ADDIS ABABA UNIVERSITY
COLLEGE OF COMMERCE

ASSESSING THE CONTRIBUTION OF PROJECT MANAGEMENT INFORMATION SYSTEM IN DASHEN AND AWASH BANKS Sc

By:

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A Project Work Submitted to Addis Ababa University College of Commerce in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Arts in Project Management

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Declaration

I hereby declare that the project thesis entitled "*Assessing the contribution of Project Management Information System* in Dashen and Awash Banks Sc", has been carried out by me under the guidance and supervision of Temesgen B. (PhD). The thesis is original and has not been submitted for the award of any degree or diploma to any university or institutions.

Researcher's Name	Date	Signature
_____	_____	_____

Certificate

This is to certify that the thesis entities "*Assessing the contribution of Project Management Information System* in Dashen and Awash Banks Sc", submitted to Addis Ababa University School of Commerce for the award of degree in Master of Project Management and is a record of bona fide research work carried out by Mr Dawit Bekele, under my guidance and supervision.

Therefore, I hereby declare that no part of this thesis has been submitted to any other university or institution for the award of any degree or diploma.

Advisor Name	Date	Signature
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Abbreviations and Acronyms

IS- Information System
PMIS- Project Management Information System
WBS- Work Breakdown Structure
EVM- Earned Value Management
PERT- Program Evaluation and Review Technique
PMAJ- Project Management Association of Japan
PMI- Project Management Institute
NBE- National Bank of Ethiopia
PMBOK- Project Management Body of Knowldege

Abstract

The study tried to evaluate the major function of project management information system and assess its contribution towards project success in Dashen and Awash Bank Sc since recent phenomena of modern banking system in Ethiopia led us to be capable of automating the banking operation including the project management departments as needed and research findings suggested that a need for efficient information and communication support address this issue as a deeper organization feature embedded in a multi project organization setting. The study implements quantitative research method that variables have been measured with numerical data and analyzed with statistical procedures. Accordingly, it has found that PMIS factor has significant contribution to the performance of project accomplishment of the Dashen and Awash Banks Sc. Additionally PMIS has a greater contribution to managerial function that the manager uses to perform each activity of the project life cycle. And hence, this study has recommended that priority should be given to develop and deploy PMIS in banking industry so as to improve their project performance.

Key Words: - PMIS, Managerial Functions and Project Success

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

A project is a temporary endeavor undertaken to create a unique product, service, or result (Project Management Institute Global Standard (2008). The temporary nature of projects indicates a definite beginning and end. The end is reached when the project's objectives have been achieved, or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists.

Every project creates a unique product, service, or result. Although repetitive elements may be present in some project deliverables, this repetition does not change the fundamental uniqueness of the project work. For example, office buildings are constructed with the same or similar materials or by the same team, but each location is unique – with a different design, different circumstances, different contractors, and so on.

The Institute Project Management Body of Knowledge guide (PMBOK) defines a project as being a temporary endeavor undertaken to create a unique product, service, or result (PMI, 2008). A project can create a product that can be either a component of another item or an end item in itself (PMI, 2008). Project management is defined as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirement (PMI, 2008).

According to the PMBOK, the increase in project management indicates that the application of appropriate knowledge, process, skills, tools, and techniques can have a significant impact on project success (PMI, 2008). The main objective of project management is to ensure a project is to be completed at the required scope defined by the stakeholders, within project budget, on time and delivers a quality product or service as the end result.

In general, project success can be judged as the project completed within time, cost and quality. However, Turner (2009) states that different stakeholders, for example, sponsors, users and

project managers, judge project success in different ways and it is important to achieve a balance of those different criteria, to meet the needs of the different stakeholders.

Information system (IS) are developed using IT to assist people in performing their tasks. PMIS are an example of these IS and are widely regarded as an important building block in project management. These systems have continued to evolve from just being planning, scheduling and resource management information systems to complex, distributed, multi-functional systems that can easily generate information necessary to make decisions, improve the efficiency of implementation among other functions (Ali et al., 2008).

IS plays the most important role in all living and technical system through providing the right information when needed. It provides communication among elements and environments in the course of achieving goals. Nowadays, IS are mainly computer-based systems. They are a combination of hardware, software, infrastructure and employees, organized to facilitate various tasks and activities in an organization. In broad sense, a definition of information system is used to refer not only to the information and communication technology (ICT) that an organization uses, but also to the way in which people interact with this technology in support of business processes. Any specific IS aims to support planning, operations, management decision making (Kroenke, 2008). IS cover various areas of organizations; some support only particular functional areas of organizations (e.g. financial, marketing, production, and human resource management information system), some support entire functional areas of organizations and others support the networks of organizations (e.g. supply chain management information system).

PMIS can be defined as the tools and techniques used in the management of projects whether simple or complex. It can also be described as an electronic information system used to plan, schedule, control, report, communicate, forecast and handle cost for most aspects of a project. Ahleman (2009, cited in Caniels et al., 2011) notes that PMIS have become comprehensive systems that support the entire life cycle of projects, project programs and project portfolios. They can support project managers in their planning, organizing, control, reporting and decision making tasks while evaluating and reporting at the same time (Raymond et al., 2008). According to Elonen et al. (2003, cited in Caniels et al., 2011) inadequate balancing of scarce resources

often results in additional pressure on the organization leading to poor quality of information and longer lead times of project.

Powerful PMIS have become a prerequisite in the management of projects more efficiently and effectively while aiding the project manager in decision making and communication of information among the project team and the stakeholders. According to Raymond et al., (2008) a successful PMIS should have individual impact in terms of satisfied users and effective use of the system and organizational impact i.e. impact on project success in terms of respecting the budget, schedule and specifications. Some factors that determine whether a project manager use PMIS in the daily running of the projects include; the quality of information it will generate, the ability of the PMIS to provide them with the appropriate level of details in relation to their needs, ease of use of the information generated and easy to share it with the project team members.

Parks (2005, cited in Lee et al., 2011) argue that for efficient work performance among the project team members; PMIS supports three basic functions namely communication (PMIS delivers related knowledge and information promptly between members of the team via either external or internal networks), collaboration (PMIS supports an active cooperative management system among the members) and community (PMIS supports accumulation of related information and data through information sharing). Availability of high quality information in PMIS is essential since it assist the project manager to make sound and timely decision thus improving on his/her performance.

The use of PMIS is advantageous to project managers in that it improves effectiveness and efficiency of managerial tasks (planning, scheduling, monitoring and controlling) as well as the productivity in that decision making is timelier (Ibid). Organizations have continually been involved in projects as a competitive tactic to ensure that they remain relevant in their respective fields. To ensure the success of these projects organizations are investing in Project Management Information Systems (PMIS) to assist project managers and the project team in the management and undertaking of the project activities. With the advent of computer software that facilitates the process of decision making, data retrieve ability (for better documentation), timeliness of information and general project planning. The use of PMIS can potentially improve

documentation, better decision making based on accurate information from the database and helps in time and cost management (Kaiser and Ahlemann, 2010). Here, this research tried to find out the contribution of these information systems to increase project success rate in Dashen and Awash Bank Sc.

1.2 Statement of the Problem

It is commonly known that contemporary organization are project oriented that acknowledge project management as an organization strategy, manage a project portfolio of different types and are organized to provide integrative functions. Furthermore, those projects represent their core business value.

Previous project management researches like Ali and Money, 2005; Sodelund and Tell, 1998; Lundin and Soderholm, 1995; shendhar and Dvir, 1996 and so on essentially focus on single project management and there is a substantial body of knowledge on the methodologies and tools used to support project management from its traditional form to more agile ones (Kerzner 2003; PMI, 2001). However, recent project management researches like Sundstrom and Engwall, 2006; Mortensesn, Woolley and O'Leary, (2007) and others has shifted their focus towards multi project management.

Multi project management refers to the simultaneous managing of several projects on the operational level with the aim of the successful functioning of a single project and overall organizational success. On multi project management, the problem of resource allocation which includes human, financial and time are inherently complex. Engwall and Jebrant (2003) studied resource allocation and suggested that there is a need to address this issue as a deeper organization feature embedded in a multi project organization setting.

For the above mentioned problem concerning human resource management, financial management and quality management in multi-project management, several authors like Ahleman and Riempp, 2008; Kaiser and Ahleman, 2010; Caniels, Ralph and Bakens, 2012 and others have suggested a need for efficient information and communication support.

According to (Project Management Knowledge, 2010) PMIS are system used in project management to deliver information. Some PMIS tools include Micro-Soft Project, dotProject and Primavera. The major challenge of Project Management is to achieve all of the project goals and objectives while honoring the preconceived project constraints of time, budget, quality and scope as well as optimizing the allocation and integration of inputs needed to meet pre-defined objectives while mitigating any risks. PMIS are important building blocks of efficient and effective project management and have considerably changed from scheduling applications to complex information systems that cover wide range of project processes while addressing multitude of stakeholders (Kaiser et al., 2010).

Unlike the fact that the field of project management as a subject is a recent phenomenon in Ethiopian higher educational institutions, the recent phenomena of modern banking system in Ethiopia led us to be capable of automating the banking operation including the project management departments as needed but automating alone cannot show us how well the system performs. So it is also expected to understand the clear contribution of systems for the success of the intended mission. In order to address such problem many studies should be made in the area. Nevertheless, preliminary investigation on the area revealed that there are no well documented researches. Therefore, this study has been intended to explore contribution of PMIS in facilitating management of projects successfully within Dashen and Awash Bank Sc.

1.3 Objective of the Study

The main objective of this study is to assess the contribution of project management information system to managerial functions and toward facilitating the performance of projects in Dashen and Awash Bank Sc.

Specific objective of the study

This study has tried to achieve the following specific objectives:

- ✓ To identify the major managerial functions of a given project management information system in order to facilitate project success in Dashen and Awash Bank Sc.
- ✓ To evaluate the contribution that a given a project management information system function‘s have in facilitating projects success in Dashen and Awash Bank Sc.

1.4 Basic Research Questions

Basic research question is to what extent project management information system contributes to managerial function and towards project performance of Dashen and Awash Bank Sc?

Specific research questions

- ✓ What is significant level of PMIS that can be used to facilitate project success in Dashen and Awash Bank Sc?
- ✓ What is the level of contribution of a given PMIS in assisting managerial function in Dashen and Awash Bank Sc?

1.5 Significance of the study

Taken as a whole, this study has examined the contribution of PMIS function in facilitating the project performance of Dashn and Awash Bank Sc. The researcher believes that this study have a significant role in showing the nature, development and contribution level that a Project Management Information System has in banking industry of the country in general and in the private banks in particular. Furthermore, it is also aimed at giving the right information to the system users, organizations and stakeholders about the level of Project Management Information System that they are lagging to use in their activities of managing a project. In addition to these, this study contributes to filling the gap in the area and provides the basis for further research in the literature regarding functional role of project management information system on project success.

1.6 Scope of the study

This study focused on the managerial function of a project management information system and its contribution to project performace in Dashen and Awash banks and its scope has been delineated only to those private banks namely, Dashen Bank Sc and Awash Bank Sc since both banks are pioneer among private banks in terms of profit, branch expansion; capital and so on.

1.7 Organization of the paper

The study has been organized in five chapters. The paper begins with an introductory chapter including background of the study which states the brief overview of loans project management information system, statement of the problem, research question, objective, significance, delimitation of the study. Chapter two deal with a review of related literature which includes theoretical foundation of the study. Chapter three is research design and methodology which briefly describe design of the study, the sample population, source of the data, measuring instruments, and data analysis techniques. Chapter four contains data presentations and discussions which includes regression results and discussions. Finally, conclusion and recommendation has been given in the last chapter five.

CHAPTER TWO

REVIEW OF RELATED LITURATURE

2.1 Background of the Organization

A bank is a financial institution that accepts deposits from the public and creates credit. Lending activities can be performed either directly or indirectly through capital markets. Due to their importance in the financial system and influence on national economies, banks are highly regulated in most countries. Most nations have institutionalized a system known as fractional reserve banking under which banks hold liquid assets equal to only a portion of their current liabilities. In addition to other regulations intended to ensure liquidity, banks are generally subject to minimum capital requirements based on an international set of capital standards, known as the Basel Accords.

According to wikipedia (2010), Banking in its modern sense evolved in the 14th century in the rich cities of Renaissance Italy but in many ways was a continuation of ideas and concepts of credit and lending that had their roots in the ancient world. In the history of banking, a number of banking dynasties - notably, the Medicis, the Fuggers, the Welsers, the Berenbergs and the Rothschilds - have played a central role over many centuries. The oldest existing retail bank is Banca Monte dei Paschi di Siena, while the oldest existing merchant bank is Berenberg Bank. The economic functions of banks include:

Issue of money: - in the form of banknotes and current accounts subject to cheque or payment at the customer's order. These claims on banks can act as money because they are negotiable or repayable on demand, and hence valued at par. They are effectively transferable by mere delivery, in the case of banknotes, or by drawing a cheque that the payee may bank or cash.

Netting and settlement of payments: - banks act as both collection and paying agents for customers, participating in interbank clearing and settlement systems to collect, present, be presented with, and pay payment instruments. This enables banks to economize on reserves held for settlement of payments, since inward and outward payments offset each other. It also enables

the offsetting of payment flows between geographical areas, reducing the cost of settlement between them.

Credit intermediation: - banks borrow and lend back-to-back on their own account as middle men.

Credit quality improvement: – banks lend money to ordinary commercial and personal borrowers (ordinary credit quality), but are high quality borrowers. The improvement comes from diversification of the bank's assets and capital which provides a buffer to absorb losses without defaulting on its obligations. However, banknotes and deposits are generally unsecured; if the bank gets into difficulty and pledges assets as security, to rise the funding it needs to continue to operate, this puts the note holders and depositors in an economically subordinated position.

Asset liability mismatch/Maturity transformation – banks borrow more on demand debt and short term debt, but provide more long term loans. In other words, they borrow short and lend long. With a stronger credit quality than most other borrowers, banks can do this by aggregating issues (e.g. accepting deposits and issuing banknotes) and redemptions (e.g. withdrawals and redemption of banknotes), maintaining reserves of cash, investing in marketable securities that can be readily converted to cash if needed, and raising replacement funding as needed from various sources (e.g. wholesale cash markets and securities markets).

Money creation: – whenever a bank gives out a loan in a fractional-reserve banking system, a new sum of virtual money is created. Banks' activities can be divided into: retail banking: dealing directly with individuals and small businesses; business banking: providing services to mid-market business; corporate banking: directed at large business entities; private banking: providing wealth management services to high-net-worth individuals and families; Investment banking: relating to activities on the financial markets. In other hand, National bank of Ethiopia (2016) states that, the development of Ethiopian banking starts from the beginning of twenty century to1936. In fact, the history of banking in Ethiopia dates back to the turn of the century, when, in1905, the Bank of Abyssinia was established in Addis Ababa, under the reign of Menelek II. This event marked the introduction of banking in the country.

National Bank of Egypt having been entrusted of the project, the new institution was chartered in Cairo and its shares were subscribed in a number of countries besides Ethiopia The Bank of Abyssinia was given a 50-years concession and was engaged in issuing notes, collecting deposits and granting loans, but its clients were mostly foreign businessmen and wealthy Ethiopians. A few years later, disappointed by the behavior of this bank, mainly devoted to profit-making rather than promoting economic development, the Emperor supported the establishment of a wholly Ethiopian bank, the Society Nationale d'Ethiopie pour le Developpement de l'Agriculture etdu Commerce. Haile Sellassie, after acceding to the throne in 1930, could not accept that the country's issuing bank was foreign-owned and, in agreement with National Bank of Egypt, decided liquidation of the Bank of Abyssinia. A new bank, the Bank of Ethiopia, under Government control, was established in 1931 and retained management, staff, premises and clients of the old bank. Italian occupation in 1936 brought the liquidation of the Bank.

According to Usaid (2005) Ethiopia‘s current banking system has been developing only since the early part of the previous century. When the Derge took over the country after a bloody revolution in 1974, it nationalized all private banks and insurance companies. By 1992 the Ethiopian financial sector consisted of five government-owned banks: the National Bank of Ethiopia (NBE-the central bank), the Commercial Bank of Ethiopia (CBE), the Housing and Savings Bank, the Agricultural and Industrial Development Bank, and the Ethiopian Insurance Corporation. In 1994 the government issued Monetary and Banking Proclamation No. 83/1994, giving the NBE increased autonomy and responsibility to supervise the banking system. The proclamation also opened the door for private banks to operate once again, alongside the state-owned financial institutions. With the Proclamation on the Licensing and Supervision of Banking and Insurance Businesses, six new, private banks were established: Awash International Bank, Bank of Abyssinia and Dashen Bank. Dashen Bank was probably the earliest, established in 1995. Private Banks play an important function in the Ethiopian economic development, particularly after the announcement of Proclamation No.84/1994. 4

National bank of Ethiopia (2016) states that currently, there are eighteen Commercial banks are operating in Ethiopia of which two of them are Government owned Banks. Such as; Commercial

Bank of Ethiopia and Development Bank of Ethiopia. The remaining sixteen banks are private owned Commercial banks. Namely: Abay Bank S.C, Addis International Bank S.C, Awash International Bank S.C, Bank of Abyssinia S.C, Berhan International Bank S.C, Bunna International Bank S.C, Cooperative Bank of Oromia S.C, Dashen Bank S.C, Debub Global Bank S.C, Enat Bank S.C, Lion International Bank S.C, Nib International Bank S.C, Oromia International Bank S.C, United Bank S.C, Wegagaen Bank S.C, and Zemen Bank S.C. Taddesse (2010) states that recently, there is a common understanding that using information technologies has been crucial to broaden market share and cost management.

Accordingly, majority of private commercial banks are invested in technology to promote information and communication in areas of their functions. Because they are very directly identified with gaining or losing of market share and project profitability. This in turn, has to be reflected in their performance. In today‘s business environment, information systems are an absolute necessity in order for companies to attain strategic goals and improve operational performance. In the banking industry, financial managers are under increasing pressure from stockholders, other managers, employees, and customers to justify the value and contribution of IT expenditures to the productivity, quality, and competitiveness of the organization. However, the use, experience and development of information system specifically that of the project management information system is a recent phenomenon for the privately owned banks in Ethiopia (Tadesse 2010).

2.2 Definitions of Project, Project Management and Project Success

According to Project Management Institute Global Standard (2008), a project is a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates a definite beginning and end. The end is reached when the project‘s objectives have been achieved, or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. Temporary does not necessarily mean short in duration. Temporary does not generally apply to the product, service, or result created by the project; most projects are undertaken to create a lasing outcome. For example, a project to build a national monument will create a result expected to last centuries. Projects can also have social, economic and environmental impacts that far outlast the projects themselves.

Every project creates a unique product, service, or result. Although repetitive elements may be present in some project deliverables, this repetition does not change the fundamental uniqueness of the project work. For example, office buildings are constructed with the same or similar materials or by the same team, but each location is unique with a different design, different circumstances, different contractors, and so on. An ongoing work effort is generally a repetitive process because it follows an organization's existing procedures. In contrast, because of the unique nature of projects, there may be uncertainties about the products, services, or results that the project creates. Project tasks can be new to a project team, which necessitates more dedicated planning than other routine work. In addition, projects are undertaken at all organizational levels. A project can involve single personnel, a single organizational unit, or multiple organizational units (Turner R., Ledwith A. & Kelly J. 2012).

Project Management Institute (PMI) is a widely recognized association by project management practitioners internationally. The PMI is prominent in the research and training of professionals in the United States but it also has a significant global presence. The Institute's Project Management Body of Knowledge guide (PMBOK) defines a project as being a temporary endeavor undertaken to create a unique product, service, or result PMI (2008). A project can create a product that can be either a component of another item or an end item in itself (PMI 2008). Project management is defined as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirement (PMI 2008). There are alternate definitions of project and project management from other guides or frameworks.

The Project Management Association of Japan (PMAJ 2005) offers another definition for project and project management. According to the PMAJ's Project & Program Management guide (P2M), project refers to a value creation undertaking based on a specific, which is completed in a given or agreed time frame and under constraints, including resources and external circumstances (PMAJ 2005). The PMAJ defines project management as the professional capability to deliver, with due diligence, a project product that fulfills a given mission, by organizing a dedicated project team, effectively combining the most appropriate technical and managerial methods and techniques and devising the most efficient and effective work

breakdown and implementation routes (PMAJ 2005). PMAJ and the Project & Program Management guide are highly regarded by the project management professionals in Japan.

All these definitions of project and project management have similarities and complement each other. According to the PMBOK, the increase in project management indicates that the application of appropriate knowledge, process, skills, tools, and techniques can have a significant impact on project success (PMI 2008). The main objective of project management is to ensure a project is be completed at the required scope defined by the stakeholders, within project budget, on time and delivers a quality product or service as the end result. In general, project success can be judged as the project completed within time, cost and quality. However, Turner (2009) states that different stakeholders, for example, sponsors, users and project managers, judge project success in different ways and it is important to achieve a balance of those different criteria, to meet the needs of the different stakeholders.

2.3 Project Success Criteria

According to Matilda and Lilian (2014) in the past (at least 20 years ago) project success was related to the completion of project activities in the due term, budget, and expected quality. By further research (e.g. Baccarini, 1999; Shenhar, Levy and Dvir, 1997) the project success concept has been expanded to a six-dimension construct where, additionally to the original dimensions (time, cost and quality), other important issues have been incorporated. These facets are: (i) meeting the strategic goals of the client organization, (ii) achieving satisfaction of the end users and (iii) attaining satisfaction of all other stakeholders. Finally, in case that the criteria for project success are defined in a particular setting, there are still some conditions that should be provided in order to consider a project as successful.

According to Crawford (2002) project success is an important project management issue, it is one of the most frequently discussed topics and there is a lack of agreement concerning the criteria by which success is judged (Pinto and Slevin 1988; Freeman and Beale 1992; Shenhar, Levy, and Dvir 1997; Baccarini 1999). A review of the literature further reveals that there is, in fact, a high level of agreement with the definition provided by Baker, Murphy, and Fisher (1988), that project success is a matter of perception and that a project will be most likely to be

perceived to be an overall success if the project meets the technical performance specifications and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people on the project team, and key users or clientele of the project effort.

There is also a general agreement that although schedule and budget performance alone are considered inadequate as measures of project success, they are still important components of the overall construct. Quality is intertwined with issues of technical performance, specifications, and achievement of functional objectives and it is achievement against these criteria that will be most subject to variation in perception by multiple project stakeholders.

2.4 Project Management Information System

According to Project Management Knowledge (2010) the Project Management Information System is also used to create a specific schedule and define the scope baseline. At the execution of the project management goals, the project management team collects information into one database. It is used to compare the baseline with the actual accomplishment of each activity, manage materials, collect financial data, and keep a record for reporting purposes. During the close of the project, the Project Management Information System is used to review the goals to check if the tasks were accomplished. Then, it is used to create a final report of the project close. A comprehensive PMIS would cover the complete life- cycle of a project and would provide the necessary support for decision making.

One important purpose of this information system is to receive the actual data about the status of a project at pre-determined intervals, process this information to evaluate the impact of these outcomes and project these impacts in terms of an expected date of completion and an expected cost of completion. This processed information is then made available to the Project manager and his team who would then use this to decide the necessary corrective actions and execute them. PMISs have capabilities that assist project managers in planning, budgeting, and resource allocation. Many PMISs additionally perform assorted analyses such as variance, performance, and forecasting for any level of the WBS and project organization. A good PMIS enables facile control of changes to system configuration and project plans as well. These PMIS allow for quick review and easy periodic updating; they filter and reduce data to provide information on summary, exception, or what if bases (project management Knowledge 2010).

Ashwinprince (2012) states that a PMIS is typically a computer- driven system to aid a project manager in the development of the project. A PMIS can calculate schedules, costs, expectations, and likely results. The goal of a PMIS is to automate, organize, and provide control of the project management processes. A typical PMIS software system has: a WBS creation tools, Calendaring features, Scheduling abilities, Work authorization tools, EVM controls, Quality control charts, PERT charts, Gantt charts, and other charting features, Calculations for the critical path, EVM, target dates based on the project schedule, Resource tracking, leveling and Reporting functionality. Project Management Information System (PMIS) are system tools and techniques used in project management to deliver information.

Project managers use the techniques and tools to collect, combine and distribute information through electronic and manual means. It‘s also used by upper and lower management to communicate with each other. In the develop portion of the project, the PMIS can be used to help the project management team create the schedule, estimates, and risk assessments, and to gather feedback from stakeholders. Mirjana Kljajic Borstnar and Andereja Puchihar (2011) showed that the PMIS also includes a configuration management system. Configuration management is an approach for tracking all approved changes, versions of project plans, blueprints, software numbering, and sequencing. A configuration management system aims to manage all of the following: Functional and physical characteristics of the project deliverables, it Control, track, and manage any changes to the project deliverables, it Track any changes within the project and it Allow the project management team to audit the project deliverables to confirm conformance to defined criteria for acceptance. PMIS help plan, execute and close project management goals. During the planning process, project managers use PMIS for budget framework such as estimating costs.

Hacelka & Rajkumar, 2006 noted that with an effective PMIS the project manager does not have to wait for days or comb through reams of data to identify problems and determine project status. It Highlight deviations from the plan, if any, in respect of every component of the project and also to indicate the effects of such, deviations on the overall status and completion of the project

as a whole. It Form the basis of updating of project schedule wherever necessary. It Identify and report on critical areas which are relevant to different levels of management and to highlight the corrective action that needs to be taken. It sift the information and report on an exception basis. In other words, its emphasis is focused on those activities that are not going according the plan rather out of the plan and it Provide a basis for the evaluation of the performance of the functions of various managers and departments by regular comparisons with budgets/plans/schedules.

Computer-based PMISs store large amounts of information that is easily accessed, prioritized, and summarized. Manual systems for large projects are tedious to maintain, difficult to access, and provoke people to try to work around them or avoid them. They require the efforts of numerous support personnel to maintain and use their outputs for analysis. In contrast, computer-based PMISs can perform much of this analysis, reduce the requirement for clerical personnel, and relieve managers and support personnel from having to do computations. This frees them to use analysis results for making decisions. The speed, capacity, and efficiency of computers afford still another benefit: economy. In most cases, computers offer a significant cost advantage over manual systems for storing and processing information. Assuming input data are correct, computers produce fewer computational errors and reduce the cost of correcting mistakes (Raymond L., 1987) & (Light M., et.al., 2005).

Computer-based PMISs are much better at handling and integrating complex data relationships. Large projects with thousands of work tasks, hundreds of organizations, and tens of thousands of workers cannot be managed efficiently without computers. For managing large projects, a computer-based PMIS is a virtual necessity, but even in small projects it simply makes the work easier to manage. Simpler PMISs have limited capability, but they usually are good at what they can do, and they can be of tremendous benefit. Also, once mastered, it is easy to upgrade to more sophisticated systems (Raymond L., 1987). Microsoft Project (MS Project) dominates project management software systems. This software system carries its own database and is compatible with SQL Server or Oracle databases. Although it requires installation on every user‘s computer, it is fully compatible with Microsoft Office so team members can easily save to the database documents created in any office application.

In addition, because it has the same toolbars as MS Office applications, most users become quickly familiarized with it. Meredith and Mantel (2006), Besner C., Hubbs, (2009) found that MS Project provides the ability to publish to the Internet or the company intranet and there are no limits to the number of tasks or projects the software can handle. Project Scheduler works with an SQL database and is MS Office compatible. Information from multiple projects or subprojects can be merged or consolidated to reveal companywide resource utilization. The report writer enables a wide range of standard and customized reports, which can be output in HTML format. Here, data can be located on shared disk drives and accessed only by users with the appropriate password. Welcom has three software products: Open Plan, Cobra, and Spider. Open Plan has advanced scheduling and modeling tools for resource management. It integrates company-wide information and enables information sharing across multiple projects.

Monica Njoki Kahura 2013 stated that team members can work on pieces of the project, then roll-up information for composite reporting. Cobra is a cost-management tool designed to manage and analyze budgets, earned value, and forecasts. Spider is a multiuser, multi project web-based tool for viewing and updating project data from Open Plan user Web browsers. A Trakker offers a variety of interesting products including tools for risk management activity-based costing, earned value management as well as the usual planning, budgeting, and tracking tools. These tools interface with commercial accounting systems and can be Web-enabled for use on the Internet or intranet with browsers. A Primavera offers four software products. These includes: Sure Trak Project Manager. This software enables modeling and scheduling of simultaneous projects of up to 10,000 activities per project. Activities can be inserted or rearranged on Gantt charts and PERT charts with a mouse click and the actual completion dates and costs can be compared with targets, progress estimated for each activity or for the entire project, and forecasts produced of resources necessary to get a project back on track but If resources exceed supply, Sure Trak can reassign them from low-priority activities. Assignments, deadlines, and status can be shared with project participants at all levels and locations using the Web publisher (Monica Njoki Kahura 2013).

The Benefits of Web based project management include immediate availability of project information, efficiency and accessibility for communicating with workers, ease of learning and

usage, and reliability and currency of information because it is entered and communicated in real time. Web-based project management fills the information needs of project stakeholders at all levels; from individual teams, team members, and project managers working on a particular project; to high- level managers who want information about every project in the organization so that each team member can have his/her own individual web page on which to report progress and retrieve assignments. Web pages for team members at scattered worksites enable everyone to easily send information to the project manager, and vice versa. The project manager can then aggregate the provided information to create an overview of the entire project (Hacelka & Rajkumar, 2006).

Web-based tools are easy to learn, understand, and use. Because the training and learning required for Web-based tools are minimal, team members can concentrate on their job rather than spend time in training, or in trying to figure out the software. In most cases, the necessary tools are already at hand. Web- based software requires one thing: access to a Web browser, such as Internet Explorer or Netscape, which is available on any computer with Internet access. Internet and intranet networks are easy to use and learn, and therefore team members are likely to use them more frequently for status reporting. Special Web site administration is unnecessary when team members, who enter up-to-date information, maintain their own sites. Web based communication not only provides management with a current view of projects, but it demands low overhead and frees management from worry associated with system updates and maintenance.

Monica (2013) suggests that a PMIS need to continuously match project requirements that originate from project-specific governance, complexity, strategic importance among other project requirements. Below is a conceptual framework showing the independent and dependent variable (International Journal of Academic Research in Business and Social Sciences). Conceptual Framework PMIS can be defined as the tools and techniques used in the management of projects whether simple or complex. It can also be described as an electronic information system used to plan, schedule, control, report, communicate, forecast and handle cost for most aspects of a project.

According to Project Management Knowledge (2010) PMIS is a system tools and techniques used in project management to deliver information. Some PMIS tools include Micro-Soft Project, dot Project and Primavera. The major challenge of Project Management is to achieve all of the project goals and objectives while honoring the preconceived project constraints of time, budget, quality and scope as well as optimizing the allocation and integration of inputs needed to meet pre-defined objectives while mitigating any risks. Ahleman (2009, cited in Caniels, M. C.J., & Bakens R. J.J.M., 2011) notes that PMIS have become comprehensive systems that support the entire life cycle of projects, project programs and project portfolios. They can support project managers in their planning, organizing, control, reporting and decision making tasks while evaluating and reporting at the same time.

According to (Raymond et al., 2008), Elonen S., Artto, K.A. (2003, cited in Caniels, M. C.J., & Bakens R. J.J.M., 2011) inadequate balancing of scarce resources often results in additional pressure on the organization leading to poor quality of information and longer lead times of project. PMIS is considered advantageous to project managers because of the alleged contribution regarding timelier decision making and project success (Raymond et al., 2008). Powerful PMIS have become a prerequisite in the management of projects more efficiently and effectively while aiding the project manager in decision making and communication of information among the project team and the stakeholders.

According to Raymond, L. & Bergeron, F (2008) a successful PMIS should have individual impact in terms of satisfied users and effective use of the system and organizational impact. Some factors that determine whether a project manager will use PMIS in the daily running of the projects include; the quality of information it will generate, the ability of the PMIS to provide them with the appropriate level of details in relation to their needs, ease of use of the information generated and easy to share it with the project team members. Monica (2013, cited in Lee, S. K., & Yu, J. H. 2011) argue that for efficient work performance among the project team members; PMIS supports three basic functions namely communication (PMIS delivers related knowledge and information promptly between members of the team via either external or internal networks), collaboration (PMIS supports an active cooperative management system among the members)

and community (PMIS supports accumulation of related information and data through information sharing).

Availability of high quality information in PMIS is essential since it assist the project manager to make sound and timely decision thus improving on his/her performance. The use of these systems not only gives the firms competitive edge against their competitors but also enhances the effectiveness of construction projects throughout their life cycle and across the different construction business functions. According to Kaiser, M. G., & Ahlemann, F. (2010) the use of PMIS is based on the belief that their cost will be offset by the benefits that come along with it. They continue to say that the broadening of PMIS scope enables organizations to not only manage individual projects but whole project portfolios. These PMIS support most of the project life cycle phases from the idea generation, risk management, stakeholder management to the management of knowledge created long after the project completion. The System qualities of any system refer to the non-functional requirements used to evaluate the system performance and when measuring the quality of a system the focus is on the performance characteristics of the system under study.

According to Kim (2007, cited in Lee, S. K., & Yu, J. H. 2011) system qualities of a PMIS includes convenience, simplicity, accuracy, reliability, speed, availability, stability, compatibility and accessibility of the system. PMIS should be flexible enough in order to meet the varying construction management responsibility as the scope of construction management varies from project to project (Jung et al., 2011). PMIS that have risk management tools (e.g. Risk impact assessment, risk classification and risk ranking) have high quality since they support and ameliorate better decision making.

2.5 The Functions of PMIS

Anna (2011) states that the use of the PMIS was measured by establishing the extent to which various system functions and their associated tools were actually used by project managers (Raymond, Bergeron 2008). The PMIS functions were divided into five categories:

- ✓ The planning function tools aim at preparing the overall project plan; they include: work breakdown structure, resource estimation, overall schedule, Gantt, PERT, CPM.
- ✓ The monitoring function tools are used to regularly assess project progress; they are used for: progress reports and curves, to update operational reports such as completed tasks, percent project completed, effective schedule, remaining tasks and remaining days to complete.
- ✓ The controlling function tools are used to make specific changes to the project; they allow the project manager to: fine-tune forecasts, modify tasks, reassign resources to lower the costs, cancel tasks and modifying the cost of resources.
- ✓ The evaluating function tools are targeted toward project auditing; these tools allow the identification of cost and schedule variations, tracking the use of resources.
- ✓ The reporting function tools give information on the most basic aspects of the project; they include: overview of the project, reports on work-in-progress, budget overruns task and schedule slippages. PMIS can be defined as the tools and techniques used in the management of projects whether simple or complex. It can also be described as an electronic information system used to work on managerial tasks like...Plan, schedule, control, report, communicate, forecast and handle cost for most aspects of a project.

Bennet and Kathryn (2001) states that a reporting function can also led to a competitive advantage so that by filtering on tasks you can produce reports and charts that help your argument and make your point. Here are some examples: A department complains that they are too involved in the project and that it is consuming too much time. You should filter by each department and produce histograms for each department. This should illustrate fairness or equity. You should also produce the cross tabs mentioned above. A department or manager wishes to delay tasks. You can filter on all tasks dependent on the tasks that they propose to delay. This will show the impacts of delay. Some people are not working on their tasks to the extent that is required. The same filtering approach can be used. People are confused by the project because it is large. You should focus on the Critical tasks (those labeled with the resource Critical).

2.6 Objective of Project Management Information System

Wisenepali (2012) states that, the main objective of project management information system is to complete the project successfully within predetermined time with maximum utilization of limited

means and resources. But there are also other objectives and activities related with achievement of the main objective. So, the main objective is divided into different parts. Effective communication system is necessary for effective control. Information system does not only mean exchange of communication, it also means to understand given information correctly. If the information receiver does not know the real intention of information giver, it may be wrongly meant. Different problems may arise in project management. Generally, it is said that - "projects are operated through information system." This statement applies only to the effective and credible information system.

Innumerable types of information are necessary in project management. It is necessary to exchange different types of information for implementation of project, its control, coordination among employees and management and for solving disputes, talking decision, giving direction, identifying problems to the top level management, holding meetings, contacting with considers such as contractors, sellers for implementation of the project, giving information about progress and problems to the public, perform different activities of the project management. However, in narrow meaning the objective of information system is related with the coordination among all those involved in project, effective operation and control of the project activities. Wisenepali (2012) specified that the main objectives of information system in project management are as follows:

- ✓ To give direction by top level management about operation of the project and to provide information to the top level management about problems related with project implementation and availability or scarcity of the prerequisites for the operation of the project; persons and place providing necessary machines, equipment, raw materials, skilled manpower so as to able to operate project.
- ✓ To get necessary information about different system, sub systems, different organization and establish unity among employees.
- ✓ To get information and data necessary for preparation of working schedule and for allotment of duties, authorities and responsibility of the person who are to perform activities of the project.

- ✓ To get information about the works and problems being carried out under the project management and carry necessary direction to the concerned employees for finding out solution of the problems arisen in the operation of the project.
- ✓ To get information about the disputes appeared among the members of project implementation and to give information or direction about the process of solving the disputes and get information from outsides for the smooth operation of the project and give information about them to the concerned persons or team.

There are innumerable objectives of information system in project management. They cannot be described in such a small paper. In short, the objectives of information system are to establish coordination among different activities and persons involved in the project, give necessary direction and control them.

2.7 Characteristics of a PMIS

According to Wikipedia (2010) PMIS Software supports all Project management knowledge areas such as :- Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management, and Project Stakeholder Management.

2.8 Different Types of Project Management Information System (PMIS)

Wisenepali (2015) states that though there are different types of information system under project management information system (PMIS) some are indispensable for all system of project management. Some information under project management information system should be intensely communicated under management. Otherwise project gets in trouble. Such types of information are supposed to be the elements of project management information system. They are divided into three classes as follows:

2.8.1 Strategic Planning Information

The top level management of any project needs basic information to formulate strategy of the project, determine the objective of the project, make arrangement of means and resources, make plan of the project to operate project with maximum utilization of available means and resources.

Project plan can be properly made by adjusting the information and special information with the data of the project. Such data and information are necessary for the planning a project. Besides this, such information and data are compulsory for making plan of project to solve certain problems and do related activities.

2.8.2 Management Control Activities

Project manager needs project control related information for being able to take timely decision and necessary steps for the achievement of the objective of the project. Resources and means can be effectively and skillfully utilized using such information. Mainly, the project manager needs three types of information:

- ✓ Information about the cost of the centers which are responsible for the performance of the organization.
- ✓ Information about direct expenses on project activities and cost.
- ✓ Information about total expenditure of direct and indirect expenses and cost. The manager can easily control the project with the help of such information.

2.8.3 Operational Information

This type of information is needed for the project manager for daily operation of a project. This type of information is necessary in context of implementation of project. With the help of this type of information, evaluation of the implementation aspects can be made to find out whether or not the management side has operated the project effectively and skillfully. The operational information includes information related with regular production, information related with financial account, information related with remuneration, information related with the condition of machines, equipment and other being used in the project, information related with the condition of the necessary information related with daily operation.

2.9 Current Project Management Information System Capabilities

Andrew (2014) states that a Project management information systems save organizations time and promote effective management by simplifying complex tasks like the tracking of project progress, identification and elimination of problems, and the propagation of important project information. Project management information systems allow users detailed insight into resource

allocation, work, and cost with respect to time since scope, resources, schedule, and budget can be consolidated into one place.

Marjolein and Ralph (2011) states that Project Management Information Systems (PMIS) have become comprehensive systems that support the entire life-cycle of projects, project programs, and project portfolios. (Ahleman, 2009). They can support project managers in their planning, organizing, control, reporting and decision making tasks, while evaluating and reporting at the same time (Raymond and Bergeron, 2008). Studies have shown that there are several important factors that encourage project managers to use PMIS (Ali and Money, 2005; Dietrich and Lehtonen, 2005; Raymond and Bergeron, 2008). First, whether or not project managers will use PMIS strongly depends on the quality of the information generated by the PMIS (Ali and Money, 2005; Dietrich and Lehtonen, 2005; Gelbard et al., 2002; Raymond and Bergeron, 2008; Raz and Globerson, 1998). Second, project managers are more eager to use an information system if it provides them with the appropriate level of detail in relation to their needs (Ali and Money, 2005; Raymond and Bergeron, 2008). Third, it is important that the information generated is free of complexity, easy to understand and easy for project managers to share with the project team's members (Ali and Money, 2005). Fourth, PMIS facilitates continuous monitoring of progress.

According to M. Braglia and M Frosolini (2012) there are numerous different PMIS available on the market that can be used by any industry with respect to the scope of their projects and to their specific necessities. Also, some companies can purchase specifically tailored solutions. Therefore, depending upon the company and the type of projects they will be addressed to, PMIS can vary significantly from one another. However, it is important to note that all projects include several basic elements (PMI 2008; Turner, 2009) and that these elements become key requisites of any PMIS:

- ✓ Scope, that is the goal of the project and includes all tasks required to complete it;
- ✓ Resource allocation, to define teams and individual assignments along with materials;
- ✓ Time, Deliverables, Assignments
- ✓ Risk management, to deal with uncertainty and control the project flow effectively;
- ✓ Monitoring, Quality control.

Each task of the project life cycle must constantly be tracked to have a project completed successfully and on time. This means that scope, time and costs constraints (PMI 2008) have been respected as planned or adequately reviewed if necessary. Most companies use a number of different tools, ranging from relational databases to spreadsheets and, in certain cases, simple paper-based documents. Moreover, the members of a single team may not be using the same tools in order to share information on their tasks and timelines (Akram, 2011).

Spreadsheets and other software applications, for instance, are generally available within organizations and are frequently used to support the communication, plot timelines, define budgets, control resource allocations and work progress. To grant effective communications, files have to be sent and received by e-mail regularly. Issues arise when many actors may modify the spreadsheet contents at the same time and if the communication is not maintained properly. E-mails themselves represent a very common communication channel and are used to send and receive information about deliverables, changes in scope and other important issues regarding the project. Unfortunately, it is common for paper-based messages or e-mail to be received and to go ignored for lengthy periods of time, causing serious delays. Further problems and inefficiencies arise when project managers have to track multiple resources, each dealing with specific deliverables and characterized by defined time and cost constraints. Scattered and fragmentary information results in a significant loss of performance. Owing to the above mentioned considerations, it is possible to individuate several benefits deriving from the adoption and the correct use of PMIS:

PMIS are currently available both as a stand-alone and cloud-based solutions. Stand-alone applications are generally hosted on centralized servers. These solutions make it easier for team members to collaborate and they also offer highly standardized interfaces and very fast response times for users. However, they can be very expensive and may be unaffordable for most small businesses. Cloud-based solutions, on the contrary, are more effective (above all with respect to costs) for small businesses due to the fact that they are maintained by third-party workforce on remote servers.

2.10 Conceptual Framework between Functions of PMIS and Project Success

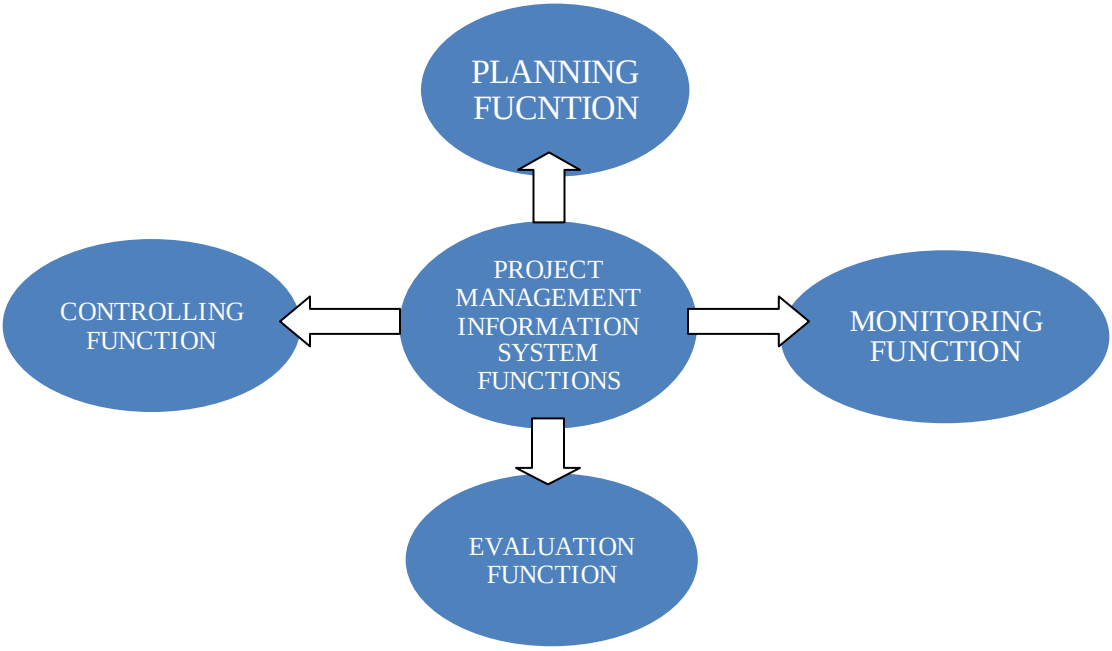

Figure 1: A Conceptual Framework of function of PMIS and Project Success

As shown in the framework, the project management information system function have been measured and used by the project managers and were divided by four categories such as:-

- ✓ Planning Function: - In which PMIS is used in preparing overall project plan including WBS, resource estimation, schedule, Gantt chart etc.
- ✓ Monitoring Function: - In which the system used to regularly assess project progress and update operational reports such as completed tasks, percent project completed remaining tasks and so on.
- ✓ Evaluation Function: - Here PMIS used to auditing project performance, identifying the cost and schedule variation and tracking the use of resources.
- ✓ Controlling Function: - PMIS used to make specific changes to the project and allow the project manager to modify tasks and reassign resources and so on.

Those managerial functions have a direct contribution over the performance of the project.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design and Approach

Since the aim of this paper is to assessing the contribution of PMIS and its role in facilitating projects performance in Dashen and Awash Bank Sc, the study applies both quantitative and qualitative type of data collection and analysis approaches. In the study, therefore, survey of related literatures has been used to measure the functions of project management information system (PMIS) with its application and project successes. At the same time, the major components and role of PMIS has been explored using semi-structured interview made with project officers from both Dashen bank Sc and Awash Bank Sc.

Thus the study has been explanatory research which seeks to study a situation so as to explain the relationship between variables. The study is based on quantitative research approach that different explanatory variable, which are considered as factors of the dependent variable in many research studies, has been measured with numerical data, and analyzed with statistical procedures i.e. the regression analysis. Besides, since the research hypothesis is derived from different theories; the research process is inclined to be deductive nature.

Along with these, sixty questionnaires with a five point likert scale of both open and close ended type has been distributed and expected to be collected. The collected data has been administered using SPSS version 20. Here, PMIS functions has been represented in four common managerial functions including planning (used to prepare the overall project plan), monitoring (used to assess project progress), evaluation (assist manager in managing resources), and controlling (passing information among the project stakeholders) while project success rate has been represented in four contemporary success factors including time, cost, and quality projects of sample private banks of Ethiopia.

3.2 Type of Data and Source of Data

For the accomplishment of this study, the researcher used both primary and secondary type of data. Sixty semi structured questionnaires have been printed and delivered in hand and face to face interviewing has been made with project officers and mangers working in project department of Dashen Bank Sc and Awash International Bank Sc. Besides, Secondary data has been collected from different Articles, Journals, books, and websites etc. that have relevant information to conduct the study.

3.3 Population, sampling method, and sample size

3.3.1 Target Population

The target populations of this study are project management staffs under the project management department on Dashen and Awash Bank Sc. Here, project management department staffs of Dashen and Awash Bank Sc, who have technical competence about the project and its activities, have been taken to the study.

3.3.2 Sampling method

Since members of the project management departments under the two giant private banks i.e. AIB and DB has been selected by their operational experience among private banks of Ethiopia, A method of purposive sampling technique has been applied to distribute the questionnaires to project management staff of AIB and DB. An interview has also been made with persons who work in managerial level of project department of both banks.

3.3.3 Sample size

Currently the bank industry has been implementing various multi-projects through structuring Project management Department as an essential functional work unit so as to win and survive intense competition in the industry. Among them, Awash International Bank Sc and Dashen Bank Sc are two giant banks with respect to profit, market share and capital and so on and have been selected for this study. Both banks have thirty project management department staffs on average. Accordingly the researcher took sixty project management department staffs that have technical knowhow about the project so as to achieve the study's objective.

3.4 Method of Data Collection

The primary data for this study has been gathered through distribution of structured questionnaire for functional department manager; senior level manager, project analyst of the banks who have various work experience. The questionnaires aimed to inquire into the participants' personal opinion about PMIS functions including planning, monitoring, evaluation and controlling while project success which is represented in three contemporary success factors i.e. time, cost, and quality of the project. The questionnaire has been pretested initially by few numbers of respondents to ensure consistency, clarity and relevancy.

In this study, Questions used to measure variables such as the planning, monitoring, evaluation, and controlling functions of PMIS has directly been adopted from the research (Mirjana Klijajic Borstnar, Andreja Pucihar., 2014 and Monica Njoki Kahura., 2013).

3.5 Measurement of Variables

The variables measured in the questionnaire will include the PMIS functions including planning function (used to prepare the overall project plan), monitoring function (used to assess project progress), evaluation function (assist manager in managing resources), controlling function (passing information among the project stakeholders) and reporting function (used to generate necessary reports for decision making) as independent variables and project success rate representing time, cost, quality, and meeting the strategic goals of the organization as dependent variables. In this section, Common measurement scale for survey of questionnaires will be applied i.e. 5 points likert scale method, where 5 represents that a given PMIS is *'very strongly significant'* contributor for the success of the project, 4 represents *'strongly significant'*, 3 represents *'medium significant'*, 2 represents *'satisfactory significant'* and 1 represents *'low significant'*. At this juncture, seventy respondents is expected to fill the required information regarding demographics, organizational information, and about the roles of PMIS in its five respective functions with that of project success in its four success factors .Finally, an open ended question that lead the respondents to give a general view about the contribution and limitation of their PMIS has been filled and collected.

3.6 Method of Data Analysis

In this study, descriptive and regression statistics has been the major technique of statistical analysis through using SPSS version 20 and Ms-excel (2010). To analyze the contribution of the PMIS function on project success, regression methods, (and especially linear regression of simple ordinary least square (OLS) has the major statistical methods. The rationale for using regression methods are almost all variables in the present study would be measured by interval/ratio scales

Since then, the qualitative data that has been gathered through general comments and interview to be analyzed separately but presented in combination with that of the quantitative information so that it lets the study to produce a more completed analysis.

PMIS factors such as planning, monitoring, evaluation, and controlling are assumed and expected to have a significant contribution on the project success factors such as time, cost, and quality of the project performance.

To check our expectation, the following regression model (Model 1-a) has been used (Eq. (1-a)):

$Y_1=a_1+ b_1X_1+bui$ ..... (1a)

Where; Y1= Overall project success; X1=the formal PMIS function; and ui= error term.

3.7 Validity and Reliability

3.7.1 Determining Validity

Validity is the extent to which test items are a complete and representative sample of the content and skills to be learned. It is really a matter of degree and not all or nothing expression.

- ✓ Concurrent validity. In this study the measures clearly distinguish individual variables or the PMIS functions are significantly contribute for the success of the project or not.
- ✓ Predictive validity. In this study we can predict that which PMIS function will contribute much for the success of projects in private banks of Ethiopia. This means if the current contribution score of a given PMIS function is higher, then it will probably continues to become a highly significant contributor in the future.

- ✓ Convergent validity. Evidence that the same concept measured in different ways yields similar results. In this case, it is observed that if we analyze a project success in a general term rather than measuring it using its three generic factors the result is not different. But for the purpose of clarity to measure the extent to which individual variables have a role on the success factors of the project, we used to measure up on the success factors.
- ✓ Discriminate validity. Evidence that one concept is different from other closely related concepts. So, in our case, each individual variables are seems like a related managerial activities but they are clearly a different tasks.

3.7.2 Determining Reliability

Reliability is an indicator of consistency, i.e., an indicator of how stable a test score or data is across applications or time. To test the internal reliability of the questionnaire, Cronbach's alpha test was used and estimated to be 0.96 which is higher than 0.6, thus the construct has been believed to have adequate reliability.

3.7.3 Ethical Consideration

In order to keep the confidentiality of the data given by respondents, the respondents is not required to write their name and assured that their responses is treated in strict confidentiality. Furthermore, the researcher tried to avoid misleading or deceptive statements to be incorporated in the study. Lastly, the questionnaires were distributed based on voluntary participation.

CHAPTER FOUR

RESUTLS AND DISCUSSION

4.1 Data analysis and Empirical Results with Descriptive Statistics

The descriptive analysis tries to give a general impression of values on individual variables and their components. These values include mean and standard deviation, which can measure the central tendency of a selected sample. The descriptive data in this chapter also show, on the one hand, how each variable related to PMIS factors distributed over managerial functions, and on the other hand, how the variables including the managerial function, (planning; monitoring; evaluation and controlling functions) are distributed in different scales of project performance of sample private banks of Ethiopia. It is observed that the project management information system of the selected banks is in better position that the total activities of a project in private banks in Ethiopia are being facilitated through the use of project management information system.

Of the 60 questionnaires distributed to Awash and Dashen Bank, only 56 were returned of which 29 questionnaires were returned from Dashen Bank Sc and the remaining 27 questionnaires were returned from Awash Bank Sc. The response rate is 93.3 percent. Most respondents of the questionnaires are male (41 out of 56) and female (15 out of 56) of banks, having 73 percent and 27 percent of the total, respectively. Besides, 46.4 percent of the ages of the respondents were between 30-49 years; 44.6 percent of the ages of respondents were between 18-29 years and the remaining 8.9 percent of the age of respondents were categorized above 45 years.

Table 1: Educational Level of the Respondents

Educational Level	Medium and Large sized Firms		
	Frequency	Percent	Cumulative Percent
Diploma	1	1.8	1.8
Degree	40	71.4	73.2
Master	15	26.8	100
Total	**56**	**100**	

Source: Own Survey, 2017

As we can see from Table 1: above, there were 40 respondents who are BA degree holder i.e. 71.4 percent of staffs of the bank filling in the questionnaires. The remaining 26 and 1.8 percent

of the respondents were master and diploma holders respectively. Among 15 MA degree holders of the respondents, only six respondents learnt project management as a field of study.

4.2 Function of Project Management Information System on Private Banks

Table 2: Mean and Standard Deviation of the contribution of PMIS on Managerial Function

The Role of PMIS	Private Banks of Ethiopia	
	Mean	Standard Deviation
Planning Function	4.06	0.47
Monitoring Function	3.53	0.69
Evaluation Function	3.60	1.08
Controlling Function	3.45	0.71
Managerial Function(Overall)	**3.66**	**0.74**

Source: Own Survey, 2017

As it is shown in the table 2, the overall degree of contribution of PMIS on managerial function, is a mean of 3.66. There is a slight variance regarding the mean for each dimension of the managerial function (i.e., Planning Function, Monitoring Function, Evaluation Function, and Controlling Function) with the maximum score 4.06 for Planning Function and the minimum score 3.45 for Controlling function.

Table 3: Mean and Standard Deviation for the Performance of project activities of the banks

Performance	Private Banks of Ethiopia	
	Mean	Standard Deviation
Rate of success within the planned quality standard	3.76	0.56
Rate of success within the planned budget	4.12	0.61
Rate of success within the planned schedule	3.41	0.58
Overall Project Success	**3.76**	**0.58**

Source: Own Survey, 2017

Table 3: shows the results from descriptive statistics that the average overall project success for the sample private banks of Ethiopia is 3.76. However, the accomplishment rate as per the planned schedule is lower than the average score of overall project success level with mean value of 3.41. The mean value of the success rate of the planned budget is 4.12 which are the most performance indicators and more than the average overall project performance.

4.3 Empirical Results: the PMIS Factors and Project Performance

The data analysis in this chapter specifically focuses on assessing contribution of the PMIS to managerial function and its effect on the project success. To analyze the contribution in a logical way, the discussion has been investigated and expected positive outcomes as the previous literature indicates that a significant contribution of PMIS to better project planning, monitoring, evaluation, and controlling which consequently led to highly effective and efficient project success in private banks of Ethiopia.

4.4 The Relationship between Independent Variables and Project Performance

As discussed in the previous chapters, the PMIS factor as a general independent variable is subdivided into the variables of the managerial function which includes planning function, monitoring function, evaluation function and reporting function and influences the dependent variable. These four sub-variables and their assumed significant contribution towards facilitating project performance are shown in the model below. In the current model, quality performance, schedule performance, and cost performance are first combined (by taking the mean value) to be checked as "project success", since these performances show very strong correlations.

The below PMIS model is mainly constructed based on the review of literatures that is related with model of DeLone and McLean as well as Sabherwal et al. (2006). The use of the PMIS was measured by establishing the extent to which various system functions and their associated tools were actually used by project managers. The PMIS functions were divided into four categories:

Functional Relationship between dependent and Independent variables

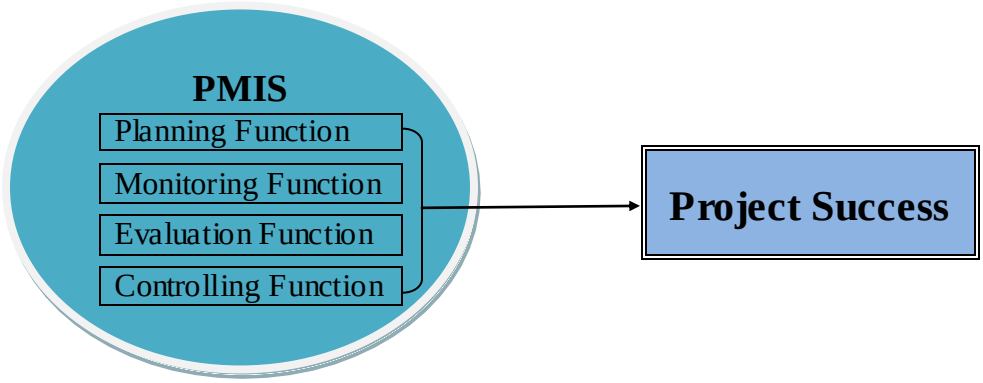

Figure 2: A Functional Relationship between of the PMIS factors and Project Performance

An equation (Eq. 1-a) is shown below to reflect the statistical relationship between the all variables under the general variable of the Project Management Information System factors and project success.

$$Y_{PS}= \alpha_1+ \beta_1X_{PF} + \beta_2X_{MF}+\beta_3X_{EF}+ \beta_4X_{CF} + Ui \ldots\ldots\ldots\ldots (1\text{-a})$$

Where Y_{PS}= Project Success; X_{PF}= Planning Function, X_{MF}= Monitoring Function; X_{EF}= Evaluation Function; X_{CF}= Controlling Function, Ui= error term.

In general, it is possibly expected that there is a significant and positive effect of the project management information system on project performance. Before regression model, correlation matrix is presented below to check whether multicollinearity exists or not.

Table 4: Correlation matrix on Project Success and Independent Variables

Variables	Project Success	Planning Function	Monitoring Function	Evaluation Function	Controlling Function
Project Success	-	0.56	0.64	0.65	0.64
Planning Function		-	0.54	0.54	0.34
Monitoring Function			-	0.89	0.69
Evaluation Function				-	0.72
Controlling Function					-

Source: Own Survey, 2017

The above correlation matrix under table 4 depicts the result of correlation analysis which used to describe linear relationship between both dependent and independent variables. Relatively, controlling function, monitoring function and evaluation function are strongly and positively correlated with project success having correlation coefficient of 0.64 each and P<0.0005, which was statistically significant. Correspondingly, planning function is positively correlated with the dependent variable of project success having correlation coefficient of 0.56 and P<0.0005, which is statistically significant. Therefore, as observed from the above table, there is no multi-collinearity problem among variables to make OLS model.

To check the expected result, P- value must be significant and 'β' in equation (1-a) must be positive. Table 5 presents linear regression results for the variables in this model.

Table 5: Regression Results (ANOVA)

Model		Sum of Squares	df	Mean Square	Sig.
1-a	Regression	5.632	4	1.108	0.000
	Residual	4.461	51	0.087	
	Total	10.093	55		

Source: Own Survey, 2017

The ANOVA result in table 5 indicates that P < 0.0005 which is less than 0.05 which shows that the applied regression model is statistically significance and good enough in predicting the dependent variable.

Table 6: Regression Results on Project Success (Y_{PS}): The Impact of all Variables

Model	Variables	Coefficient	Coefficient value (β)	P-value
1-a	X_{PF}	β_1	0.31	0.007
	X_{MF}	β_2	0.07	0.732
	X_{EF}	β_3	0.15	0.492
	X_{CF}	β_4	0.37	0.011
		α_1	1.59	0.000
R= 0.75, R^2 = 0.56, N = 56				

Source: Own Survey, 2017

Where: - X_{PF}- Planning Function X_{EF}- Evaluation Function

X_{MF}- Monitoring Function X_{CF}- Controlling Function

Results: By checking each variable in the model individually, we can see that there are four sub-variables which are influenced by PMIS factors, which are significantly and positively affecting project success of private banks of Ethiopia. These variables are planning function (X_{PF}), monitoring function (X_{MF}), evaluation function (X_{EF}) and controlling function (X_{CF}). The coefficient values are 0.31, 0.07, 0.15 and 0.37 respectively. This result shows that PMIS factors on managerial function have a significant effect on project performance of the private banks of Ethiopia. R square in the model tells us that the variables of the formal planning function, monitoring function, evaluation function, and controlling function together explain 56 percent of the variance of project performance of private banks of Ethiopia.

However, P-value of set of independent values shows that PMIS factors on monitoring and evaluation function are not statistically significant in explaining the project success. Planning

function and controlling function having p-values of 0.007 and 0.011 respectively are the set of independent variables that has significant effect on project success since P < 0.05.

By using regression analysis, the effect of independent variables which are influenced by PMIS on project success which includes accomplishment rate of the budget, schedule and quality standard are examined and displayed below.

Table 7: The Result of Regression Statistical Analysis is as follows;

Independent Variable		Dependent Variables	Results	
Managerial Functions of PMIS	Planning Function	Overall project Success (Cost + Quality+ Schedule)	**P&E**	**+**
	Monitoring Function		**P&E**	**/**
	Evaluation Function		**P&E**	**/**
	Controlling Function		**P&E**	**+**

Source: Own Survey, 2017

Notes: "P" means predicted result and "E" means empirical result; "+" represents a significant and positive impact; "/" represents an insignificant impact but positive impact; "–" represents a significant but negative impact.

As indicated in the descriptive analysis table 2, the contribution of PMIS on planning function for formulating the strategy of the project; communicating the objective of the project; making arrangement of means and resources and preparing the overall project plan) is higher than other managerial functions. Similarly, the result of regression analysis indicates that the planning function is found to be affects the overall project success rate positively and at level of statistically significant. Likewise, controlling function has positive and significant effect on the overall project success of private banks of Ethiopia. The effects of monitoring and evaluation function, as depicted in the table 7, are not statistically significant with P value 0.73 and 0.49 respectively which is greater than P value of 0.05.

4.5 Discussion of Results

This research is related with the contribution of PMIS factors and their effect on project success specifically in Dashen and Awash Bank Sc. This study adopted quantitative research approach particularly the survey design that different explanatory variable, which are considered as

factors of the dependent variable has been measured with numerical data, and analyzed with statistical procedures i.e. the regression analysis.

According to Anna (2011), the use of the PMIS was measured by establishing the extent to which various system function and their associated tools were actually used by project managers (Raymond, Bergeron 2008). When we seen function of PMIS, it can be observed in the result that the overall degree of contribution of PMIS on managerial function is a mean of 3.66. In the same way, the findings indicate that PMIS is practically used in managerial functions and it has significant contribution for activities undertaken in project department of Dashen and Awash Bank Sc.

Raymond and Bergeron (2008) stated that project management supports the project managers in the planning process including WBS, resource estimation, overall schedule, Gantt, PERT etc. Similarly this study indicates that though there is a slight variance regarding the mean for each dimension of the managerial functions (planning function, monitoring function, evaluation function, and controlling function), PMIS has more significant contribution to planning function of preparing the overall project plan including than monitoring, evaluation and controlling functions since the mean of those is less than the middle value of "3.66".

As it is stated in the research study of Marjolein and Ralph (2011) in today's competitive environment in private banks of Ethiopia, installing and adopting a project management information system have a great contribution in facilitating managerial activities; support the entire life-cycle of projects, project programs, and project portfolios and controlling of the progress of a project and many other.

Even though there are other concepts related to project success which have been incorporated by Baccarini, 1999; and Shenhar, Levy and Dvir, 1997 like meeting the strategic goals of the client organization, achieving satisfaction of the end users and attaining satisfaction of all other stake holder, based on Matidla and Lilian (2014), the project success was concluded to the completion of project activities in the due term, budget and expected quality. Therefore, this research has taken and incorporated this concept of project success as dependent variable. It is found that rate

of the overall project success of Ethiopian private banks shows mean value of "3.76". This result pointed out that 75.2 percent of the project activities have been accomplished within the planned quality standard, budget and schedule over the last three years. The contribution level of PMIS has been examined through regression analysis. Then the constructed PMIS model was assessed through a survey and questionnaire was designed and distributed 60 employees.

Since Monica Njoki Kahura (2013) has specified that there is strong and positive relationship between PMIS and project performance, the regression analysis predictably indicates that there is strong and positive relationship between PMIS factors and project success that PMIS is definitely influencing independent variables: managerial functions (planning, monitoring, evaluation and controlling) of project management department of private banks of Ethiopia which consequently led to higher accomplishment of projects within the planned schedule, budget and quality.

According to Akram Jalal Karim (2011) there is a significant contribution of PMIS to better project planning, scheduling, monitoring and controlling which consequently led to highly effective and efficient project management decision making in each phase of project life cycle. As per the finding of this result as PMIS affects project management decision making in each phase of project life cycle, it will also help to enhance the project performance to be completed within the planned schedule, quality standard and budget. Generally, it is observed and examined that Awash and Dashen Bank Sc use project management information system to facilitate managerial activities in project work so that the system enhances the success of the project and they are on process to establish research and development department to impove their project performance being undertaken.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Major Findings

- ✓ The response rate is 93.3 percent which is out of the 60 questionnaires distributed, 56 were returned. Among them, 29 questionnaires were returned by Dashen Bank's employees of project management office and the remaining 27 questionnaires were returned by Awash Bank's employees of project management office.
- ✓ Most respondents of the questionnaires are male (41 out of 56) and female (15 out of 56) of banks, having 73 percent and 27 percent of the total, respectively. Besides, 46.4 percent of the ages of the respondents are between 30-49 years; 44.6 percent of the ages of respondents are between 18-29 years and the ages of the remaining respondents put on above 46 years which contain 8.9 percent.
- ✓ With regards to level of education of the respondents, there were 40 respondents who are BA degree holder i.e. 71.4 percent of staffs of the bank filling in the questionnaires. The remaining 26 and 1.8 percent of the respondents were master and diploma holders respectively from private and Government University.
- ✓ The descriptive analysis in this chapter shows the frequency, mean value, and standard deviations of all variables in the research model.
- ✓ With respect to the independent variables in this study (functional contribution of project management information system), it is found that except for the one variables "planning function", the mean values are less than the middle value of "3.66". Especially, the controlling function has relatively a low mean value of only 3.45.
- ✓ With respect to the dependent variables in this study (overall project success), it is found that rate of project success associated with planned budget shows high mean values i.e. 4.12. However, relatively, the project success within the planned schedule in the sample banks show low mean values. The values are less than the middle value "3.76".
- ✓ The results indicate that project management information system has contributed to the planning function to the highest degree which includes formulating the strategy of the

project; communicating the objective of the project; making arrangement of means and resources and the work of preparing the overall project plan.

- ✓ Similarly, the planning function is found to be affects the overall project success rate positively and at level of statistically significant. Likewise, controlling function has positive and significant effect on the overall project success of private banks of Ethiopia. The effects of monitoring and evaluation function are not statistically significant with P value 0.73 and 0.49 respectively which is greater than P value of 0.05.

5.2 Conclusion

The main objective of this study is to evaluate the major functions of project management information system its contribution to the success rate of private banks of Ethiopia. The question to have been answered in this study is "whether the PMIS significantly contributes to the performance of projects of private banks of Ethiopia". This study has provided support for the positive effect of the PMIS on project success.

Here is the key finding that empirical study has provided;

- It is obtained that PMIS has positively influenced managerial functions including planning function, monitoring function, evaluation function and controlling function, which lead to better project success.
- PMIS factors on planning and controlling function are set of independent variables that have significant contribution to the performance of the project of private banks of Ethiopia. This implies that project management information system has contributed to planning function of formulating the strategy of the project; communicating the objective of the project, making arrangement of means and resource and preparing the overall project plan and controlling functions including fine-tune forecasts; making modification of project tasks; reassigning resources and material; modifying the cost of resources and so on. These impacts may eventually effect on the performance of the project of private banks of Ethiopia.
- However, monitoring function (to give direction by top level management, to get necessary information for the operation of the project and from outside of the project) and evaluation function (to identify cost and schedule variance timely, to audit the overall project

performance, to assess project progress and so on) are positively but not statistically significant on explaining the performance of the project of private banks of Ethiopia.

5.3 Recommendations

As per the information gathered from the study, a lot of points has thoroughly been seen and recommended by the researcher.

1. It is suggested that it should be given more priority to develop project management information system in private banks of Ethiopia since currently most commercial banks has been engaged in reorganized themselves by forming project management office for their day to day banking activities.
2. Since most projects have been experienced to be completed out of schedule, cost and quality standard, PMIS which involve and influence the managerial function of planning, scheduling, monitoring and resource management that can easily generate necessary information should be deployed since is important building block to manage projects within a limited time, cost and performance condition.
3. Management of private banks of Ethiopia should invite and enroll their staff for training on PMIS programs at educational institution to perform their tasks in a better performance and improve their organizational learning.
4. Finally, it is better to have specialized research department in commercial banks in order to exploit various opportunities intended at improving their project performance ability in the project management information system.

5.4 Limitation of the Study

Since the delimitation of the study is limited only in two private banks, it was difficult to collect sufficient data and gave more empirical result at a general level. All staff of project management office with different years of experience was selected as samples which makes the result of this study limited. In addition, compared to other quantitative research, the sample is small due to limited time and lack of willingness of respondents and there were also some staffs who had not responded at all and some responded after a lot of weeks. This delays the final paper.

5.5 Future Research

It is possible to conduct a wider scale in an attempt to generalize the findings to banking sector at a country level. Further research can also be done to determine whether the findings of the study are consistent across all commercial banks of Ethiopia. The country's monopoly mode of banking sector can be another subject of study as well.

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Annex and Appendix

Survey Questionnaire on: *Impacts of Project Management Information System (PMIS) on Project Success, a Case Study on Private Banks of Ethiopia*.

Prepared for: Bank Staffs of - Awash International Bank and Dashen Bank

Dear, respondent

My name is **Dawit Bekele**, a graduate student of masters of Project Management at Addis Ababa University in extension program. Currently I am conducting project thesis on *assessing the contribution of Project Management Information System*: **Experience From Awash International Bank, And Dashen Bank**. The objective of this study is to evaluate the major functions of project management information system and see whether PMIS has significant impact on the performance of project in Dashen and Awash Banks Sc.

Given below are items designed to collect your opinion on the subject matter. The responses will be used only for the academic purpose and it will be treated in strict confidentiality thus will be kept anonymous. The rating scales have five categories starting from 1 to 5 ranging from low significance to very high significance contribution.

If you wish to contact me for any question regarding this study, feel free to call on +2519-29119114 or

Email ads: dawitb921@gmail.com **I thank you in advance for your diligent cooperation!**

I thank you in advance for your diligent cooperation!

DEMOGRAPHIC ASPECTS

1. Age: ***18-29*** ☐ ***30-45*** ☐ ***46-60*** ☐ ***61and above*** ☐

2. Sex: ***Male*** ☐ ***Female*** ☐

3. Level of education: ***Diploma*** ☐ ***BA/BSC*** ☐ ***MA/MSC and above*** ☐

4. Field of studies: Information/Computer science ☐ ***Project Management*** ☐

Accounting ☐ ***Economics*** ☐ ***Management*** ☐ ***other field:*** ☐

5. Primary role: ***D***irector of PM/PMO ☐ Portfolio Manager ☐ Program Manager ☐

Project Manager ☐ Scheduling Professional ☐ PM specialist ☐

Functional Manager ☐ PM Consultant ☐ Researcher ☐

PM- coordinator ☐ Project Contributor ☐ Other role: ☐

6. How long the organization PM unit uses PM-software?

Less than 6 months ☐ 6 months-1year ☐ 1 year-2 years ☐

3 years – 5 years ☐ 6 years and more ☐

Key: ***The rating scales have five categories starting from 1 to 5 ranging from strongly Low contribution to Very high contribution.***

1	2	3	4	5
Low contribution	Satisfactory contribution	Medium contribution	High contribution	Very high contribution

7. How would you rate the contribution of your Company's Project Management information system for planning function of your project?

The Planning function	1	2	3	4	5
To formulate strategy of the Project					
To communicate the objective of the Project					
To make arrangement of means and resources					
To prepare the overall project plan					

8. **How would you rate the contribution of your Company's Project management information system for monitoring function of your project?**

The Monitoring functions	1	2	3	4	5
To give direction by top level management					
To give information to the top level management					
To get necessary information for the operation of project					
To get information about the works and problems being carried out under the project management.					
To get helpful information from outsides					

9. **How would you rate the contribution of your Company's Project management information system for evaluation function of your project?**

The Evaluation function	1	2	3	4	5
To identify cost and schedule variance timely					
To track the overall allocation of resources					
To audit the overall project performance					
To assess project progress					

10. **How would you rate the contribution of your Company's Project management information system for controlling function of your project?**

The Controlling function	1	2	3	4	5
To fine-tune forecasts					
To make modification of project tasks					
To reassign resources and materials					
To cancel tasks and modify the cost of resource					

THE AVERAGE PERFORMANCE OF PORJECT ACTIVITIES OF YOUR COMPANY OVER THE LAST THREE YEARS

11. **Please indicate the company's project accomplishment rate within the planned quality standards.**

☐ Below 10% ☐ 31–40% ☐ 61–70% ☐ Above 90%

☐ 11–20% ☐ 41–50% ☐ 71–80%

☐ 21–30% ☐ 51–60% ☐ 81–90%

12. **Please indicate the company's project accomplishment rate within the planned budget.**

☐ Below 10%	☐ 31–40%	☐ 61–70%	☐ Above 90%
☐ 11–20%	☐ 41–50%	☐ 71–80%	
☐ 21–30%	☐ 51–60%	☐ 81–90%	

13. **Please indicate the company's project accomplishment rate within the planned schedule.**

☐ Below 10%	☐ 31–40%	☐ 61–70%	☐ Above 90%
☐ 11–20%	☐ 41–50%	☐ 71–80%	
☐ 21–30%	☐ 51–60%	☐ 81–90%	

How do you feel about your PMIS in facilitating success in your projects?

_____
_____
_____
_____
_____

If any more comment, please welcome?

_____
_____
_____
_____
_____
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I thank you very much again for your insightful response!