



**ST. MARY'S UNIVERSITY**

**SCHOOL OF GRADUATE STUDIES**

**SCHOOL OF BUSINESS**

**SIGNIFICANCE OF PROJECT MANAGEMENT INFORMATION**

**SYSTEM TOWARDS FACILITATING PROJECT SUCCESS**

**AT BANKS OF ABYSSINIA S.C**

**BY**

**SHEGAW WALTENIGUS**

**JUNE, 2021**

**ADDIS ABABA, ETHIOPIA**

**THE SIGNIFICANCE OF PROJECT MANAGEMENT INFORMATION SYSTEM  
TOWARDS FACILITATING PROJECT SUCCESS AT BANKS OF ABYSSINIA S.C**

**BY**

**SHEGAW WALTENIGUS**

**ADVISOR**

**ZEMENU AYINADIS (ASST. PROF)**

**A THESIS IS SUBMITTED TO ST. MARYS UNIVERSITY, SCHOOL OF GRADUATE  
STUDIES IN PARTIAL FULFILLMENT OF AWARD OF DEGREE OF MASTERS OF  
BUSINESS ADMINISTRATION (MBA GENERAL)**

**ST. MARY'S UNIVERSITY**

**SCHOOL OF GRADUATE STUDIES**

**SCHOOL OF BUSINESS**

**JUNE, 2021**

**ADDIS ABABA, ETHIOPIA**

**ST. MARY'S UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**  
**SCHOOL OF BUSINESS**

**SIGNIFICANCE OF PROJECT MANAGEMENT INFORMATION**  
**SYSTEM TOWARDS FACILITATING PROJECT SUCCESS**  
**AT BANKS OF ABYSSINIA S.C**

**BY**  
**SHEGAW WALTENIGUS**

**APPROVED BY BOARD OF EXAMINERS**

\_\_\_\_\_

**Dean, School of Business**

\_\_\_\_\_

\_\_\_\_\_

**Advisor**

\_\_\_\_\_

\_\_\_\_\_

**External Examiner**

\_\_\_\_\_

\_\_\_\_\_

**Internal Examiner**

\_\_\_\_\_

## DECLARATION

I, hereby assert that this thesis entitled “The significance of project management information system towards facilitating project success at Bank of Abyssinia S.C” is my own original work, Prepared under for the thesis have been dully acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institutions for the purpose of earning any degree.

---

Name

St. Mary's University, Addis Ababa

---

Signature

June, 2021

## ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate studies for examination with my approval as a university advisor.

ZemenuAyinadis (Asst. Prof)

\_\_\_\_\_

Advisor

Signature

St. Mary's University, Addis Ababa

June, 2021

## **ACKNOWLEDGMENTS**

I wish to express my gratitude to those who have contributed towards successful completion of this research project. First, I thank the Almighty God for giving me the health and ability to complete this research project successfully.

I would like to extend my sincere gratitude to Zemenu Ayinadis (Asst. Prof) who has exerted great and continuous valuable efforts in shaping and assisted me to accomplish this task.

I am also interested to forward my admiration and appreciation to the employees of Bank of Abyssinia S.C for their relevant and genuine responses in the questionnaire.

Finally I would like to thank my entire friend for their immeasurable assistance throughout my study.

## **ACRONYMS**

**PMIS**- Project Management Information System

**WBS** - Work Breakdown Structure

**EVM**- Earned Value Management

**PMI** - Project Management Institute

**S.C** - Share company

## Table of contents

Contents	Pages
DECLARATION .....	i
ENDORSEMENT .....	ii
ACKNOWLEDGMENTS .....	iii
ACRONYMS .....	iv
Contents                      Pages .....	v
List of tables.....	vii
Key Words: - PMIS, Managerial Functions and Project success.....	viii
INTRODUCTION .....	1
1.1. Background of the study .....	1
1.2. Statement of the problem .....	4
1.4. Objective of the study .....	5
<b>1.4.1. General objective of the study</b> .....	5
<b>1.4.2. Specific objectives of the study</b> .....	5
<b>1.5. Significance of the study</b> .....	5
1.7 Organization of the study .....	6
CHAPTER TWO .....	7
REVIEW OF RELATED LITERATURE .....	7
2.1 Project Management Information System.....	7
2.2 The Functions of PMIS .....	18
2.3 Objective of Project Management Information System.....	19
2.4 Characteristics of a PMIS .....	21
2.5 Different Types of Project Management Information System (PMIS) .....	21
2.5.1 Strategic Planning Information .....	22
2.5.2 Management Control Activities .....	22
2.5.3 Operational Information.....	22
2.6 Current Project Management Information System Capabilities .....	23
2.8 Conceptual Framework between Functions of PMIS and Project Success.....	28
CHAPTER THREE .....	30
RESEARCH METHODOLOGY .....	30



3.1 Research Approach .....	30
3.2 Research Design.....	30
3.3 Target Population.....	30
3.4 Sampling Technique and sample size .....	30
3.5 Data type and Source .....	30
3.6 Data gathering Instruments .....	31
3.7 Data Analyzing techniques .....	31
3.8 Reliability and validity of instruments.....	31
3.8.1 Determining Reliability.....	<b>Error! Bookmark not defined.</b>
3.8.2 Determining Validity .....	31
CHAPTER FOUR.....	33
DATA ANALYSIS AND INTERPRETATION .....	33
CHAPTER FIVE .....	39
MAJOR FINDINGS, CONCLUSION AND RECOMMENDATION.....	39
5.1 Major Findings.....	39
5.2 Conclusion .....	39
5.3 Recommendations.....	40
Bibliography .....	41
ANNEX .....	43

## **List of tables**

Table 1: Respondents Characteristics in sample survey .....	34
Table 2: The roles of PMIS functions towards the quality of a project .....	35
Table 3: The roles of PMIS functions towards the cost of a project.....	35
Table 4: The roles of PMIS functions towards the schedule of a project .....	36
Table 5: The roles of PMIS functions towards the satisfaction of all stockholders .....	37

## **Abstract**

*The study tried to evaluate the major function of project management information system and assess its contribution towards project success in Bank of Abyssinia S.C. The study was used the mixed approach. That means both quantitative and qualitative approaches were used. This study was designed based on explanatory research design. The researcher applied both primary and secondary data source by using various data gathering tools and techniques. The primary data was collected through questionnaire and interview whereas the secondary data collect through document review. Researcher used census or total target population. After all the information was collected, the data was summarized, analyzed and presented through different methods. The data analysis method chose based on the type of data used and the nature of the research the research questions and objectives of the study. In this study both quantitative and qualitative data analysis method is employed. Project management information system found to have direct impacts on project success, as it contribute to improving budget control and meeting project deadlines as well as fulfilling technical specifications. Having this in consideration, this study tries to analyze the significance of Project Management Information System (PMIS) functions in facilitating project success in the case of Bank of Abyssinia.*

**Key Words: - PMIS, PM, Bank, Managerial Functions and Project success**

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the study

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.

Project is a temporary endeavor (that has definite beginning and end time) undertaken specific cycle of initiation, Definition, planning, execution and close to create a unique product, service, or result through novel organization and coordination of human, material and financial resources. (Project Management Institute (PMI, 2004).

A project has a defined scope, is constrained by limited resource, involves many people with different skill and usually progressively elaborated throughout its life cycle. (Stanleigh, 2007), (Cleland & Ireland, 2002)

Project is defined as the application and integration of modern management and project management knowledge, skills, tools and techniques to the overall planning, directing, coordinating, monitoring and control of all dimensions of a project from its inception to completion, and the motivation of all those involved to produce the product, service or result of the project on time, with authorized cost, and to require quality and requirements, and to the

satisfaction of participants. [ (Chartered Institute of Building, 2002), (Fewing, 2005), (Carmichael, 2004)]

Project Management deals mainly with coordinating resources and managing people and change. Generally "Managing a project includes: identifying requirements, establishing clear and achievable objectives, balancing the competing demand of quality, scope, time and cost; Adapting specification plans, and approach to the different concerns and expectations of the various stakeholders" (Project Management Institute (PMI), 2004)

According to Raymond et al., 2008 it is paramount for organizations to adequately manage their projects if they are to achieve their performance objectives. They further observe that project management remains highly a problematic endeavor since most projects are either not completed on time or exceed the budget.

PMIS are important building block of efficient and effective project management and have considerably changed from been just scheduling applications to complex information systems that cover wide range of project processes while addressing multitude of stakeholders(Kaiseretal. 2010)

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. PMIS is considered advantageous to project success (Raymond et al., 2008).

Most projects of medium to high complexity use a project management information system (PMIS) for planning and coordination (Johnson and Liberatore, 1998). Project managers have traditionally used them to support the creation of sophisticated plans, including scheduling, resource management and project cost accounting (Riis et al, 1987).

According to (Project Management Knowledge, 2010) PMIS are system tools and techniques used in project management to deliver information. Some PMIS tools include Microsoft 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.

PMIS are important building block of efficient and effective project management and have considerably changed from been just scheduling applications to complex information systems that cover wide range of project success while addressing multitude of stakeholders (Kaiser et al., 2010)

The definition of project success is ambiguous, Salleh (2009). PMBOK 4th edition (2008) stated that project is successful if it achieves the triple objective outcome of with in time, scope, and quality. This is the traditional view of project Management as used by Munns and Bjeirmi (1996). It implies the successful achievement of time, cost and quality objectives, as well as the quality of project process, Erling et al 2006). Turner(2004) identifies on time, within budget and to specification especially for information technology project as the standard for judging success.

Erling et al (2006) states that overall project success deals with the wider and longer term impact of the project, which means both project management success and project product success. They noted that project management can be determine at the end of the project, which means in many cases, success criteria will be determine months or years after finishing the project, especially public projects. Hence, determine ita project is successful is difficult if viewed from the above two success criteria, Erling et al (2006).

Baccarini (1999)use the concept project success in a different approach, viewing it as product success, which implies the quality and impact of the end product to the end user (in terms of satisfaction of user's needs, meeting strategic organizational objectives, satisfaction of stakeholders needs) when a project execution is finished.

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 need 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 system to complex, distributed, multi-functional system that can easily generate

information necessary to make decisions, improve the efficiency of implementation among other functions (Ali et al, 2008).

## **1.2.Statement of the problem**

PMIS provides the frame work for collecting, organizing, storing and processing project information. It provides the basis for assessing the status of the project with respect of time, cost, and performance goals and objectives. It also provides some sort of business intelligence on how the project contributes to the organizations strategy and success. It enhances improving the project success by 75%. Hence quality and use of PMIS are highly essential. Without using any PMIS software, engineers and project managers wouldn't be able to communicate project status adequately with functional departments and upper management as well. However, PMIS provides upper management with adequate information about all the projects in the organization's portfolio (Raymond &Bergeron, 2008).

Rogers (2014) argued that the fundamental purpose of a PMIS is to manage the flow of information between upper and lower management as well as the other stakeholders working on the project with finally results to minimize the allocation of time, money and man-hours spent to complete the project.

The system is used for the beginning of the project that is from planning to executing till closing of each project. According to Project management departmentof bank of Abyssinia manager projects information has not been available on time as requested by key shareholders and the information generated are not of good quality. That being the case the researcher wants to explore more on the use of PMIS to understand the contribution PMIS has towards the success of the projects.

## **1.3.Research Questions**

- Does project management information system have contribution for the quality of the project?
- Des project management information system help in minimizing the cost of the project?
- Does project management information system contribute for timely completion of the project?
- Does the project management information system help to ensure stakeholders satisfaction?

## **1.4.Objective of the study**

### **1.4.1. General objective of the study**

To assess the contribution that a given project management information system function in facilitating project success in Bank of Abyssinia.

### **1.4.2. Specific objectives of the study**

- To know the role of project management information system on quality of project
- To describe the role of project management information system on cost minimization
- To express the role of project management information system on schedule of the project
- To know the role of project management information system on stakeholder satisfaction

## **1.5.Significance of the study**

It provides the basis for assessing the status of the project with respect to time, cost, and performance goals and objectives. Informing project managers currently involved in the projects on the efficiency, reliability, and effectiveness of PMIS. The study provides empirical evidence on how PMIS as software tools, positively influences project managers, offers reliable information output, and improves current practice in the Bank of Abyssinia. It enables the researcher to acquire basic experience and knowledge about significance of project management information systems functions in facilitating of project success. Furthermore, it is also aimed at giving the right information to the system users, organizations and stakeholders about the level of project management information that they are lagging to use in their activities of managing a project. The study will aimed at providing a basis for further studies in the area or for further researcher it May be sued as a reference.

## **1.6. Scope and Limitation of the Study**

### **1.6.1 Scope of the Study**

This study focused on the managerial function of a project management information system and its contribution to project performace in Bank of Abyssinia in the place of Addis Ababa.The delimitation of the study is limited only in one private bank in 2012.

### **1.6.2 Limitation of the Study**



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. The use of primary data during data collection through questionnaire some respondent may not give appropriate data.

### **1.7 Organization of the study**

This study organized in five chapters. Chapter one is about introduction of the study which contains background of the study, statement of the problem, research questions, objective of the study, significance of the study, scope of the study, limitation of the study and organization of the paper along with definition terms sub-section; chapter two is about review of related literature; chapter three is about research design of the study comprising all methods and tools which are employ to achieve the stated objectives. Chapter four will focus on data presentation and analysis of the study, the fifth chapter contains conclusion and recommendation based on the research investigation.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2. Theoretical Literature

##### 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 raise 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 et du 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, Dehub 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. Tadesse (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 lasting 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 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.

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, is 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, computerbased 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 NjokiKahura 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. 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 NjokiKahura 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.

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. 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. Project Management Information System (PMIS) help plan, execute and close project management goals. During the planning process, project managers use PMIS for budget framework such as estimating costs. 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 are 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 PMISs allow for quick review and easy periodic updating; they filter and reduce data to provide information on summary, exception, or —what ifl bases. 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. The most sophisticated PMIS software —roll upl results and allow aggregation, analysis, and reporting at all levels of the WBS. They also permit modification and updating of existing plans through input of actual start and finish dates and costs.

#### **2.4 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:

1. The planning function tools aim at preparing the overall project plan; they include: Work breakdown structure, Resource estimation, Overall schedule, Gantt, PERT, CPM.
2. 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.
3. 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.
4. The evaluating function tools are targeted toward project auditing; these tools allow the identification of cost and schedule variations, tracking the use of resources.
5. 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).

## **2.5 Objective of Project Management Information System**

Wisnepali (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. The main objectives of information system in project management are as follows:

- ❖ To give direction by top level management about operation of the project.
- ❖ To give information to the top level management about problems related with project implementation.
- ❖ To get information about availability or scarcity of the prerequisites for the operation of the project.
- ❖ To get information about the organization able to operate project.
- ❖ To get necessary information for the operation of project.
- ❖ To get information from the organization that has provided financial support to the project.
- ❖ To get information about the organization that has provided financial support to the project.
- ❖ To get information about the organization, persons and place providing necessary machines, equipment, raw materials, skilled manpower, etc.

- ❖ 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.
- ❖ To 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.
- ❖ To get helpful information from outsides for the smooth operation of the project and give information about them to the concerned persons or team.

## **2.6 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.

## **2.7 Different Types of Project Management Information System (PMIS)**

Wisnepali (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:



### **2.7.1 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.

### **2.7.2 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.

### **2.7.3 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.

## **2.8 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. Project management information systems also offer the ability to benchmark project performance, where a copy of the original plan is saved, along with adjusted plans as the project is executed. Stored project information can be used to document findings. Notes about tasks and resources can be stored for future reference when analyzing problems and performance. Project management information systems allow teams to plan and control project work with a centralized understanding of process and performance, enabling trend forecasting, management by exception through the isolation of problems, and calculation of estimated time and cost to completion. The ability to collaborate throughout the enterprise can improve productivity and efficiency across teams and departments. In addition, off-site workers can be remotely notified of job assignments. Time collection from fieldpersonnel can be automated. Project management information systems enable communication and enhanced resource planning beyond the singular project. This can prevent the over allocation of project resources, which can cause confusion, frustration, reduced quality, significant inefficiencies, and missed commitments.

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.

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).

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).

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).

## **2.9 Empirical literature review**

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. (Raymond et al., 2008)

According to 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.

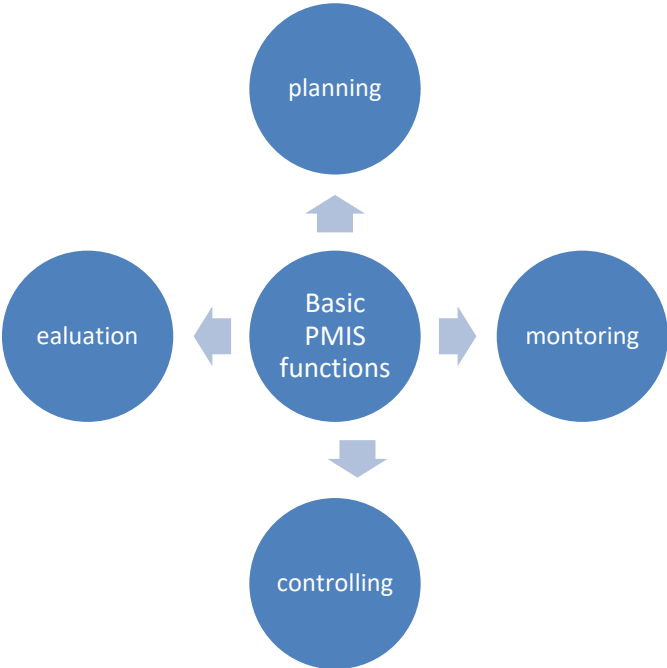
Monica (2013, cited in Lee, S. K., & Yu, J. H. 2011) argue that for efficient work performance among the project team members; PMIS supports three basic functions namely communication (PMIS delivers related knowledge and information promptly between members of the team via either external or internal 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.

**2.10 Conceptual Framework between Functions of PMIS and Project Success**

Here, the PMIS can support the managerial decision by showing how the project is going on. In other hand, the managerial decisions have a direct effect /control over the success of the project.



**Support**

**Managerial decisions**

**Directly affect**





## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Research Approach**

The study was used the mixed approach. That means both quantitative and qualitative approaches were used. The rationale for using quantitative approach is to use numeric explanation, so it helps to breadth research findings and also use questionnaire as a method of data collection instrument. On the other hand, the researcher uses the qualitative approach. The main reason using this approach is just to find out a depth investigation of the study. To this effect interview and open ended questionnaire was applied.

#### **3.2 Research Design**

The aim of this study was assessed the contribution that a given project management information system function in facilitating project success in Bank of Abyssinia. This study was designed based on explanatory research design. The primacy aim of explanatory research design is to assess the contribution that a given project management information system function in facilitating project success in Bank of Abyssinia.

#### **3.3 Target Population**

The target populations of this study are project management staffs under the project management department on banks in Abyssinia. The total number of employees is 32. The data was collected from all employees of project management department of bank of Abyssinia. In order to collect the desire data from these groups the sampling techniques used census.

#### **3.4 Sampling Technique and sample size**

The researcher used census or total target population. There researcher used all employees that works different position in project management departmentbank of Abyssinia S.C.

#### **3.5 Data type and Source**

There are two data sources used to explore the necessary information to answer the research questions: the primary data source –data directly collected from respondents and the second one is from secondary source-where we can get information from reference materials of different sources, journal, annual reports periodically, magazine and other written materials. To achieve

the objectives of the study the data was collected by using both primary and secondary sources of data. The primary data was collected through questionnaire and interviews. Structured survey questionnaires were distributed to the employees to obtain information regarding the contribution that a given project management information system function in facilitating project success in Bank of Abyssinia. Secondary data was collected from different sources like books, research materials, organizations' document, and websites.

### **3.6 Data gathering Instruments**

The researcher applied both primary and secondary data source by using various data gathering tools and techniques. The primary data was collected through questionnaire and interview whereas the secondary data collect through document review. To get required information the researcher applies both open-ended and closed end type of questionnaire.

### **3.7 Data Analyzing techniques**

After all the information was collected, the data was summarized, analyzed and presented through different methods. The data analysis method chose based on the type of data used and the nature of the research the research questions and objectives of the study. In this study both quantitative and qualitative data analysis method is employed. The researcher use 5 points likert scale it is chosen from Low contribution, satisfactory contribution, Medium contribution, High contribution, Very high contribution. After all the required information was collected, the data was summarized, analyzed and presented through different methods. The data analysis method chose based on the type of data used and the nature of research questions and objectives of the study. The data Presentation carryout based on natures of the data that are used in the study; hence the quantitative data was presented through descriptive ways. Particularly it presented by using tables and percentages by the help of statistical package for social science: (SPSS version21).

### **3.8 Reliability and validity of instruments**

#### **3.8.2 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.

a) 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.

b) Predictive validity. In this study it is we can predict that which PMIS function will contribute much for the success of projects in bank of Abyssinia. This means if the current contribution score of a given PMIS function is higher, then it will probably continue to become a highly significant contributor in the future.

c) 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 six 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.

d) Discriminant 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.

e) Convergent Validity: Where different measures of the same concept yield similar results. Here we used questionnaires (quantitative) analysis versus interview (qualitative) analysis (different measures). But, these two measures yield similar results since they were to measure the significance of PMIS for project success. The results from the two measures shows they are highly correlated and similar in general.

### **3.8.2 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.

### **3.8.3 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**

### **DATA ANALYSIS AND INTERPRETATION**

To discuss the general information of the respondents, descriptive statistics was used. The general information includes such as age, sex, marital status, educational qualification, work position of the respondents and work experience included in the study. The table 4.1 summarizes all general information of respondents. 23 of the respondents were male which represent 76.7% of the total respondents, while the 7 were females which are 23.3% of the total respondents. This shows that out of the total participant of the survey, majority of them were male. Considering the age groups of the respondents, the higher number of respondents was in the range of 29-38 years, which represent 50%, followed by age group of 39-48years, 49-58years, 18-28years and above 59 years, which represent 26.67%, 13.33%, 6.7%, and 3.33% respectively. This survey shows that 83.34 of respondents are below 48 years.

Table 4.1 shows that, respondent characteristics in terms of marital status, as it is indicated below, the majority of the respondents 26(86.67%) were married and the rest 4(13.33%) were single. shows that, respondent characteristics in terms of educational background, as it is indicated below majority of the respondents 63.33% were first degree, followed by second degree and diploma which represent 30%, and 6.67% respectively. The table shown below indicated that most of the respondents 18(60%) have a work experience of 2-5 years, 7(23.33%) of the respondents have a work experience of above 10 years, followed by 6-9 years and less than 1 years which represent 3(10%) and 2(6.67 %) respectively.

**Table 1: Respondents Characteristics in sample survey**

Description	Category	Frequency	(%age)
Sex	Male	23	76.7
	Female	7	23.3
	Total	30	100
Age	18-28	2	6.67
	29-38	15	50
	39-48	8	26.67
	49-58	4	13.33
	59 And above	1	3.33
	Total	30	100
Marital status	Married	26	86.67
	Single	4	13.33
	Widowed	0	
	Divorce	0	
	Total	30	100
Educational background	Certificate	0	
	Diploma	2	6.67
	First degree	19	63.33
	Second degree	9	30
	Ph.D. and above	0	
	Total	30	100
Work experience	Less than one years	2	6.67
	2-5 years	18	60
	6-9 years	3	10
	Above 10 years	7	23.33
	Total	30	100

Source: Own Survey, 2021

According to Mohammed (2016) to determine the minimum and the maximum length of the 5 point likert type scale the range has been calculated and presented as follows. Greatest values of the scale =  $(5-1=4)$ ,  $4/5 = 0.8$  and the length of the each cell and range was determined through addition of least value with greatest value of the cell which is,

- ✓ From 1 to 1.80 represents (Low contribution)
- ✓ From 1.81 to 2.60 represents ( Satisfactory contribution)
- ✓ From 2.61 to 3.40 represents (Medium contribution)
- ✓ From 3.41 to 4.20 represents (High contribution )
- ✓ From 4.21 to 5.00 represents (Very high contribution)

The researcher use mean and standard deviation because the mean (often called the average) is most likely the measure of central tendency and the standard deviation is most likely the measure of dispersion (Washington, 2003). Accordingly, the mean value and standard deviation of each variable was computed and summarized below.

**Table 2: The roles of PMIS functions towards the quality of a project**

Descriptive statistics

	Minimum	Mean	Std. Deviation
Significance of planning function in facilitating project success	3	4.7759	0.5914
Significance of monitoring function in facilitating project success	1	3.9	1.4937
Significance of evaluation function in facilitating project success	1	3.8333	0.8743
Significance of controlling function in facilitating project success	2	3.933	0.7849
Grand mean		4.11055	

Source: Own Survey, 2021

Table 2, shows a general significance level of a five generic project management information system (PMIS) function with respect to facilitating the success of a project towards the quality of project. Accordingly, the planning function of PMIS in bank of Abyssinia is the most significant function in facilitating the success of a project with significance level of 4.77. Secondly, the controlling function of PMIS is the second significant function in facilitating the success of a project with significance level of 3.93. Thirdly the monitoring function of PMIS is the third significance function in facilitating the success of a project with a significance level of 3.9. Lastly the evaluation function of PMIS is become the last significance function in facilitating the success of a project with significance level of 3.8.

**Table 3: The roles of PMIS functions towards the cost of a project**

	Minimum	Mean	Std. Deviation
Significance of planning function in facilitating project success	2	3.8333	1.0532
Significance of monitoring function in facilitating project success	1	3.6333	1.2172

Significance of evaluation function in facilitating project success	1	3.8	1.2149
Significance of controlling function in facilitating project success	1	4.1667	0.9855
Grand mean		3.8583	

Source: Own Survey, 2021

Table 3, shows a general significance level of a five generic project management information system (PMIS) function with respect to facilitating the success of a project towards the cost of project. Accordingly, the controlling function of PMIS in bank of Abyssinia is the most significant function in facilitating the success of a project with significance level of 4.16. Secondly, the planning function of PMIS is the second significant function in facilitating the success of a project with significance level of 3.83. Thirdly the evaluation function of PMIS is the third significance function in facilitating the success of a project with a significance level of 3.8. Lastly the monitoring function of PMIS is become the last significance function in facilitating the success of a project with significance level of 3.63.

**Table 4: The roles of PMIS functions towards the schedule of a project**

	Minimum	Mean	Std. Deviation
Significance of planning function in facilitating project success	2	3.5333	0.8996
Significance of monitoring function in facilitating project success	2	3.7	0.9154
Significance of evaluation function in facilitating project success	1	3.0333	1.3515
Significance of controlling function in facilitating project success	2	3.8	1.0306
Grand mean		3.5166	

Source: Own Survey, 2021

Table 4, shows a general significance level of a five generic project management information system (PMIS) function with respect to facilitating the success of a project towards the schedule of project. Accordingly, the controlling function of PMIS in bank of Abyssinia is the most significant function in facilitating the success of a project with significance level of 3.8. Secondly, the monitoring function of PMIS is the second significant function in facilitating the success of a project with significance level of 3.7. Thirdly the planning function of PMIS is the third significance function in facilitating the success of a project with a significance level of 3.53. Lastly the evaluation function of PMIS is become the last significance function in facilitating the success of a project with significance level of 3.03.

**Table 5: The roles of PMIS functions towards the satisfaction of all stockholders**

	Minimum	Mean	Std. Deviation
Significance of planning function in facilitating project success	1	3.4	1.4527
Significance of monitoring function in facilitating project success	2	4.5667	0.7739
Significance of evaluation function in facilitating project success	1	4.3333	0.8841
Significance of controlling function in facilitating project success	1	3.3	1.4420
Grand mean		3.9	

Source: Own Survey, 2021

Table 5, shows a general significance level of a five generic project management information system (PMIS) function with respect to facilitating the satisfaction of all stockholders of project. Accordingly, the monitoring function of PMIS in bank of Abyssinia is the most significant function in facilitating the success of a project with significance level of 4.56. Secondly, the evaluation function of PMIS is the second significant function in facilitating the success of a project with significance level of 4.33. Thirdly the planning function of PMIS is the third significance function in facilitating the success of a project with a significance level of 3.4. Lastly the controlling function of PMIS is become the last significance function in facilitating the success of a project with significance level of 3.33.



Generally, the study try to figure out the gap lay on using PMIS tool and techniques for facilitation of project success which may arise from timely and good decision making by the project managers. However, E-banking projects like, internet banking, mobile banking, card banking which are recently developed product and services all over the in Bank of Abyssinia

## CHAPTER FIVE

### MAJOR FINDINGS, CONCLUSION AND RECOMMENDATION

#### 5.1 Major Findings

The main findings of the study were:

- Bank of Abyssinia uses project management information system to facilitate managerial activities in project work so that the system enhances the success of the project. However, the significance or contribution of the system was not checked sufficiently.
- Improvements were also observed in terms of timelier decision-making by the management body.
- Improvements in effectiveness and efficiency in managerial tasks were observed here in terms of better project planning, scheduling, monitoring, controlling and communication
- The function of system can facilitate the success of a project with significance level so that installing and adopting a project management information system have a great contribution in facilitating managerial activities and controlling of the progress of a project and many other.

#### 5.2 Conclusion

The aim of this study was to determine the actual significance level of project management information systems (PMIS) functions upon facilitating project success.

- The results of this research show that the use of a project management information system is in fact advantageous and have a significant contribution to arrive on the success of a project.
- Improvements in effectiveness and efficiency in managerial tasks were observed here in terms of better project planning, monitoring, evaluation, and controlling. Thus, improvements in the managerial tasks have a direct relation with the success factor of a project. So, the quality, cost, schedule, and satisfaction of all stakeholders of the project success variables will be improved better.
- Project management information systems have a significant advantage to increase quality of products or services by providing available information for the service providers.

- Project management information system used to schedule management activities by categorizing different functions into department and clearly assigning responsibility for each employee of Bank of Abyssinia.
- Project management information system used to minimize services costs by distributing all information using information technology with in short period of time and cost.
- Project management information system used to minimize agency problems by acknowledging relevant information for stockholders related to which amount is reinvested and which amount is distributed as a dividend for stockholders.

### **5.3 Recommendations**

- Bank of Abyssinia should continue to manage all the functions of their PMIS tool in order to enhance the success level of their project to its better level. This figure show us that the use of PMIS functions have a higher significance in facilitating project success but it should exceed the current figure and should become very high significant.
- Bank of Abyssinia should maximize the significance level of their PMIS functions. Namely, planning, monitoring, evaluating, controlling and reporting so as to enhance a specific outcome on their project success factors namely, quality, cost, schedule, strategic goal, satisfaction of the end user and satisfaction of all stakeholders.
- Bank of Abyssinia should assess the relationship in between the PMIS function and the project success factors. So as to manage the process and success of a project, especially in the area of decision making, managerial activities and communication of the project to its stakeholders at large.
- Bank of Abyssinia should reduce the unfilled (gap) level of their PMIS function so as to manage the impact on their project success facilitation.

## **Bibliography**

- Akram Jalal Karim, 2011. Project Management Information Systems (Pmis) Factors: An Empirical Study Of Their Impact On Project Management Decision Making (Pmdm) Performance, Ahlia University, Kingdom Of Bahrain, Volume 2.
- Anna Ju-Marié Bester, 2011. The Functional Design Of A Project Management Information System: Case Study With South African Breweries Ltd, Stellenbosch University
- Ashwinprince (2012) project management information system (<http://www.slideshare.net>), retrived in 22, Nov 2016
- Bennet P. Lientz, Kathryn P. Rea, 2001. Project Management for the 21st Century, Third Edition, California, USA
- Chartered Institute of Building . (2002). Code of practice for project management for construction and development (3 rded.). Blackwell Publishing.
- Cleland, D. I., & Ireland, L. R. (2002). Project management strategic design and implementation (4th ed.). The McGraw-Hill Comapnies.
- Fewings, P. (2005). Construction project management: An integrated approach (Third ed.). New York, NY: Taylor & Francis Group.
- Kaiser, M. G., &Ahlemann, F. (2010). Measuring Project Management Information Systems Success: Towards a Conceptual Model and Survey Instrument. Retrieved 09/07/12 from <http://aisel.aisnet.org/ecis2010/20/>
- Monica NjokiKahura , 2013 Entrepreneurship & Procurement Department School Of Human Resource Development, Jomo Kenyatta University Of Agriculture & Technology, Nairobi, Kenya.

Project Management Institute (PMI). (2004). A guide to the project management body of knowledge (PMBOK® Guide) (3rd ed.). Newtown Square, PA, USA: Project Management Institute(PMI).

Raymond, L. & Bergeron, F (2008) Project Management Information Systems: study of their impact on project managers and project success. International Journal of Project Management Vol. 26 (<http://www.sciencedirect.com>) retrieved in 26 Oct 2016.

Stanleigh, M. (2007, 30 August). Process management vs project management. Retrieved 03 17, 2010, from Improvement and innovation.com: <http://www.improvementandinnovation.com/features/articles/process-Management-vs.-project-management>

Wikipedia (2010) project management in banking industry (<http://en.wikipedia.org>), retrieved in 15, June 2016

Wisnepali (2012) objective of project management (<http://www.wisnepali.com>), retrieved in 22, Nov 2016

**ANNEX**

**SURVEY QUESTIONNAIRE ON: SIGNIFICANCE OF PROJECT  
MANAGEMENT INFORMATION SYSTEM (PMIS) TOWARDS  
FACILITATING PROJECT SUCCESS, A CASE STUDY ON BANKS OF  
ABYSSINIA.**

Prepared for: Bank Staffs of – Bank of Abyssinia

Dear, respondents

My name is ShegawWaltenigus, a graduate student of masters of business administration – special concentration on project management (MBA-Project Management) at ST. MARY’S UNIVERSITY in regular program. Currently I am conducting MBA thesis on significance of project management information system towards facilitating project success: The objective of this study is to investigate the contribution of PMIS for project success in Bank of Abyssinia.

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 +251929270275 or

Email add: shegawwalteng95gmail.com

**I thank you in advance for your diligent cooperation!**

**DEMOGRAPHIC ASPECTS**

Age: 18-28  29-38  39-48  49-58  59 and above

Sex: Male  Female

Marital status: Married  Single  Widowed  Divorce

Level of education: Certificate  Diploma  First degree  Second degree   
Ph.D. and above

Work experience: Less than one year's  2-5 years  6-9 years   
above 10 years

Key: The rating scales have five categories starting from 1 to 5 ranging from low significance to very high significance contribution.

1	2	2	4	5
Low contribution	Satisfactory contribution	medium contribution	High contribution	Very high contribution

**THE ROLE OF PMIS FUNCTIONS TOWARDS THE QUALITY OF A PROJECT**

How much does the planning function of your PMIS contribute for maintaining the quality of the project?

SCORES	1	2	3	4	5

How much does the monitoring function of your PMIS contribute for maintaining the quality of the project?

SCORES	1	2	3	4	5

How much does the evaluation function of your PMIS contribute for maintaining the quality of the project?

SCORES	1	2	3	4	5

How much does the controlling function of your PMIS contribute for maintaining the quality of the project?

SCORES	1	2	3	4	5

#### THE ROLE OF PMIS FUNCTIONS TOWARDS THE COST OF A PROJECT

How much does the planning function of your PMIS contribute for the effective cost of the project?

SCORES	1	2	3	4	5



How much does the monitoring function of your PMIS contribute for the effective cost of the project?

SCORES	1	2	3	4	5

How much does the evaluation function of your PMIS contribute for the effective cost of the project?

SCORES	1	2	3	4	5

How much does the controlling function of your PMIS contribute for the effective cost of the project?

SCORES	1	2	3	4	5

#### THE ROLE OF PMIS FUNCTIONS TOWARDS THE SCHEDULE OF A PROJECT

How much does the planning function of your PMIS contribute for meeting the time/schedule of the project?

SCORES	1	2	3	4	5

How much does the monitoring function of your PMIS contribute for meeting the time/schedule of the project?

SCORES	1	2	3	4	5

How much does the evaluation function of your PMIS contribute for meeting the time/schedule of the project?

SCORES	1	2	3	4	5

How much does the controlling function of your PMIS contribute for meeting the time/schedule of the project?

SCORES	1	2	3	4	5

THE ROLE OF PMIS FUNCTIONS TOWARDS THE SATISFACTION OF ALL STAKEHOLDERS

How much does the planning function of your PMIS contribute for attaining satisfaction of all other stakeholders of the project?

SCORES	1	2	3	4	5

How much does the monitoring function of your PMIS contribute for attaining satisfaction of all other stakeholders of the project?

SCORES	1	2	3	4	5

How much does the evaluation function of your PMIS contribute for attaining satisfaction of all other stakeholders of the project?

SCORES	1	2	3	4	5

How much does the controlling function of your PMIS contribute for attaining satisfaction of all other stakeholders of the project?

SCORES	1	2	3	4	5

In general,

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

If any more comment, please welcome?

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