A Research Project Submitted to Addis Ababa University

School Of Commerce in Partial Fulfilment of The Requirements for The Degree Of Masters of Project Management

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January, 2023

Addis Ababa, Ethiopia

The Effect of Project Time Management Practices on Project Performance: The case of "Heineken Breweries S.C."

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ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

Examiners of Approval of Thesis

This is to certify that the project prepared by Nathan Dubale, entitled: ***The Effect of Project Time Management Practices on Project Performance: The case of "Heineken Breweries S.C."*** and submitted in partial fulfilment of the requirements for the award of a master's degree in project management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signature of Board of Examiner:

Seifu M. (PHD)	_____	_____
Advisor	**Signature**	**Date**
_____	_____	_____
Internal Examiner	**Signature**	**Date**
_____	_____	_____
External Examiner	**Signature**	**Date**

Declaration

I, Nathan Dubale, declare that the research project entitled “The Effect of Project Time Management Practices on Project Performance: The case of “Heineken Breweries S.C.” is my own original work, and has not been submitted for any degree in any other University. All sources of materials used for this study have been duly acknowledged.

Name: Nathan Dubale

Signature: _____

Date: _____

Certification

This is to certify that Nathan Dubale has conducted this project work entitled “The Effect of Project Time Management Practices on Project Performance” under my supervision. This project work is original, and suitable for the submission in partial fulfilment of the requirement for the award of Master of Arts Degree in Project Management.

Name of Advisor: Seifu M. (PHD)

Signature: _____

Date: _____

Acknowledgement

First of all, I wish to thank the almighty God for giving me the courage and strength in my work while I was preparing this study to its completion. Following this, I wish to present my heartfelt appreciation for my guide Seifu M. (PHD) for his continued follow up and assistance in suggestion and inspiration they gave me in the process of conducting the research. In addition to this, I wish to express my appreciation to textile industries and stockholders in providing me the required data on time.

Finally, I wish to express my cordial appreciation to my family for the material and moral support they gave me while I was conducting the study.

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Abstract

Time is one of the major constraints in projects. This study tries to put light on how this important constraint is managed with respect to project time management functions and contractual requirements. The study also investigated as how delay and extension of time is assessed and analyzed. The effect of project time management practices on project performance: "Heineken Breweries S.C." projects as cases, the research attempts to make an in-depth the effect of project time management practices. Project time management process was developed consisting mainly of planning, scheduling and control of time and the associated tasks. Collection of primary data was done by use of semi-structured questionnaire. The data was coded and entered for analysis using Statistical Package for the Social Sciences (SPSS). Pearson correlation analysis was used to relate the various study variables. The results of the study were presented using tables and figures. The study findings indicated that project completion was being done without much struggle and that the budgeted funds were enough to complete the project. The study further established that all material resources allocated were in use and that project output had been well defined. The study also clear that activity duration had been well estimated, time schedules were well developed, and that project scope had been well specified during planning phase. The study concluded that human resource planning, time management, material resource planning and financial resource planning positively and significantly contributes to performance of the projects. The study suggested that the cost estimation ought to be founded on the project scope and be associated to the project plan and time bounded. It is recommended that time management taken seriously and become specialization as core function of project management.

Chapter One: Introduction

1.1. Background Of the Study

Project management is a specialized management technique necessary for the planning, organization and control of projects under one strong point of responsibility. Project Management as the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements (Lafhaj, Ayalew, Dakhli, & Lafhaj, 2016).

Project time management is the efficient use of time by means of good organization, efficient productivity, and proper planning. Project managers, who are tasked with overseeing projects from start to finish, utilize these time management skills to complete their work in the most efficient, cost-effective ways possible. A project manager should develop a sequenced list of tasks that need to be completed, then track employee progress through those steps. Project managers implement changes to projects when necessary to make better use of time and keep notes on what went well or what needs improvement to utilize for future projects. Project time management refers to a component of overall project management in which a timeline is analyzed and developed for the completion of a project or deliverable. The project time management process is dynamic and may require input from several different teams each with individual project time management process in order to integrate the various interdependent component parts of the project to achieve the project deliverable(s). The processes are recurrent within each work package of the project and occur at least once within the project as a whole. This process is called the develop project management plan process. The output from this integrated team effort is called the schedule management plan and is a subset of the overall project management plan (PMI, 2017). Project time management involves analyzing and developing a schedule and timeline for project completion. Formalized time management processes provide a buffer for things like unexpected roadblocks and misestimated project timelines. These time management plans determine what tasks to adjust, and how to allocate and manage resources throughout the project. Project time management is a specific form of time management. This means the management and tracking of time spent on a particular project. It requires project managers to plan ahead for future obstacles, while remaining flexible in the present. Effective project time management involves good organization, productivity, and planning.

If project time management practices are well managed, there is a very high possibility of having a viable project that will guarantee a sound business success. However, if the area of knowledge is not well inducted by the project manager and project team members, the probability of having a project success will be less; the findings of study reported indicate a significant effect of the use of processes related to project time management on project success, especially for completing the within the original schedule (Habtegebriel, 2019)

1.2. Background Of the Organization

By amount, beer is the fifth highest consumed beverage in the world next to tea, carbonated drinks, milk, and coffee. Beer is a fermented beverage which has low alcohol content and made from barley, wheat, maize and other grains (Engida, Mekonnen, Wu, Xu, & Wu, 2020). Beer is the most popular industrial alcoholic beverage in Ethiopia. There are more than 12 beer industries in the country. Heineken joined the Ethiopian beer market in 2011, through the acquisition of two government-owned breweries operating in Ethiopia i.e., Bedele and Harar Brewery S. C's. Since then, the brand has been operating across three locations, one in the east Harar Region, and the second in Bedele, in the west of Ethiopia, and the third at Addis Ababa, the capital city of Ethiopia. In 2015 Heineken inaugurated its latest state-of-the-art brewery and since then it has continued to expand and invest in the country. Heineken have a strong portfolio in Ethiopia. On top of the Heineken brand, which is locally produced, Heineken also have exclusive Ethiopian products and a large portfolio of brands including premium products, mainstream products, and economy brands which makes Heineken unique in Ethiopia.

Since joining the market in Ethiopia, Heineken breweries has involved in different projects including the acquisition of two breweries which were operating in the country, building its own brewing facility in Kilinto-Addis Ababa and expanding its brewing facility in Kilinto due to high volume demands.

For the past ten years Heineken breweries was operating as a holding company where Bedele and Harar breweries were its subsidiaries therefore it was operating three different legal entities. Due to its complexity to operate as three different entities Heineken breweries was forced to legally combine the three entities into one. Heineken breweries was involved in a project to legally combine the three entities in order to create more efficiency and simplicity in the ways of working

like contract and supplier management, tax filing, financial reporting, audit, etc. The merging project was successful in terms of legally and internally combining the breweries into one.

Heineken Breweries S.C. is pioneer and the only company who successfully implemented a merger of three different entities.

From the various projects held by the company, the researcher has selected the recent project which is the merging of the three legal entities as a base for the study. The research tried to assess the effect of the project's time management practices and its impact on project output or performance.

1.3. Statement Of the Problem

Projects, be it a government project, private project or NGO project, usually encounter many problems in developing countries in general and Ethiopia in particular. The persisting challenge has led many project management professionals to attempt to identify the influencing factors that need to be tackled head-on to produce a successful project management outcome (Nasir, Nawi, & Radzuan, 2016a). Since projects are mostly initiated to increase organizational capabilities, meeting new demands, realizing new opportunities or to overcome the challenges faced due to very frequent change of organization's environment then it is more likely that problems could occur during execution of the project (Eyoel Abera, 2021). Project time management directly impacts the quality, scope, and cost of a project, making it one of the most important project management knowledge areas. Managing time helps to secure project completion time and budget. It also clarifies how much time a project requires, what stakeholders (internal and external) to involve, and at what point to include their expertise. This process provides a framework for developing a sequence of activities, activity durations, resource estimations and how these fit into the overall project management plan.

Project management is very crucial for proper planning, implementing and controlling of projects which can satisfy the required project performance in terms of time, cost, and technical performance requirements. However, many projects in taking a long time to complete, cost more than necessary, and some projects are canceled because of inefficient planning and related challenges directly and/or indirectly related to it (Eyoel Abera, 2021).

Poor estimation of project activities when preparing the schedule is one of the reasons for the failure of projects. Assessing the area of the project in advance is the critical step in the

management of projects. If the appropriate techniques or methodologies of time management are not used the probability of the project to be unsuccessful will be high. Using the best suitable time management practice is critical factor that determines the success or failure of a given project. The advance planning of sequence of activities in a project is significantly relevant factor for the success of a project.

Based on a preliminary interview conducted with a member of the project planning team the researcher understood that the project schedule was initially planned to finalize the merging within six months but that was not the case. The time that took the project have taken more time than it was expected due to various reasons. Based on this the researcher will try to assess the practices used during the project, the drawbacks of the scheduling process, gaps in the planning process, the planning of sequence of activities and their impact on the project performance.

1.4. Objectives Of the Study

1.4.1. General Objective of The Study

The general objective of this research report is to examine the effect of project time management practices in relation with the impact that it will have on the progress or performance of the project in the case of Heineken Breweries S.C.

1.4.2. Specific Objectives of The Study

- To identify the factors affecting effective project time planning.
- To identify different stakeholders that involve in project time management planning and assess the degree of impact they will have.
- To assess the practices used in time management.

1.5. Research Questions

1. How does the organization conduct project time planning and what kind of practices are used?
2. What factors most negatively influence the project time planning process?
3. Does the company used the best suitable time management practices for the project?

1.6. Research Hypothesis

As stated by (Kothari 2004) ordinarily, when one talks about hypothesis, one simply means a mere assumption or some supposition to be proved or disproved. But for the researcher hypothesis is a formal question that he intends to resolve. Thus, a hypothesis may be defined as a proposition or a set of propositions set forth as an explanation for the occurrence of some specified group of

phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts. Quite often a research hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable. So that for achieving the objective of these study, the following hypotheses were developed regarding on the effect of project time management practices on project performance: The case of "Heineken Breweries S.C." grounding on different theoretical review and empirical research.

H1: - Time management has a significant effect on to project performance in Heineken Breweries S.C.

H2: - Material resource usage planning has a significant effect on to project performance in Heineken Breweries S.C.

H3: - Resource planning has a significant effect on to procurement performance in Heineken Breweries S.C.

H4: - Project controlling and evaluation has a significant effect on to procurement performance in Heineken Breweries S.C.

1.7. Significance Of the Study

The result of the study will be important to public and private enterprises who are undertaking merging related activities or projects. The study will create awareness on the importance of the application of project time management tool and techniques to enhance the project performance. Even though the research focuses on beverage related project, the findings and the outcome could be relevant to practitioners in other industries with particular emphasis at the various stages involved in time management. The findings of the study will also help different stakeholders in any projects in Ethiopia understand the shortcomings that are present in their development of a project time plan and techniques used which in turn will enable the organization to check and evaluate its project time planning methodologies or techniques. The other significance is that the research will help to relate the theoretical concepts related with project time management techniques with the practical practices. The findings, conclusions and recommendations of the study will help Heineken Breweries S.C. as well as other projects within or outside the beverage industry in Ethiopia to alleviate their shortcomings in project time planning by addressing the problems that were seen. The study also benefits the researcher to obtain new knowledge about

the problem understudy and gives clear understanding about time management. Furthermore, the study will serve as a reference for future scholars who choose to do research in the subject matter.

1.8. Scope Of the Study

The scope of the study was delimited to project management area which reveal the effect of project time management practices in improving project performance. It would focus on reviewing the effect of project planning specifically the project time planning. This study was concentrated on assessing the effect of project time management on project performance, through the generally accepted project management knowledge areas defined by PMBOK, which will enhance the management of projects.

Even though there were various projects conducted by the organization this study was only focused on one of the projects i.e., merging of three different entities. It was focused on how the project schedule planning was conducted in the single (Heineken) of three legal entities i.e., Bedele, Harar and Heineken Breweries and tries to identify which factors were considered in the development of the project plan; analyze their effect on the project output. The study reflected, or it is delimited to the opinion of the project team members and other staffs within the organization who are directly impacted by the project.

1.9. Limitations Of the Study

Limitations are matters and occurrence that arise in a study which are out of the researcher's control. Every study, no matter how well it is conducted and constructed, has limitations. The scope of the study would be limited to projects undertaken on chosen Ethiopian Heineken Breweries, the findings and conclusions focused only effect of time management in project performance. The major limitation of this study is lack of adequate updated literatures regarding specifically to project time management practices. The respondents of the questionnaires were comprised from the project team members who are employees of the company as well as other staffs working in the company therefore, they might be influenced by bias and fear which in turn impacts the findings of the study.

1.10. Organization Of the Research Report

The paper is organized in to five chapters. Chapter one deals mainly with the introduction to the paper. Under this sub-section, background of the study, statement of the problem, research question, and general and specific objectives of the study, scope and limitation of the study were

made. Under chapter two, intensive literature review (conceptual and empirical) was made. In chapter three, research issues regarding research design and methodology were discussed. In the last sections, chapter four and five, data presentation, analysis, interpretation and conclusion and recommendations were made respectively.

Chapter Two: Review of Literature

2.1. Introduction

This chapter provides an overview of the relevant scholarly literature on the topic being researched as it has been presented by various researchers, scholars, analysts, and authors. Through a theoretical examination of the study, project time management and related topics including project planning, the time management, project controlling and evaluation and measurement of project performance are addressed, summarized, and presented from the related literatures that have been reviewed. Then, an empirical research review is conducted, and a few related academic papers are chosen and examined in order to compare the study's key findings with those of the earlier studies. Finally, by defining the often-observed key variables, the conceptual framework for the effect of project time management and its project performance on Heineken's beverage industry were presented.

2.2. Theoretical Literature

Projects are collective and purposeful accomplishments driven by advancing collective comprehensions and interpretations of means and ends. Project success (or failure) contribute to the success (or failure) of corporate strategies that's why projects are increasingly becoming an integral unit of corporations functioning in the competitive environments of today (Kasravi, Mahmoudi, & Feylizadeh, 2019). The success of a project is measured by the extent to which it meets the predetermined criteria of cost, time, safety, resource allocation, and quality as determined by the owner which are quite difficult to meet in most projects (Lafhaj et al., 2016). With ever-increasing competition and uncertainties, more and more organizations are handling organizational issues on project management basis to achieve objectives at fast. Nowadays, project management has seen its application in various kinds of organizations and sectors that encompasses both services and manufacturing industries (Zavadskas, E. K., Turskis, Z., & Tamošaitienė, J., 2017). In the past, project management was viewed as a threat to established lines of authority and thus to traditional way of managing organizational tasks, however today it is considered a competitive weapon to provide superior quality and services to the clients. Furthermore, knowledgeable, and competent project managers are usually considered important to successes of projects (PMI, 2017) whose ability to balance the project constraints (time, cost, scope, quality, risk, etc.) in achieving project deliverables/objectives is well known in literature

(Mahmoudi, A., & Feylizadeh, M. R. , 2018). Thus, in a world where rates of project failures are too high to overlook apprehending the mindset and priorities of these extremely important individuals becomes essential (Lafhaj et al., 2016). Project is a temporary activity or endeavor undertaken purposely to create a unique output (product or service) within budget, time and standards. Project is an organization of human materials and financial resources in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, defined by quantitative and qualitative objectives so as to achieve a beneficial change. The term project is described in different ways in research literatures (Mark A. Langley PMI, 2017).

Project is defined as a temporary endeavor undertaken to create a unique product or service. Temporary means that the project has a definite ending point, and unique means that the product or service differs in some distinguishing way from all similar products or services (Mark A. Langley PMI, 2017). A project has been defined as a complex, non-routine, one-time effort limited by time, budget, resources, and performance specifications design to meet customer needs. A project is defined as a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification.

Projects, to attain objectives, have been used since ancient times, generating important results to society and culture like The Great Wall of China, Ancient Roman roads, the first steam engine and many others. A project is a new, unique and temporary set of activities, with a defined beginning and end, which uses resources in a planned and organized way with the purpose of reaching certain objectives. The temporary nature of projects stands in contrast with repetitive or permanent activities (LiviuIlieş, Emil Crişan, Ioana Natalia Mureşan, 2010). (Duncan, W.R. , 1987) defines a project as a temporary endeavor undertaken to create a unique product or service. Meaning that, every project has a definite beginning and end by doing something which is not done before.

Project has been termed as a human endeavor and may legitimately be regarded by its stakeholders as a project when it encompasses a unique scope of work that is constrained by cost and time, the purpose of which is to create or modify a product or service so as to achieve beneficial change defined by quantitative and qualitative objectives. Project is described as a value creation undertaking based on specifics, which is completed in a given or agreed time frame and under constraints, including resources and external circumstances. A project is regarded as a business

case that indicates the benefits and risks of the venture, demonstrating a unique set of deliverables, with a finite lifespan, by using identified resources with identified responsibilities.

The common theme in these definitions is that projects are unique in their output, having a definite starting and ending point, are temporary in nature and are carried out to manifest the organization's strategic objectives. These temporary structures are playing a vital role in today's modern organizations and a growing interest is recorded in the significance of these temporary structures in organizations.

2.2.1. Project Management

Project management is referred to as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements within a specified period. When describing the functions of project management, reference is included to an objective or purpose, a timeframe, budget and resources as well as performance requirements (PMI, 2017). The reference to these elements, that include scope, time, cost, quality, human resources, communications, risk, procurement and finally how to integrate these elements to manage the project describe the nine knowledge areas of the project management body of knowledge. These knowledge areas provide a map to manage a project according to a five-step process of initiating, executing, monitoring, controlling, and closing a project to deliver an outcome (PMI, 2017).

Project management as an idea whose time has come - a distinct discipline to be applied to the management of activities in organizations. The importance of adhering to project management methods and strategies reduces project risks, cut costs and improves success rates of projects. Project management is important for several reasons that include organizing chaos, managing risk, managing quality, managing integration and change, retaining and use of knowledge and finally learning from failure (Gray, C.F. & Larson E.W., 2015).

In its early days the project management was solely concerned with the implementation of single project in that era. It is a way to generate consistent results when undertaking new initiatives and a powerful business tool that can transform an organization's ability to perform well. Project management can also be used thought out the organization to boost personal and collaborative productivity. This can be done by building a standardized system that embeds best practiced into the way projects are managed.

2.2.2. Evolution Of Project Management

The industrial revolution marked the beginning of what is referred to today as the modern organization in early 50s. This is the era in which the economic activity was in full swing in many western countries, with engineering and construction project making a major impact on the environment. This rapid growth demanded a tool and technique which is capable of organizing and managing projects at various locations. During this era, network analysis and planning techniques, like Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM) formed the focus of development in project management. The 1960s witnessed an intellectual push to apply general management theories to project management, particularly in terms of the system approach and organizational factors such as differentiation, integration, and interdependence. The late years of 1960s witnessed a shift form focus upon organizational and scheduling aspects to more comprehensive texts on project management. In 1960s, these techniques continued to be popular in the construction industry. Development in the field of project management in the 1960s also included the formation of two major professional associations; IPMA (International Project Management Association) & PMI (project Management Institute). The focus on teamwork was the defining feature of project management in 1970s. The 70's era has an emphasis on work breakdown structures and systems concepts. During 1980s, project management began to become a mature management discipline the eighties was a period of integration of the many different areas of emerging experience into accepted principles and practices common to most application areas. The 1980s were typified by a focus on project organization, project risk and the external influences. This era also led to the development of the international standards for project management.

2.2.3. Project Management Methodologies

Project management methodologies (PMM) are collections of different approaches, tools, templates, and techniques. The common definition of a project management methodology involves the organization and standardization of project management activities to consistently deliver project objectives (Zdanytė, Kristina; Neverauskas, Bronius, 2016). A project management methodology is a set of principles, tools and techniques that are used to plan, execute and manage projects. Project management methodologies help project managers lead team members and manage work while facilitating team collaboration. The intent behind any project management

methodology is to increase the probability of project success (Pace, 2019). Different project management methodologies are introduced in different projects.

Waterfall methodology may be the most straightforward and linear of all the project management methods, as well as the most traditional approach. The name is apt, as the waterfall methodology is a process in which the phases of the project flow downward. The waterfall model requires that you move from one project phase to another only once that phase has been successfully completed. The Waterfall approach is great for manufacturing and construction projects, which are highly structured, and when it's too expensive to pivot or change anything after the fact. The waterfall method makes use of Gantt charts for planning and scheduling (Hussain Hazar Hamad., 2014).

Agile project management is an evolving and collaborative way to self-organize across teams. When implementing the agile methodology, project planning and work management are adaptive, evolutionary in development, seeking early delivery and are always open to change if that leads to process improvement. It's fast and flexible, unlike waterfall project management. The agile methodology offers project teams a very dynamic way to work and collaborate and that's why it is a very popular project management methodology for product and software development. The practice originated in software development and works well in that culture. It has been applied to non-software products that seek to drive forward with innovation and have a level of uncertainty, such as computers, motor vehicles, medical devices, food, beverage, clothing, music and more; and it's also being used in other types of projects that need a more responsive and fast-paced production schedule, such as marketing (Zewdie, 2016).

The scrum methodology is ideal for teams of no more than 10 people and often is wedded to two-week cycles with short daily meetings, known as daily scrum meetings. It's led by what is called a scrum master. Scrum works within an agile project management framework, though there have been attempts to scale Scrum to fit larger organizations. The scrum methodology has been used predominantly in software development, but proponents note it is applicable across any industry or business, including retail logistics, event planning or any project that requires some flexibility (Tegene, 2020).

Project Management Body of Knowledge (PMBOK): It is the granddaddy of methodologies if it's a methodology at all. The Project Management Institute (PMI) is a not-for-profit membership association, project management certification and standards organization. The organization

produces a book called the “project management body of knowledge” or PMBOK. The PMBOK provides definitions and guidelines for project planning, scheduling, executing and controlling. For example, the project management process groups describe the project life cycle, while the 10 project management knowledge areas explain how to manage a project. Almost all project can benefit from PMBOK, as all projects big and small are going to go through the various stages outlined in the book (Georgise, Thoben, & Seifert, 2014).

Critical Path Method (CPM) is a model of the project, including all the activities listed in a work breakdown structure, the duration of those tasks, what if any task dependencies there are and marking off milestones to indicated larger phases of the project or points in which your project deliverables are due. By identifying the longest sequence of tasks to finish the project, which is called the critical path. The critical path method was developed in the late 1950s by Morgan R. Walker of DuPont and James E. Kelley, Jr., of Remington Rand. DuPont was already using a precursor of CPM as early as the 1940s, and it was applied to the Manhattan Project. CPM works better with smaller or mid-sized projects. The larger the project, the more difficult it can be to take all the data you need to diagram and make sense of it without project management software (Chin & Hamid, 2015a).

Critical Chain Project Management (CCPM) focusing on resources that you’ll be using to complete the project, such as teams, equipment, office space, etc. It’s a less technical method of project management that doesn’t put as much emphasis on task order or schedule, but rather on balancing resources and keeping them flexible. Critical Chain Project Management (CCPM can be applied to both large and small companies, and for projects that include industries such as construction, software development and tech research and development (JICA, 2011).

The Kanban methodology is a visual approach to project management. The name is literally billboard in Japanese. It helps manage workflow by placing tasks on a Kanban board where workflow and progress is clear to all team members. The Kanban methodology helps reduce inefficiencies and is a great project management tool for many purposes such as lean manufacturing or agile projects. Kanban project management has been around since the late 1940s when it was studied by Toyota to use the rate of demand to control the rate of production of its vehicles. The car company applied it to their lean manufacturing model, known as the Toyota production system. With the dawn of visual planning boards in software in our era, like Trello,

there are now new uses for Kanban tools and Kanban methods. Agile teams use Kanban boards for story-boarding user stories and for backlog planning in software development. The Kanban method has since expanded and has been used in human resources, marketing, organizational strategy, executive process and accounts receivable and payable. Almost anyone can plan with Kanban boards, adding cards to represent project phases, task deadlines, people, ideas and more (JICA, 2011).

Lean project management is a way to cut waste and in so doing increase value in projects and manufacturing processes. So, lean focuses on eliminating waste from key processes to continuously be impacting positively on the value stream. It does this by optimizing separate technologies, assets and verticals. Lean project management goes back to Henry Ford and his flow production for automating the process of building cars. Toyota picked up on the idea, as well, extending their idea beyond manufacturing to the continuous improvement of the product development process. Lean project management was first developed by Toyota and is obviously a great methodology for manufacturing. In fact, it's also referred to as lean manufacturing, but it has been adopted by construction and education industries, among others in the manufacturing space and countless start-ups and software development firms looking to drive products focused on the end-user (JICA, 2011).

Six Sigma introduced by engineers working at Motorola in the mid-1980s, Six Sigma works to improve quality by identifying what is not working in the project. It applies quality management, including empirical statistics, and employs personnel who are experts in these disciplines. There is also a Lean Six Sigma that adds lean methodology to eliminate waste. As a doctrine, it says that continued efforts to achieve results that are stable and expected are most important to success. Processes can be refined and improved. It takes the whole organization, from the top down, to sustain quality in a project. This methodology works best in larger organizations. Even companies with a few hundred employees are likely too small to take advantage of its benefits (Uko, 2018).

2.2.4. Project Planning

Planning is an advance intellectual thinking of as to when and where work will be performed, how it is to be performed and by whom it is to be performed. Planning also essentially involves the choice of technology, the definition of work tasks, the estimation of the required resources and duration of individual tasks and the identification of any interactions among the different work

tasks. Planning establishes what, how, where and in what order work will be performed, while scheduling sets forth who and when. Planning is the development of a feasible operational design for completing the work. The process involves the selection of work sequence and methods and provides information for the scheduling process. Planning is the determination of the methods of executing the tasks, estimating the resource required and time for the tasks to be undertaken for the realization of the project. Planning is the determination and communication of an intended course of action incorporating detailed methods showing time, place and the resources required. It is easy to think of planning as the production of a time schedule but this is only one aspect of successful project planning.

There is always a need to consider planning in a wider context. Planning for a project must include not only consideration of time but also consideration of cost, quality, health and safety and other aspects such as design and production (Chin & Hamid, 2015a). Scheduling is a time-based plan of action for coordinating various activities and resources to achieve specified objectives as set out during the planning stage. In other words, scheduling is putting the detailed planning on a calendar time scale.

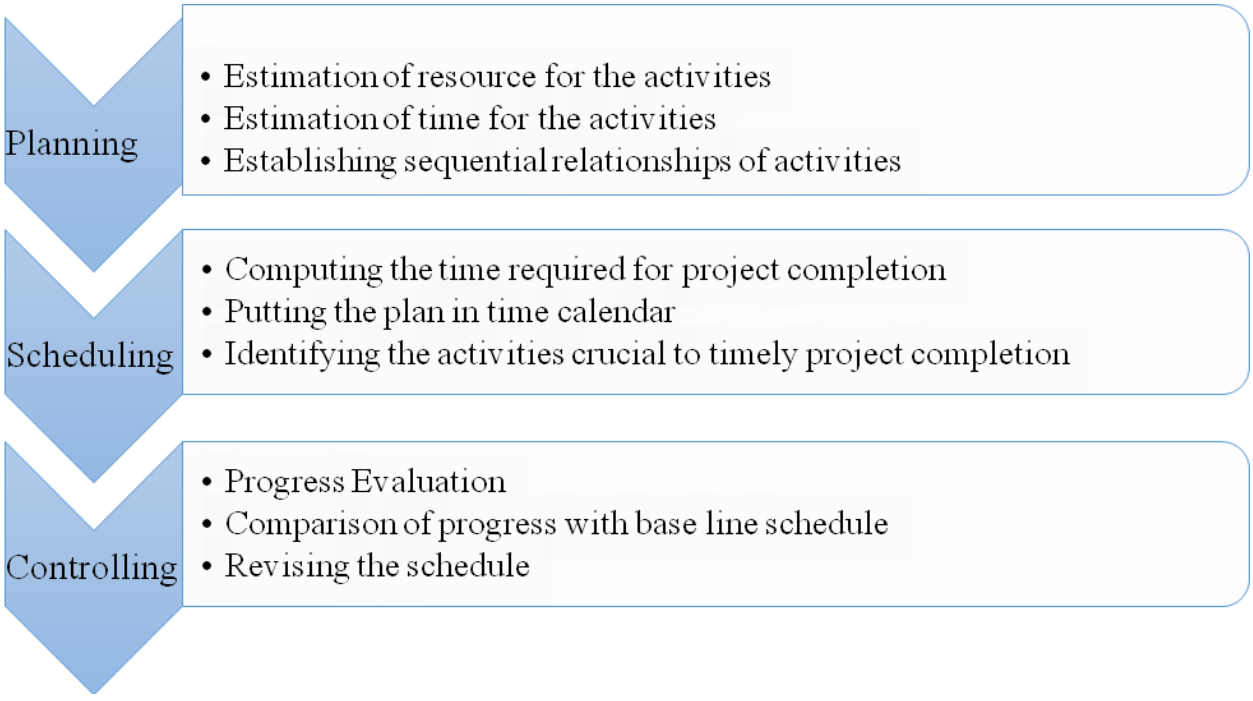

Figure 1: Project Planning, Scheduling and Controlling

Estimation Of Time

The duration of an activity is primarily a function of the quantity of work to be undertaken, the resources applied to it, the method used to carry out the work and the conditions under which the work is carried out. Activities consume time, the length of time they consume is called the duration. However, there are activities with zero duration which are known as milestones. There are two main factors that must be considered when determining durations, the time available and application of resources to maximize profits. Unfortunately, most projects today do not have the luxury of time. Therefore, activity durations have to be defined based on the available time as defined by the owner. The second most influential factor for determining the duration of an activity is the contractor's profitability. Contractors assign durations and resources to an activity in order to maximize profit by performing the work efficiently. The overall goal is to apply a duration that will allow the work to be performed efficiently and result in a profit. Although these two factors heavily influence the determination of activity duration, there are other factors that may play a role: safety concerns, availability of materials, equipment, and tools, and special conditions and techniques. After closely considering the influencing factors, the durations must be determined in accordance with PMI (2013), there are four methods of activity time estimation. In expert judgment, guided by historical information, the expert can provide duration estimate information or recommended maximum activity durations from prior similar projects. Analogous estimating is a technique for estimating the duration or cost of an activity or a project using historical data from a similar activity or project. Parametric estimating is an estimating technique in which an algorithm is used to calculate cost or duration based on historical data and project parameters. The three-point estimation is a concept originated with the program evaluation and review technique (PERT)and uses three estimates to define an approximate range for an activity's duration : most likely (tM) estimate is based on the duration of the activity, given the resources likely to be assigned, their productivity, realistic expectations of availability for the activity, dependencies on other participants, and interruptions; in optimistic (tO) time estimate the duration is based on analysis of the best-case scenario for the activity and in pessimistic (tP) the activity duration is based on analysis of the worst-case scenario for the activity. Then the time for the activity is calculated using either triangular distribution or Beta distribution. According to triangular distribution time estimate for an activity is

$$\mathrm{tE} = \frac{tO+tM+tP}{3}$$ and according to Beta distribution $$\mathrm{tE} = \frac{tO+4tM+tP}{6}$$

Project Scheduling

Scheduling determines the timing and specific sequence of tasks necessary to carry out the plan. The schedule is a result of the planning process and reflects the selected plan. Therefore, an inability to schedule stems from a reluctance or incapacity to plan.

Scheduling the construction process is essential not only so that projects can be completed profitably and on time, but also so that any delays can be evaluated in order to prove entitlement to time and cost compensation. As problems are encountered, the schedule helps project managers rearrange project tasks and resources so that they can meet the primary objectives of time, cost, and quality under limited resource and budget constraints. Although bar charts (Gantt charts) have been used as a simple scheduling method, network schedules that employ the critical path method (CPM) are now much more widely used. This is because of the fact that network analysis can show which activities are critical and which are not. Almost all project management software is therefore based on critical path analysis. There exist many planning and scheduling techniques from the simplest techniques such as to – do lists to complex ones like network analysis. The use of space diagram is another technique giving additional depth to the planning and scheduling processes. (Chin & Hamid, 2015a) that bar chart diagrams provide a two-dimensional 'picture' of the activities on a project and a schedule of when they will take place. As such they form one kind of chart. Planners show the relationship between construction activities by the use of other forms of diagrams. Space diagrams exist in a variety of formats.

(Hussain Hazar Hamad., 2014) in their research studied the use of time management tools and techniques in the construction industry. It can be stated that there is consensus between owners and contractors regarding the application of management tools that the most used time scheduling tool is the linked bar charts, while the least used tool is network scheduling. (Alotaibi & Alnefaie, 2019) on the other hand, the results confirm that the work breakdown structure and resources allocation and levelling are not satisfactorily used. The results revealed that there are no significant differences in using time tools between owners and contractors. The findings show that using time tools is generally below a satisfactory level. The most widely used scheduling techniques are discussed in the following sections.

2.2.5. Project Time Management

Project time management is the allocation of the necessary time for the completion of a project, planning the project accordingly and then controlling the project followed by taking corrective measures whenever the project is facing delays (Chin & Hamid, 2015a). Project time management includes all processes that are required to ensure a timely completion of the project. Major processes in time management are activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development and schedule control (PMI, 2017). Projects have three main parameters; time, cost and quality which are interrelated to each other. The optimum combination of these three components will yield a successful project. As quality of the product increases the cost to produce same will be higher and likewise when the project time increases the project cost increases. It is also the "time factor" in a project that determines the project cost (Chin & Hamid, 2015a). The time schedule is one of the most important plans in a project. The development of time schedules should be based on the previously developed WBS. The level of work in planning, monitoring and controlling schedules in a project is often directly reflected in the execution and outcome of the project. In order to develop realistic and achievable schedules, it is important that activities are sequenced accurately. The activity sequencing involves identifying logical relationships and dependencies between the project activities. The process of activity resource estimation involves determining what resources and what quantity of each resource that will be used in the project. Required resources can be personnel, equipment, and material. This process also includes determining when each resource will be available to the project. There are in general two methods of resource estimation; top-down and bottom up. If the project has limited detailed information, the top-down method is often used. It is carried out by the higher management of the project and is based on experience from similar projects. The bottom-up method is also called qualitative based estimations and involves each specific work category in the process. The bottom-up method is more time consuming to perform, but often generates a more accurate result (YOSEPH, 2022).

The activity duration estimation should be based on the project scope, required types of resources, estimated resource quantities and the availability of resources. The result of the process is later used to develop schedules. To get an accurate estimation of duration it should be carried out by a person or group who is familiar with the specific activity. The development of schedules is often carried out through the use of project management software. If the previous estimations are made

correctly the schedule development mostly consists of aggregating the information into one document. To develop an efficient schedule, it is important that the critical chain is identified and that the lag in the schedule is used to allocate the project's resources effectively (PMI, 2017). A time schedule without control is fairly useless to the project organization. The control must be carried out regularly and relatively often in order to detect deviations early. This makes it possible for the project team to take necessary actions to avoid longer delays. The schedule control and development must be an iterative process in order for the project team to have updated schedules throughout the project. The practices, tools and techniques that the PMI recommends were considered in order to assess the extent to which the PTM processes were used in the execution of the projects included in this study. The PMBOK Guide (PMI, 2013) was used to identify the PTM processes that need to be in place to complete construction projects on time. According to the purpose of PTM processes they can be related to the planning or to controlling (Solis-Carcaño & Corona-Suarez, 2016).

2.2.6. Project Performance

Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety. These key performance indicators enable for measurement of project and organizational performance (Kifle, 2013). Performance is understood as the quality of the operation of a project, and also how successful the site's operation. However, the concept of project performance is being developed in many ways as criteria for evaluating the success of a project (Ayele, 2019). Project performance can be evaluated from numerous stakeholder viewpoints, emphasizing discrete measures of performance. The performance of an organization is a result of the performance of individuals and groups. projects completion time exceeded its due date, or expenses overran the budget, or outcomes did not satisfy an organization's predetermined performance criteria, the project was assumed to be a failure (Alexander, 1996).

According to a study by (Lindhard & Larsen, 2016) the top 10 reasons for projects failure include; changes to project scope (scope creep); inadequate resources (excluding funding); insufficient time to complete the project; critical requirements are unspecified or missing; inadequate project testing; critical project tasks are delivered late; key team members lack adequate authority; the

project sponsor is unavailable to approve strategic decisions; insufficient project funding and key team members lack critical skills.

2.2.7. Challenges Of Project Management Practices

Every project is different by its nature that is, its type, size, its geographic location, uniqueness, personnel involved in the project. Hence, according to (PMI, 2017); project execution in inherently risky and the lack of appropriate approach to addressing these risks has led to a lot of undesirable results. The major challenges of project management are to accomplish all of the aims and objectives of the project while at the same time mitigating the constraints of the projects (Lewis, 2005). Notably, (Lewis, 2005) outlined the scope, time, cost and quality of being the major project constraints. The role of senior leadership in shaping project organization is crucial. Implementation of project management practices in the project depends on the existing organizational culture, which directly influences the project organization. Project managers must focus on key challenges areas while implementing knowledge areas. Role of senior leadership, effectiveness of PMO, human resource management factors, PM training, poor adoption of PM standards, and triple constraints are some of the important challenges that can occur while implementing best practices.

The 21st century project environment is characterized and driven by increase complexity, uncertainty, and multiple stakeholders competing for the project goals and objectives. The project management practices which are ostensibly influence by the theoretical approaches and models developed by different academics, practitioners and professional institutions are challenged (Ilieş, Crişan, & Mureşan, 2010). Significant issue observed from project management in the 21st century is that the nature of project has transform because of the large scale, uncertainty, and huge cost, several stakeholders' involvement in project and increase interests in project benefits (Zewdie, 2016). This raises the question does project management practice really enhance tangible benefits to organization. Specifically, if there is a need to ask the crucial question regarding salient issue in project management – why should projects fail without achieving the project objectives if project management standards, models or strategies are actually applying in managing such projects? In this work, project management practice is conceptualized as the practical application of project management knowledge areas (Gebregergs, 2019).

2.3. Empirical Literature Review

This section includes a review of pertinent literatures. There have been studies conducted to examine project management knowledge areas in general, according to the literature studied. However, because the existing literatures focus on the knowledge areas in general, little study specifically on project time management practices has been conducted. According to (Yodit, 2017) the aftermath of delays of projects affects all people and organizations involved in the project. This is especially true for the owner's business since delaying the startup of the project will impede obtaining the expected project revenue and will increase financial costs.

A major study of project management practices at a global level was conducted by Price Water House Coopers in which two hundred responses were gathered from a balanced group of companies from thirty different countries across the globe. Some of the relevant key findings for the study were as follows: That there was a positive correlation between project time management practices and project performance. A higher project management level would most likely deliver superior performance in terms of overall project delivery and business benefits, that the current status of project management practices indicating that the current state of project management in organizations is at the level of informal processes; that many of the project failures are due to an imbalanced organizational structure, poor experiences in project life cycle management, poor utilization of project tools and techniques. Project time management (PTM) includes a number of planning and controlling processes that are recommended for complying with requirements related to project time. The results of study made by (Romel G. Solis-Carcano et.al, 2015) indicate a significant effect of the use of processes related to Project Time Management on project performance, especially for completing the construction phase within the original schedule. However, the results obtained from the assessment of variables demonstrate a mediocre level of project management.

Prolonging the project execution time usually results with cost overruns due mostly to the following causes: extra expenses on management personnel, cost escalations of materials, increase of financial cost, paying contract penalties, etc. Therefore, the less time required to complete such projects the better for satisfying the social needs of the country (Nasir, Nawi, & Radzuan, 2016b). In order to avoid the aforementioned incidents, project office should implement project management processes that lead to succeed on the delivery of the project. Project management

includes a number of planning and controlling processes that should be applied to comply with the owners' requirements related to project time, cost, and quality. In fact, project management has evolved towards a sophisticate and comprehensive process that depicts the primary approach to succeed on the delivery of any project. Since knowledge on project management has been developing over time, several professional associations around the world have issued guidelines and standards to put into practice such process (Olasupo, Akewushola & Ibrahim, Olateju, Olawale, Gazal, Hammed, 2012).

According to the (GUIDE, 2008), project time management includes the processes required to ensure timely completion of the project. The PMBOK Guide dedicates one of ten knowledge areas to project time management, which includes the processes required to accomplish timely completion of the project. This knowledge area includes processes such as activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development, and schedule control. The appropriateness of project time management can be seen as a relevant indicator that could be used to assess contractors‟ effectiveness and capability to succeed on the 13 completion of a project and to evaluate contractors‟ performance.

Regarding the prevention of project delays, the PMBOK Guide dedicates one of ten knowledge areas to the management of project time, which includes the processes required to accomplish timely completion of the project (Habtegebriel, 2019). This knowledge area includes processes such as activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development, and schedule control. The appropriateness of project time management can be seen as a relevant indicator that could be used to assess project manager effectiveness and capability to succeed on the completion of a project, as well as to evaluate project manager performance (Solis-Carcaño & Corona-Suarez, 2016).

Schedule delay can be defined as a discrepancy where actual completion of the project exceeds the planed period according to the contract project schedule is characterized by client urgent demand of project completion, client preference of speed over cost and quality, and the balance of project managers among project scope, budget and resource available. A study conducted in Nigeria showed severe delay in construction projects. Similar study conducted in Zambia road construction identified fourteen major causes of schedule variation (Puravankara, 2007).

Effective time control is challenged by different factors. The top five factors inhibiting effective project time control in descending order are: design changes, inaccurate evaluation of projects time/duration, complexity of works, risk and uncertainty associated with projects and ill-performance of subcontractors and nominated suppliers. Project controlling supportive techniques and software are not applied well for the control of actual and planned activities in the Ethiopia construction sector and recommends the significance of training requirement for the concerned project staff (Kasravi et al., 2019). Similarly, (Fenta, 2014), found out that among the knowledge areas of project in Ethiopia, project time management is considered the critical one with only 24% projects managed well.

2.4. Conceptual Framework

A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. The research aimed to study the effect of project time management practices on project performance: The case of "Heineken Breweries S.C.". The research aimed to describe and explain the benefits that accrue. The schematic diagrams below not only guided the study but also showed the interrelationship among the key variables in the study as illustrated in figure 2

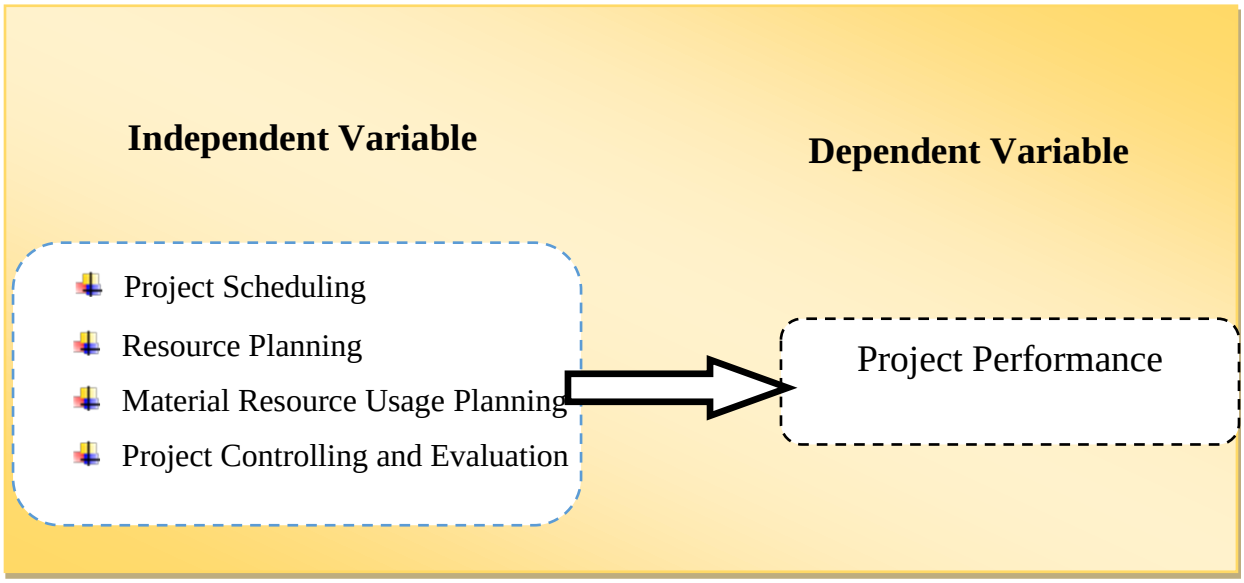

Figure 2: Conceptual Framework

Chapter Three: Research Methodology

The chapter outline methodology used to fill in the gaps in the literature and respond to the research questions. The chosen study methodology, research designs, population, sample selection, and data collection procedures are all described in this chapter.

3.1. Research Design

According to (Hoppe et al., 2010) research design based on its purpose, research can be designed according to different categories (exploratory and/or descriptive). This study used an explanatory/descriptive approach because the main aim of the study was conducted to examine the relationship among variables in Heineken Breweries S.C. project time management, resource planning, material resource usage planning and project controlling and evaluation as independent variable and project performance as dependent variable. Thus, the research design was effectively enumerating and explain the effect of project time management practices. So, it is extremely important to get as much data as possible for later analysis to ensure the effectiveness of project time management practices and investigate how the practices are aligned and checked if the practices are adopted properly in the project.

3.2. Research Approach

Descriptive and explanatory research approaches was used in this research. The researcher was constructed hypothesis or theory and formulated some research questions based on the problem statement and research objective. Quantitative and qualitative data were collected, processed, analyzed, evaluated, and presented to answer these questions. As a result, a mixed research method was used in the study.

3.3. Population And Sampling Techniques

This research is a case study in Heineken Breweries S.C. and the target population was the project team members and staffs that are directly involved and affected by the project work. The data that is going to be obtained from internal documents and the study was used employees involved in the project. The population were incorporate technical experts, support staff and top-level executives. In general, the population of the study included the project manager and project coordinators, project members and support staffs.

3.3.1. Target Population

The research is conducted in Heineken Breweries S.C and the targeted population of the study were Heineken Breweries S.C employees. The total population in the present time is equal to 280.

3.3.2. Sampling Technique

In order to create equal chance of being selected as a respondent for all employees the study used probability sampling design / simple random sampling approach to select sample target population.

There are too many sampling techniques from them the most popular one formula for calculating Sample (Yamane, 1967)

$$n=N/ [1+N (e^2)]$$

Where: n = Sample size

N = Population size (Total number of factories)

e = Level of precision or acceptable sampling error (0.05)

$280/ (1+280*0.05^2)$

The sample to be selected according this formula equals to =167

After taking random sampling the researcher used purposive sampling technique to address the specific information on project management. Then the questionnaire was distributed to the respondent (Heineken Breweries S.C employees). The Survey forms from 167 employees have been collected and 146 of them have been evaluated (21 survey forms were not included because of missing answers). The questionnaires were delivered and collected in person.

3.4. Types Of Data and Tools

The study used a cross-sectional five-point Likert scales ranged from 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree to 5 = strongly agree, using structured and close ended questionnaire to collect data regard to project time management. The data for the study was gathered from both primary and secondary sources. This is due to the simplicity with which data may be interpreted and the requirement to address specific research problems, like as project time management techniques in this instance.

The primary data collection tools for this study were questionnaires. The predetermined questions were provided to different stakeholders involved in the project. The stakeholders include the

project manager, project team members, support staffs and top-level executives. The questionnaire used for data collection because, it offers considerable advantages in the administration: it presents an even stimulus potentially to large numbers of people simultaneously and provides the investigation with an easy accumulation of data. The questionnaire developed were given to the respondents to be filled and picked from their respective offices. The secondary data for this particular study were collected from company broacher and websites. The secondary data was helped the researcher as specific reference and explored different constructs, models and theories important for the study.

A pilot test was conducted to ensure that the assessment technique is valid. Based on the results of the pilot test, some explanation sentences were incorporated in the survey form. Closed ended questionnaires were the primary tools employed. This method acquiring data can complement one another, increasing the data's validity and reliability. Closed-ended questionnaires was used to collect quantitative data.

A questionnaire was designed based on PMBOK project time management practice areas of challenge and benefit. The questionnaires were prepared and distributed to the target population. Thus, the questionnaire was containing questions in different categories. The questionnaire was included questions related to respondent information, questions about the general project management aspects, questions about the time management practices and its challenges.

The choice of respondents for this paper were selected from the people who are involved in management and implementation of the project. Being part of the implementation process, would be able to give details of the information which would be relevant for this study. The selection of the respondents in this research were made based on their roles, expertise, and experience involved in project implementation process in order to achieve the purpose of the study.

3.5. Methods Of Data Analysis

The analysis of data is the process where one is trying to gather and present the data in such way, so it has a good structure and becomes easy to understand. In addition, data analysis is a process of bringing order, structure and meaning to the mass of collected data. The goal with the analysis is to be able to come up with valid conclusions based on the empirical data.

The problem statement, research objective, and research questions were all be used to guide the analysis. The quantitative and qualitative data were gathered, processed, analyzed, evaluated, and presented in this approach. The results from the closed ended questions were coded and entered into SPSS for analysis, with tables, percentages, frequency, correlation and regression used to describe the data. The compiled data was then being discussed further, and the results were given to the reader in a readable manner.

3.6. Validity

Validity is one of the strengths of qualitative research and is based on determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account. Terms abound in the qualitative literatures that address validity, such as trustworthiness, authenticity, and credibility.

Validity is concerned with whether our research is believable and true and whether it is evaluating what it is supposed to evaluate. Validity is an essential criterion for evaluating the quality and acceptability of research. Generally, researchers use different instruments to collect data. Therefore, the quality of these instruments is very critical because the conclusions researchers draw is based on the information, they obtain using these instruments (Belout & Gauvreau, 2004). Thus, it is imperative that the data and the instruments to be validated. Content validity is related to a type of validity in which different elements, skills and behaviors are adequately and effectively measured. To this end, the research instruments and the data might be reviewed by the experts in the field of research. Based on the reviewer's comments the unclear and obscure questions can be revised and the complex items reworded. Also, the ineffective and nonfunctioning questions can be discarded altogether. As a result, the researcher will make use of various of data collection techniques for the purposes of this study. In addition, the literature review will be used to develop the questionnaire and interview questions, which will require the advisor's approval to ensure their validity.

3.7. Reliability

One of the main requirements of any research process is the reliability of the data and findings. In the main, reliability deals with the consistency, dependability and reliability of the results obtained from a piece of research. Obtaining similar results in quantitative research is rather straightforward because our data are in numerical form. However, in qualitative approaches to research achieving

the identical results are fairly demanding and difficult. It is because the data are in narrative form and subjective. Instead of obtaining the same results, it is better to think about the dependability and consistency of the data. In this case, the purpose is not to attain the same results rather to agree that based on the data collection processes the findings and results are consistent and dependable. (Olasupo, Akewushola & Ibrahim, Olateju, Olawale, Gazal, Hammed, 2012) believes that the human instrument can become more reliable through training and practice. In general, it is suggested that the dependability of the results can be ensured through the use of three techniques: the investigators position, triangulation and audit trial. To make operationalize, the researcher will define the variables into measurable factors, will use both qualitative and quantitative data. Pilot test also will be done, if the questioners are administered in a real environment by respondents. For the purpose of this, respondents will be asked to complete the questionnaire to identify the problem with the questions clarity.

The reliability of scale shows how free the data is from random error. Therefore, it is always advisable to select that scale that is reliable. One of the most commonly used scales of reliability is internal consistency. Internal consistency refers to the degree to which the items that make up the scales are all measuring the same underlying attributes (i.e., the extent to which the items "hang together). There are number of ways in which internal consistency can be measured, the most used statistics is Cronbach's coefficient. Cronbach's alpha is a test reliability technique that requires only a single test administration to provide a unique estimate of the reliability for a given test. According to the author, Cronbach's alpha is the average value of the reliability coefficients one would obtain for all possible combinations of items when split into two half-tests. According to Joseph A. g. and Rosemary R. G. (2003), Cronbach's alpha reliability coefficient normally ranges between 0 and 1. However, there is actually no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. According to their rules; reliability coefficients should be at least '.70' and the higher the better. Furthermore, as suggested by the author, if scale item were to exhibit an item to total correlation of < .5 – unacceptable or less the item should not be included in further analysis. Reliability coefficient for items in each variable (Cronbach's alpha) is greater than .7 which showed higher reliability of the items used in measurement of the variables. The Cronbach's alpha value for all items suggested that the data collected through questionnaires is reliable and can be used for further statistical analysis.

3.8. Ethical Consideration

An official support letter from Addis Ababa University School of Commerce was written to Heineken Breweries S.C. Data collection was undertaken after permission has been obtained from the company. The researcher followed ethically and morally acceptable processes throughout the research. The data was collected with the full consent of the participants. Since it could not be ethical to access some confidential documents of the company, the organization code of ethics also considered. All the collected data are confidential for both the participants and the company. All documents which are referred throughout the research are fully acknowledged.

Chapter Four: Results and Discussion

4.1. Quantitative Findings and Analysis

The analyses presented are related to the research questionnaire. The final section presents the data analysis results, employing SPSS analyses. The survey questionnaire was distributed to 167 **Heineken Breweries S.C.** who were selected by random sampling. The survey questionnaires were prepared in English versions and the data analysis for the data generated from the study was done using SPSS21.

4.2. Reliability Test

It is an assessment of the degree of consistency b/n variables of multiple measurements. Aim to indicate the extent to which a measure contains variable errors and the most common and useful way to measure is Cronbach's alpha. According to (Field, 2009) a Cronbach's α in a value between 0.7 and 0.8 is an acceptable value; values substantially lower indicate an unreliable scale. In similar vein, Hair, et al. Asserted that a coefficient α which is greater than 0.7 is highly satisfactory for most research purposes. The reliability statistics are presented in Table 1.

Table 1: Reliability Test

Variables Name	No of Items	Cronbach's alpha
Project Scheduling	6	.74
Resource Planning	6	.728
Material Resource	6	.763
Project Evaluation and Control	7	.713
Project Performance	6	.679

4.3. Validity Test

To determine the extent to which a constraint and its corresponding measurement indicators are related, and the extent to which this set of items actually reflects the constraint they were designed to measure.

To check the validity of the instrument by using total item factor analysis of the research questionnaire. The value of r table 2 is determining by using the formula: -

DF=N-2 where **DF** degree of freedom

N (167-2) =165 the number of observations/respondents

If the calculated Pearson correlation coefficient is less than the Pearson product moment correlation coefficient (r), the instrument will be valid.

If r> critical value r = Valid

r< critical value r = invalid

Table 2: Validity

	Pearson Product Moment Correlation Coefficient (R)	**Critical Value r@ df (165)**	**Validity**
Project Scheduling	.887*	0.208	Valid
Resource Planning	.927**	0.208	Valid
Material Resource	.927**	0.208	Valid
Project Evaluation and Control	.900**	0.208	Valid
Project Performance	.918**	0.208	Valid

4.4. Demographic Characterization of The Respondents

I. Gender /Sex Distribution

The respondents are employed in Heineken Breweries S.C. and the gender distribution of the respondent is 71% males and 27 % females however the remaining 2% were missing data.

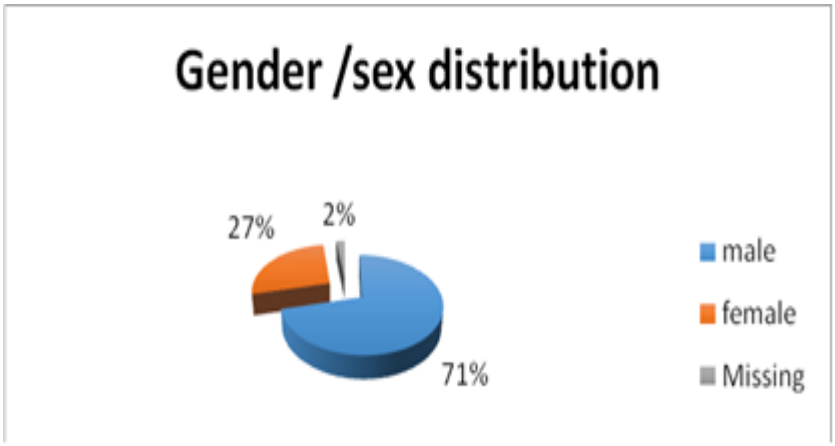

Figure 3: Gender / Sex Distribution

II. The Age Distribution

From the total respondent 38% were below or/and equals to 30 years of age, 18% between 30-35 years old, 29% between 35-40 years old, 10% of the respondents were above 40 years and the

remaining 5% were missed. According to this finding the respondents are responsible for what they accounted for their response.

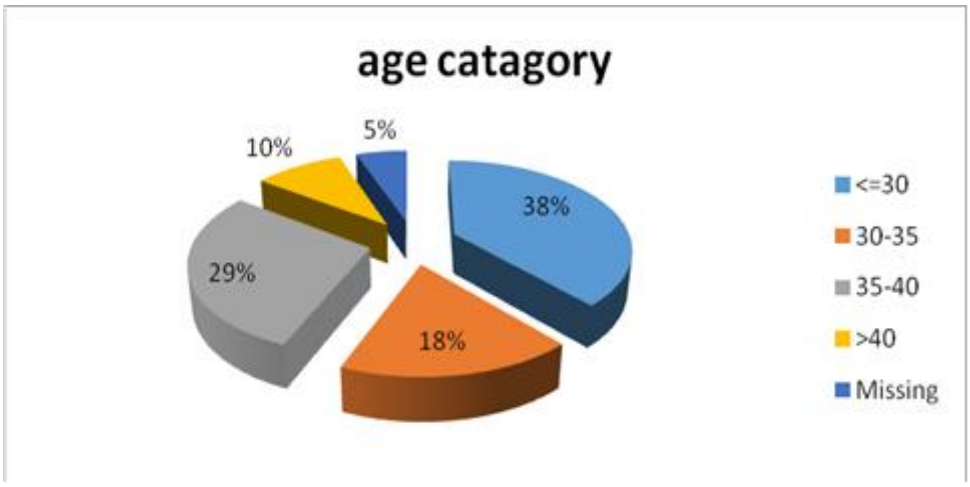

Figure 4: Age Distribution

III. Respondents' Level of Education

Based on the information gathered from the respondents, academic level of education distribution was analyzed. Based on the collected information 19% were certificate, 29 % diploma, 41% BSc/BA, 8% MSc /MA and the rest 3% were unknown. Perrett (2003) pointed that academic qualification of the employees in an organization enhances their ability to handle their tasks and to understand any working formula developed in work place. This depicts that most of the employees working at projects process had relevant knowledge that is required in projects implementation process.

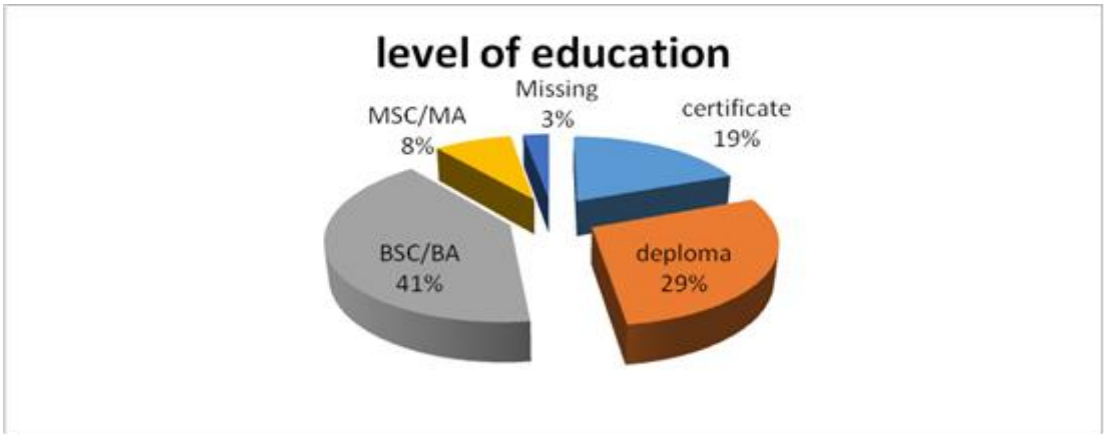

Figure 5: Respondent's Level of Education

IV. Service Years / Experience of Respondents'

According to the information gathered with the questioner from Heineken Breweries S.C , work experience of the respondents is 40% below 5 years ,22% between 5-10 years ,25 % between 10-20 years and 12% are above 20 years of experience.

Figure 6: Respondent's Level of Work Experience

4.5. Descriptive Analysis Results

Under this section the researcher deeply presents the descriptive analysis regarding to the respondents believe on the variables stated under the questioner. Whereas the section describes the data using mean and standard deviation.

The interpretation of mean score was by referring (Hussein Ali, Mohd Said, Abdullah, & Mat Daud, 2017) the traditional way of 5-point Likert type scale. He stated that length of the 5-likert scale, the range is calculated by (5-1=4) then divided by 5 as it the grates value of the scale (4/5=0.8) afterwards, number one which is the least value in the scale was added in order to identify the maximum of this cell.

Table 3: Interpretation of 5-point Likert Scale

Mean Score Range	Interpretation
From 0.01-1.00	Strongly Disagree
To 2.00	Disagree
From 2.01 until 3.00	Neutral
From 3.01 until 4.00	Agree
From 4.01 until 5	Strongly Agree

The higher mean value indicated that majority of the responded strongly approved the statements presented to them while standard deviation indicated the degree of dispersion from the mean.

4.5.1. Project Scheduling (PS) On Project Performance (PP)

Table 4: Project Scheduling (PS) on Project Performance of Heineken Breweries S.C.

Items	N		Mean	Standard Deviation
	Valid	Missing		
Project cost was well estimated	138	8	2.7971	.97531
The project Activities were properly defined within its sequencing	138	8	3.1014	.98374
The project Activity were properly break-down with in duration estimated	141	5	3.0851	1.07231
Schedules were well developed (prepared)	141	5	3.1277	1.04779
Activity duration was well estimated	138	8	3.1812	.92992

The aim of the study was to learn /understand the effect of time management on the project performance in Heineken Breweries S.C. Under this information gathered it indicate that the respondents' agreed that Heineken Breweries S.C activity duration was well estimated with a mean score of 3.18, however the degree of dispersion from the mean (standard deviation) is a little bit higher at 0.929, the Schedules were well developed (prepared) and the project Activities were properly defined within its sequencing as depicted by mean score of 3.12 and 3.08 indicates with high degree of dispersion from the mean occurs S.D of 1.04,

Further respondents were neutral (true to some extent) for the idea of Heineken Breweries S.C project cost was well estimated, with as indicated above on table 4 by mean score of 2.79 with relatively high degree of dispersion from the mean score (S.D) of 0.975 and 1.07231 respectively.

4.5.2. Resource Planning (RP) On Project Performance (PP)

Table 5: Resource Planning (RP) On Project Performance (PP) In Heineken Breweries S.C

Items	N		Mean	Standard Deviation
	Valid	Missing		
Skilled and educated experts are involved in the company's planning process	137	9	3.1460	1.04699
The project Activity were properly defined	135	11	2.8963	1.12153
Project managers were involved in planning stage	142	4	3.1620	.89631
The project scope was well specified during planning phase	141	5	3.1064	1.07373
Project cost was well estimated	145	1	2.7517	1.00368
The budgeted funds were enough to complete the project	146	0	2.7945	.98203

According to the finding shows in table 5, majority of the respondents' agreed that the project managers in Heineken Breweries S.C were involved in planning stage, the project scope was well specified during planning phase and skilled and educated experts are involved in the company's planning process as depicted by mean score of 3.162, 3.162 and 3.14, however with high degree of dispersion from the mean occurs S.D of 0.896, 1.073 and 1.046 respectively.

However, the respondents agreed on the above three but they were unaware or they are neutral to project cost was well estimated, the budgeted funds were enough to complete the project and the project activity were properly defined in Heineken Breweries S.C with depicted by mean score of 2.7517, 2.7945 and 2.8963 with high degree of dispersion from the mean occurs S.D of 1.00368, 0.98203and 1.12153 respectively.

4.5.3. Material Resource Usage Planning (MR) On Project Performance (PP)

Table 6: Material Resource Usage Planning (MR) On Project Performance (PP) In Heineken Breweries S.C.

Items	N		Mean	Standard Deviation
	Valid	Missing		
Appropriate material was provided	146	0	3.4247	.93834
Project material and organization was well communicated during planning phase	146	0	3.1370	1.06758
Project Scope was well specified	146	0	2.7740	.98800
Project output was well defined	146	0	3.151	1.0461
Quality planning carried out	144	2	2.9375	1.18981
All material resources allocated were used	142	4	2.9014	1.13806

According to table 6, the study findings most of them agreed that Heineken Breweries S.C appropriate material was provided, project output was well defined and project material and organization was well communicated during planning phase as depicted by mean score of 3.42, 3.15 and 3.13 with high degree of dispersion from the mean occurs S.D of 0.938, 1.04 and 1.06 respectively.

In the other items respondents' slightly agreed or true to some extent (almost around to agreed edges) on a project scope was well specified, all material resources allocated were used and quality planning carried out in Heineken Breweries S.C but again the dispersion from the mean occurs were high with S.D of 0.98, 1.189 and 1.138 respectively.

4.5.4. Project Controlling and Evaluation on Project Performance (PP)

Table 7: Statement Regard to Project Controlling and Evaluation on Project Performance (PP) In Heineken Breweries S.C.

Items	N		Mean	Standard Deviation
	Valid	Missing		
As per the project evaluation the project is effectiveness efficiency	143	3	3.2168	.93834
Controlling and Evaluation system were adequate and compatible to the project	146	0	2.9247	1.00403
Project plan was well defined and communicated from the start.	146	0	3.1164	1.05380
Initial project goal was adequate for achieving your goals	146	0	3.2055	1.00288
Allocated resources were adequate for achieving goals	142	4	1.6620	.73308
Original project timeline was realistic	146	0	2.0274	1.08878
Your project team worked well together	143	3	2.7343	1.06778
Your team worked effectively with the client	142	4	1.5986	.63088
You got the project results that you wanted	145	1	1.8690	.95201

From table 7, the indicated items were place in order to determine or to identify the control and evaluation on project performance in Heineken Breweries S.C. The findings indicated under table 7 majority of the respondents' agreed that Heineken Breweries S.C project monitoring and evaluation with respect to project plan was well defined and communicated from the start., and they believe that the initial project goal was adequate for achieving their goals as depicted by mean score of 3.21, 3.2 ,3.11 and 3.11 respectively. But, as usual the degree of dispersion from the mean is more than 1.

Majority of the respondents' disagreed on the questioners regards to that Heineken Breweries S.C allocated resources were adequate for achieving goals, our team worked effectively with the client and we got the project results that we wanted a mean score of 1.66 ,1.59 and 1.86 with relatively low degree of dispersion from the mean and for both items the respondents were neutral Heineken Breweries S.C original project timeline was realistic and our project team worked well together with as depicted by mean score of and 1.59 and 1.86 with a low and higher standard deviation of 0.63 and 0.95 respectively.

4.5.5. Projects Performance (PP)

Table 8: Project's Performance

Items	N		Mean	Standard Deviation
	Valid	Missing		
The output/delivered product met the specifications in the planning stage	142	4	2.0070	.94153
Quality work was performed	143	3	2.4056	.99462
The project was completed on the original(planned) schedule	144	2	3.0833	1.08711
All projects were to be completed on the agreed time	141	5	2.8227	1.20288

In the above table 8 as shows, the findings indicated most of the respondents' agreed that under Heineken Breweries S.C the project was completed on the original (planned) schedule as depicted by mean score of 3.08 with a high degree of dispersion from the mean 1.08 and the respondents were neutral/ undecided either Heineken Breweries S.C performance measurement is good condition or bad condition.

4.6. Correlation Analysis

For the interpretation of a Correlation Coefficient findings, the study uses the Rule of Thumb that shown from table 9.

Table 9: Interpreting Size of a Correlation Coefficient

Size of Correlation	Interpretation
1	Perfect Positive/Negative Correlation
±.90 TO ±.99	Very High Positive/Negative Correlation
±.70 TO ±.90	High Positive/Negative Correlation
±.50 TO ±.70	Moderate Positive/Negative Correlation
±.30 TO ±.50	Low Positive/Negative Correlation
±.10 TO ±.30	Very Low Positive/Negative Correlation
±.0 TO ±.10	Markedly Low and Negatively Positive/Negative Correlation

The correlation Coefficient reflects that the strength and /or direction of the association between two or more variables (dependent and independent variables), in this case the dependent variable is project performance (pp) and the independent variables were project scheduling (PS), material resource usage planning (MR), resource planning (RP) and project controlling and evaluation (PCE).

Table 10: Pearson Correlation Values

Correlations					
		TM	**RP**	**MR**	**PCE**
PP	Pearson Correlation	.748**	.798**	.896**	.834**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	146	146	146	146

**. Correlation Is Significant at the 0.01 Level (2-Tailed).

According to the study, findings shown on table 10, the correlation between project performance (pp) with project scheduling (PS), material resource usage planning (MR), resource planning (RP) and project controlling and evaluation (PCE) were found. It was clear that there was a high positive correlation with statistically significant (r=.748**, P<0.01), (r=.798**, P<0.01), (r=.896**, P<0.01) and (r=.834**, P<0.01) respectively. So according to the findings each four hypotheses were supported.

H1: - Project scheduling has a significant effect on to project performance in Heineken Breweries S.C.

H2: - Material resource usage planning has a significant effect on to project performance in Heineken Breweries S.C.

H3: - Resource planning has a significant effect on to procurement performance in Heineken Breweries S.C.

H4: - Project controlling and evaluation has a significant effect on to procurement performance.

In Heineken Breweries S.C and also this study were supported the study findings agree with (Belout & Gauvreau, 2004) findings there is a positive correlation between planning of HR, time planning, material resource planning, financial planning and project performance. According to (Chin & Hamid, 2015b) findings confirm and agree with the current study that there is a direct connection between selection of human resources, material planning, financial planning and project scheduling with project performance.

4.7. Regression Analysis

The researcher conducted a multiple regression analysis to determine the change in the (dependent variable) performance of Heineken Breweries S.C projects because of change in the four independent variables. In this study, the researcher conducts' ANOVA regression analysis to determine the relationship between independent variables project scheduling (PS), material

resource usage planning (MR), resource planning (RP) and project controlling and evaluation (PCE) with the dependent variable (project performance (pp).

R^2 The Coefficient of Determinations: -The coefficient of determination the extent to which changes in the dependent variable can be explained by the change in the independent variables.

Table 11: Coefficient of Determinations

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.921[a]	.848	.843	.28865

a. Predictors: (Constant), PCE, RP, TM, MR

As shown on table 11, the adjusted R square was 0.843. So, that there is evidence that the data used in analyzing the relationship between the independent variables and dependent variables was closely related. Table 11 revealed that, R square was 0.848, which implies that 84.8 % of dependent variables being predicted /studied are explained by the four independent variable. However, the other factors not considered in this research contribute to 15.2% on performance of projects. As above the coefficient of correlation (R) indicates .921a strong positive relation among independent variables and dependent variables.

Table 12: Relation Among Independent and Dependent Variables

ANOVA[a]						
	Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	65.326	4	16.332	196.019	.000b
	Residual	11.748	141	.083		
	Total	77.074	145	146		

a. Dependent Variable: PP

b. Predictors: (Constant), PCE, RP, TM, MR

Analysis of Variance (ANOVA): - was used to establish whether there was difference between the independent variables and dependent variables. As shown in the ANOVA table (12), the model is statistically significant at 99% degree of confidence. The F statistics is 196.019 which shows that the overall model was significant.

4.7.1. Regression Coefficients

The coefficients indicate the direction and change of dependent variable because of change in the independent variables.

Table 13: Regression Coefficients

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
	Model	B	Std. Error	Beta	t	Sig.
1	(Constant)	.498	.128		3.908	.000
	TM	.016	.079	.014	.206	.837
	RP	.052	.093	.047	.553	.581
	MR	.682	.077	.674	8.869	.000
	PCE	.501	.081	.350	6.193	.000
a. Dependent Variable: PP						

$Y= \beta0+ \beta1X1+\beta2X2+ \beta3X3+ \beta4X4+\alpha$

Where: -Y is the dependent variable project performance (pp),

$\beta0$ is the regression coefficient/constant/Y-intercept

$\beta1$, $\beta2$, $\beta3$, $\beta4$ are the slopes of the regression equation,

X1 is the project scheduling (PS)

X2 is the Resource planning (RP)

X3 is the Material resource usage planning (MR)

X4 is the project controlling and evaluation

α – error at 95% level of confidence

Y = 0. .498+ 0.016X1 + 0. 052X2 + 0. 682X3 + 0. 501X4

Based on the output earned from the above regression equation the study indicated that: -

A unit increase in the project scheduling (PS) would lead to a 0.016 increase in the scores of project performance the study was supported by other study's like (Muute, 2019) " performance of construction projects in Nairobi city county, Kenya", (Amade, Okangba, Ekweozor, & Limited, 2014) "project management; theory and practice, FUTO press Ltd ", (Lloyd, 2013). Study agrees with the current study which found that time planning systems in the construction firms significantly affects, however the relationship was statistically insignificant. Due to the findings of H1: - project scheduling has a significant effect on project performance in Heineken Breweries S.C were supported.

A unit increase in the resource planning (RP), would lead to a .052 increase in the scores of project performance. This finding was supported by different paper in different angel of view like resource

divided as financial, human and other type (Akinsola, Potts, Ndekugri, & Harris, 1997). According to (Armstrong, 2011), financial planning on project performance, “the study on effects of human resource planning practices on organization performance” the relationship was statistically insignificant. Due to the findings of H2, material resource usage planning has a significant effect on to project performance in Heineken Breweries S.C were supported.

A unit increase in the material resource usage planning (MR) would lead to a 0.682 increase in the scores of project performance (pp) and the study agreed with (Plenert, 1999) study findings on “the influence of material level on project performance and project planning practices” and (Muute, 2019) “performance of construction projects in Nairobi city county, Kenya”. The hypothesis formulated H3: - Resource planning has a significant effect on to procurement performance in Heineken Breweries S.C were supported by the findings above.

A unit increase in the project controlling and evaluation would lead to a 0.501 increase in the scores of procurement performance however the relationship was statistically insignificant. The hypothesis formulated H4: - Project controlling and evaluation has a significant effect on to procurement performance in Heineken Breweries S.C were supported by the findings above. (Armstrong, 2011) on the study of the effects of human resource planning practices on organization performance.

Chapter Five: Conclusions and Recommendations

5.1. Conclusions

The study aimed at finding out effect of project time management practices on performance of Heineken Breweries S.C Heineken Breweries S.C in Addis Ababa, Ethiopia.

Based on the findings the study made the following conclusion. From the surveys, it is shown that most respondent agreed that the relation among Project performance vs. time management, material resource usage planning, resource planning and project controlling and evaluation in Heineken Breweries S.C were finds to be as a high positive correlation and statistically significant (r=.748**, P<0.01), (r=.798**, P<0.01), (r=.896**, P<0.01) and (r=.834**, P<0.01) respectively. 84.8 % of dependent variables being predicted and explained by the four independent variable. However, the other factors not considered in this research contribute to 15.2% on performance of projects.

In the other way material resource usage planning and project controlling and evaluation were the most related factors that affecting project performance in Heineken Breweries S.C. Not only those two but Resource planning and project scheduling were affecting the project performance but the extents were not as like the above two factor. In figurative way, a unit increase in the material resource usage planning, project controlling and evaluation, resource planning and project scheduling would lead to a 0.501, 0.682, 0.051 and 0.016 respectively increase in the scores of project performance in Heineken Breweries S.C.

The study concludes the project scope and activity duration had been well estimated. The study concludes that project scheduling has a positive and significant effect on performance of a projects.

5.2. Recommendations

Based on the conclusion that effect of time management positively affects projects performance, Heineken Breweries S.C should equip the required expert skill and knowledge, work breakdown, resource allocation and project controlling and evaluation mechanisms. Concerning financial resource planning, the study notes that project budget is a critical part of the budget and it has a major influence on timely completion project. For efficient utilization of the resource, total costs and individual costs of the diverse work packages in the project should be kept track of. The project scope should be used to estimate the cost of the project with the WBS being connected to the

project plan. Estimating the costs of individual activities based on execution conditions will assist to generate correct overall cost estimation.

A time schedule without control is fairly useless to the project organization. The control must be carried out regularly and relatively often in order to detect deviations early. This makes it possible for the project team to take necessary actions to avoid longer delays. The schedule control and development must be an iterative process in order for the project team to have updated schedules throughout the project.

The study recommended development of time schedules based on the formerly developed WBS. Likewise, to develop accurate and attainable schedules, the study recommends accurate sequencing of activities. The process of sequencing the activities encompasses distinguishing dependencies and logical relationships between the project activities. A time schedule without control is not useful to the project organization hence regular checks and controls should be conducted in order to identify deviations as early as possible. Early detection of deviations will enable necessary actions by the project team. Finally, the study recommended that for accurate material scheduling improves productivity by decreasing the necessary lead-time, giving the project owners a higher quality of production and service. Firms should adopt this, as it will give them a competitive advantage.

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Annex

ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

Survey Questionnaire

Dear Sir/Madam

Dear respondent, I am a graduate student in the department of project management, Addis Ababa University college of business and economics, School of Commerce. Currently, I am undertaking research entitled 'Effect of Project Time Management Practices on Project Performance: The case of "Heineken Breweries S.C. You are one of the respondents in the company selected to participate on this study. Please assist me in giving the correct and complete information to present a representative finding on the effect of project time management practices on project performance: the case of "Heineken Breweries S.C. Finally, I confirm you that the information that you share me will be kept confidential and only used for the academic purpose. No individual's responses will be identified as such and the identity of persons responding will not be published or released to anyone.

Thank you in advance for your kind cooperation by allocating sufficient time.

With best regards,

Nathan Dubale,

Mobile: +251- 920 724522

Email: NathanDubale1912@gmail.com

Section I: Demographic information (please circle)

1. **Sex:**

A. Male B. Female

2. **Age category**

A. Below 30 years B. Between 31 – 40 years C. Between 41 – 50 years D. Above 50

3. **Level of education:**

A. Diploma B. Bachelor's Degree C. Master's Degree and above D. others specify_____

4. **Number of years of experience**

5. A. Below 5 years B. 5 to 10 C. 10 to 20 D. above 20

Specify _____

Section II: Questions designed for firms mentioned on the sample study

Indicate the extent to which you agree or disagree with the following statements using the following 1-5 extent scale 1-Strongly Disagree (SD), 2.-Disagree (D), 3- Not sure (NS), 4-Agree (A) and 5-Strongly (SA).

A: Time Management

Statements	**1 (SD)**	**2 (D)**	**3 (NS)**	**4 (A)**	**5 (SA)**
The project Activity were properly defined					
the project Activities were properly defined with in its sequencing					
The project Activity were properly break down with in duration estimated					
The project scope was well specified during planning phase					
Schedules were well developed (prepared)					
Activity duration was well estimated					
The project Activity were properly defined					

B: Resource Planning process

Statements	1 (SD)	2 (D)	3 (NS)	4 (A)	5 (SA)
Skilled and educated experts are involved in the company's planning process					
Adequate resource is allocated for the implementation of the project					
Project managers were involved in planning stage					
The project scope was well specified during planning phase					
Project cost was well estimated					
The budgeted funds were enough to complete the project					

C: Material resource usage planning

Statements	1 (SD)	2 (D)	3 (NS)	4 (A)	5 (SA)
Appropriate material was provided					
Project material and organization was well communicated during planning phase					
Project Scope was well specified					
Project output was well defined					
Quality planning carried out					
All material resources allocated were used					

D: Project Controlling and Evaluation Methods

Statements	1 (SD)	2 (D)	3 (NS)	4 (A)	5 (SA)
As per the project evaluation the project is effectiveness efficiency					
The Controlling and Evaluation system were refined and compatible to the project					
The project plan was well defined and communicated from the start.					
The initial project goal was adequate for achieving our goals					
The allocated resources were adequate for achieving goals					
The original project timeline was realistic					
Your project team worked well together					
Your team worked effectively with the client					

You got the project results that you wanted					

E. Projects Performance

Statements	**1 (SD)**	**2 (D)**	**3 (NS)**	**4 (A)**	**5 (SA)**
The output/delivered product met the specifications in the planning stage					
Quality work was performed					
Project cost was well estimated					
The project was completed on the original(planned) schedule					
All projects were to be completed on the agreed time					