on the complexity during execution cycle of the project for the public sector. For the DBE Network Infrastructure and Security project public and private sector managed the project in phase. (Stanisław Gasik, 2016)

Many of the studies conducted in Ethiopia for an IT project management practice can be categorized as either to public sector project management or private firm project management practice. Like for (Medhen, 2019), (Misgana, 2019), (Merima, 2019) try to see practice and challenges of public agency IT project management. On the other hand, (Meskerem, 2019), (Betsega, 2018) and (Abinet, 2018) studied project management practice of private firm related to

IT projects. So, this study is different in a sense that it tries to compare private and public sector design and build IT project contractor practice in managing a project.

Hence, this study aims in assessing and comparing project management practice of Deliver ICT and Telecommunication Technology PLC, a private firm and Information Network Security Agency, public agency as a design and build contractor in Development Bank of Ethiopia Network Infrastructure and Security project with respect to the ten project management knowledge areas defined by PMBOK.

1.3 Research Questions

- How does the two organizations manage the project in-line with project management knowledge areas?
- What are the similarities and differences in project management practices in the two organizations?
- What are the challenges and capabilities in the two organizations in respect to project implementation?

1.4 Research Objective

The general objective of this research is to uncover and see the similarities and differences of project management practice of public agency (INSA) and private firm (Deliver ICT and Telecommunication Technology PLC), in IT project, specifically in Development Bank of Ethiopia Network Infrastructure and Security project.

1.4.1 Specific Objectives

- To assess the two organizations' project management practice in-line with the ten project management knowledge areas defined by PMBOK for the DBE Network Infrastructure and Security project.
- To identify the similarities and differences in project management practices in the two organizations.
- To pinpoint challenges and capabilities in the two organizations in respect to project management practice.

1.5 Significance of the Study

Private firm and public agency have always got ways of doing things which is different from one another. This is also visible in managing a project as well. This paper tries to uncover the practice of such organizations in doing project in respect to the scientifically recommended best practice method, i.e. PMBOK. Thus, the result from this study can be used by the two organizations and as well as others with similar setup in fine tuning their practice to catch the positive scene from the two organizations and in line with PMBOK. Project sponsors and business analyst can also use the result as an input in selecting contractor (private or public) for doing an IT project. Since the study only identifies the challenges further study in academics can also be made in mitigation methods for the challenges in future.

1.6 Scope of the Study

INSA, the selected public agency and Deliver ICT and Telecommunication PLC the private firm undertake many projects. However, the scope of this study is limited only to the development bank of Ethiopia Network Infrastructure and Security project, which is done in phase by both organizations. The study is also limited only in assessing and comparing practices related to project management in reference to PMBOK for this specific project.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Introduction

This chapter will present literature review which will help in outlining the methodology. Key project management practice indicator for project management will be identified.

2.2 Project Landscape

Projects are the results of needs which are not fulfilled by previous endeavor. These needs might be explained in terms of solution to critical business or societal problem or to harness untapped business opportunity (Wysocki, 2017). And mostly it is the project identification phase that changes these idea in to a project by validating the business reason to proceed for the candidate project within limited means and unlimited ends (Charles and Tryon, 2015). Many people use the term project for any endeavor they set to do. However, the term project has got a specific definition. Different authors and professional organization like PMI set an evolving definition to project. PMI define a project as a fixed time exertion commenced to create an inimitable product to be produced, service to be performed, or result to be confirmed (PMI., 2017). Also, (Wysocki, 2017) define a project as an inimitable, multifaceted, and related sequence of activities that have one aim or goal and that must be done by a specific duration, within budget, and bestowing to specification. An example for the unique product project can be developing of a new website for tracking and mapping COVID-19 infection across the globe, or creating a new ways of meeting demand for energy to a given community. Improving a process for an organization to shorten the bureaucracy is an example for unique service to be delivered. PMI definition for project stress that a project is "temporary endeavor" and that is to mean that even if the deliverables from a project can last century the project period that create the deliverable has a definite start and end point. A project starts with an official document called project charter that can be developed by project sponsor and has a preliminary cost, scope and time frame for the project. Which also imply that a project is not an operation. The best-case scenario to end a project time is by fulfilling the objectives and

for the worst a project time can be reached to end due to many reasons that cause a change to the goal of the project. As example, a project can be terminated for financial exhaustion (PMI., 2017).

Mostly project success is measured against three interdependent parameters; time, cost and quality stated on the inception of the project and are also called the Iron Triangle success criteria. However, with time other success factor such as stakeholder benefits are added as project success criterion (Roger Atkinson, 1999). Further success criteria such as acceptance by the customer/user, agreement on scope change among stakeholders and keeping corporate culture while doing a project are also illustrated by (Kerzner, 2017).

It is worth to note that project, program and portfolio are different but hierarchically interrelated concept. It can be said that a collection of projects related in some form can be called as a program. These projects are set to attain a set of goals for an organization and managed by same program. On the other hand, portfolio can be stated as a group of projects, programs and also operations managed to get the organization strategic objectives (PMI., 2017). Mostly, projects and programs with in a portfolio are independent, the only common link they have might be belonging to same organization (Wysocki, 2017).

Top management in an organization use information system (IS) projects as an instrument to sustain the IT strategy. The success of an IS project can be quantified by the value added to the organization. Value can be calculated by deducting cost from benefit gained from the IS project (Marnewick, 2017). IS project success rate has been studied by many and study show that the IS project are failing. The reason mentioned in the academia are first the concerned office and professionals do not care about the results, second people do not conceive the complexity of the IS projects and thirdly the parameters used to measure the IS projects are incorrect (Lovelock, 2017). There are different types of IS project. Infrastructure, customization, integration, full system implementation and upgrade are the list. IS infrastructure project such as hardware implementation is least complex and in contrary full system implementation such as replacing the legacy system by new one is the most complex as it encompasses infrastructure implementation, customizations and integration in it (Marnewick, 2017). The are many ways to implement IS projects and these methods are represented by project management life cycle (PMLC) models. PMLC has two categories for IS related projects, traditional PMLC and agile PMLC.

Traditional project management (TPM) are also called happy path. This is so, because the project manager knows what to do, how to do, when to do and how to track the project from the inception date. TPM further classified in to predictive and incremental type. With predictive life cycle also called waterfall all the process is implemented in an orderly manner and there is no going back. Whereas for the incremental TPM the final output is produced with successive iterations and each iteration add a function to previous (Wysocki, 2017).

Agile PMLC projects are change driven as try to determine a solution for a given problem, i.e. scope. By starting from minimum requirement agile PMLC try to find solution in iterative and incremental way. Agile PMLC give decision power to the team rather than usual hierarchical manager and that make it self-organized method (Marnewick, 2017), (PMI., 2017).

2.3 Project Management

Before a project management alighted as a profession, line managers in parallel with their functional requirements were responsible in managing a project informally. Necessity in the industry by the executive for managing a complex project using a single contact person, i.e. Project manager, started enriching the growth of project management profession. Kerzner, illustrated the life-cycle of a company that goes through in implementing a project management. It starts with embryonic phase where the company recognize the need, then lead to acceptance by executive, then the line management acceptance is followed by growth phase in which proper project management methodology is selected plus scope is defined and finally to maturity phase. It is in maturity phase that proper planning for cost, schedule, execution and controlling of the project is done. (Kerzner, 2017)

Mishra define a project management as a preparing, creating, monitoring and controlling of all facets of a project and building impetus of all stakeholders to attain project aims within a demarcated time, cost and performance (Mishra, 2005). In similar way, (Kerzner, 2017), defined project management as the method for preparing, creating, guiding, and regulating company resources for a relatively shorter period to a project that has been created to attain specific goals and objectives. On the other hand, (Wysocki, 2017), put a Project management as a set of utensils, models, and procedures intended to react to the six queries given below: What business condition is being solved by this project? What does the business want to do? What will you do? How will

you do it? How will you know you did it? and How well did you do? One can see from these definitions, that a project management involves logically linked processes and PMI PMBOK grouped these processes in to five process groups. These are initiating, planning, executing, monitoring and controlling and closing process group.

2.4 Project Life Cycle and Process Group in Project Management

2.4.1 Project Life Cycle

Project Life cycle defines the beginning and ending of project. That means a project can only have one phase or many, and it vary from industry to industry. Baum, of the world bank identified five phases to project life cycle. These are identification (finding the project), preparation/analysis (Does it have merit?), appraisal (critical review, independent), implementation (getting it started) and evaluation (success or failure) phase. (Baum, 1982). On the other hand, W. Behrens of UNIDO created a three-phase project life cycle. (W. Behrens, 1991). These are the pre – investment (Feasibility study, Project appraisal and Investment decision), the investment (also called implementation phase), and the operational phase (initial period after start-up. The output from a phase is/are deliverable like for example a proposal from the preparation phase, a schedule, a design, or a budget during implementation phase. These phases can be conducted in iteration or in parallel.

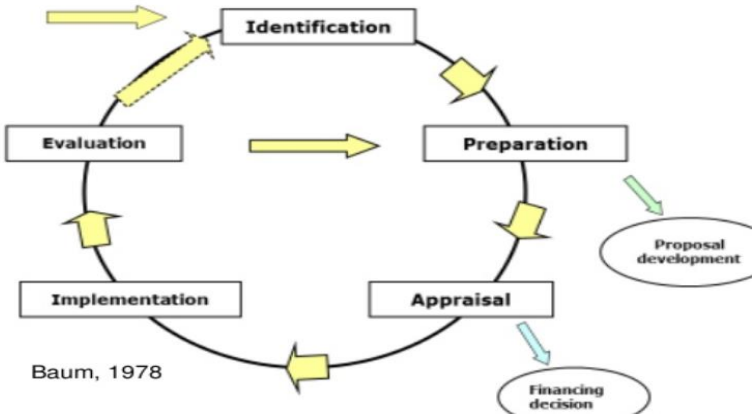


Figure 2.1: Five phases of project life cycle (Baum, 1978)

So, process groups such as initiating, planning, executing, monitoring and controlling are used in order to execute a given project life cycle. It is also conceivable that the whole process groups may

well be done within a phase. As projects are divided into different phases, such as conceptualization phase, viability analysis, plan, build, or make assessment, etc., the entire process groups would be recurring in any of the phase though out the project time. However, if the project in the organization is single phased, then there is no way to repeat the process groups.

2.4.2 Process Group in Project Management

A process is a set of related endeavor and activities to produce a product, service or some kind of result. Each of the process in a project has inputs, tools and techniques which will lead to an output and each of the project are linked via their outputs, that means an output from one process can be used as an input for the other. The process in a project can be applied once, done periodically as required or performed during all the project time (Ajit and Rajwinder, 2017). PMI PMBOK grouped these processes in project management in to five process groups with the aim of achieving project objective logically. These are initiating, planning, executing, monitoring and controlling and closing process group. The interaction between processes seems discrete. However, in reality many of the process overlap and interact. And for the process group monitoring and controlling process groups intermingle with other process groups relative to time as depicted in the figure (PMI, 2013).

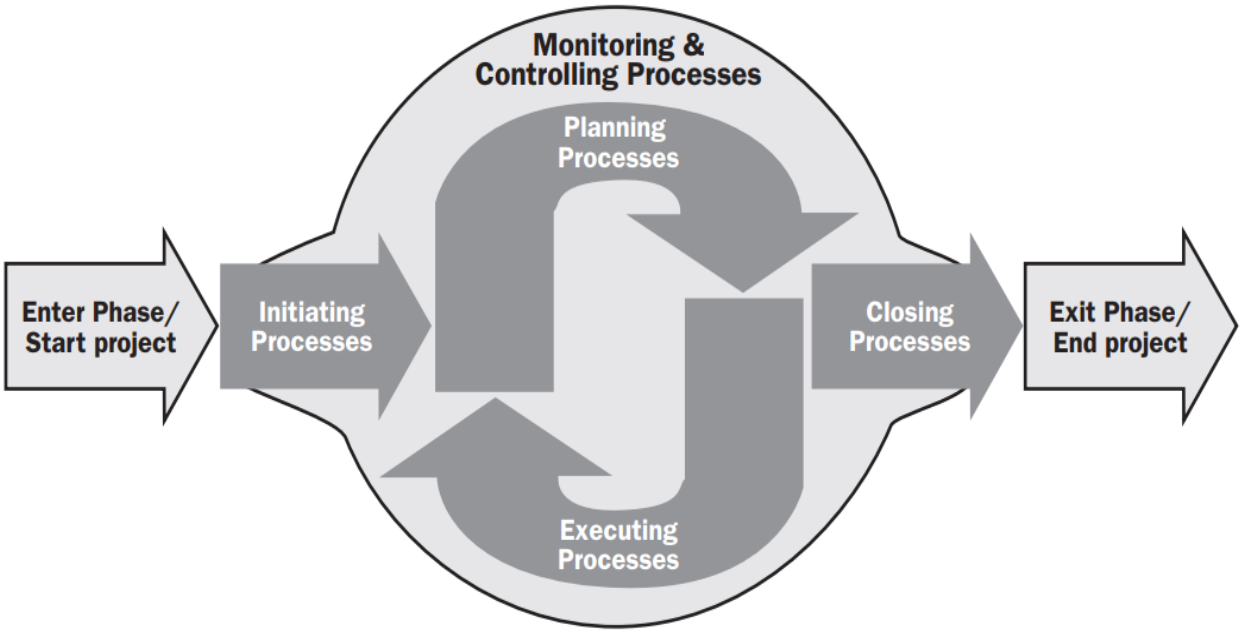


Figure 2.2: Project Management Process Groups (PMI, 2013)

Initiating

According to PMI PMBOK, 9th edition, initiating process group are a distinct process done to ratify a novel project or a new phase of a prevailing project by attaining endorsement to start the project or phase and most of the time initiating work is done by the sponsors. There are two main processes: developing project charter, and identifying stakeholders. Project charter development lead to defining initial scope, finance committed to the project, assigning project manager, making senior manager to accept the project. Whereas, identifying stakeholders process identifies individuals or organizations that could affect the project or be affected by the project and this will be used by the project manager to give appropriate attention to the identified stakeholders (Hayes, 2000), (PMI, 2017).

Planning

Planning process group creates a workable scheme that details the scope, polish the objectives and produce an action plan to be undertaken with sufficient detail to be executed later without hitches and problems (Ricardo, 2008). There are many plans to be made in this process group. Scope management plan, schedule management plan, cost management plan can be examples. All the planning document mentioned and others are integrated in to one planning document named project management plan. Project management plan guide the team in its execution, monitoring, and control of the project. Planning process is an ongoing process that lives for entire project period by integrating additional and significant changes from execution and monitoring (PMI, 2017). (Heerkens, 2002) elaborated a project planning by associating it with doing the right project with doing it right. Planning process is important and enormous in two aspects; the first is strategic that means it involves principles and philosophies and the second is tactical, in a sense that it requires step-by-step process of creating detailed project plan revolving around cost, time and scope. Here, the cost refers to how much money is going to be spent and how it is going to be budgeted over time. Whereas, the time refer to how long it will take to do the project and also the activities within the project. And the scope dimension refers what is going to be done. Shehu and Akintoye studied success factor for project and found that among the success factors which is critical for project success effective project planning is listed at the top. (shehu and Akintoye, 2009). Also, strong association between project success and project planning is pinpointed by (serrador 2012) in literature survey made for project success factor.

Executing

This process group enrolls the project management plan to the ground. The work performed in execution are managing teams and resources, managing stakeholder assumptions, plus integrating and executing the tasks of the project in-line with the project management plan (PMI, 2012). As most of the procurement and implementation is done in execution stage a large some of the project's budget is expended in this process group. Most of the project duration is also swallowed by executing the project. It is highly recommended that project manager utilizes organizational and communication skills to lead and manage the project while executing it. (PMI, 2017).

Monitoring and Controlling

Processes in monitoring and controlling group mainly concerned with following up, reviewing the flow and generating performance report on the project. This process group also identifies if a change is required and initiate it if needed (ajit and Rajwinder, 2017). The world bank on its publication, (Gertler, Martinez and Patrick, 2011) define monitoring is a continuous endeavor of collection & analysis of information to see progress against set project plans and check compliance against the established standard in view to first documenting processes, results & experiences, second identifying periodically the achievements of project objectives and signaling early-warning on target-deviations, third making steering decisions to quickly initiate corrective measures and adjustments, and finally ensuring the necessary resources for these measures are available.

Closing

This process group closes the project or a phase formally. It is in closing process group that a formal acceptance and approval is obtained from the concerned stake holders. The documentation archive, the final project report, made during closing session is used in upcoming project as organizational process assets. Post-implementation audit is also part of the closing process group (Wysocki, 2017).

Even if the process groups discussed above seems like distinct and separate, in reality overlapping occur throughout project period. Mind that the output of a process from one process group can be an input to a different process in different process group. That is why overlapping in a process

group in time is unavoidable. The figure below depicts the overlap in time for the different process group discussed above.

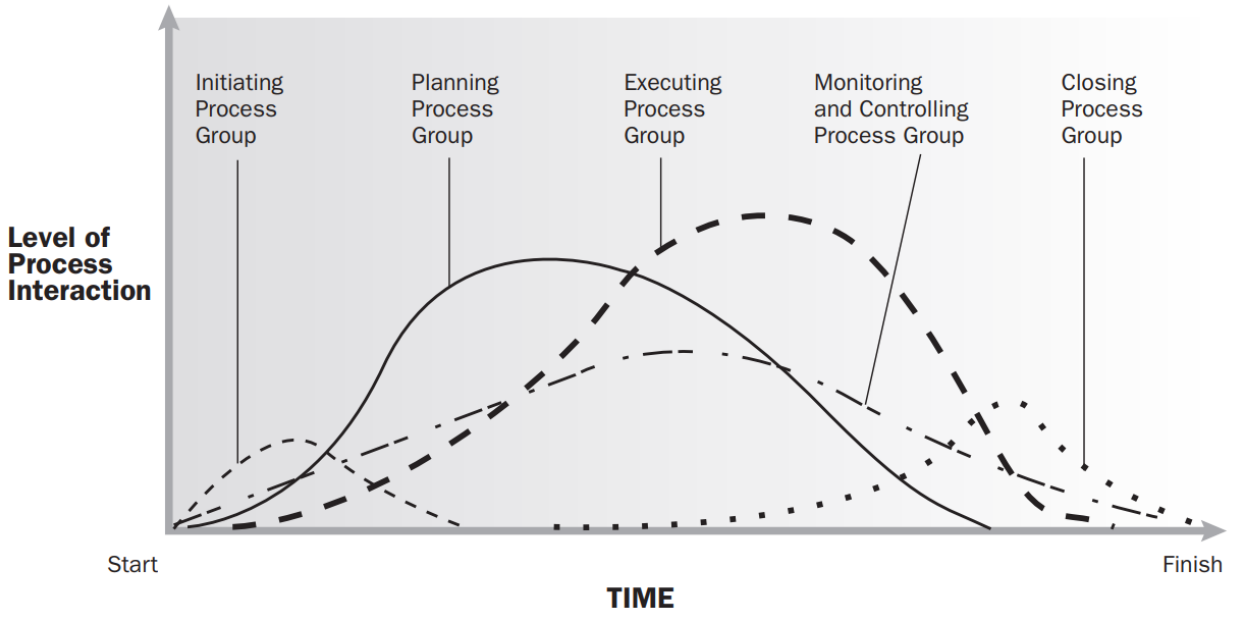


Figure 2.3 : Process Groups Interact in a Project with time (PMI, 2013)

2.5 Project Management Practice

Best practice is a verified and demonstrated process that brings a quantifiable improvement in productivity and/or effectiveness. Project management has grown over time to a sophisticated and multifaceted process. To deal with this, standards have been developed by organizations and project management associations in the globe to achieve a better implementation of project management activity. In project management best practice can emanate from guidelines or international standards. PMI's project Management Body of Knowledge PMBOK, PRINCE2 (Projects IN Controlled Environments), P2M (Project & Program Management), PCM (Project Cycle Management) and ANSI (American national standard) can be a good example (ILIEŞ, CRIŞAN and MUREŞAN, 2010). Same article further discusses, applying those guidelines and standards in managing project give an advantage in transferring required knowledge to the project organization, harmonize the divergent jargon in project communication landscape, bring an advantage in saving time and money.

Project managers have the responsibility of identifying specific project management techniques that are appropriate and applicable in specific situations by using parameters such as, knowledge of stakeholders involved in the project, ability to implement the method efficiently in the organization, whether the organization can benefit from this methodology/practice. There is list of project management practices developed by professional communities by producing, discussing, cumulating and condensing it to "Body of knowledge". Project Management Body of Knowledge and PRINCE2 - Projects IN Controlled Environments are a de facto example. From the outpost PMBOK guideline can be practiced in all types of organizations, from all the globe in contrary with its competitor PCM guidelines. Also, PMBOK which is prepared by the Project Management Institute describes the knowledge and practice that is approved and exclusive to the field of project management (Wideman, 1998). In this study, however, to assess current capability, to diagnose strengths and weaknesses of the chosen project, the ten Project Management Knowledge areas of PMI will be used as a benchmark practice (Nino G., 2013), (ILIEŞ, CRIŞAN and MUREŞAN, 2010), (Zarina and Muhammad, 2012).

PMBOK categorize processes, discussed in previous section of this paper, in to ten knowledge areas. A specific knowledge area is described by its knowledge prerequisite and defined in terms of its processes, practices, inputs, outputs, tools, and techniques. Thus, the ten-knowledge area identified in PMI PMBOK are project integration management, project scope management, project schedule management, project cost management, project quality management, project resource management, project communications management, project risk management, project procurement management and project stakeholder management (PMI, 2017).

Project Scope Management

The ultimate goal of project scope management is to plan and regulate the works to be undertaken by the project. This means, by keeping the initial outline from the project charter only the work required is defined and controlled (Ricardo, 2008). There are six processes in scope management knowledge area. Among these the first four process areas, plan scope management, collect requirements, define scope and create work break down structure (WBS) belong to the planning process group and the rest, validate scope and control scope, are in monitoring and controlling process group (PMI, 2017). With collect requirement process requirements of the stakeholder's need is determined and documented in requirements traceability matrix and serve as a basis for

project and product scope definition. Define scope process produce project scope statement that detail the product and the project scope, result boundaries, criteria to accept and reject. Project scope statement is used in creating WBS and project schedule. Work break down (WBS) is graphical subdivision of the deliverables in to lesser and manageable groups. The output from WBS process is the scope baseline, also called approved version of scope statement. Plan scope management process produce a plan that detail how a specific project scope will be defined, authenticated, and measured. Plus, the scope management plan used as a reference in how to manage the scope in project life cycle. Validating scope is a formal procedure of accepting a deliverable by the user/customer. It worth to mention that for the waterfall life cycle model scope baseline is produced once and changed only in formal request. Whereas for the agile case, the scope is produced for each iteration as deliverable keep changing/adding for each cycle.

Project Schedule Management

One of the many tasks of a project manager is to ensure stakeholders that the planned project end date can be achieved and finding ways to accomplish this. This requires a proper time management knowledge (Rita, 2018). There are six processes in project schedule management knowledge area and all are included in planning process group except for control schedule. Processes done during planning are plan schedule management, define activities, sequence activities, estimate activities, estimate activities durations and develop schedule. Define activities process list the activity to be executed in order to produce a deliverable and help in estimating time and resource required for a given work packages. Sequence activities process describes the rational order of work to be performed to get supreme efficiency when taking all the given constrictions into attention. Estimate activity durations process is used to estimate the time required to each of the activities which is a base for project schedule. Develop schedule process generate schedule model which is complete and show the beginning and end of dates of all activities in the project. Schedule management plan which is a composition of the above plans provide a guidance and direction on how to manage the schedule. Control schedule process, on the other hand, monitor current condition of activities and used to detect deviation from schedule baseline. It is the project schedule that gives a detail image on how and when the deliverable from the project will be produced according to the scope. It is also used in managing stakeholders' expectations and as a performance

measurement tool. Scheduling method can be pseudo static like that of critical path method (CPM) or dynamic that can be changed with time (agile) (PMI, 2017).

Project Cost Management

PMI define a project cost management as a practice that incorporate processes that plan cost, estimate cost, allocate budget, finance the project and control the cost with aim of finishing the project achieving the planned budget (PMI, 2013). There are four processes in project cost management knowledge area and all are included in planning process group except for control costs. Processes under planning process groups are plan cost management, estimate costs and determine budget. R.E.Westney, defined a cost estimate as an assessment of all the costs of the activities of a project in line with agreed scope (R.E.Westney, 1997). It is also said that cost estimation is an art as it utilizes a skill and a science for using scientific methods, for example parametric modeling, to estimate costs. Mostly the estimate related to cost is done at the activity level and aggregated upwards. All in all, estimate cost process provide a complete but an approximate cost required for each activity in the project. On the other hand, Budget produce a cost baseline, which is the sum lump of all activities cost and used to measure a performance of the project in terms of cost (Rita, 2018), (PMI, 2013).

Project Quality Management

Lack of attention to quality, i.e. the extent the project meets the requirements in a project, can lead to rework or shortcomings in deliverable. That means to configure what is lost time and resource has to be incurred. So, Project quality management deal with continuous improvements on company quality policy in planning, managing and controlling project quality. The processes involved in project quality management are Plan Quality Management (identifying quality requirements and document it), Perform Quality Assurance (audit quality if proper quality standard is undertaken by the project) and control Quality (monitor quality and make the necessary recommendation).

Project Resource Management

Project resource whether it be team resource (human resource) or physical resource such as machinery, facilities, raw materials etc... should be managed properly. And this is where project

resource management concept is relevant and it ensures that the proper resource is available at the required time. There are six processes in project resource management that span across three process groups. The first two (plan resource management and estimate activity resources) are contained in planning process group. The second group (acquire resources, develop team and manage team) are in executing process group. The sixth process, control resources, is under control process group. Resources for each activity is estimated by estimate activity resources process and with acquire resources process the estimated resource such as team members, facilities and equipment are attained to finish the project. with team development process versioned in creating a team having the following characteristics relevant shared purpose, consistent membership, complementary skills, mutually accountable, and common performance goals. To do so team creation pass through the following team development stages: forming, storming, norming, performing and adjourning. With manage team process team performance is monitored and feedback is given to the team/or member so that project performance is optimized.

Project Communications Management

Communication in project require the transfer of an information and should be understood by both the sender a receiver. Communication can be used as a management tool. Missing a piece, but important information, in project can have a significant influence on project objectives. Actually, project manager spends most of their time in communicating. The communication might be formal or informal, vertical or horizontal, written or oral, internal or external. In any way the communication in the project should be effective to the right format and time also it should be efficient in communicating only what is needed (Robbins and Judge, 2016), (PMI, 2017).

Project Risk Management

Risk can be defined as a measure of uncertainty (positive or negative) and its consequence for not attaining the defined project objectives. The unknown future brings either positive risk also called opportunity or the other way round (risk). Risk management is a method of developing a plan for risks, classifying risks, scrutinizing risks, developing response tactic to the risks, monitoring risks and controlling risks. Risk management is the responsibility of not just the project manager but also of the team, team should also develop risk management culture in the project. Those measures will make risk management proactive rather than reactive (Kerzner, 2017). Risk in project can

occur due to occurrence of one of the following conditions: Inconsistency in estimates (time, cost and quality), uncertainty about the source of estimates, uncertainty about design and logistics, uncertainty about objectives and priorities and uncertainty about fundamental relationships between project parties. Identified risks are labeled in risk register, for the identified risks qualitative and quantitative analysis made to prioritize risks with possibility of occurrence and influence as a parameter then a response plan is generated to the risks in risk register. So, risk response plan such as escalating, exploiting and accepting risks play greater role in addressing overall project risk and individual risks and It is important that organization that do project should develop people (team) to think and plan for risk (PMI, 2017).

Project Procurement Management

Procurement is an activity undertaken to obtain a product or service from the supplier to where it is required and it comprises purchasing, contracting and logistics activities (Arjan J., 1996). Project procurement is a process of acquiring goods and services to a project, so this require a project manager to help in creating, reading and handling contract for the project (Rita, 2018). Project procurement management incorporate all the required steps (plan procurements, conduct procurements, administer procurements and close procurements) in acquiring a product or service from an entity outside project team. Contract management and control of change which is mandatory in developing and administering contracts is also included. For smaller company, project manager can take purchasing authority in negotiating and signing the contracts directly. Whereas, for corporates there will be a separate department that take care of procurement and contracting work. So, twilight in project procurement management is to keep supply continuity, managing the process of procurement efficiently and effectively and developing supply base management (Kerzner, 2017), (PMI, 2017).

Project Stakeholder Management

Like of the conductor in the orchestra that does not play any of the music instruments, mostly project manager does not do all the job either. Rather project manager facilitates, motivates, coordinates and integrate the project team. To do so, stakeholder management skill is very important. Any organization or a person having an interest with low or high impact and would be impacted by the project favorably or unfavorably is termed as a stakeholder. It is the project

manager that interfaces across the stakeholder and balance their interests in line with project objectives as each of the stakeholder has power from low-to- high in diverting project objectives. Project stakeholder management include identify stakeholders, plan stakeholder engagement, manage stakeholder engagement, monitor stakeholder engagement process. Manage stakeholder engagement process by making continuous communication increase the possibility of project triumph by unleashing stakeholders support and lessening stakeholders' fatigue to the project. (Kerzner, 2017), (PMI, 2017), (Albert Lester, 2014), (Rita, 2018).

Project Integration Management

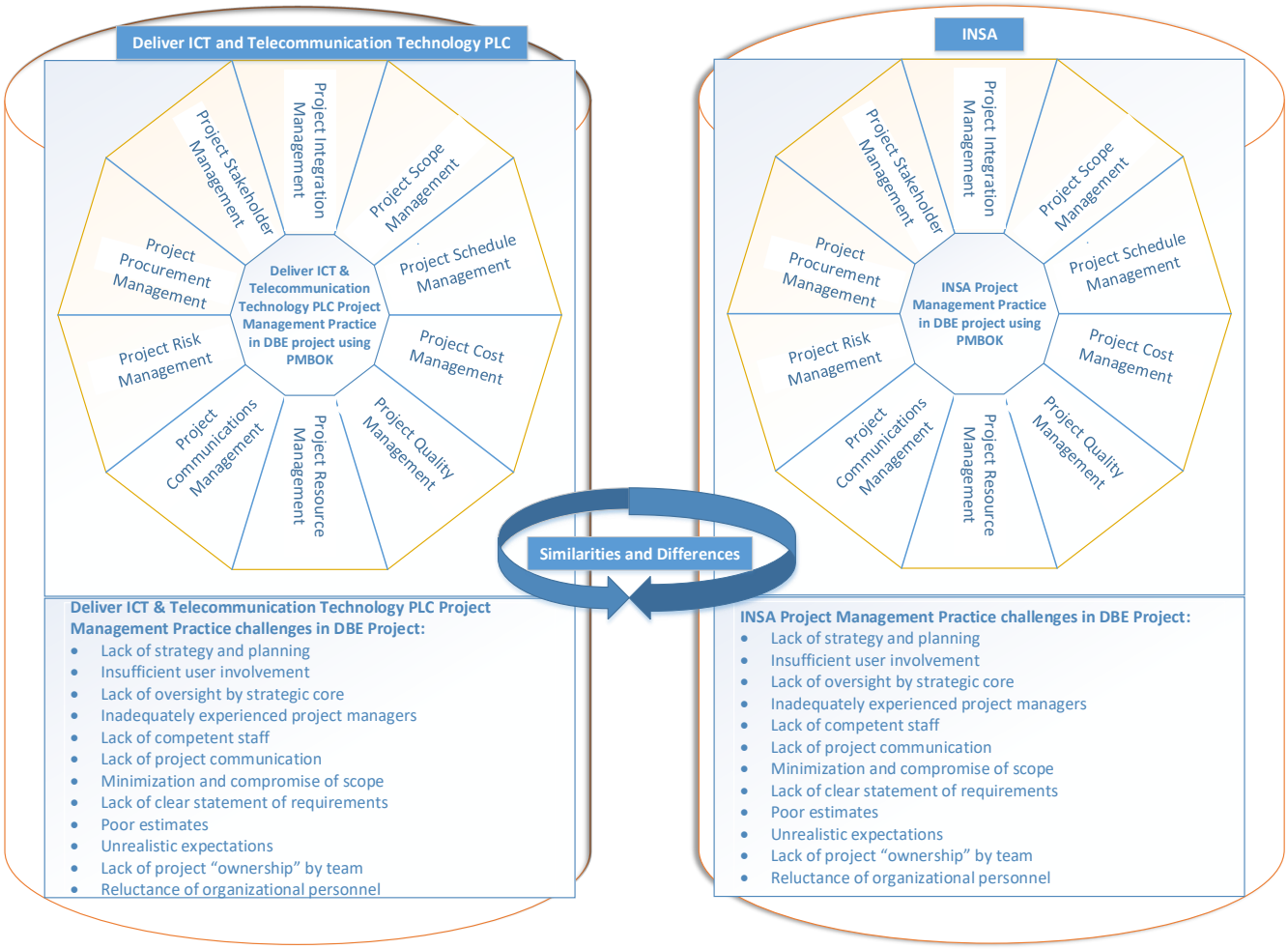
An organization assign a project manager to organize and assimilate all the pieces of the project in a unified whole so that the products or services from the project is delivered with in a cost, time allocated and with specified quality. That means, the project manager does the integrating activities essential to develop project plan, accomplish plan and make the necessary change to the plan thought the project cycle. This all require project integration management knowledge area practice. The processes in project integration management includes developing project charter, developing project management plan, directing and managing project work, managing project knowledge, monitoring and regulating project work, executing integrated change control and finalizing the project. Project integration management work is the responsibility of the project manager and it is not for the specialist. Project charter authorizes the project formally by identifying its objectives and assign a project manager, if it was not done before. Project management plan is a single but cohesive and integrated plan that is used as a map in guiding the project in its life cycle. Directing and executing the work identified in the project management plan and acting on the accepted changes to attain the project's objectives is done by direct and manage project work process. Whereas, monitor and control project process follow, assess, and report overall advancement by the project to meet the performance indicator identified in the project management plan. Acceptance of deliverable and finalizing all the activities of the project is done in close project process (Kerzner, 2017), (PMI, 2017), (Rita, 2018).

2.6 Challenges in Practicing Project Management in IT Projects

Information technology (IT) project management practice challenges are not perfectly similar to all other project's challenges. As every industry has it is own challenges IT projects have their own challenges. (DORAISWAMY, 2012) in the book entitled "50 Top IT Project Management Challenges", identified 50 challenges related to any IT project. However, this study mainly concerned with IT infrastructure projects. So only applicable challenges to the specific project are selected. Different articles tuned these challenges and expressed the challenges as a parameter of failure to a project. The lists are Lack of strategy and planning, Insufficient user involvement, Lack of oversight by strategic core, Inadequately experienced project managers, Lack of competent staff, Lack of project communication, Minimization and compromise of scope, Lack of clear statement of requirements, Poor estimates, Unrealistic expectations, Lack of project "ownership" by team, Reluctance of organizational personnel. (Brandon, 2006), (Khaled Almgren, 2014) and (Kerzner, 2017)

2.7 Conceptual Framework

Based on the reviewed literature a conceptual framework is developed and it is depicted in figure below.



Source: own computation, 2020

Figure 2.4: Conceptual Frame work for studying project management practice in implementing DBE Network Infrastructure and Security Project, by Deliver ICT & Telecommunication PLC and that of INSA. Source: Developed by the author based on literature review.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Project Area and Time Period

The study was conducted in two organizations, Deliver ICT & Telecommunications Technology PLC and INSA. The first organization is a private firm and the second is public agency. They both managed a project for Development Bank of Ethiopia in a phase with in the same industry, Particularly IT network and security. INSA is a security agency that employs thousands of people and of those, only Secure Information Systems Development Directorate and Sourcing and Facility Division were part of this project. While Deliver ICT & Telecommunications Technology PLC is a project based private technology firm and all of the staffs were participated in this project.

This study assessed a project which was done for development bank in two phases. The first phase was done by INSA where the second phase was done by Deliver ICT & Telecommunications Technology PLC. The initial phase was undertaken to modernize the IT infrastructure of the bank and to interconnect all the branches using VPN technology. It was planned to be accomplished in 20 months. For the second phase, the objective was to enhance the IT network security of the bank and also to integrate value added service to the bank IT infrastructure platform and it was planned for 9 months.

3.2 Research Design

The objective of the study was to determine the practice of project management principles at Deliver ICT & Telecommunications Technology PLC and INSA in reference to the ten knowledge areas categorized by PMBOK. It also aimed to determine the differences and similarities of the practice in the two organizations. Thus, to attain these objective, descriptive research type was employed and to this effect, cross-sectional quantitative study design is used to analyze the data.

3.3 Source of Data

In this study primary and secondary source of data is used. Primary data is collected from project managers and team members (support staffs, technical experts and others) both in Deliver ICT & Telecommunications Technology PLC and INSA. Secondary data is collected from policy and project documents as well.

3.4 Study Population

The study targeted team members of the two projects in Deliver ICT & Telecommunications Technology PLC and INSA. Data is collected using structured questionnaire from project managers, employees and support staff. Census method of data collection is used as the team members are small and to have in-depth understanding of the issue.

3.5 Data Collections

Primary data, by using structured questionnaire, were collected from members of the projects at the two organizations. The questionnaire assesses the ten knowledge areas of project management practice and its challenges on the two projects by benchmarking knowledge areas in PMBOK. This data was also supplemented with review of project plan and report.

3.6 Data Analysis and Presentation

The data is cleaned, entered and analyzed using SPSS version 20.0. Practice of project management knowledge areas was collected using 'Likert scale', which uses replies ranging from 'strongly agree' to 'strongly disagree'. The overall mean value and percentage from each factor in specific project management knowledge area is used to analyze the similarities and differences in practicing project management techniques in the two organization.

Results of the study is displayed using numbers, percentage, graphs, tables and charts.

3.7 Validity and Reliability

Most of the time the quality of a research is measured by using reliability and validity tool. Reliability discusses how consistently is a given tool used measure something. If the tool generates same result consistently for different measurement under the same technique under the same circumstances, the measurement is considered reliable (Bhattacherjee, 2012).

Validity denotes how correctly a technique measures what it is planned to measure. A research with having a good validity has an output that corresponds the real properties and characteristics of the population under study. On the hand, according Field, to valid the instrument must first be reliable (Field, 2013).

So, to measure reliability, the researcher used the most applied reliability measurement technique called Cronbach‘s alpha method. According to Sekaran (2003) and (Uma & Bougie, 2016), for reliability measurement using Cronbach‘s alpha method a value less than 0.6 taken as poor, those in the 0.7 range to be acceptable and those over 0.8 are good. The reliability coefficient closer to 1 is better. The reliability of the questionnaire for this study paradigms is depicted in table 3.1 and it indicates that the proposed concepts have a relatively good reliability, having a Cronbach’s alpha value ranging from 0.622– 0.967, which is considered as satisfactory.

Table 3.1 Coefficient alpha reliability result by using Cronbach‘s alpha method

No.	Variables	Cronbach’s Alpha	No. of Items
1	Project Integration Management Practice	0.752	5
2	Project Scope Management Practice	0.863	5
3	Project Schedule Management Practice	0.785	5
4	Project Cost Management Practice	0.622	4
5	Project Quality Management Practice	0.858	4
6	Project Resource Management Practice	0.810	4
7	Project Communication Management Practice	0.785	4
8	Project Risk Management Practice	0.967	4
9	Project Procurement Management Practice	0.830	5
10	Project Stakeholders Management Practice	0.713	5

Source: own computation, 2020

3.8 Ethical Consideration

To ensure ethical quality of the study privacy and confidentiality of the study participants is kept and will be kept for future as well. Prior to the collection of the study data, consent is obtained from study participants. Study participants were not required to mention their names and participation in the study and it was done on volunteer basis. Once the data is entered and analyzed, the data is destroyed and that means the information collected will not be linked to the study participants in any way.

CHAPTER FOUR

4. DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In this chapter data collected in the field for Development Bank of Ethiopia Network Infrastructure and Security Project is presented. It also deals with analysis and interpretation of the data collected. This study is concerned with project done in two phases by two contractors for one organization. Thus, the study participants were from three organization (two contractors and one client). The contractors are INSA and Deliver ICT and Telecommunication Technology PLC. Whereas the client is Development Bank of Ethiopia. With respect to the data collection method a total of 49 structured questionnaires were distributed. Thus, 7 questioners from DBE team plus 25 questioners from INSA team, total of 32 questioner were distributed to study INSA project management practice. Whereas 7 questioners from DBE team plus 10 questioners from Deliver ICT team, total of 17 questioners were distributed to study Deliver ICT project management practice. The questionnaires were developed in five scales ranging from five to one; where 5 represents strongly agree, 4 agree, 3 neutral, 2 disagree, and 1 strongly disagrees. All the questionnaires were filled and collected. All the data gathered were organized, tabulated and analyzed using SPSS 20.0 software to get a good insight to the result. By adopting an eminent Scott criterion, a mean value is used to analyze the data represented by the Likert type scale of 1(Strongly Disagree), 2(Disagree), 3(Neutral), 4(Agree), and 5(Strongly Agree). Thus, in line with Scott criteria, a mean up to 2.8 is considered as disagree, from 2.9 to 3.2 mean value is considered to be neutral and mean above 3.2 is considered as an agree value (Scott, 1999).

4.2 Demographic Profile

Table 4.1 presents respondent's profile for the case of INSA and Deliver ICT. It presents the gender, age, Job category, educational status and work experience of respondent for DBE Network Infrastructure and Security Project by INSA and Deliver ICT.

For INSA case among 32 respondent 28 were male. That means only 12.5 % of the respondents were female. Age group between 30 and 40 takes 62.5 % of the respondent and respondents experience above 10 years cumulated to 87.5 %. This may infer that middle aged and well experienced employee were part in the project. Even if all respondent acquires a minimum of BA/BSc degree none of them were from project management educational background.

For the Deliver ICT case, 23.53 % of the respondents were female. Which is as twice as that of INSA. In terms of age group, among the respondents 75% of them are 30 and above years old. With regards to education, 3 of them have Diploma, 12 of them has degree and the remaining two has MSc. One of the respondents is PMP certified as well.

Table 4.1. Demographic characteristics of respondents

No.	Characteristics		Respondent		Total	
			Frequency	Percent	frequency	Percent
The Case of INSA						
1	Gender	M	28	87.5	32	100
		F	4	12.5		
2	Age group	Below 30	6	18.75	32	100
		31-40	20	62.5		
		41-50	6	18.75		
3	Job category	Project manager	2	6.25	32	100
		Project Coordinator	2	6.25		
		Project Member	20	62.5		
		Support Staff	8	25		
4	Educational Status	BA/BSc	30	93.75	32	100
		MA/MSc	2	6.25		
5	Work Experience	0-5 years	2	6.25	32	100
		6-10 years	2	6.25		
		11-15 years	20	62.5		
		Above 15 years	8	25		
The Case of Deliver ICT and Telecommunication Technology PLC						
1	Gender	M	13	76.47	17	100
		F	4	23.53		
2	Age group	Below 30	4	23.53	17	100
		31-40	12	70.59		

		41-50	1	5.88		
3	Job category	Project manager	2	11.80	17	100
		Project Coordinator	1	5.88		
		Project Member	10	58.82		
		Support Staff	4	23.50		
4	Educational Status	Diploma/TVT	3	17.60	17	100
		BA/BSc	12	70.59		
		MA/MSc	2	11.80		
5	Work Experience	0-5 years	4	23.53	17	100
		6-10 years	8	47.06		
		11-15 years	2	11.76		
		Above 15 years	3	17.65		

Source: own computation, 2020

4.3 Project Management Practice Assessment for DBE Network Infrastructure and Security Project by using Project Management Knowledge areas.

Network Infrastructure and Security Project of DBE had two phases. Phase 1 is done by INSA and phase 2 by Deliver ICT and Telecommunication PLC. The main part of the questionnaire builds upon the key project management practice identified from PMBOK 10 different but integrated knowledge areas. For both organizations, after data is collected assessment is made for project management practice by analyzing the mean score of each question under the 10 knowledge areas of PMBOK. By adopting an eminent Scott criterion, a mean value is used to analyze the data represented by the Likert type scale of 1(Strongly Disagree), 2(Disagree), 3(Neutral), 4(Agree), and 5(Strongly Agree). Thus, in line with Scott criteria, a mean up to 2.8 is considered as disagree, from 2.9 to 3.2 mean value is considered to be neutral and mean above 3.2 is considered as an agree value (Scott, 1999).

4.3.1 Assessment of Projects Scope Management Practice

Identifying project scope right from the beginning is mandatory to bring satisfaction of stakeholders with the deliverables and avoid misunderstanding about the specific features of the

Table 4.2: Project Scope Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Requirements of the stakeholder's need was determined and documented	Phase-1	0	0	4	12.5	2	6.3	18	56.3	8	25	32	100	3.94
	Phase-2	0	0	0	0	0	0	12	70.6	5	29.4	17	100	4.29
Project scope statement that details project scope, boundaries, acceptance criteria and project exclusions were defined.	Phase-1	0	0	4	12.5	6	18.8	20	62.5	2	6.3	32	100	3.63
	Phase-2	0	0	0	0	2	11.8	10	58.8	5	29.4	17	100	4.18
Work Break Down (scope baseline) was created	Phase-1	0	0	2	6.3	12	37.5	16	50	2	6.3	32	100	3.56
	Phase-2	0	0	0	0	1	5.9	11	64.7	5	29.4	17	100	4.24
A plan that detail how the project scope will be defined, validated, and controlled was generated	Phase-1	2	6.3	10	31.3	12	37.5	6	18.8	2	6.3	32	100	2.88
	Phase-2	0	0	1	5.9	3	17.6	11	64.7	2	11.8	17	100	3.82
Scope validation (by the customer or the user) were done for each deliverable	Phase-1	2	6.3	2	6.3	8	25	18	56.3	2	6.3	32	100	3.5
	Phase-2	0	0	0	0	5	29.4	9	52.9	3	17.6	17	100	3.88
Average	Phase-1													3.50
Average	Phase-2													4.08

Source: own computation, 2020

deliverables. Table 4.2 depicts the project scope management practice response for DBE project. For the phase 1 project managed by INSA the mean score ranges from 3.5 to 3.94. Whereas for the phase 2 project managed by Deliver ICT the mean score for the scope management ranges from 3.82 to 4.29.

For the phase 1 project, for the respondents asked if a plan that detail how the project scope will be defined, validated, and controlled the mean result is 2.88. This imply that there was a difficulty in generating a consolidated scope plan. However, a mean amount of 3.94 is registered for the factor if the requirements of the stakeholder's need were determined and documented. This is adequately high and imply that requirements of the stakeholder's need were determined and documented. Furthermore, relatively same result is found in creating project scope statement, work break down structure and scope validation.

For the phase 2 project, the real properties and characteristics of the population under study. For all the questions asked in scope management practice, a minimum of 3.82 mean value is registered for all the factors. Thus, it can be said that respondents agreed that factors that lead to scope management were practiced in the project.

The average mean value for the phase 1 project is 3.5 and for that of phase 2 is 4.02. Thus, it highly reasonable to say that project scope management was practiced by both INSA and Deliver ICT in DBE project.

4.3.2 Assessment of Project Schedule Management

One of the 10 knowledge areas in the PMBOK is project schedule management. In here, for the phase 1 project respondents reply with the mean range from 2.44 to 3.69 for the four-question asked related to project time management. And for the phase 2 project respondents reply with a mean range from 3.94 to 4.47.

For the phase 1 project, for the respondents asked if list of activities to be executed were defined is resulted with a mean value of 3.69, for the question if activities were sequenced a mean value of 3.5 is calculated and also for the question if proper time is estimated, the answer was 56.3 % yes with a mean value of 3.31. However, with a question related to planning, which asked whether

Table 4.3: Project Schedule Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
List of activities to be executed were defined	Phase-1	0	0	4	12.5	2	6.3	26	81.3	0	0	32	100	3.69
	Phase-2	0	0	0	0	0	0	10	58.8	7	41.2	17	100	4.41
Activities were sequenced	Phase-1	0	0	6	18.8	4	12.5	22	68.8	0	0	32	100	3.5
	Phase-2	0	0	0	0	0	0	9	52.9	8	47.1	17	100	4.47
Time required for each of activities were estimated	Phase-1	0	0	8	25	6	18.8	18	56.3	0	0	32	100	3.31
	Phase-2	0	0	1	5.9	1	5.9	9	52.9	6	35.3	17	100	4.18
Schedule management plan was developed	Phase-1	3	9.45	12	37.5	2	6.3	15	46.8	0	0	32	100	3
	Phase-2	0	0	1	5.9	2	11.8	9	52.9	5	29.4	17	100	4.06
Changes to the project schedule was controlled	Phase-1	8	25	10	31.3	6	18.8	8	25	0	0	32	100	2.44
	Phase-2	3	17.6	3	17.6	4	23.5	6	35.3	1	5.9	17	100	3.94
Average	Phase-1													3.188
Average	Phase-2													4.212

Source: own computation, 2020

schedule management plan was developed or not, result in a mean value of 3 which refer to neutral. Which is similar with above, i.e. scope management plan, there was a problem of making a proper plan document as well. In addition, a mean value of 2.44 (disagree) is calculated which account only 25 % of respondents agreed that changes to the project schedule was controlled. This might lead to lag in project time. The average mean for project schedule management in phase 1 project is 3.18 (neutral) and it would be very difficult to say that this knowledge area is practiced at INSA in phase 1 project.

For the phase 2 project case, as depicted in table 4.3, except for the question related to changes to the project schedule was controlled, all the other project time management factors has an agreed mean score of more than 3.0 and with overall mean of 4.21. Which put, Deliver ICT in better place in terms of project time management except for controlling project schedule control which is similar INSA in phase 1.

4.3.3 Assessment of Project Cost Management

For the phase 1 project respondents reply with the mean range from 3 to 3.69 and with average mean of 3.3 for the four-question asked related to project cost management. And for the phase 2 project respondents reply with a mean range from 2.88 to 3.94 and with average mean of 3.6.

INSA practice in estimating cost based on agreed scope is significantly positive as 62.5 % of respondents agreed and plus 6.3 % of them strongly agreed with a mean value of 3.69. Regarding budget creation more than half of the respondents agreed that cost baseline was determined. However, in generating cost management plan and controlling change in budget was not practiced well as only 31.3 % and 43.8% of the respondents agreed, respectively, plus this result in a mean value of 3.0 for both factors. Generally, from the responder reply, project cost management resulted in average mean value of a 3.3 and it would be reasonable to say that this knowledge area is practiced in phase 1 of the project.

For the second phase project, Deliver ICT practice regarding cost estimation in-line with agreed scope has a mean value of 3.94 and creating baseline budget has a mean value of 3.94, which has significant difference with that of INSA in a positive way. However, most of respondents for phase 2 project by Deliver ICT disagree in similar way with phase 1 project by INSA for the question

asked, if cost management plan were made and if change in project budget was controlled. Thus, with the overall mean of 3.6, it can be said that Deliver ICT practice cost management adequately.

Table 4.4: Project Cost Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Cost estimate in-line with agreed scope were made	Phase-1	0	0	2	6.3	8	25	20	62.5	2	6.3	32	100	3.69
	Phase-2	0	0	0	0	3	17.6	12	70.6	2	11.8	17	100	3.94
A budget, which is used as cost baseline, was determined	Phase-1	2	6.3	4	12.5	8	25	16	50	2	6.5	32	100	3.38
	Phase-2	0	0	0	0	3	17.6	12	70.6	2	11.8	17	100	3.94
A cost management plan that detail how the project budget is estimated and controlled was generated	Phase-1	0	0	10	31.3	12	37.5	10	31.3	0	0	32	100	3
	Phase-2	0	0	2	11.8	5	29.4	7	41.2	3	17.6	17	100	3.65
Change in project budget was controlled	Phase-1	4	12.5	6	18.8	8	25	14	43.8	0	0	32	100	3
	Phase-2	2	11.8	4	23.5	5	29.4	6	35.3	0	0	17	100	2.88
Average	Phase-1													3.30
Average	Phase-2													3.60

Source: own computation, 2020

4.3.4 Assessment of Project Quality Management

The average mean range for the project quality management for the phase 1 project is in range from 2.25 to 2.56 which imply that most of the responders disagree that quality management is not addressed.

Table 4.5: Project Quality Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Quality standards of the project were identified	Phase-1	4	12.5	16	50	2	6.3	10	31.3	0	0	32	100	2.56
	Phase-2	0	0	5	29.4	4	23.5	6	35.3	2	11.8	17	100	3.29
Quality standards of the project were reviewed	Phase-1	6	18.8	18	56.3	4	12.5	4	12.5	0	0	32	100	2.19
	Phase-2	0	0	5	29.4	9	52.9	2	11.8	1	5.9	17	100	2.94
Project performance were evaluated on regular basis	Phase-1	6	18.8	14	43.8	4	12.5	8	25	0	0	32	100	2.44
	Phase-2	0	0	7	41.2	5	29.4	5	29.4	0	0	17	100	2.88
Results were monitored to check if they comply with the quality standards identified	Phase-1	6	18.8	18	56.3	2	6.3	6	18.8	0	0	32	100	2.25
	Phase-2	0	0	9	52.9	3	17.6	5	29.4	0	0	17	100	2.76
Average	Phase-1													2.36
Average	Phase-2													2.97

Source: own computation, 2020

Specifically, for the phase 1 project, among the responders asked if quality standards were identified, 12.5 % of them strongly disagree and 50% of disagree with a mean value of 2.56. Also, for making review of quality standards 18.8% strongly disagree and 56.3 % disagree with a mean value of 2.19. Finally, with regards to measuring project performance most of the respondents disagree. Thus, the average mean, which is 2.36 significantly imply that quality management practice were not implemented well in phase 1 project.

Similar trend is shown from phase 2 perspective. Similar factors were raised for Deliver ICT quality management: if quality standards of the project were identified, reviewed, performance were evaluated regularly and result were monitored. The mean response was 3.29, 2.94, 2.88 and 2.76 respectively. In addition, the average mean is 2.97. This is still in neutral range and cannot imply that project quality management were practiced in phase 2 project as well.

4.3.5 Assessment of Project Resource Management

For the question if acquiring project resources were made on time has a mean of 2.44 which is in disagree range. Whereas for the questions whether resource was estimated, project team were made on time and in addition if managing and controlling of the team were made properly, the respondents' answer is 81.3 %, 75 % and 68.8 % respectively. Also, the average mean for this project management practice is 3.63. So, phase 1 project respondents' response imply that there was significant implication that project resource management is well practiced.

Table 4.6: Project Resource Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Resources for each activity was estimated	Phase-1	0	0	2	6.3	2	6.3	26	81.3	2	6.3	32	100	3.88
	Phase-2	0	0	0	0	2	11.8	14	82.4	1	5.9	17	100	6.88
Acquiring project resources	Phase-1	8	25	12	37.5	2	6.3	10	31.3	0	0	32	100	2.44

were made on time	Phase-2	0	0	7	41.2	3	17.6	6	35.3	1	5.9	17	100	3.06
Project team was developed	Phase-1	0	0	0	0	2	6.3	24	75	6	18.8	32	100	4.13
	Phase-2	0	0	1	5.9	0	0	12	70.6	4	23.5	17	100	4.12
Project team was managed and controlled	Phase-1	0	0	0	0	4	12.5	22	68.8	6	18.8	32	100	4.06
	Phase-2	0	0	3	17.6	0	0	13	76.5	1	5.9	17	100	6.06
Average	Phase-1													3.63
Average	Phase-2													5.03

Source: own computation, 2020

The result in phase 2 project regarding project resource management is similar to that of phase 1 in putting both project in agreement range. However, with average mean of 5.3, phase 2 project is bigger than that of phase 1 which is 3.6. Further, it can be said that, result in the table is a strong indication that project resource management was practiced both in phase 1 and phase 2 of DBE project.

4.3.6 Assessment of Project Communication Management

Table 4.7 depicted below shows the communication management practice response for the phase 1 and phase 2 project of DBE. For the phase 1 among the questions asked to the responders only two of the factors, making the required information available to project stakeholders were made on time and making the required information available on time has a mean value in agreed range. The rest of the questions: if collecting and disseminating performance information were made on time and also if communication between stakeholders were controlled has the response mean of 3 and 3.13 respectively. In addition, the average mean value is 3.20 which is in the margin for agreement range. Thus, from the response it is difficult to say that project communication is practiced.

Table 4.7: Project Communication Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
The information and communication needed for the project were determined	Phase-1	0	0	6	18.8	10	31.3	14	43.8	2	6.3	32	100	3.38
	Phase-2	0	0	3	17.6	3	17.6	10	58.8	1	5.9	17	100	3.53
Making the required information available to project stakeholders were made on time	Phase-1	0	0	8	25	6	18.8	18	56.3	0	0	32	100	3.31
	Phase-2	2	11.8	5	29.4	4	23.5	5	29.4	1	5.9	17	100	2.88
Collecting and disseminating performance information were made on time	Phase-1	0	0	12	37.5	8	25	12	37.5	0	0	32	100	3
	Phase-2	2	11.8	4	23.5	3	17.6	7	41.2	1	5.9	17	100	3.06
Communication between stakeholders were controlled	Phase-1	2	6.3	6	18.8	10	31.3	14	43.8	0	0	32	100	3.13
	Phase-2	2	11.8	8	47.1	2	11.8	5	29.4	0	0	17	100	2.59
Average	Phase-1													3.20
Average	Phase-2													3.01

Source: own computation, 2020

For the second phase of the project done by Deliver ICT, the response rate shows that it is even worse in terms of project communication management. For example, among the responders asked for the question if collecting and disseminating performance information were made on time and also if communication between stakeholders were controlled only 29% agreed with a mean value

of 3.0 and 3.59 respectively. Furthermore, the average mean value is 3.01 which is less than that of phase 1 project and it falls in the range of neutral.

4.3.7 Assessment of Project Risk Management

Table 4.8 depicts below shows that for the phase 1 project, factors of risk management mean score range between 2.31 up to 2.44, which shows that the listed factors are not practiced.

Table 4.8: Project Risk Management Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Risks were identified and labeled in risk register	Phase-1	6	18.8	12	37.5	8	25	6	18.8	0	0	32	100	2.44
	Phase-2	2	11.8	3	17.6	4	23.5	8	47.1	0	0	17	100	3.06
For the identified risks response tactics were developed	Phase-1	6	18.8	18	56.3	2	6.3	6	18.8	0	0	32	100	2.25
	Phase-2	2	11.8	3	17.6	4	23.5	8	47.1	0	0	17	100	3.06
The identified risks were monitored and controlled	Phase-1	6	18.8	14	43.8	6	18.8	4	12.5	2	6	32	100	2.44
	Phase-2	2	11.8	3	17.6	6	35.3	6	35.3	0	0	17	100	2.94
Proactive risk responses were made	Phase-1	6	18.8	16	50	6	18.8	2	6.3	2	6.3	32	100	2.31
	Phase-2	2	11.8	5	29.4	6	35.3	4	23.5	0	0	17	100	2.71
Average	Phase-1													2.36
Average	Phase-2													2.94

Source: own computation, 2020

For phase 1 the mean of the respondents for the factors risk identification, response tactics development, monitoring and controlling of the risk and risk responses is 2.44, 2.25, 2.44 and 2.31, respectively. This is a strong indication that phase 1 of the projects did not practiced a risk management.

For the phase 2 project managed by Deliver ICT the trend is similar, only with slight difference, as the mean score range is between 2.71 to 3.06. And it is below average. Which imply that listed factors are not practiced.

4.3.8 Assessment of Project Procurement Management

Table 4.9 depicted the project procurement management practice response for DBE project. For the phase 1 project managed by INSA the mean score ranges from 2.25 to 3.56 with the average mean of 3.26. Which shows that the listed factors such as procurement management plan was defined, appropriate quotations, bid, offers or proposal were obtained, potential sources were identified and procurements were conducted as planned are practiced. However, for the question if contract was completed and settled properly the reply was 62.5 disagree and 12.5 strongly disagree with mean value of 2.88. From the reply, it can be said that, contract management were poor.

Table 4.9: Project Procurement Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Procurement management plan was defined	Phase-1	2	6.3	4	12.5	6	18.8	20	62.3	0	0	32	100	3.38
	Phase-2	0	0	0	0	1	5.9	14	82.4	2	11.8	17	100	4.06
Appropriate quotations, bid, offers or proposal were obtained	Phase-1	0	0	4	12.5	6	18.8	22	68.8	0	0	32	100	3.56
	Phase-2	0	0	0	0	1	5.9	14	82.4	2	11.8	17	100	4.06

Potential sources were identified	Phase-1	4	12.5	0	0	6	18.8	22	68.8	0	0	32	100	3.56
	Phase-2	0	0	1	5.9	2	11.8	12	70.6	2	11.8	17	100	3.88
Procurements were conducted as planned	Phase-1	0	0	4	12.5	6	18.8	22	68.8	0	0	32	100	3.56
	Phase-2	2	11.8	3	17.6	3	17.6	9	52.9	0	0	17	99.9	3.12
Contract was completed and settled properly	Phase-1	4	12.5	20	62.5	4	12.5	4	12.5	0	0	32	100	2.25
	Phase-2	2	11.8	4	23.5	5	29.4	6	35.3	0	0	17	100	2.88
Average	Phase-1													3.26
Average	Phase-2													3.6

Source: own computation, 2020

Whereas for the phase 2 project managed by Deliver ICT the mean score for the scope management ranges from 2.88 to 4.06 with average mean of 3.6. Similar to phase 1 project, there was a difficulty in practicing contract management as the response rate for this question were 2.5 % agreed with mean of 2.88. On the other hand, the rest of the responses strongly indicate that procurement management had been practiced in phase 2 of the project.

4.3.9 Assessment of Project Stakeholders Management

Table 4.10 depicted below shows that for the phase 1 and phase 2 projects factors of stakeholder's management mean score. For the phase 1 project managed by INSA the range is between 2.63 and to 3.94 with average mean of 3.19, which shows that the listed factors were not practiced. It worth to mention that INSA practiced one of the factors, which is planning stakeholder's engagement with response rate of 56.3 % and 18.8 % for agreed and strongly agreed reply.

On the other hand, for the phase 2 project mean range for the factors under stakeholder's management practice range from 2.88 to 4.06 with average mean of 3.31, which shows that the listed factors were practiced as the average mean is above 3.2 in criteria set before.

Table 4.10: Project Stakeholders Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Stakeholders in the project were identified	Phase-1	2	6.3	26	81.3	0	0	4	12.5	0	0	32	100	2.06
	Phase-2	0	0	0	0	1	5.9	14	82.4	2	11.8	17	100	4.06
Stakeholders engagement were planned	Phase-1	0	0	6	18.8	2	6.3	18	56.3	6	18.8	32	100	3.75
	Phase-2	2	11.8	1	5.9	1	5.9	12	70.6	1	5.9	17	100	3.53
The communication between project stakeholders were effective	Phase-1	0	0	16	50	4	12.5	10	31.3	2	6.3	32	100	2.94
	Phase-2	3	17.6	4	23.5	3	17.6	5	29.4	2	11.8	17	100	2.94
Stakeholders engagement was controlled	Phase-1	2	6.3	18	56.3	2	6.3	10	31.3	0	0	32	100	2.63
	Phase-2	4	23.5	3	17.6	2	11.8	7	41.2	1	5.9	17	100	2.88
Project progress was reviewed frequently with the customer	Phase-1	2	6.3	18	56.3	2	6.3	8	25	2	6.3	32	100	2.69
	Phase-2	2	11.8	3	17.6	5	29.4	5	29.4	2	11.8	17	100	3.12
Average	Phase-1													2.81
Average	Phase-2													3.31

Source: own computation, 2020

Even if the overall stakeholder's management is practiced by Deliver ICT, for the two factors, i.e. communication effectiveness among stakeholders and project progress review agreement response rate is 41.2 %. Thus, these two factors were not practiced as much as that of identification of stakeholders, planning and controlling stakeholder's engagement.

Overall, we can say that, stakeholder's management were more practiced in phase 2 of the project than that of phase 1.

4.3.10 Assessment of Project Integration Management

Project integration management syndicate all the pieces of the project in a cohesive whole so that the products or services from the project is delivered with in a cost, time allocated and with specified quality. For the DBE project under study, phase 1 integration management response shown in table 4.11 indicate that the mean ranges from 1.69 to 4.13 with the average mean of 2.73. For the question, if there were efficient change managements, if single and cohesive project management plan was developed, if project was closed with in pre-scheduled time, if proper monitoring and reporting scheme were placed and practiced, most of the responders disagreed with 56.3 %, 43.8 %, 81.3 % and 56.3 %, respectively. This result, with the average mean of 2.73, strongly indicates that there was a broad challenge in project integration management and the practice was adequately low.

With regards to phase 2 project, the mean range is between 2.65 and 4.47 with the average mean of 3.44 which shows, according to the criteria, that the listed factors were practiced as the average mean is above 3.2. For the question asked if the project manager were assigned early in the project, the response rate was 41.2 % agreed and 52.9 % strongly agreed, in total 94.1 %. In addition, for the question if single and cohesive project management plan was developed the response was 58.8 % agreed and 17.6 % strongly agreed, in total 76.4 %. With the average mean of 3.44, it is highly reasonable to say that project integration management was practiced in phase 2 of the project. However, there was some challenges for other two factors, i.e. for closing the project on time and controlling changes in the project.

Table 4.11: Project Integration Practice

Factors		Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Project Manager was assigned early in the project	Phase-1	0	0	2	6.3	4	12.5	14	43.7	12	37.5	32	100	4.13
	Phase-2	0	0	0	0	1	5.9	7	41.2	9	52.9	17	100	4.47
There were efficient change managements	Phase-1	5	15.6	13	40.6	8	25	6	18.8	0	0	32	100	2.44
	Phase-2	2	11.8	3	17.6	4	23.5	8	47.1	0	0	17	100	3.06
Single and cohesive project management plan was developed	Phase-1	2	6.3	12	37.5	6	18.8	10	31.3	2	6.3	32	100	2.94
	Phase-2	0	0	0	0	4	23.5	10	58.8	3	17.6	17	100	3.94
Project was closed with in pre-scheduled time	Phase-1	18	56.3	8	25	4	12.4	2	6.3	0	0	32	100	1.69
	Phase-2	4	23.5	4	23.5	3	17.6	6	35.3	0	0	17	100	2.65
Proper monitoring and reporting scheme were placed and practiced	Phase-1	6	18.8	12	37.5	8	25	6	18.8	0	0	32	100	2.44
	Phase-2	2	11.8	3	17.6	4	23.5	8	47.1	0	0	17	100	3.06
Average	Phase-1													2.73
Average	Phase-2													3.44

Source: own computation, 2020

Generally, from the response, it can be said that project integration management was practiced in Deliver ICT who managed phase 2 of the project as its average mean greater than the settled standard and for phase 1 project, managed by INSA it would be very difficult to deduce that project integration management was practiced. It worth to mention that both Deliver ICT and INSA had short come in closing the project in pre-scheduled time.

4.3.11 DBE Project Implementation Challenges

Table 4.12 depicts factors that are assumed to be a challenge in rolling out the DBE Network and Security project. The reply from the respondents were captured to reflect the challenge rate in five levels starting from the Least, which refer the lowest challenge, to the highest challenge represented by extreme level.

For the DBE phase 1 project managed by INSA majority of the respondents were prescribed the following were challenges in implementing the project: lack of strategy and planning, lack of oversight by strategic core, lack of project communication, reluctance of organizational personnel with a percentage of 50 %, 62.6 %, 53.5 %, and 50 %, respectively.

And for the phase 2 project managed by Deliver ICT, the following were challenges as per the responders' reply. Lack of project communication (70 %), poor estimates (64.7 %) and unrealistic expectations (53 %). Except for lack of project communication, according to the responders' reply, the challenges in phase 1 managed by INSA and phase 2 project managed by Deliver ICT are different. Thus, for both phase 1 and phase 2 project the rest of the factors were less challenging factor and this may infer that majority of the presumed challenges in DBE project were not great obstacles.

Table 4.12: DBE Project Implementation challenges

Factors	Phase	Strongly Disagree		Disagree		Neutral		Agree		Strongly agree		Total		mean
		N	%	N	%	N	%	N	%	N	%	N	%	
Lack of strategy and planning	I	0	0	6	18.8	10	31.3	12	37.5	4	12.5	32	100	3.44
	II	9	52.9	6	35.3	1	5.9	1	5.9	0	0	17	100	3.76
Insufficient user involvement	I	8	25	14	43	6	18.8	4	12.5	0	0	32	100	2.19
	II	12	70.6	4	23.5	1	5.9	0	0	0	0	17	100	4.75
Lack of oversight by strategic core	I	2	6.3	4	12.5	6	18.8	6	18.8	14	43.8	32	100	3.81
	II	8	47.1	8	47.1	1	5.9	0	0	0	0	17	100	4.02
Inadequately experienced project managers	I	8	25	10	31.3	12	37.5	2	6.3	0	0	32	100	2.25
	II	6	35.3	5	29.4	5	29.4	1	5.9	0	0	17	100	2.79
Lack of competent staff	I	4	12.5	18	56.3	8	25	2	6.3	0	0	32	100	2.25
	II	8	47.1	6	35.3	3	17.6	0	0	0	0	17	100	3.58
Lack of project communication	I	4	12.5	5	15.8	6	18.8	13	40.95	4	12.5	32	100	3.25
	II	1	5.9	1	5.9	3	17.6	6	35.3	6	35.3	17	100	2.64
Minimization and compromise of scope	I	6	18.8	12	37.5	6	18.8	8	25	0	0	32	100	2.50
	II	11	64.7	3	17.6	3	17.6	0	0	0	0	17	100	4.26
Lack of clear statement of requirements	I	8	25	12	37.5	10	31.3	2	6.3	0	0	32	100	2.19
	II	12	70.6	4	23.5	1	5.9	0	0	0	0	17	100	4.75
Poor estimates	I	6	18.8	14	43.8	4	12.5	8	25	0	0	32	100	2.44
	II	1	5.9	1	5.9	4	23.5	11	64.7	0	0	17	100	4.26
Unrealistic expectations	I	6	18.8	8	25	8	25	10	31.3	0	0	32	100	2.69
	II	2	11.8	2	11.8	4	23.5	7	41.2	2	11.8	17	100.	2.40
Lack of project "ownership" by team	I	6	18.8	6	18.8	6	18.8	14	43.8	0	0	32	100	2.88
	II	8	47.1	8	47.1	0	0	1	5.9	0	0	17	100	4.02
Reluctance of organizational personnel	I	6	18.8	2	6.3	4	12.5	8	25	12	37.5	32	100	3.56
	II	10	58.8	5	29.4	2	11.8	0	0	0	0	17	100	4.02

Source: own computation, 2020

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Summary of Findings

The following bulletins outlines the findings from the study:

- → From the response from the responders it can be said that project scope management was practiced both in phase 1 and phase 2 project. However, there was a gap in producing formal plan that detail how the project scope will be defined, validated, and controlled in phase 1 of the project managed by INSA.
- → With regards to project schedule management, for the phase 1 project response, formal schedule management plan was not there and also had difficulty in controlling change in project schedule. On the other hand, for phase 2 project, except for controlling change in project schedule, project schedule management was practiced well.
- → There was similarity in response to project cost management for both phase 1 and phase 2 project. Except for a gap in producing cost management plan that detail how the project budget is estimated and controlled, project cost management was practiced well in both organizations.
- → The findings of the analysis show that project resource management was practiced both in phase 1 and phase 2 of DBE project. This is also true for project procurement practice as well.
- → The response from the responders on the intent to know if there was project stakeholder's management, show that for phase 1 of the project, project stakeholder management was not practiced. For that of phase 2 project the reply indicate that project stakeholder management was practiced.
- → According to the response, INSA had a difficulty in project integration management practice. This amplified in difficulty of producing single and cohesive project management plan. on the other hand, from the response it can be said that project integration management was practiced in Deliver ICT who managed phase 2 of the project.

→ From the response from the responders there was difficulty in practicing project quality management, project communication management and project risk management both in phase 1 project managed by INSA and phase 2 project managed by Deliver ICT.

5.2 Conclusions

As discussed in previous section, the aim of this study was to uncover and see the similarity and the difference of the project management practice in public agency (INSA) and private firm (Deliver ICT and Telecommunication Technology PLC), in IT project, specifically in Development Bank of Ethiopia Network Infrastructure and Security project in line with the basic research questions developed. Thus, after making literature review, collecting and analyzing all the necessary data the followings conclusions are drawn from the study.

→ Among the ten-knowledge area, the public agency (INSA) who managed the project first phase, managed to practice four of them. These are project scope management, project cost management, project resource management. For the rest of the project management practice, according to the analysis from the response, it is found to be below average.

→ On the other hand, for the second phase of the project managed by Deliver ICT and Telecommunication Technology PLC, the result from the analysis indicate that project scope management, project schedule management, project cost management, project resource management, project procurement management, project stakeholder management and project integration management were practiced well. However, the rest of project management knowledge area, were not practiced as expected.

→ For both the private firm and public agency for the average mean greater than standard set is transcribed as a good practice done on the project. However, that does not mean that it is not requiring further improvement. This is the case as some respondents disagreed that not all the cited factors in the specific knowledge areas are practiced in rolling out the project.

→ The two organizations have a relative similarity in terms of practicing project scope management, project cost management, project resource management in a positive way. On the other hand, from poor project management practice perspective they have relative similarities in terms of project quality management, project communications management

and project risk management. And which led to make unnecessary decisions that may compromise the quality and create a delay on the project.

→ The private firm excel that of public agency in practicing project integration management. The result from the analysis show that most of the plan document such as scope management plan, schedule management plan and cost management plan were not applicable in INSA. This is a strong implication that INSA had no single and cohesive project management plan. Additionally, the private firm applied the practice of stakeholder management, project procurement management, project schedule management and this was not the case for the public agency.

→ The following were prescribed as challenges in implementing the phase 1 project by INSA: lack of strategy and planning, lack of oversight by strategic core, lack of project communication, reluctance of organizational personnel. And for the phase 2 project managed by Deliver ICT, the following were challenges as per the responders reply. Lack of project communication, poor estimates and unrealistic expectations. Except for lack of project communication, according to the responders reply, the challenges in phase 1 and phase 2 are different. Thus, for both phase 1 and phase 2 project the rest of the factors were less challenging factor and this may indicate that majority of the presumed challenges in DBE project were not great obstacles.

→ Overall, based on the responders reply and analysis, Deliver ICT and Telecommunication Technology PLC practiced most of the factors in project management knowledge area in phase 2 project than phase 1 project by INSA.

5.3 Recommendation

→ By following formal procedure INSA need to develop project management plan that holistically define, prepare, and coordinate all the plan components from all the knowledge area and consolidate them into an integrated project management plan. To do so the organization should consider to have a proper project office for such a project and also make sure proper training is delivered to the project management staffs. In addition, the higher management should acknowledge and give an emphasis to the project management team in terms of quantity and quality as much as that of technical team.

→ Both INSA and Deliver ICT need to give more emphasis to the practice of project risk management, project quality management and project communication management by allocating proper resource and teams on the ground. With regards to risk and quality both organizations need to develop the culture of measuring, assessing, managing risk and quality by the general project staff and specialist in the risk and quality management. That way unnecessary decisions that may compromise the quality and bring possible risk is mitigated a head. Developing the culture of proper and effective project communication should also be developed. Project communication among the stakeholders should be carried out using proper tool in proper time to the advantage of the project.

→ Both organizations need to build a culture in managing changes in project with proper monitoring and reporting scheme.

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APPENDIX:

APPENDIX A: Questionnaire

Addis Ababa University

School of Commerce

Master of Project Management

Part I: Respondent profile

Direction:

- ✓ Put "X" mark on your choice
- ✓ If the alternative given does not satisfy your choice, you can write your answer in space provided for the option

1. Gender: 1. Male [ ] 2. Female [ ]

2. Age Group:

1. Below 30 [ ] 2. 30-40 [ ] 3. 40-50 [ ] 4. above 50 [ ]

3. Job Category:

1. Project Coordinator [ ] 2. Project manager [ ]

3. Project Member [ ] 4. Support Staff [ ] 5. or other_____

4. Educational status

1. Diploma/TVT [ ] 2. BA/BSc [ ] 3. MA/MSc [ ] 4. Others_____

5. Work Experience

A. 0-5 years [ ] B. 6-10 years [ ]

C. 11-15 years [ ] D. More than 15 years [ ]

Part II

Direction: Based on your experience in Development Bank of Ethiopia Network Infrastructure and Security Project, kindly read each of the following statements and reply by marking on the appropriate box which best suits your view in practicing project management knowledge areas.

Questions	Please tick (√) on your choice box	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
	I. Project Integration Management					
Q1	Project Manager was assigned early in the project					
Q2	There were efficient change managements					
Q3	Single and cohesive project management plan was developed					
Q4	Project was closed with in pre-scheduled time					
Q5	Proper monitoring and reporting scheme were placed and practiced					
	II. Project Scope Management					
Q1	Requirements of the stakeholder's need was determined and documented					
Q2	Project scope statement that details project scope, boundaries, acceptance criteria and project exclusions were defined.					
Q3	Work Break Down (scope baseline) was created					
Q4	A plan that detail how the project scope will be defined, validated, and controlled was generated					
Q5	Scope validation (by the customer or the user) were done for each deliverable					
	III. Project Schedule Management					
Q1	List of activities to be executed were defined					
Q2	Activities were sequenced					
Q3	Time required for each of activities were estimated					
Q4	Schedule management plan was developed					
Q5	Changes to the project schedule was controlled					
	IV. Project Cost Management					
Q1	Cost estimate in-line with agreed scope were made					
Q2	A budget, which is used as cost baseline, was determined					
Q3	A cost management plan that detail how the project budget is estimated and controlled was generated					

Q4	Change in project budget was controlled					
	V. Project Quality Management					
Q1	Quality standards of the project were identified					
Q2	Quality standards of the project were reviewed					
Q3	Project performance were evaluated on regular basis					
Q4	Results were monitored to check if they comply with the quality standards identified					
	VI. Project Resource Management					
Q1	Resources for each activity was estimated					
Q2	Acquiring project resources were made on time					
Q3	Project team was developed					
Q4	Project team was managed and controlled					
	VII. Project Communication Management					
Q1	The information and communication needed for the project were determined					
Q2	Making the required information available to project stakeholders were made on time					
Q3	Collecting and disseminating performance information were made on time					
Q4	Communication between stakeholders were controlled					
	VIII. Project Risk Management					
Q1	Risks were identified and labeled in risk register					
Q2	For the identified risks response tactics were developed					
Q3	The identified risks were monitored and controlled					
Q4	Proactive risk responses were made					
	IX. Project Procurement Management					
Q1	Procurement Management plan was defined					
Q2	Appropriate quotations, bid, offers or proposal were obtained					
Q3	Potential sources were identified					
Q4	Procurements were conducted as planned					
Q5	Contract was completed and settled properly					
	X. Project Stakeholders Management					
Q1	Stakeholders in the project were identified					
Q2	Stakeholders engagement were planned					
Q3	The communication between project stakeholders were effective					
Q4	Stakeholders engagement was controlled					
Q5	Project progress was reviewed frequently with the customer					

Part III

Direction: IT infrastructure implementation related project challenges are pinpointed and kindly rank each of the challenges based on your experience in Development Bank of Ethiopia Network Infrastructure and Security Project.

Questions	Please tick (√) on your choice box	Least	Lower	Moderate	Higher	Extremely
	DBE Project Implementation challenges					
Q1	Lack of strategy and planning					
Q2	Insufficient user involvement					
Q3	Lack of oversight by strategic core					
Q4	Inadequately experienced project managers					
Q5	Lack of competent staff					
Q6	Lack of project communication					
Q7	Minimization and compromise of scope					
Q8	Lack of clear statement of requirements					
Q9	Poor estimates					
Q10	Unrealistic expectations					
Q11	Lack of project “ownership” by team					
Q12	Reluctance of organizational personnel					