THE EFFECT OF PROJECT INTEGRATION MANAGEMENT PROCESS ON PROJECT SUCCESS: THE CASE OF BERHAN BANK DATA CENTER PROJECT

A Research Project Submitted in Partial Fulfillment of the Requirements for Obtaining the Degree of Masters of Project Management

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June 2018

Addis Ababa

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Post Graduate Program

Board of Examiners Approval Sheet

This is to certify that the thesis entitled; The effect of Project Integration Management Process on Project Success; The Case of Berhan Bank Data Center Project is prepared by Thomas Desalegn in partial fulfillment of the requirements for the award of the degree of Master of Arts in Project Management, with the regulation of the university and the accepted standards with respect to originality.

Approved by: Board of Examiners

Ato Seifu Mamo	_____	_____
Advisor's Name	Signature	Date
_____	_____	_____
Internal Examiner's Name	Signature	Date
_____	_____	_____
External Examiner's Name	Signature	Date

Statement of Certification

This is to certify that Thomas Desalegn has carried out his project work on the topic entitled "**The effect of Project Integration Management Process on Project Success; The Case of Berhan Bank Data Center Project**" under my guidance and supervision. Accordingly, I hereby assure that his work is appropriate and standard enough to be submitted for the award of Master of Arts Degree in Project Management.

_____

Advisor: Seifu Mamo

June, 2018

Addis Ababa, Ethiopia

Statement of Declaration

I, Thomas Desalegn, have carried out independently a research work on the topic '**The effect of Project Integration Management Process on Project Success; The Case of Berhan Bank Data Center Project'** in partial fulfillment of the requirement for the Degree of Masters program. This study is my own work that has not been submitted for any degree or Masters program in this or any other institution.

Thomas Desalegn

Signature_____

Date_____

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Abstract

Project integration management is a component of project management that focuses on the individual procedures during the execution of a process. Project integration managers coordinate plans and help ensure that all processes within a project run efficiently and that team members stay on track toward their final goals. Integration Management is the practice of making certain every part of the project is coordinated.

The main objective of this study is to assess the effect of project integration management process on project success in the case of Berhan Bank Data Center Project. The study considered major project integration management process i.e. project initiation, project planning, project execution, monitoring and control and project closure; and focused on their ultimate contribution to the project success of the data center project in Berhan Bank.

To achieve the main objective of the research, a mixed methods approach is used. To analyze the data collected, both quantitative and qualitative data analysis method is used. For semi-structured interview qualitative method is used; and for the questioner quantitative analysis method is employed.

The result of the study indicates a positive and significant association between Project Initiation, Project Planning, Project Execution, Monitoring and Control and Project Closure on project success of the data center project which implies the increase in Project Initiation, Project Planning, Project Execution, Monitoring and Control and Project Closure inevitably increases in the project success of the data center project.

The result of this research will create awareness among IT project managers of Berhan Bank about project integration management processes and activities that contribute to project success, and how the project managers are able to handle projects more effectively to increases the rate of project success in the future. Furthermore, on the basis of the research findings, appropriate recommendations along with implications for further studies have been forwarded.

***Key Words**: Project Success; Project Integration Management.*

Part One

1. Introduction

1.1 Background of the Study

Project Management as a discipline has gained a remarkable recognition in the last decades. This is clearly reflected by the high number and size of projects that are carried out in organizations in various industries and areas of business. Today, most organizations develop projects or turn to project management as a way to structure and manage their investments.

Project integration management is a component of project management that focuses on the individual procedures during the execution of a process. Project integration managers coordinate plans and help ensure that all processes within a project run efficiently and that team members stay on track toward their final goals. Integration Management is the practice of making certain every part of the project is coordinated. Project management is an integrative undertaking requiring each project process to be appropriately aligned and connected with the other processes to facilitate coordination

Project management knowledge areas describe the key competencies that project managers must develop. According to (Schwalbe 2009:9), the nine knowledge areas of project manager are divided into four core and four facilitating knowledge areas. The four core knowledge areas of project management are: scope, time, cost and quality management. They are the core areas because they lead to specific project objectives. (Schwalbe 2009: 9). The four facilitating knowledge areas are: human resources, communication, risk and procurement management. They are the process through which the project objectives are achieved.

The ninth knowledge area is project integration management, which is an overarching function that affects and is affected by all of the other knowledge areas (Schwalbe 2009: 9.). It involves coordinating the other knowledge areas, anticipating and dealing with issues, and making decisions each day about what is the best interest on the entire project.

The main objective of this study is to assess the effect of project integration management process on project success in the case of Berhan Bank Data Center Project. The study considered major project integration management process i.e. project initiation, project planning, project execution, monitoring

and control and project closure; and focused on their ultimate contribution to the project success of the data center project in Berhan Bank.

Berhan Bank was established by more than 6,700 shareholders, with a paid-up capital of birr 300 million in 2009. The Bank officially inaugurated for public services opening its Main Branch on October 10, 2009. Over the past nine years the Bank achieved a remarkable growth in its banking business operation and expanded its branch network to 177. Currently the number of share holders reached around 16,000, and it's paid up capital to 1.4 billion Birr, and total staff strength reached above 3,100.

Taking into account its remarkable growth and the need to integrate modern banking solutions, the bank decided to build a state of the art data center on 2016 which can accommodate the bank's services for the coming five to ten years with an approved budget of 60 million Birr.

1.2 Statement of the Problem

Nowadays most companies are recognizing that to be successful, they need to be familiar with and use modern project management techniques while implementing various project activities. Similarly, individuals are realizing that to remain competitive in the workplace, they must develop skills to become good project team members and project managers.

Project managers should pay a great deal of attention to managing a project. Harrington & McNellis, (2006) argue that one of the most common reasons for project failure is the inability to properly define or effectively manage project scope. The successful project manager has learned that rigorous scope control is essential to deliver projects on time and on budget. An increase in project management processes that doesn't include a corresponding adjustment to project cost or timeline may result in the project being delivered late or over budget.

Baca (2005), states that project management processes changes are to bring disturbances to the project success. Mochal (2004) stated that without proper project management processes, projects end up trying to complete more work than what was originally agreed to and budgeted for. In other words, projects would be heading down the road to trouble.

In Berhan bank context the Information System department is generally the one that is more project-oriented. To ensure successful implementation of the various projects within the bank, proper application of project integration management tools, techniques and methodologies should be exercised from the outset to ensure project success. There are a number of project management weaknesses, which is attributed by inadequate professional skills of some project implementers and inadequate capacity of the project management unit to provide sufficient oversight and supportive supervision. Despite the quest for project success, some projects experienced time overrun, budget overrun and unmet end product specifications.

The purpose of this study is to assess a recently completed data center project in Berhan Bank and will try to examine the effect of the five project integration management processes (initiation, planning, execution, monitoring and control and closure) on the project success.

1.3 Research Questions

The research examines and will provide answers to the following questions:

Main Research Question

- How does project integration management process affect the success of Berhan bank data center project?

Sub-research Questions

- How does project initiation process affected the success of Berhan bank data center project?
- How does project planning process affected the success of Berhan bank data center project?
- How does project execution process affected the success of Berhan bank data center project?
- How does project monitoring & control process affected the success of Berhan bank data center project?
- How does project closure process affected the success of Berhan bank data center project?

1.4 Research Objectives

1.4.1 General Objective

The general objective of this study is to assess the effect of project integration management process on project success; the case of Berhan bank data center project. In addition, the research will provide possible recommendations that help to improve project integration management process in Berhan bank to improve future project performance.

1.4.2 Specific Objectives

The specific objectives of the study are:

- To assess the effect of project initiation process on the success of Berhan bank data center project
- To assess the effect of project planning process on the success of Berhan bank data center project
- To assess the effect of project execution process on the success of Berhan bank data center project
- To assess the effect of project monitoring & control process on the success of Berhan bank data center project
- To assess the effect of project closure process on the success of Berhan bank data center project

1.5 Significance of the Study

The result of this research will create awareness among IT project managers of Berhan Bank about project integration management processes and activities that contribute to project success, and how the project managers are able to handle projects more effectively to increases the rate of project success in the future. Besides, the study will enlightens the internal employees of the Bank that engage in various projects as a project team members about project integration management processes and learn how to cope with these activities in the future.

In addition to this, the study will have some contribution for further study of the case and will be valuable to practitioners in developing better project integration management practice in IT projects. It can also serve as a reference material for further studies on how to use project management knowledge areas and linking it with project integration management processes to achieve project success.

1.6 Scope of the Study

This study will only focuses on, assessing the effect of project integration management process on project success; the case of Berhan bank data center project. It mainly focuses on one of the project management knowledge area: project integration management and associate it with the respective five project management processes (initiation, planning, execution, monitoring and control and closure), and attempt to assess their contribution to the success of the data center project. Finally, the study will try to identify the challenges faced with project integration management processes and provide possible recommendation to ensure good project integration management practice within the bank in the future.

1.7 Limitation of the Study

The study is limited to assess and identify the effects of project integration management process on project success of Berhan bank data center project. This research only shows the effect of project integration management process on Berhan Bank data center project success. Therefore, in order to see the impact of project integration management process in the same or different industries in Ethiopia, further investigation is required.

1.9 Organization of the study

This study has five parts and is organized as stated below:

Part 1: Introduction

This part provides a general introduction of the effect of project integration management process on project success. In addition statement of the problem, objective, scope, significance as well as limitation of the study is presented in this part.

Part 2: Review of Related Literature

In this part, the study tries to review various literatures issued by scholars with regard to project, project management, project management body of knowledge, project management process groups, project integration management, project integration process groups, project success and project success factors, to exhibit familiarity with a body of knowledge and establish a theoretical framework and provide clarity of thought about the issue under study.

Part 3: Methods of the Study

This part includes the research methodology used to gather data in order to answer the research question for this study. In addition to this, the type and design of the research; the subjects/participant of the study; the sources of data; the data collection tools/ instruments; the procedures of data collection; and the methods of data analysis used are stated.

Part 4: Results and Discussions

In this part of the study, data presentation, interpretation and analysis of the study is presented.

Part 5: Summary, Conclusion and Recommendations

This Part consists of summary of the findings, conclusions, and recommendations. Here, summary of the findings are outlined and the research questions are answered and possible recommendations are issued based on the findings.

Part Two

2. Review of Related Literature

This section aims to present a review of the pertinent and relevant literatures related to the research topic.

2.1 What is Project

There are several definitions of projects in the literature. Tuman (1983) said that "A project is an organization of people dedicated to a specific purpose or objective. Projects generally involve large, expensive, unique, or high risk undertakings which have to be completed by a certain date, for a certain amount of money, with some expected level of performance. At a minimum, all projects need to have well defined objectives and sufficient resources to carry out all the required tasks."

Spinner (1997) also defines project as a series of task or activities that have several distinguishing characteristics. Such as: Having specific starting and ending date, achieving a specified result on product, well defined objectives, a unique, non-repetitive endeavor.

According to Pinto & Slevin (1988), a project can be defined as possessing the following characteristics:

- A defined beginning and end (specified time to completion)
- A specific, preordained goal or set of goals (performance expectations)
- A series of complex or interrelated activities, and
- A limited budget

Turner (1999) stated that "a project is an endeavor in which human, financial and material resources are organized in a novel way to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives."

2.2 What is Project Management

Project management has evolved over the past couple of decades as researchers and practitioners have attempted to identify the causes of project failure and the various factors that lead to project success.

Traditional project management skills were developed from the requirements of construction and defense industries to plan, control and manage large and complex 'tangible' projects (Morris, 1994; Bourne and Walker, 2004). From these arose the so-called "hard" concepts of project success criteria in the form of controlling and managing schedule, cost and scope.

Project Management can also be seen as being about managing change (Cleland, 1995; Bourne and Walker, 2004) and project managers should consider themselves as change agents adding to the Project Management role an additional focus on so-called 'soft' aspects of relationship management (Bourne and Walker, 2004).

Moreover, according to Bourne and Walker (2004) in most organizations, project managers are accountable for the successful delivery of complete projects. Increasingly, this success depends on project managers' processing and utilizing skills and competencies that may initially appear contradictory. A successful project manager must demonstrate flexibility and competency in many area, hard and soft skills, introverted and reflective, extroverted and social behavior. Many of the initiatives for improving the practice and profession of project management have been focused on enhancing techniques and method associated with skills that included effective management of time, cost and scope.

Managing a project typically includes, but is not limited to:

- Identifying requirements;
- Addressing the various needs, concerns, and expectations of the stakeholders in planning and executing the project;
- Setting up, maintaining, and carrying out communications among stakeholders that are active, effective, and collaborative in nature; and
- Managing stakeholders towards meeting project requirements and creating project deliverables;

2.3. The Practice of Project Management

According to Tan (1996), project management concept and techniques can be applied to any project ranging from simple task, office renovations to complex and complicated projects like the design and construction of an airport or hospital complex. Almost any project requires the application of art and science of project management. The level of technology needed the degree of sophistication of the

tools and techniques plus the types and number of personnel involved will depend on the size complexity or nature of the project.

Hendrickson and Au (1989) pointed out that the management process approach emphasizes the systematic study of management by identifying management functions in an organization and then examining each in detail. There is general agreement regarding the functions of planning, organizing and controlling. The project manager's job is regarded as coordinating a process of interrelated functions that are neither totally random nor rigidly predetermined but are dynamic as the process evolves. Furthermore, the management science and decision support approach contributes to the development of a body of quantitative methods designed to aid managers in making complex decisions related to operations and production. In decision support system emphasis is placed on providing managers with relevant information.

2.4 PMBOK Knowledge Areas

PMI has organized the project management knowledge and practice in terms of its component processes into nine knowledge areas. They are: project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management and project procurement management (Duncan, 1996).

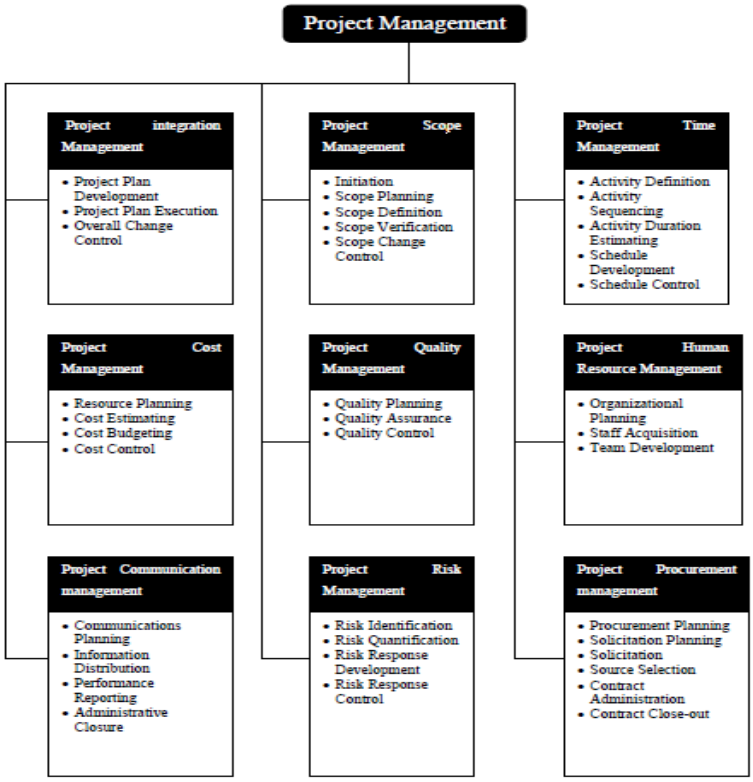


Figure 1- *Project Management Knowledge Areas and Project Management Process (PMBOK, 2008).*

2.4.1 Project Integration Management

Project integration management, describes the process of identifying, defining, combining and coordinating various elements involved in the project in an organized manner to ensure the management of the stakeholder expectations, and meeting of requirement are successfully carried out (Duncan,1996; PMBOK, 2008) .There are six sub-processes that are entailed in project integration, they are develop project charter, develop project management plan, direct and manage project execution, monitor and control project work, perform integrated change control and close project or phase.

- **Develop project charter**- is the process of developing a document that formally authorizes the project and documenting the expectations and needs of the stakeholders.
- **Develop project management plan**- is where the necessary actions to define, prepare, integrate and coordinate are documented.

- **Direct and manage project execution** - is the process of performing the defined task in the project management plan.
- **Monitor and control project work-** is the process of overseeing the project and to review the work progress to ensure it is on the right track.
- **Perform integrated change control -** is the process of reviewing all the change requests and approving the changes to the project work. A change of scope in project is very common. It is up to the project manager to analyze on the impact of the change prior to adopting the changes (Gupta, 2010). Change control is important because it can prevent wastage of time and money due to rework (Gupta, 2010).
- **Close project or phase -** is the process of finalizing all the activities in order to formally complete the project (PMBOK, 2008). In project closure, the project manager will review all the information to ensure that the project work is complete and has met the project objectives before considering the project closed (PMBOK, 2008). In terms of client, project closure usually involves activities like providing training for client on how to use the product properly (Frost, 2007), handover of project to the team responsible for warranty and further support (Stoemmer, 2009) and also capture feedback on the client for future project (Frost, 2007). In term of internal employees, activities like call for feedback of project members, and carry out post project review (Stoemmer, 2009) will be performed. Post project review is performed to see whether the project meets the business objective.

2.4.2 Project Scope Management

Project scope management on the other hand describes the procedure where all the elements or work required to ensure the success of the project is included in the project. In other words, it is basically to define and control what is and is not included in the project (Duncan, 1996; PMBOK, 2008). There are five sub-processes that are included in this process. They are collect requirement, define scope, create WBS, verify scope and control scope (PMBOK, 2008).

- Collect requirement is where the stakeholders' needs are defined and documented.
- Define Scope is the process where a detailed description of both the project and the product are identified.

- Create WBS is where the project deliverables are being broken down into smaller components (PMBOK, 2008).
- Verify Scope is the process of accepting the completed project deliverables. The main focus of verify scope is to ensure the work defined in the define scope is done and accepted by the customers (Gupta, 2010).Verify scope can be performed on every phases of the project to ensure the project is in the right track and to prevent any customer acceptance issue in the latter part.
- Quality control and scope verification is a similar kind of work, except verify scope is more focused towards customer acceptance (Gupta, 2010). Control Scope is the process of monitoring the project and product based on the predetermined scope baseline (PMBOK, 2008). Creating, updating, and formalizing changes to the scope will ensure meeting target time, and cost while at the same time satisfies customers (Papke-Shields et al, 2010). Proper management of scope will prevent scope creep and keep team members inform of any changes (Papke-Shields et al, 2010). Scope creep is caused by uncontrolled changes of the scope without addressing the effect of time, cost, and resources, and without customer's approval (PMBOK, 2008).

2.4.3 Project Time Management

Project time management is to ensure that the project is completed in a timely manner (PMBOK, 2008). Processes that are involved are activity definition, activity sequencing, activity resources estimating, activity duration estimating, schedule development, and schedule control (Duncan, 1996; PMBOK, 2008).

- Activity definition is the process of identifying actions to be taken to produce the right deliverables.
- Activity sequencing is the process of identifying the relationship among all the project activities.
- Activity resources estimating is the process of estimating the required resources such as material, manpower, machinery required to perform the project activity.

- Activity duration estimating is the process of finding the number of work periods required to complete an activity.
- Schedule development is the process of producing a project schedule based on the activity sequences, durations, resources requirements and schedule constraints.
- Schedule control is the process of monitoring the progress of the project and manages the changes to the schedule.

2.4.4 Project Cost Management

Project cost management is to ensure that the project is completed within the budget. It involves the processes of cost estimating, cost budgeting, and cost controlling (Duncan, 1996; PMBOK, 2008).

- Cost Estimating is the process of approximating the resources required in order to complete the project activities.
- Cost budgeting is the process of establishing a cost baseline by combining the estimated costs of individual work packages.
- Cost Controlling is to monitor the status of the project in terms of the resources used and to manage changes of the cost baseline).

2.4.5 Project Quality Management

Project quality management describes the process whereby the requirement or expectation of the project is satisfied (Duncan, 1996; PMBOK, 2008). It involves quality planning, quality assurance, and quality control (PMBOK, 2008).

- Quality planning is the process of identifying the quality requirements and standards for the project and product.
- Quality assurance is the process of reviewing the quality requirements and the result from the quality control measurements to ensure the product or project meets the right quality standard.
- Quality control is the process of monitoring and recording result of the quality activities for constant improvement.

2.4.6 Project Human Resource Management

Project human resource management describes the effective use of manpower involved in the project (Duncan, 1996; PMBOK, 2008). The type and number of project team members may change frequently throughout the course of the project. It involves develop human resource plan, acquire project team, develop project team and manage project team.

- Develop human resource plan is the process of identifying the roles, responsibility, required skills, and reporting relationship and document them into a staff management plan (PMBOK, 2008).
- Acquire project team is the process of obtaining the necessary human resource to complete the project works.
- Develop project team is the process of enhancing project performance through constant improvement of team interaction and environment.
- Manage project team is the process of tracking the performance of all the team members, resolving issues provided by the members in order to optimize project performance (PMBOK, 2008).

2.4.7 Project Communication Management

Project Communication management describes the process required to ensure generation, collection, dissemination, storage, and ultimate disposition of project information is completed in a timely and appropriate manner (PMBOK, 2008).

Effective communications among stakeholders both internal and external is crucial in a project (Duncan, 1996). It includes activities like identify stakeholders, plan communications, distribute information, manage stakeholder expectations, and report performance (PMBOK, 2008).

- Identify stakeholder is the process of identifying all the people that have impact on the success of the project.
- Plan communications is the process of determining the communication of the stakeholders based on the information available.

- Distribute information is the process of making sure all the relevant information is available to all the project stakeholders.
- Manage Stakeholder expectations are the process of communicating and working closely with stakeholders to ensure their needs are met.
- Report Performance is the process of collecting and distributing performance information like status reports, progress reports and forecasts (PMBOK, 2008).

2.4.8 Project Risk Management

Project risk management describes the process of identifying, analyzing, and responding to project risk (Duncan, 1996; PMBOK, 2008). It consists of activities like plan risk management, identify risks, perform qualitative risk analysis, perform quantitative risk analysis, plan risk responses, monitor and control risks (PMBOK, 2008).

- Plan Risk management is the process of determining how the risk management should be conducted in the project.
- Identify risks is the process of defining all the risks that may affect the project and document them in a systematic manner.
- Perform qualitative risk analysis is the process of sorting the risks by assessing the probability of occurrence and impact.
- Perform quantitative risk analysis is the process of analyzing the impact of the risk on the overall project objectives.
- Plan risk response is the process of defining action plan to reduce the probability of occurrence and to mitigate the risks.
- Monitor and control risks is the process of implementing a risk response plan that involves constant tracking of risks, monitoring, identifying and evaluating of risk throughout the course of the project.

2.4.9 Project Procurement Management

Project procurement management describes the process of acquiring goods or services from external facilitators (Duncan, 1996; PMBOK, 2008). The processes included are plan procurements, conduct procurements, administer procurements, and close procurements (PMBOK, 2008).

- Plan procurements are the process of identifying purchasing decision, purchasing approach and to identify the potential sellers.
- Conduct procurements is the process of getting responses from seller, picking the most suitable seller and to award a contract.
- Administer procurements is the process of managing the relationship with the seller and to monitor the contract performance while at the same time making changes as needed.
- Close procurements is the process of completing each project's procurement.

2.4.10 Project Management Process Groups

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the appropriate application and integration of project management processes, which are categorized into five Process Groups (PMI, 2004). These five Process Groups are: Initiating, Planning, Executing, Monitoring and Controlling, and Closing.

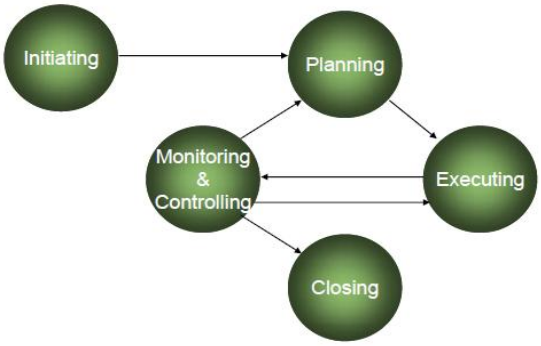


Figure 2- *Project Management Process Groups*

According to (PMI, 2004), the five process groups that comprises the project management life cycle are universal to all projects. The specific phases within a project, however, are unique to each project and represent the project life cycle.

Initiating: The project goal, need or problem is identified. The project manager is assigned to the project and the project charter is created. This basic process includes only one detail process:

- Concept development—describing the product of the project, documenting initial project objectives, and assigning a project manager.

Planning: The project manager and the project team works together to plan all of the needed steps to reach a successful project conclusion. The project planning processes are iterative in nature and it's expected that planning will happen often throughout the project.

Planning is of major importance on a project—you are doing something unique and you only get one chance to get it right. As a result, there are relatively more detail processes in this section. However, the number of processes does not mean that project management is primarily planning—the amount of planning should always be commensurate with the scope of the project.

Some detail planning processes have clear dependencies that require them to be performed in sequence. For example, tasks must be defined before they can be scheduled or cost is determined. The dependent planning processes include:

- **Scope definition**-developing a written scope statement that includes the project justification, the major deliverables, and the project objectives
- **Project definition**—decomposing the major deliverables into more granular deliverables to provide better control (the top levels of the Work Breakdown Structure)
- **Task definition**—identifying the tasks that will be performed in order to produce the project's deliverables (the lower levels of the WBS)
- **Task sequencing**—identifying dependencies among tasks
- **Duration estimating**—estimating the probable duration of individually schedulable tasks and activities
- **Schedule development**—determining and documenting specific dates for tasks
- **Cost estimating**—developing initial estimates of the overall project cost
- **Cost budgeting**—developing detail estimates of the cost of individual tasks

- **Plan integration**—creating and documenting a coherent project plan from the outputs of the other planning processes

Interactions among other planning processes are more dependent on the nature of the project. For example, on some projects, there may be little or no identifiable risk until after most of the planning has been done and the team recognizes that the cost and schedule targets are extremely aggressive and involve considerable risk. These facilitating processes are performed sporadically throughout the course of project planning. They include:

- **Quality planning**—determining how to ensure that the project quality objectives will be met
- **Role and responsibility definition**—determining the broad outlines of project responsibilities
- **Organization planning**—deciding how the project will be organized, establishing reporting relationships
- **Project staffing**—deciding who will fill what positions and assume which roles and responsibilities over time
- **Communications planning**—determining who needs what information, when they will need it, and how it will be given to them
- **Risk identification**—determining which risks are likely to affect the project
- **Risk assessment**—quantifying and evaluating the probability of risk occurrence and risk impact
- **Solution development**—defining deflection and mitigation steps for downside risk and enhancement steps for opportunities
- **Procurement planning**—deciding what items will be obtained under contract and how such contracts will be defined and awarded
- **Solicitation**—identifying possible sources for contractual services and obtaining responses from them
- **Procurement**—negotiating and contracting for outside products and services

Executing: Once the project plan has been created, the project team goes about executing the project plan to create the deliverables of the project. The project can shift to project planning as needed throughout project execution. This basic process includes the following detail processes:

- **Plan execution**—carrying out the project plan by performing the tasks identified therein and managing the various technical and organizational interfaces
- **Contract administration**—managing the contractual aspects of the procured products and services

Monitoring and Controlling : As the project is being executed by the project team, the project manager monitors and controls the work for time, cost, scope, quality, risk, and other factors of the project. Monitoring and controlling is also an ongoing process to ensure that the project addresses its targets for each project objective.

Project progress must be measured regularly to identify variances from the plan as well as to determine when the project is finished. Variances are fed into the control processes in the various knowledge areas. To the extent that significant variances are observed (e.g., those that jeopardize the project objectives), adjustments to the plan are made by repeating the appropriate project planning processes.

- **Progress measurement and reporting**—collecting and disseminating progress information
- **Scope change management**—documenting and controlling changes to project scope
- **Quality control**—measuring project deliverables and activities to assess whether quality objectives are being met
- **Quality improvement**—evaluating project performance on a regular basis to determine how to improve project quality
- **Time/schedule control**—controlling and responding to schedule changes
- **Cost control**—controlling and responding to cost changes
- **Risk control**—responding to changes in risk over the course of the project

Closing: At the end of each phase and at the end of the entire project, project closure happens to ensure that all of the work has been completed, is approved, and ultimately transferred ownership from the project team to operations. This basic process includes the following detail processes:

- **Scope verification**-ensuring that the project deliverables have been completed satisfactorily
- **Contract close-out**—resolution of any outstanding administrative matters and archiving of contract documentation
- **Project closure**—gathering and disseminating information to formalize project completion

According to (PMBOK, 2008), the 47 processes are grouped into five categories: 1) Initiating, 2) Planning, 3) Executing, 4) Monitoring and controlling, and 5) Closing. These groupings reflect the logical integration and interactions between the individual processes, as well as the common purposes they serve. That is, the Process Groups band together the project management activities that are relevant to each project phase and provide a means for looking at best practices within one Knowledge Area at a time. For example, in the Initiation Process Group, you'll complete the individual Initiation processes like defining scope, goals, deliverables, assumptions, limitations, etc., that make up the project charter. Within the Initiation Process Group, you would also complete all activities and processes for identifying project stakeholders. Similarly, processes required to track, review, and regulate the progress and performance of the project are all included in the Monitoring and Controlling Process Group. So, processes with a common goal or theme are grouped together into a Process Group.

Table. 1 *Project Management Process and Body of Knowledge (PMBOK, 2008)*

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring & Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8.Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.3 Control Stakeholder Engagement	

Table. 2 *Project Management Process Group and Knowledge Area Process Mapping (PMBOK, 2013, Fifth Edition, 2013 p. 61)*

	Project Management Process Groups				
Knowledge Areas	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Integration	1	1	1	2	1
Scope		4		2	
Time		6		1	
Cost		3		1	
Quality		1	1	1	
Human Resources		1	3		
Communication		1	1	1	
Risk		5		1	
Procurement		1	1	1	1
Stakeholder	1	1	1	1	

2.5 Project Initiation and Project Success

Meredith and Mantel (2006, p. 113) describes the importance of various phases of the project initiation process in the accomplishment of a project. They cover the role of the project manager, the various ways the project can be organized, and the special requirements for managing a cross-cultural project. They also show that the success of a project is largely dependent on the conduct of feasibility study. In addition, emphasis is given to conduct the feasibility study by a specialized firm that has enough experiences. They have shown that the feasibility studies done by inexperienced firms tend to produce inaccurate data and the information of those feasibility studies do not provided good basis for making accurate information. Project charter and project office are also important in order to facilitate the smooth operation of projects.

Kim Heldman (2007, p. 285) shows how important the project initiation process in the success of project accomplishment. He classifies the project life cycle (according to the PMBOK Guide) in the following ways initiating, planning, executing, monitoring & controlling, and closing. Among them it is described the project initiation process is the most important because in this phase major decisions regarding the project and the allocation of resource decision are made. So the companies should consider all phases of the project initiation process very importantly. He also describes the importance of different phases of the project initiation. It is proved that feasibility study is not very much important in the success of the project in the industries that have already saturated. Rather feasibility study is important on the project of new venture or the project in which the company is first time attempting to undertake. He emphasizes on the phase review and the project office in order to find the deviation from the action desired.

Peter Hobbs (2008) also shows the project initiation process in relation to the successful completion of a project. However, his association was related to the most of the cases the developed nation environment. He mostly emphasizes on the phase review of the project initiation process. He says phase review helps to control and monitor the other phases of the project initiation process. It also shows the conducting of feasibility study.

2.6 Project Planning and Project Success

The process of planning through what is more, making unequivocal the targets, objectives, and procedures important to bring the project through its life-cycle to a fruitful end when the project's item, management, or process assumes its legitimate position in the execution of project proprietor methodologies (Cleland & Ireland, 2006, p. 265). Various specialists have explored extend possibilities that impact of anticipating project success. (Zwikael et al. 2014) Planning and determination of the ideal project lifecycle for the project being embraced can significantly affect the success of that project (Rahrovani, Chan, & Pinsonneault, 2014).

Project planning is the process of deciding ideal strategies, arrangement and timing of project exercises, and obliged assets to boost the possibility for a Successful Projects. Extend planning viability can be conceptualized as the degree to which a project accomplishes its arranged targets. (Galvin, Gibbs, Sullivan & Williams, 2014). Choices taken amid the planning procedure have been found to affect the plausible result of a project (Arditi, 1985; Clayton, 1989; Syal et al., 1992). Project Planning can be utilized to devise new items, administrations, inside operations, or hierarchical strategies (Nutt, 1982; Nutt, 1983). Most creators concur that a project is an interesting attempt, an extraordinary undertaking that has not been done some time recently. Subsequently, it is extremely troublesome or even difficult to know exactly at the underlying planning stage that what is every one of the exercises that should be done to finish the project and what are their cost and length parameters (Andersen, 1996).

2.7 Project Execution and Project Success

The execution stage involves the implementation of project activities. Thus, it is the process of leading and performing work as described in the management plan and effecting changes approved to realize the set objectives. This stage is characterized by continuous performance of project activities, change requests, monitoring and control, risk, quality, communication and stakeholder management (Desmond, 2004).

During implementation, a number of factors affect the direction of the project. The PMI (2013) outlines the key aspects in this phase. First, the inputs in this stage include the plan, the change

requests, business environmental aspects and organizational policies and assets. Secondly, the available tools and techniques applied during execution influence the progress of the project. These include the project management information systems, stakeholder and project team meetings, communication channels and monitoring and control activities. In the course of execution, deliverables are assessed and measured; change requests are affected and documented; project documents are updated to reflect progress and change requests. The project team directs the project activities and manages the various organizational and technical interfaces existing within the project.

Successful project execution is an organizational priority. Various researchers have shown that several project success factors can impact a project at all phases. In the execution phase, project success is related to the project's timely completion, on budget and within agreed quality (Kerzner, 2003). However, the understanding of project success has been altered to include limitation to minimum changes in the scope of the activities, shift in the corporate culture and acceptance of project results by clients (Alexandrova, 2012). Shenhar and Divr (1997) postulated that project success is measured in four dimensions, one of which is project efficiency during execution and immediately after completion. The researchers pointed out that shorter product life cycle and time-to-market increased an organization's competitive advantage. Further, they affirmed that impact of project management on the performance of an organization can be viewed in two broad dimensions of the commercial success of projects and the future potential created.

To solve the question concerning factors that could be used for successful execution of projects, many studies have been advanced by different researchers. Pinto and Slevin, (1987) assert that, "a project is generally considered to be successfully implemented if it comes in on-schedule (time criterion), comes in on-budget (monetary criterion), achieves basically all the goals originally set for it (effectiveness criterion), is accepted and used by the clients for whom the project is intended (client satisfaction criterion)."Although they agree that time, cost and quality are factors which could be used to measure successful implementation of projects, Pinto and Slevin (1987) also advanced an approach of ten dimensions that are important for consideration measurement of successful implementation of projects. The ten dimensions that they talk about are, Project Mission, Top Management Support, Project

Schedule Plans, Client Consultation, Personnel, technical Tasks, Client Acceptance, Monitoring and Feedback and Communication.

2.8 Project Monitoring & Controlling and Project Success

A study by Prabhakar (2008) pointed that Monitoring and Feedback was one of factors leading to project success. Likewise Papke-Shields et' al (2010) also noted that the probability of achieving project success seemed to be enhanced among other factors, by constantly monitoring the progress of the project. According to their study, monitoring and controlling was relevant in management of project scope, time, cost, quality, human resources, communication and risks.

In agreement, Hwang and Lim (2013) also established that Monitoring and evaluating, budget performance, schedule performance and quality performance could lead to project success. Ika et' al (2012) carried out a regression analysis which shows that there was a statistically significant and positive relationship between each of the five Critical Success Factors and project success. The five critical success factors include monitoring, coordination, design, training and Institutional environment. He further explained that, consistent with theory and practice, the most prominent critical success factors for project supervisors are design and monitoring. Hence Ika et' al (2012) ranks monitoring and evaluations highly as one of the major project success factors.

A research carried out by Ika et' al (2010) established that project success was insensitive to the level of project planning efforts but on the other hand ascertained that a significant correlation does exist between the use of monitoring and evaluation tools and project "profile," a success criterion which was an early pointer of project long-term impact. Once again Ika et' al (2010) accentuates that monitoring and evaluation is even more critical than planning in achievement of project success. Similarly one of the components of the project management methodology whose main aim is to achieve project success was monitoring project progress (Chin, 2012).

There seems to be consensuses across the project management field of study in the statement that monitoring and evaluation is a major contributor to project success. To crown it all, PMBOK (2001) which is a book which presents a set of standard guidelines which are widely accepted and consistently applied, continually stresses the importance of monitoring and evaluation in achieving project success.

2.9 Project Closure

Maylor (2005) argues that the activities that are due in the closure phase should be planned early in the project; however uncertainty in the project timeframe may increase the difficulty of planning specifically what should be done and at what time. Regardless, Chemuturi (2013) suggests a number of crucial activities that should be completed before deployment to ensure that the project is ready to move into maintenance at the receiving organization. First the project manager should carefully document the acquired knowledge and the best practices from the project along with a final project report in the organizational knowledge depository. Chemuturi (2013) continues that the project manager should also coordinate a protocol together with the project management office after inviting other project managers to a knowledge-sharing meeting. A postmortem should be compiled along with a performance evaluation of all team members before the project manager and team members can be released and assigned to the next project (Chemuturi, 2013).

2.11 Project Success

Taylor (2000) defines success as "delivering to the sponsor everything specified to the quality agreed on or within the time and costs laid out at the start". So project performance in itself does not tell was project successful or not. Cooke-Davies (2002) makes clear difference between project success and performance. The project success cannot be measured before the project is completed while project performance can and hopefully is measured during project's life-cycle.

Sometimes the problem of defining success roots from different perspectives of people looking at the project (Lim et al. 1999). For managers, employees and other stakeholders success appears in very different ways. For example customer may be satisfied even though end-user benefits are low. A great number of studies define success as meeting all the criteria associated with budget, schedule, and functionality. In practice this means that project is finished on time, within budget and at the same time as offering the promised output. On the other hand, failure is viewed as a flop to meet the same criteria (Dalcher 2014).

The end results of the project are highly dependable on the behavior and actions of the project manager. Any successful outcomes or fallouts are accredited to the particular steps that the project

manager deliberately decided to take. The success factors of each project are measured differently; projects may be quantified by cost savings, on-time deliverables or overall added value to the stakeholders. Although each project will be initially set with specific measurable factors to gauge success, the fundamentals to aim and achieve overall project success require the ability to apply certain core leadership competencies.

Some of the high level leadership attributes that encompass the key set of competencies are planning, leading, team motivation and communication. The more tangible measurable factors are trivial in relation to the significance and value of the core competencies to achieve project success. Subsequently, within some of the analyzed literature the term project success has been classified different from project management success. Cooke-Davies (2002) explains that project success could be measured against overall objectives; however, project management success rather is measured against the traditional factors of performance such as completing project within time, cost, budget, scope and quality.

Yang (2011), explains that project managers must continuously define and redefine how project outcomes will align with the long-term objectives of the organization. Particularly, project managers should be primarily concerned with how well the project integrates and aligns with the long-term goals of the organization as well as the short-term objectives of the project.

Ika (2009) explains that project success can be defined as an analogy of a hexagon, where, in addition to the traditional dimensions of time, cost, and quality; other requirements must be met such as the strategic objectives of the client organization, the satisfaction of the end users, and the approval of other stakeholders. Typically the success criteria for a project are identified in the earlier stages, however, in reality; there are a certain number of unknown conditions that must be met in order for a project to be successful. The complexity of project management lies in the fact that not every project is exactly identical (Grosse, 2007). Every project has a certain degree of distinction; this particular disparity is almost as unique as a fingerprint, that no two are ever identical. Therefore, to achieve successful results in project management, certain fundamental factors must be exercised, in addition to meeting the remaining of the project's unique conditions. Accordingly, Turner and Muller (2010) proposed many critical success factors and frameworks; these critical factors are listed below:

- End-user satisfaction with the project's product or service
- Suppliers' satisfaction
- Project team's satisfaction
- Other stakeholders' satisfaction
- Meeting project's overall performance (functionality, budget and timing)
- Meeting user requirements
- Meeting the project's purpose
- Client satisfaction with the project results
- Reoccurring business with the client
- Meeting the respondent's self-defined success factor

The subject of project success is at the heart of project management. Many factors impact the degree of project success. Project success is therefore among the top priorities of project managers and project stakeholders. It is not surprising then that the topic has interested academics and practitioners for decades and continues to be of relevance today. The project management literature frequently refers to two components of project success (Morris and Hough, 1987; Wateridge, 1998; Turner, 1999):

(1) Project success factors, which are the elements of a project which, when influenced, increase the likelihood of success; these are the independent variables that make success more likely.

(2) Project success criteria, which are the measures used to judge on the success or failure of a project; these are the dependent variables that measure success.

In recent time, organizations activities are becoming more project based. The implication is that organization tends to split routine work into programs of project in order to quickly achieve organizational goal of value added. Good management of these projects is essential if the organization is going to succeed. Equally important to individual project success is ensuring that the right projects are carried out. Directing all the projects successfully will ensure we are doing the right projects. Judges and Muller (2005) in their article mentioned that in order to define what success means in a project context is like gaining consensus from a group of people on the definition of "good art." Project success is a topic that is frequently discussed and yet rarely agreed upon (Baccarini, 1999). On were

limited to the implementation phase of the project life cycle to definitions that reflect an appreciation of success over the entire project and product life cycle (Judges and Muller, 2005).

Rowe et al, (1982) say that "Key result areas (KRAs) and critical success factors (CSFs) provide clue that help to answer the question of whether the organization is able to effectively mobilize its resources where there are conflicting sub goals, environmental uncertainty, and internal politics and constraints". Verma (1995) writes that communication, teamwork, and leadership are vital components of effective management of project human resources and are necessary to accomplish project objectives successfully. Cleland (1986) suggested that "project success is meaningful only if considered from two vantage points: the degree to which the project's technical performance objective was attained on time and within budget; the contribution that the project made to the strategic mission of the enterprise." Freeman and Beale (1992) provided an interesting example of the different points of view of people: "An architect may consider success in terms of aesthetic appearance, an engineer in terms of technical competence, an accountant in terms of dollars spent under budget, a human resources manager in terms of employee satisfaction, and chief executive officers rate their success in the stock market."

Max Wideman (2000) determines project success as a multi-dimensional construct that inevitably means different things to different people. He believes that success is better expressed at the beginning of a project in terms of key and measurable criteria upon which the relative success or failure of the project may be judged. He gives the following principle “The measure of project success, in terms of both process and product, must be defined at the beginning of the project as a basis for project management decision making and post-project evaluation. First and foremost, project success needs to be defined in terms of the acceptability of the project’s deliverables, for example scope, quality, relevance, effectiveness, and so forth; secondly in terms of its processes, for example time, cost, and so forth.”

2.12 Project Success Factors

Project success is usually discussed in terms of success factors and success criteria. Success factors are considered to be those aspects of management that lead directly or indirectly to the success of the project, while success criteria are defined as the measures by which success or failure of a project or

business was judged (Cooke-Davies, 2002). According to Lai (1997) the factors that contribute directly to project success is the ability to stay within the cost, time and performance specifications of the project.

Various authors came up with factors that influence project success this includes: support from senior management and adequate funds (White & Fortune, 2002); adequate resources (Posner, 1987); and the importance of planning, monitoring and controlling, technical, commercial and external issues (Morris et al., 2000). Ashley et al (1987) examine the links between success criteria and success factors, finding a direct cause and effect relationship between some factors and criteria. What counts as a successful project depends on how that success is measured? It has been found that the traditional measures of success, time, cost and goal specifications, are the most cited in the project management literature and were used most regularly as practical judges to project success (White & Fortune, 2002). There is a tendency to rely on time and cost as measures for easy measurement (Pinto & Slevin, 1988).

2.13 Critical success Factors (CSFs)

From a Project Management perspective, critical success factors (CSFs) are characteristics, conditions, or variables that can have a significant impact on the success of the project when properly sustained, maintained, or managed (Milosevic and Patanakul, 2005). Different studies have identified different CSFs and a lack of consensus of opinion among researchers on the criteria for judging project success and the factors that influence that success (Fortune and White, 2006).

The CSFs approach has been established and popularized over the last 20 years (Chan, et al. 2004). Nevertheless, the majority of the studies focus on the traditional "iron triangle" which are cost, quality and schedule (criteria for measuring project success) of conventional construction process rather than sustainable buildings (Walker & Shen, 2002).

2.14 Conceptual Framework

After thoroughly examining the associated literatures, this conceptual framework is designed by the researcher. The conceptual frame work is used to explain the effect of project integration management

process on project success of Berhan bank data center project. The independent variable is project integration management process and the dependent variable is Project Success.

The variables and their relationship are shown in the below figure:

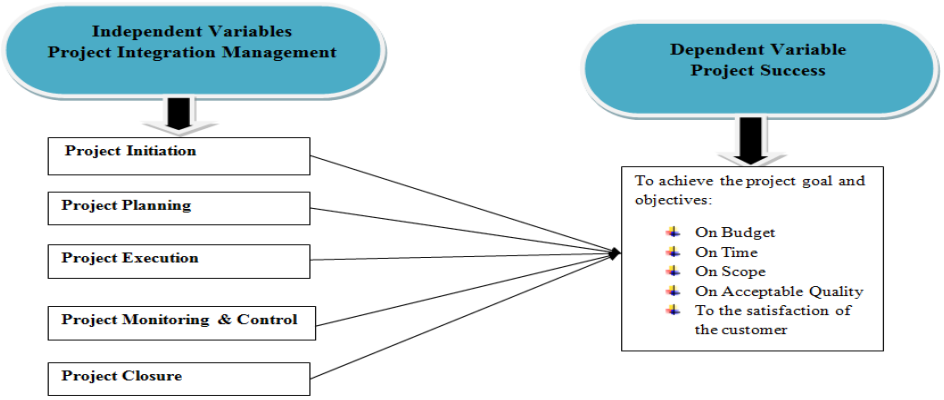


Figure 3- *Conceptual Framework*

2.15 Research Hypothesis

H1: Project initiation has positive and statistically significant influence on project success of Berhan bank data center project

H2. Project planning has positive and statistically significant influence on project success of Berhan bank data center project

H3: Project execution has positive and statistically significant influence on project success of Berhan bank data center project

H4: Project Monitoring and Control has positive and statistically significant influence on project success of Berhan bank data center project

H5. Project Closure has positive and statistically significant influence on project success of Berhan bank data center project

Part Three

3. Research Design and Methodology

3.1 Discussion and rational for choice of approach

The purpose of this study is to assess the effects of project integration management process on project success; the case of Berhan bank data center project and the challenges faced with this regard and provide possible recommendations to improve the practice in future projects.

In order to achieve the main objective of this research, a mixed methods approach (both quantitative and qualitative) is used. The purpose of using such a mixed methods approach is to gather data that could not be obtained by adopting a single method, so that the findings with a single approach could be substantiated with others wherever possible (Yesgat 2009, p.12).

Descriptive and exploratory research method is used for this study since the problem is not very well understood. This study is exploratory and descriptive because as to Robson (2002) exploratory study is a valuable means of finding out what is happening; to seek new insights; to ask questions and to assess phenomena in a new light. Sounders (2009) also explained it as it is particularly useful if we wish to clarify our understanding of a problem, and if we are unsure of the precise nature of the problem. Thus mixed-method analysis helps to provide richer understanding about the problem. Semi-structured interview and a structured questionnaire are used. After the empirical data collected, descriptive and qualitative analysis method is used.

3.2 Population and Sample

For the purpose of this study the researcher used all the project managers and project team members who participated in the data center project in Berhan Bank. Lists of individuals who participated in the data center project was obtained from the chief information officer(CIO) and the total sample size of the participants is 15 from various Divisions of the Bank's IT Department .

The sampling technique of the study is census. The researcher believes that the project managers and project team members provide key information for the study. Therefore, the researcher intentionally included these respondents. There are 43 staffs in the bank's IT Department. From the list obtained

from the chief information officer of the bank, all the 15 staffs participated in the data center project are fully included in the study sample. Summary of the population and samples are presented in the below table:

Target Population	**Population Size**	**Sampling Technique**
Chief Information Officer(CIO)	1	census
Project Managers	2	census
Project Team Members	12	census

3.3 Data Sources and Types

The researcher used both primary and secondary data sources for the study. The primary data is collected through questionnaires by setting self-administered question in person and semi-structured interview. Questionnaires are administered to Chief Information Officer (CIO), Project Managers and project team members engaged in the data center project. A semi-structured interview is conducted with the Chief Information Officer (CIO) and the two Project Managers in order to grasp important information that may not be fully secured through questionnaire. Secondary data is gathered from various documents, articles and books written on the issues related to the topic.

3.4 Data collection Procedures

With regard to instrument for data collection, the researcher employed questionnaires, unstructured record review to collect manuals, reports, policies and procedures and a semi-structured interview to collect relevant data from Chief Information Officer (CIO) and Project Managers of the data center project.

The questionnaire is preferred to other methods of data collection hoping that it may provide an opportunity for obtaining reliable and valid information from the respondents. According to (Sekaran, 2003), questionnaire is a popular method of collecting data because researchers can gather information

fairly easily and questionnaire responses are easily coded. Semi-structured interview is important to obtain information with regard to issues that required clarification such as directives, reports, policies and vital information that is not expected to access using questionnaires; and it is used concurrently with the design of the questionnaire.

3.5 Reliability and Validity

Reliability analysis:

As proclaimed by Bhattacherjee (2012), reliability is the degree to which the measure of a construct is consistent or dependable. In other words, if we use a certain scale to measure the same construct multiple times, we will get pretty much the same result every time, assuming the underlying phenomenon is not changing. This research has administered the most commonly used internal consistency reliability measure of Cronbach's alpha which was originally designed by LEE Cronbach in 1951. According to Sekaran (2003), reliabilities less than 0.6 are considered to be poor, those in the 0.7 range to be acceptable and those over 0.8 are good. The reliability coefficient closer to 1 is better.

Cronbach's alpha coefficient and the reliability measure calculated by SPSS version 20.00 is 0.69 for the final survey. Since this reliability statistics is above the minimum required threshold, it implies that the reliability of the questionnaire high.

Table 3.*1* *Reliability statistics for the final survey*

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.687	.847	6

Table 3.2 *Cronbach Alpha Coefficient for each variable*

	Cronbach's Alpha
Project Initiation	.651
Project Planning	.676
Project Execution	.732
Monitoring and Control	.658
Project Closure	.649
Project Success	.714

Source: *Own Survey, computed by SPSS Version 20.0*

3.6 Ethical Considerations

During the study the research is conducted by taking into account various ethical issues such as explaining the procedures to be followed in the study and preserving the privacy and confidentiality of information given by the respondents. The study results depend on the data provided by the respondents and the qualitative data obtained from interview and the process is realistic and bias free.

3.7 Data Analysis

To analyze the data collected, both quantitative and qualitative data analysis method is used. For semi-structured interview qualitative method is used; and for the questioner quantitative analysis method is employed. The quantitative analysis is processed and analyzed by Statistical Package for Social Sciences (SPSS) version 20.0. After data collected; data is organized, complied, edited and coded. The organized data is described using frequency and percentiles; and Bar charts.

Based on the nature of the data collection through questionnaires, interview, and documents, the following procedures and statistical tools are used. Data is checked for consistency and completeness; then data is coded, checked, and entered to computer and processed. To analyze the data, different kinds of statistical methods including descriptive statistics, and inferential statistics (simple and

multiple regressions) are used. Furthermore, descriptions are made based on the results of the tables and figures using mean value, percentage and standard deviation.

Part Four

4. Data Presentation and Analysis

The main focuses of this part it to present the analysis and discussion part from the data collected and to identify the influence of project integration management process on Berhan bank data center project success. The questioners were distributed for 15 participants (all that engaged in the data center project) and all of the participants returned the paper. 2 project managers and 1 Chief Information Officer (CIO) were also interviewed.

A multiple regression modeling approach was proposed as an effective method for studying the relationships. The result of this multiple regression model is analyzed and discussed in this part.

The statistical analysis of this study was done by SPSS software, version 20.0 and the results of the study were shown in inference and descriptive section. In descriptive section, tables, charts and statistics and in inference section, the result of multiple liner regression was analyzed.

4.1 Descriptive Findings

4.1.1. Demographic Profile

Table 4.1*Distribution of Demographic Characteristics of Respondents*

		Frequency	**Percent**
Age	26-35	3	20
	36-45	11	73.3
	46-55	1	6.7
Sex	Male	13	86.7
	Female	2	13.3
Work Experience	3-5 Years	2	13.3
	5-10 Years	7	46.7
	More than 10 Years	6	40

Source: *Own Survey, computed in SPSS, Version 20.0*

The socio demographic characteristics of the 15 respondents in the above table shows that, 13 (86.7%) of the respondents were male and 2 (13.3%) of them were female.

When we see the work experience from the responses, 46.7 percent of survey respondents indicated that they had 5-10 years of work experience which is the highest. The second larger number of respondents, 40%, had work experience of more than 10 years. The remaining 13.3% respondents had work experience from 1-3 years only. This outcome might depict that respondents had enough experience which would sufficiently contributed to the data quality of the survey.

Table 4.2 *Educational back ground*

Educational background	**Frequency**	**Percent**
First Degree	13	86.7%
Masters and above	2	13.3%
Total	**15**	**100**

Source: *Survey outcome and computed in SPSS, Version 20.0*

Looking at the educational background of survey respondents 13(86.7) % were First degree holder whereas 2(13.3) % were masters and above. This implies that the respondents hold first degree and above.

Table 4.3 *Position of the respondents in bank*

Position	**Frequency**	**Percent**
Chief Information Officer	1	6.7%
Hardware Division Mgr.	1	6.7%
Networking Division Mgr.	1	6.7%
Senior IT Officers	9	60.0%
Senior System Administrators	3	20.0%
Total	**15**	**100%**

Source: *Survey outcome and computed in SPSS, Version 20.0*

Looking at the positions of survey respondents, 9(80%) were Senior IT Officers and Senior System Administrators while 2(13.3%) were Divisions' managers in the IT Department and 1(6.7%) was Chief Information Officer.

4.2. Mean and Standard deviations

Descriptive statistics of the respondents' scores were computed and analysis has been done by comparing these mean scores and standard deviations among respondents. The reason for using descriptive statistics is to compare the various factors that affect project integration management process using the means and standard deviations values.

Table 4.4: *Mean and Standard deviation*

Descriptive Statistics			
	N	**Mean**	**Std. Deviation**
Project Initiation	15	3.4815	.20727
Project Planning	15	3.9111	.17417
Project Execution	15	3.6074	.14467
Monitoring and Control	15	3.7667	.18209
Project Closure	15	3.0444	.19153
Project Success	15	3.5185	.12144

Source: *Survey outcome and computed in SPSS, Version 20.0*

Table 4.4, above shows the mean value for the overall project success. Project success is above satisfactory level with a mean value of 3.52 on a 5 point likert scale.

The standard deviation 0.121 indicates that there was low variability in the overall project success and statistical data set were close to the mean of the data set. The table also shows that all project integration management processes were rated satisfactory. Project planning has the highest mean (3.91). Project initiation (mean of 3.48), Project execution (mean of 3.60), Monitoring and control

(mean of 3.77), and Project closure (mean of 3.04) have relatively major roles on the data center project success.

4.3 General descriptions of survey findings

The respondents were asked to rate their opinions on the indicators of project integration management processes i.e. Project Initiation, Project Planning, Project Execution, Monitoring and control and Project Closure on their contribution to the success of the data center project completion within budget ,time , scope, quality and to the satisfaction of the customer. The responses from the questionnaire and interview are analyzed in the sections that follow.

As per the response, 86.6% of the respondents said that the data center project initiation was taken on the basis of the opportunity. According to the interview conducted with two of the project managers and the Chief Information Officer, the data center project was initiated taking in to account the current trend of the banking sector growth in the country and to cope up with the fierce competition and introduction of advanced e-banking products and services demanded to upgrade the existing infrastructure. In addition to this upgrading the data center is required due to the rapid growth of the bank and the requirement for large data storage and retrieval and increased volume of transactions.

According to the interview, the decision to implement the data center project was analyzed thoroughly considering various factors including the banks current infrastructure position and its future prospects and growth. 86.6 % of the respondents believe that the decision to implement the data center project was based on the final output of feasibility study.

From the interview conducted most of the respondents said that a written project charter which acknowledges the existence of the project and that names the project manager and gives that person the authority to assign organizational resources to the project were issued. 80% of the respondents said that there was a project charter for the data center project undertaken. 20% of the respondents were neither agreed nor disagreed.

According to the interview response the project managers together with the project teams defined the project scope and developed a detailed description of the project and the deliverable. They said that

engaging the project team in such activity helped to create better understanding of the deliverables and smooth communication during project implementation. The response of the participants shows that, 73.3% of them said the project justification, the major deliverables, and the project objectives were properly defined in the project scope.

As per all Project managers stated, role and responsibilities at the beginning and while reviewed, briefly clarified to the employees. Similarly the response of the questioner showed that there were good practices of defining roles and responsibilities. 80% of the respondents said that Roles and responsibilities were defined and allocated whereas 20% responded differently.

73.4% of the respondents said that there was a proper estimate of the overall project cost. Whereas 26.6% said that there was no proper estimate of the overall project cost. According to the interview response from the project managers, the initial project cost was realistically estimated. However, due to a significant change in foreign currency rate within the country, the project cost escalated by 16% in association with the imported equipments which required approval of additional budget.

According to interview response from the chief information officer, a qualified external consultant was hired to monitor the quality standards of all the data center infrastructures and was responsible to identify quality requirements and standards of the project and product and documenting how the project would demonstrate compliance. The response of 73.3% of the participants confirms that quality planning was made to ensure how the project quality objectives would be met; whereas 26.7% responded neither agree nor disagree.

As per the interview response with the project managers much effort was exerted to create a good planning document to guide the project implementation team throughout the project execution process in order to attain the project objectives.86.6% of the respondents believed that overall, the project was well planned; whereas 13.3% disagreed with this statement.

From the survey questionnaire, 67.7% of the respondents said that when problem arises the cause of the problem was investigated and urgent resolution action was executed when necessary. Respondents agreed that identifying the effects of the main problem contributed to the project success. This implied

that effective problem analysis process during project execution process influence success of the project to a great extent.

On the other hand 73.3% of the respondents said that the project was executed in a positive teamwork environment .According to the interview made with the chief information officer, there was a weekly status update meeting with all project managers and team members. According to him this meeting helped to sort out any issues that hinder the project team performance and give possible solution to the issue. This practice made the team more cohesive and interactive one another.

To the question people in the project were motivated for good performance; 80% of the respondents said that there is no formal motivation for good performance. As per the interview conducted, the majority said that they did not received proper recognition for the positive performance they exhibited during the project. Stimulating team member performance requires a project manager to harness many different interpersonal skills. The level of enthusiasm applied toward project efforts has a direct impact on the project results. Because motivation can inspire, encourage, and stimulate individuals to achieve common goals through teamwork, it is in the project manager's best interest to drive toward project success through the creation and maintenance of a motivating environment for all members of the team.

More than 80% of the respondents said that the data center project was not evaluated after closing and also the lessons learned were not compiled for future projects as a reference. As per the interview response obtained from the Chief Information officer, the major problem for this is lack of attention given to this activity. He also added that to execute this type of task additional effort and resource is required since it is time consuming. After the project was completed everyone goes to its originally assigned work and this is usually expected in the absence of project management offices.

4.4 Correlation analysis

In order to understand the degree of relationship between the independent variables and the dependent variable, a Pearson correlation test was conducted. Based on the questionnaires completed by all the project teams and project managers participated in the data center project, the results of the correlation analysis between the variables are shown in below table.

Pearson's correlation is used to identify whether there are relationships between the variables and to describe the strength and the direction of the relationship between two variables. According to (Malhotra, et al., 2007), the level of association as measured by Pearson's coefficient falls between -1.0 and +1.0, which indicates the strength and direction of association between the two variables. The interpretation of the result is as follows; a correlation result between 0 to 1 implies positive relationship, 0 (zero) for no relationship and 1 for perfect positive relationship, -1 for perfect negative relationship and between -1 to 0 indicate the existence of negative relationship. Though it indicates the existence of a positive or negative relationship, the strength of such a relationship is not high when the results fall below ±0.61 (Hanuman, et al., 2011).

Table 4.5: Correlation Analysis

		Project Initiation	**Project Planning**	**Project Execution**	**Monitoring and Control**	**Project Closure**	**Project Success**
Project Initiation	Pearson Correlation	1	.143	-.255	-.059	-.186	.609
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	15	15	15	15	15	15
Project Planning	Pearson Correlation	.143	1	.231	.089	-.349	.674
	Sig. (2-tailed)	.000		.000	000	.000	.000
	N	15	15	15	15	15	15
Project Execution	Pearson Correlation	-.255	.231	1	.362	-.121	.780
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	15	15	15	15	15	15
Monitoring and control	Pearson Correlation	-.059	.089	.362	1	.111	.629
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	15	15	15	15	15	15
Project Closure	Pearson Correlation	-.186	-.349	-.121	.111	1	.425
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	15	15	15	15	15	15
Project Success	Pearson Correlation	.609	.674	.780	.629	.425	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	15	15	15	15	15	15

Source: *Own Survey, computed by SPSS Version 20.0*

The correlation analysis table above shows that, the independent variables i.e. Project Initiation, Project Planning, Project Execution, Monitoring and control and Project Closure are significantly and positively correlated with the dependent variable i.e. Project Success. Project Initiation (r=0.609, p<.001), Project Planning (r=0.674, p<.001), Project Execution (r=0.780, p<.001), Monitoring and control (r=0.629, p<.001) and Project Closure (r=0.425, p<.001).

The results of the correlation analysis shows that Project Initiation (r=0.609, p<.001), Project Planning (r=0.674, p<.001), Project Execution (r=0.780, p<.001), and Monitoring and control (r=0.629, p<.001) are positively and significantly correlated with the dependent variable, i.e. Project Success.

On the other hand the highest significant relationship is found between Project Execution (r=0.780, p<.001) and project success (r = 0.780, p < 0.001), however the lowest statistically significant relationship is found between Project Closure and project success(r = 0.425, P < 0.001).

4.5 Inferential Analysis

Like the descriptive statistical methods, i.e. demographic and other related factors, the scale typed questionnaire has been entered to the SPSS software version 20.0 and inferential statistics methods such as: simple correlation and multiple regression methods has been employed to test the hypothesis.

4.5.1 Tests for the Linear Regression Model Assumptions

To maintain the data validity and robustness of the regressed result of the research, the basic classical linear regression model (CLRM) assumptions must be tested for identifying any misspecification and correcting them so as to augment the research quality (Brooks,2008). Hence, this study has conducted the assumption tests such as, multi-Collinearity, linearity, and normality.

Multi Colinearity:

Multi Collinearity is checked using correlations between the variables in the model. Independent variables show at least some relationship with dependent variable (above 0.3 preferably). In this case all of the scales i.e. Project Initiation (0.609), Project Planning (0.674), Project Execution (0.780), Monitoring and Control (0.629) and Project Closure (0.425) correlate substantially with Project Success. Since these requirements are validated there is no issue of Multi Collinearity.

Collinearity diagnostics on the variables as part of the multiple regression procedure is done using tolerance and variance inflation factor (VIF). Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model. If this value is very small(less than 0.10), it indicates that the multiple correlation with other variables is high, suggesting the possibility of multi Collinearity (Pallant, 2010).Furthermore, the other value given is the VIF, which is just the inverse of the tolerance value (1 divided by tolerance). According to Pallant (2010), VIF values above 10 would be a concern, indicating multi Collinearity.

Table 4.7: *Collinearity Diagnosis*

Model		**Collinearity Statistics**	
		Tolerance	**VIF**
1	(Constant)		
	Project Initiation	.863	1.159
	Project Planning	.820	1.219
	Project Execution	.740	1.351
	Monitoring and control	.837	1.194
	Project Closure	.822	1.217

Source: *Own Survey, computed by SPSS Version 20.0*

The result shows that the tolerance value for each independent variable i.e. Project Initiation, Project Planning, Project Execution, Monitoring and control and Project Closure is (0.863, 0.820, 0.740, 0.837, and 0.822) respectively which are not less than 0.10; therefore, multi Collinearity assumption is not violated. This is also supported by the VIF value, which is (1.159, 1.219, 1.351, 1.194 and 1.217) which is well below the cut-off 10 as shown in the coefficient table.

Normality and Linearity of Residuals

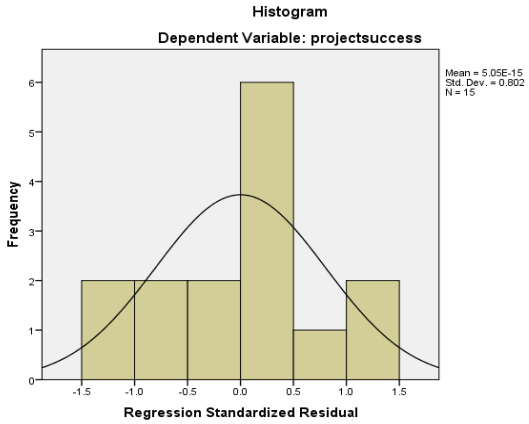
One of the ways that these assumptions can be checked is by inspecting the residuals scatter plot and the normal probability plots of the regression standardized residuals that were requested as part of the analysis. These are presented in normal P-P Plots of regression standardized residuals graph. In normal probability plots the points will lie in reasonably straight diagonal line from bottom left to top right.

This would suggest no major deviations from normality. The finding from normal P-Plot reveals no violation of normality assumptions.

Test of Normality

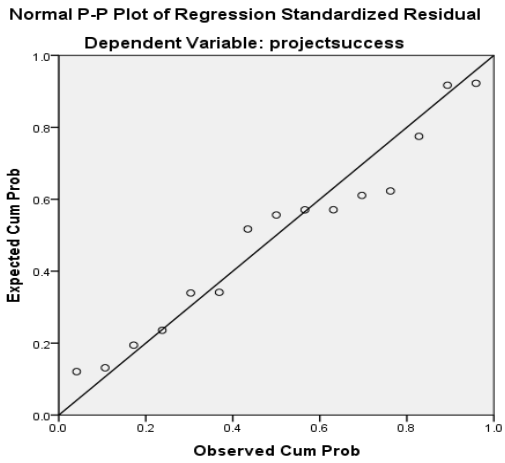
The study used both methods of assessing normality; graphically using Normal Probability Plot (P-P) graph and using Skewness and Kurtosis numerically.

Figure 4.1: *Frequency Distribution of Regression Standardized Residual*



Source: *Own Survey, computed by SPSS Version 20.0*

Figure 4.2*: Normal Probability Plot of Standardized Residual*



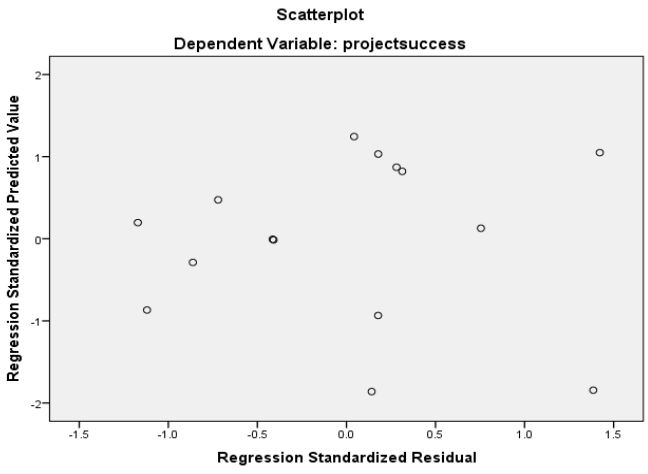
Source: *Own Survey, computed by SPSS Version 20.0*

In the Normal Probability Plot points will lie in a reasonably straight diagonal line from bottom left to top right. This would suggest no major deviations from normality. The study applied Normal P-P Plot of regression Standardized Residuals can be seen in the above figure to test linearity. Since the points were symmetrically distributed around a diagonal line, linearity pattern was observed. Hence, the straight line relationship between the residuals and the predicted dependent variable scores depicted that linearity was achieved.

Homoscedasticity

Homoscedasticity is the extent to which the data values for the dependent and independent variables have equal variances, as Saunders, et al. (2009) noted. Based on the explanation by Field (2009), at each level of the predictor variables, the variance of the residual terms should be constant which means the residuals at each level of the predictors should have the same variance, therefore checking for this assumption is helpful for the goodness of the regression model. Field (2009) suggested that we should plot the standardized residuals, or errors (ZRESID) on the Y axis and the standardized predicted values of the dependent variable based on the model (ZPRED) on the X axis to get the homoscedacticity result.

Figure 4.2: *Normal Point Plot of Standardized Residual*



***Source: Own** Survey, computed by SPSS Version 20.0*

According to Garson (2012), homosedasticity help as to check for the relationship under investigation is the same for the entire range of the dependent variable and lack of homoscedasticity is shown by higher errors (residuals) for some portions of the range, which can be seen on the scatter plot. In this regard, as Field (2009) describes, the graph of *ZRESID and *ZPRED should look like a random array of dots evenly dispersed around zero, if the assumption of homoscedasticity has to be met. Likewise, as shown in the above figure, almost all the points are randomly and evenly dispersed throughout the plot and almost there are no obvious outliers on this cloud of dots which are spaced around zero. Therefore, we can conclude that the assumptions of random errors and homoscedasticity have been met.

As Field (2009) and Garson (2012) noted, many statistical procedures assumed that the sampling distribution is normally distributed and so, if the sample data are approximately normal then the sampling distribution will be also. In this regard, it is useful to test for normality of the sample data. Therefore, it was checked for the data to see if they are normally distributed through quantify aspects of a distribution (i.e. skewness and kurtosis) and presented as follows.

Kurtosis and Skewness

Table 4.9: *Kurtosis and Skewness*

	N	**Skewness**		**Kurtosis**	
	Statistic	**Statistic**	**Std. Error**	**Statistic**	**Std. Error**
Project Initiation	15	-.098	.580	-.673	1.121
Project Planning	15	-.252	.580	-.165	1.121
Project Execution	15	-.364	.580	-.960	1.121
Monitoring and control	15	-1.384	.580	-1.806	1.121
Project Closure	15	-.046	.580	-1.127	1.121
Project Success	15	-.282	.580	-.466	1.121

Source: *Own Survey, computed by SPSS Version 20.0*

According to Garson (2012), as a rule of thumb, for normality skew should be within the +2 to -2 range, when the data are normally distributed. In this regard, as shown in the above table, the skew value is fit within the limit and ranges between -1.384 and -.046; which is close to zero. Considering the notion of Field (2009), 'the further the value is from zero, the more likely it is that the data are not normally distributed and vice versa', the data, therefore, in this research, is said to be normally distributed.

Furthermore, as Garson (2012) suggests, kurtosis should be within the +2 to -2 range when the data are normally distributed. When we look at table 4.9 above, the kurtosis value is perfectly fit within the limit and ranges between -1.806 and -.165. Therefore, we can conclude that, abnormality of the data distribution cannot be a problem for this study.

4.5.2 Multiple Regressions Analysis

The regression model was applied to test how far project integration management process has effect on project success. Coefficient of determination R^2 is the measure of proportion of the variance of dependent variables about its mean that is explained by the independent or predictor variables. It is conducted to investigate the effect of independent variable i.e. (Project Initiation, Project Planning, Project Execution, Monitoring and control and Project Closure) on the dependent variable (Project Success) and identify the relative significant influence on Berhan Bank data center project. Higher value of R^2 represents greater explanatory power of the regression equation. The proposed hypotheses were tested using multiple regression analysis. The results of the regression analysis are depicted in the below table.

Table 4.10 : *Regression Coefficient Analysis of the Model*

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
	(Constant)	.567	.093		.260	.000
	Project Initiation	.061	.206	.183	.294	.006
	Project Planning	.496	.300	.476	1.654	.003
	Project Execution	.129	.380	.103	.340	.008
	Monitoring and control	.304	.284	.305	1.069	.013
	Project Closure	.176	.273	.186	.645	.009

Source: *Own Survey, computed by SPSS Version 20.0*

H1: Project initiation has positive and significant effect on project success of Berhan bank data center project

In accordance with the regression result in the table above, project initiation has influence on project success of Berhan bank data center project ($p<0.01$). Besides, the value of beta ($\beta=.183$) shows the positive effect of project initiation process on project success. This implies that a one unit increase in project initiation process results in 0.183 unit increase in the success of Berhan bank data center project. Therefore, the above proposed hypothesis is accepted.

H2. Project planning has positive and significant effect on project success of Berhan bank data center project

In accordance with the regression result in the table above, project planning has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project planning ($\beta=.476$) demonstrates the positive effect of project planning on the project success of Berhan bank data center project. This implies that a one unit increase in project planning process results in 0.476 unit increase in the success of Berhan bank data center project. Thus, the above proposed hypothesis is accepted.

H3: Project Execution has positive and significant effect on project success of Berhan bank data center project

In accordance with the regression result in the table above, project execution has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project execution ($\beta=.103$) demonstrates the positive effect of project execution on the project success of Berhan bank data center project. This implies that a one unit increase in project execution process results in 0.103 unit increase in the success of Berhan bank data center project. Thus, the above proposed hypothesis is accepted.

H4: Project Monitoring and Control has positive and significant effect on project success of Berhan bank data center project

In accordance with the regression result in the table above, project monitoring and control has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project monitoring and control ($\beta=.305$) demonstrates the positive effect of project monitoring and control on the project success of Berhan bank data center project. This implies that a one unit increase in project monitoring and control process results in 0.305 unit increase in the success of Berhan bank data center project. Thus, the above proposed hypothesis is accepted.

H5. Project Closure has positive and significant effect on project success of Berhan bank data center project

In accordance with the regression result in the table above, project closure has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project closure ($\beta=.186$) demonstrates the positive effect of project execution on the project success of Berhan bank data center project. This implies that a one unit increase in project closure process results in 0.186 unit increase in the success of Berhan bank data center project. Thus, the above proposed hypothesis is accepted.

Model Summary

Table 4.11: *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.623[a]	.688	.647	.17710	.688	1.139	5	9	.000

Source: *Own Survey, computed by SPSS Version 20.0*

Overall, all independent variables accounted for about 69% of the contribution for Berhan bank data center project success ($R^2 = 0.688$). Thus, 69% of the variation in project success can be explained by the five dimensions and other factors may limit contribution of project integration management which accounts for about 31%, as shown in the table above.

From the above finding we can develop the following regression model

ePS = β_0 + β1X1 + β2 X2+ β 3X3 + β 4X4 + β5X5+*e*……

Y= 0.567 + 0.183X1 + 0.476X2 + 0.103X3 + 0.305X4+……

ePS = Project Success derived from project integration management process of Berhan bank data center project

α = Constant

β_o = Coefficient of estimate

X1= Project Initiation

X2 = Project Planning

X3 = Project Execution

X4 = Monitoring and control

X5 = Project Closure and

ε = the error term

4.6 Discussion of Findings

Project initiation

- The outcome of the regression analysis shows that project initiation has influence on project success of Berhan bank data center project ($p<0.01$). Besides, the value of beta ($\beta=.183$) shows the positive effect of project initiation process on project success. This implies that a one unit increase in project initiation process resulted in 0.183 unit increase in the success of Berhan bank data center project.

  The Initiation Phase consists of the processes that facilitate the formal authorization to start the project phase. Before project initiation, the business needs are identified and documented. As a next step the feasibility of a new project may be established through a process of evaluating alternatives documented in a formal feasibility study. The documentation for this decision might also contain a brief presentation of the project scope, its deliverables, duration, resource requirements and investment estimation.

During the Initiation Phase, the initial scope of the project and the resource requirements are further refined. Initial assumptions and constraints are also documented and the other project related elements such as deliverables, schedule, etc. are refined and undergo minor modifications to best fit the business and project needs. Therefore, we can say that proper project initiation process influence completion of project within the approved budget, within scheduled time to some extent and completion of the project within the desired quality and meeting customer satisfaction and to the project success of the data center project

This result agrees with the survey response. 80% of the respondents said that the project success was very much dependent on the project initiation process .The respondent's mark all indicators that make project initiation indicator, and the grand mean rated for these variables were turned out to 3.46 .In consequence, it evident that most of the respondents believed the data center project was properly initiated.

Project planning

- On the other hand the regression result shows that project planning has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project planning ($\beta=.476$) demonstrates the positive effect of project planning on the project success of Berhan bank data center project. This implies that a one unit increase in project planning process results in 0.476 unit increase in the success of Berhan bank data center project.

  During the Planning Phase, information is gathered from many sources with each having varying levels of completeness and confidence. The planning processes identify, define and mature the project scope, project cost, and schedule the project activities. As new project information is discovered, additional dependencies, requirements, risks, opportunities, assumptions and constraints will be identified or resolved.

  Since the planning phase is iterative, it gives emphasis on exploring all aspects of the scope, schedule and costs. Therefore, it is possible to say that proper project planning process influence completion of project within the approved budget, completion of project within

scheduled time and completion of the project within the desired quality and meeting customer satisfaction.

Project execution

- In accordance with the regression result in the table above, project execution has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project execution ($\beta=.103$) demonstrates the positive effect of project execution on the project success of Berhan bank data center project. This implies that a one unit increase in project execution process results in 0.103 unit increase in the success of Berhan bank data center project.

  The Execution Phase aims at completing the work defined during the Planning Phase to accomplish the project's requirements. This phase involves coordinating people and resources, as well as integrating and performing the activities of the project in accordance with the plan. This phase also addresses the project scope that has already been defined and implements approved changes. Therefore, proper project execution process influence completion of project within the approved budget, completion of project within scheduled time and completion of the project within the desired quality and meeting customer satisfaction.

  This also agrees with questionnaire response. 86.7% of the respondents said that the project plan was executed by performing the tasks identified in the plan. This is indicated by a mean of 4.07 and standard deviations of 0.59 which implies executing tasks as per the original plan leads to project success.

Project monitoring and control

- The regression result shows that, project monitoring and control has positive and significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project monitoring and control ($\beta=.305$) demonstrates the positive effect of project monitoring and control on the project success of Berhan bank data center project. This implies that a one unit increase in project monitoring and control process results in 0.305 unit increase in the success of Berhan bank data center project.

This phase is related to observing project execution so that potential problems can be identified in a timely manner and corrective action can be taken, when necessary, to control the execution of a project. The key benefit of this phase is that project performance is observed and measured regularly to identify variances from planning. This phase also includes controlling changes and recommending preventing actions in anticipation of possible problems. This phase includes monitoring the ongoing project activities against planning and project performance indicators; and influencing the factors that could circumvent integrated change control so that only approved changes are implemented. Therefore, proper project monitoring and controlling process influence completion of project within the approved budget, completion of project within scheduled time and completion of the project within the desired quality and meeting customer satisfaction.

Project closure

- From the regression result it is observed that project closure has positive and significant influence on the success of Berhan bank data center project ($p<0.01$). Also, the value of beta in the success of Berhan bank data center project ($\beta= .186$) shows the positive effect of project closure on the success of Berhan bank data center project. This implies that a one unit increase in project closure results in 0.186 unit increase in project success of Berhan bank data center project.

  This phase is related to the formal termination of all activities of a project or a project phase, hand-off the completed product to others or close a cancelled project. This phase, when completed, verifies that the defined processes are completed in all phases to close the project as appropriate, and formally establishes that the project is finished. Therefore, proper project closure process influence to some extent completion of project within the approved budget, completion of project within scheduled time and completion of the project within the desired quality and meeting customer satisfaction.

Part Five

5. Summary, Conclusion and Recommendation

The preceding part presented the results and discussion, while this part deals with summary, conclusion and recommendations based on the findings of the study.

5.1 Summary of Findings

The research general objective was to examine the effect of project integration management on project success of Berhan bank data center project.

The overall result obtained from the regression model indicates that project integration management process has an effect on project success of Berhan bank data center project. The dependent variable under study was project success and the independent variables were Project Initiation, Project Planning, Project Execution, Monitoring and Control and Project Closure. The results for each project integration management processes are summarized below:

- The outcome of the regression analysis shows that project initiation has influence on project success of Berhan bank data center project ($p<0.01$). Besides, the value of beta ($\beta=.183$) shows the positive effect of project initiation process on project success.
- On the other hand the regression result shows that project planning has significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project planning ($\beta=.476$) demonstrates the positive effect of project planning on the project success of Berhan bank data center project.
- In accordance with the regression result, project execution has significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project execution ($\beta=.103$) demonstrates the positive effect of project execution on the project success of Berhan bank data center project.

- The regression result shows that, project monitoring and control has significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project monitoring and control ($\beta=.305$) demonstrates the positive effect of project monitoring and control on the project success of Berhan bank data center project.
- From the regression result it is observed that project closure has positive and significant influence on the success of Berhan bank data center project ($p<0.01$). Also, the value of beta in the success of Berhan bank data center project ($\beta= .186$) shows the positive effect of project closure on the success of Berhan bank data center project.

5.2 Conclusions

The study specifically examines the effect of project integration management process on project success of Berhan bank data center project. The result of the study indicates a positive and significant association between Project Initiation, Project Planning, Project Execution, Monitoring and Control and Project Closure on project success of the data center project which implies the increase in Project Initiation, Project Planning, Project Execution, Monitoring and Control and Project Closure inevitably increases in the project success of the data center project.

The regression analysis shows that project initiation has influence on project success of Berhan bank data center project ($p<0.01$). Besides, the value of beta ($\beta=.183$) shows the positive effect of project initiation process on project success. On the other hand project planning has significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project planning ($\beta=.476$) demonstrates the positive effect of project planning on the project success of Berhan bank data center project. In accordance with the regression result, project execution has significant effect on project success of Berhan bank data center project ($p<0.01$). The value of beta in project execution ($\beta=.103$) demonstrates the positive effect of project execution on the project success of Berhan bank data center project. Project monitoring and control has significant effect on project success of Berhan bank data center project ($p<0.01$). Also, the value of beta in project monitoring and control ($\beta=.305$) demonstrates the positive effect of project monitoring and control on the project success of Berhan bank data center project. Project closure has positive and significant influence on the success of

Berhan bank data center project ($p<0.01$). Also, the value of beta in the success of Berhan bank data center project ($\beta= .186$) shows the positive effect of project closure on the success of Berhan bank data center project.

5.3 Recommendation

Based on the findings obtained the researcher has drawn the following recommendations to improve project integration management in future project undertakings:

- Most of the respondents said that the data center project was not evaluated after closing and also the lessons learned were not compiled for future projects as a reference. As per the interview response obtained from the Chief Information officer, the major problem for this is lack of attention given to this activity. Therefore, the company should include some formal project management action in to its project management system like formal documentation of requirements and collection of lessons learned for future reference

- The survey result reveled that, while undertaking the data center project there was no a formally established project management offices. While undertaking large projects establishing a project management office within the bank will help to guide projects from implementation to a successful conclusion, and also create a foundation for consistent project management practices

- To the question about making an ongoing project phase reviews, majority of the respondents said that there was no a project phase reviews during each phases of the project. Project phase review is important in order to find out the deviation or the lacking in the process from expectation. Therefore, the practice reviewing the various phases of projects should be exercised to find out deviations and making corrective actions timely

- Through the survey questionnaire majority of the respondents said that there is no formal motivation for good performance. As per the interview conducted, the majority said that they did not received proper recognition for the positive performance they exhibited during the

project. Because motivation can inspire, encourage, and stimulate individuals to achieve common goals through teamwork, it is in the project manager's best interest to drive toward project success through the creation and maintenance of a motivating environment for all members of the team. Therefore, this practice should be enhanced to boost the performance of project teams so as to achieve better project success.

5.4 Direction for future research

This study only considered the effect of project integration management process on project success for Berhan bank data center project.

- This study was conducted in Berhan bank considering a specific project .This implies that the sample may not be comparable to other banks within the country to see the effect of project integration management process on the various projects undertaken by those banks. Therefore; additional studies is required to investigate the hypotheses and what other variables of project integration management has significant contribution to project success.

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Department Of Project Management

Dear Sir/ Madam

My name is Thomas Desalegn. I am a postgraduate student at Addis Ababa University, College of Business and Economics, Department of Project Management. In Partial fulfillment of the program requirement, I am undertaking a research on "**The Effect of Project Integration Management Process on Project Success: The case of Berhan Bank Data Center Project**". I have accordingly prepared this survey questionnaire. The objective of the survey is to examine the influence of selected project integration management processes on successful implementation of the data center project.

This research is believed to produce results that can improve project integration management practices in Berhan bank in future projects. **Your honest responses to each question and statement are extremely valuable to the outcome of this research**. The results of the survey will be used for the purpose of academic research only. Hence, all responses will be kept in strict confidentiality and hence would not affect any one in any case.

I would like to thank you in advance for your kind participation, genuine and on time response to the questionnaire.

Thank you!

Thomas Desalegn

Section I –Demographic Characteristics

1. What is your age?

☐ 20 – 25 ☐ 26 – 35 ☐ 36 – 45 ☐ 46 – 55 ☐ Above 55

2. Sex: ☐ Male ☐ Female

3. Work Experience

☐ Less than 1 Year ☐ 1-2 Years ☐ 3-5 Years ☐ 5-10 Years

☐ More than 10 Years

4. Educational Background

☐ Diploma ☐ First Degree ☐ Masters and Above

Section II – Project Integration Management Process Groups

Rate the below questions with regard to project integration management process for Berhan Bank Data Center Project on basis of the following parameters by *circling the number*

No.	A.1 Questions on Project Initiation	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
A11	The data center project was taken on the basis of the opportunity	1	2	3	4	5
A12	The data center project was taken on the basis of the problem faced	1	2	3	4	5
A13	The feasibility was considered before initiating the project	1	2	3	4	5
A14	The decision to implement the data center project was based on the final output of feasibility study	1	2	3	4	5
A15	There was a project charter for the data center project undertaken	1	2	3	4	5
A16	The project team was competent with the requirements of the project	1	2	3	4	5
A17	There was a project office for the data center project	1	2	3	4	5
A18	The project initiation phase was followed by a phase review	1	2	3	4	5
A19	The project success was very much dependent on the project initiation process (the steps above mentioned)	1	2	3	4	5

No.	B.1 Questions on Project Planning	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
B11	The project justification, the major deliverables, and the project objectives were properly defined in the project scope	1	2	3	4	5
B12	The tasks that will be performed in order to produce the project's deliverables (the lower levels of the WBS) were properly defined	1	2	3	4	5
B13	Dependencies among tasks were properly identified	1	2	3	4	5
B14	Roles and responsibilities were defined and allocated	1	2	3	4	5
B15	The probable duration of individually schedulable tasks and activities were estimated	1	2	3	4	5
B16	Proper estimates of the overall project cost was made	1	2	3	4	5
B17	The project staffing was appropriatly planned	1	2	3	4	5
B18	Quality planning was made to to ensure how the project quality objectives will be met	1	2	3	4	5
B19	Overall, the project was well planned	1	2	3	4	5

No.	C.1 Questions on Project Execution	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
C11	Project staffs were committed to the directions given to them	1	2	3	4	5
C12	Project staffs responded well to supervision	1	2	3	4	5
C13	People in the project were motivated for good performance	1	2	3	4	5
C14	Project staff interaction was well coordinated	1	2	3	4	5
C15	Conflicts within the project team did not emerge	1	2	3	4	5
C16	The project was executed in a positive teamwork environment	1	2	3	4	5
C17	When problem arises ,the cause of the problem was investigated and urgent resolution action was executed when necessary	1	2	3	4	5
C18	The project plan was executed by performing the tasks identified in the plan	1	2	3	4	5
C19	Overall, the project was well directed and managed	1	2	3	4	5

No.	D.1 Questions on Monitoring and Control	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
D11	Collecting and disseminating project progress information was effective	1	2	3	4	5
D12	The request for changes was recorded	1	2	3	4	5
D13	Changes before implementation were approved	1	2	3	4	5
D14	The Change Control process was properly implemented to manage changes to scope,time,qualiy or budget	1	2	3	4	5
D15	Project deliverables and activities were measured to assess whether quality objectives are being met	1	2	3	4	5
D16	Monitoring and recording result of the quality activities for constant improvement were performed	1	2	3	4	5
D17	Controlling and responding to schedule changes was effective	1	2	3	4	5
D18	Controlling and responding to cost changes was effective	1	2	3	4	5
D19	Overall, the project was well monitored and controlled	1	2	3	4	5

No.	E.1 Questions on Project Closure	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
E11	The objectives for the project were met	1	2	3	4	5
E12	The project deliverables were completed satisfactorily	1	2	3	4	5
E13	The project progress was compared with the scope everyone agreed on at the beginning	1	2	3	4	5
E14	The efforts and accomplishment of project participants was recognized	1	2	3	4	5
E15	There are outstanding actions which needs completion	1	2	3	4	5
E16	Information to formalize project completion was gathered and disseminated to stakeholders	1	2	3	4	5
E17	The project was evaluated after closing	1	2	3	4	5
E18	Project success was celebrated	1	2	3	4	5
E19	The lessons learned were compiled for future projects	1	2	3	4	5

Section III - Questions on Project Success Factors

Rate for the performance of **Cost/Scope/Schedule** for the Data Center Project on the basis of the following parameters by *circling the number*

No.	F.1 Questions on Project Success Factors	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
F11	The project was completed on schedule	1	2	3	4	5
F12	The project was completed within the initially approved budget	1	2	3	4	5
F13	The project quality objectives were met	1	2	3	4	5
F14	The project stayed within the documented scope	1	2	3	4	5
F15	The project achieved its goals	1	2	3	4	5
F16	The product satisfied the requirements	1	2	3	4	5
F17	The project represented excellent work	1	2	3	4	5
F18	The developed product was a success	1	2	3	4	5
F19	Overall, the project was a success	1	2	3	4	5
		1	2	3	4	5

Interview Questions for Project Managers

1. How was the decision to implement the data center project made?
2. How was the project scope defined and developed?
3. Was there a qualified body to monitor the quality standards of all the data center infrastructures? If yes how it was done?
4. How people during the project were motivated for good performance?
5. How was the data center project evaluated after closing the project?
6. Are lessons learned compiled for future projects as a reference?
7. What was the estimated initial project cost?
8. Was there any change in the initial project cost?