GSJ: Volume 11, Issue 1, January 2023, Online: ISSN 2320-9186
www.globalscientificjournal.com

EFFECT OF SCHEDULE MANAGEMENT ON PERFORMANCE OF CONSTRUCTION PROJECTS IN RWANDA, CASE OF CONSTRUCTION OF NORRSKEN HOUSE KIGALI PROJECT, 2021-2022

NEMEYE LISA

MBA/PM/21/01/6517

+250788654444

EMAIL: NEMEYELISA@GMAIL.COM

A RESEARCH PAPER SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF

BUSINESS ADMINISTRATION IN PROJECT MANAGEMENT OF UNIVERSITY OF KIGALI

ACKNOWLEDGEMENTS

First and foremost, I would like to thank God the Almighty father who gave me the strength to carry out this thesis and to whom I owe my lives, wisdom, and good faith in my entire endeavor. I have much pleasure and wish to extend my sincere thanks to UoK and its lecturers for the concern they have had over the years during my stay at the University.

I also thank my supervisor **Dr. KWENA RONALD** who have accepted to direct this work. The valuable guidance, his advice, and remarks to produce this document were for me very useful. I thank you for your immediate response whenever I send you my work. I am anxious to thank the wonderful and supportive staff of University of Kigali especially those who have advised and encourage me whenever, and whatever in deferent intake for help acquire necessary knowledge it was needed and though helped me improving my professional and personnel abilities.

I would like to thank to management of Norrsken construction Project; without their cooperation and help, I would not complete this research dissertation.

May God bless them all!

ABBREVIATIONS AND ACRONYMS

CPM: Critical Path Method

INGOs: International Non-government organizations

LOB: Line-of-Balance

NGOs: Non-Government Organizations

PERT: Program Evaluation and Review Technique

PMI: Project Management Institutions

SPSS: Statistical Package for Social Sciences

UoK: University of Kigali

USA: United States of America

WBS: Work breakdown structure.

© GSJ

1.ABSTRACT

This reseacrh paper entitled “effect of schedule management on performance in construction project in Rwanda, a case of construction of Norrsken House Kigali, 2021-June 2022” whose purpose was to highlight the effect of schedule management on project performance in construction projects. It was guided by three objectives which were to examine effect of inventory management of resource on performance of construction projects, to examine effect of project progress feedback on performance of construction projects and to assess effect of delivery time on performance of construction projects. The research design that was used in this study was descriptive research design and analytical research design. The population of the study was 90 employees of Norrsken House Kigali Project. The study used primary data by using questionnaires and secondary data using documentary review as method of data collection and the study will use descriptive statistics and inferential statistics such as correlation analysis and multiple linear regression analysis as method of data analysis. The dissertation concluded that schedule management had significant influence on project performance. This was explained by the data findings where it showed a positive and significant relationship between dependent and independent variables. The findings showed that resource scheduling had significant effect on project performance, this was explained by the value of 0.36569 at the probability value less than 0.05.Secondly, there was a positive significant relationship between duration establishment and project performance, this was explained by the correlation analysis of 0.21824 and the probability of less than 0.05.Thirdly, there was a positive and significant relationship between schedule execution and project performance, this was explained by the correlation analysis of 0.12171 and the probability value less than 0.05. Thus, there was a project financing on project performance based on the result findings. The findings also revealed that if schedule management was maintained properly, the performance would be increased by 76.52%. Results revealed that there was a positive between resource scheduling and project performance this was explained by the value of 0.3825 at the probability value less than 0.05, this implies that a unit increase of resource scheduling of 39.825% on project performance. There was a positive significant relationship between duration establishment and project performance, this was explained by the correlation analysis of 0.3642 and the probability of less than 0.05. This implies that a unit increase in duration establishment increases project performance 36.42%. This implies a unit of scheduling execution increase the project performance by 55.42% with its coefficient of 0.5542. These findings suggest that, once respected, management of these approaches can have a considerable impact on the success of project performance.

TABLE OF CONTENT

© GSJ

© GSJ

LIST OF TABLES

LIST OF FIGURES

© GSJ

© GSJ

2. INTRODUCTION

This paper highlighted the effect of schedule management on project performance in construction projects in Rwanda using a case of Norrsken House Kigali,2021-June 2022. Preparing a project schedule is useful as it helps project managers to summarize the start and finish times for every separate duty which forms a part of a project, thereby giving a graphical illustration of how protracted the project is probable to last for. (Solis-Carcano, Corona-Suarez, & GarciaIbarra, 2015). It is complex to develop a project management schedule as it involves identification of activities, sequencing those activities, deciding milestones for the activities and afterward executing the project schedule management . An effective schedule management plan consists of outlining the work breakdown structure, identification of interdependencies amongst activities, sequencing them, estimating task duration, identification of risks involved and finally development of project schedule management.

Globally, the construction industry has a significant impact on the socio-economic and political environment. Its role extends across different resource endowments, social policies and existing levels of development. Its range of outputs often sets the nation's political agenda and provides the basis for social and economic development. However, the construction industry in Rwanda is largely undeveloped and in need of policy, strategies, and actions to promote sustainable growth (Rwanda National construction Industry Policy,2009).

Clarke (1999) said that a project is a performance if it achieves all of the agreed objectives, quality parameters, timelines and costs. Scholars, however, perceive the performance of a project differently. This could be explained by the inherent differences in both the Academicand Social Backgrounds of the scholars. The Academia, therefore, needs to acknowledge that there is no single measure of Project Performance. This argument is further supported by Badiru (2002) who opined that a project's relative degree of performance or failure may change over time. Documentation by Burke (1999) further indicates the variation on the concept of Project Performance. His Works reveal that; in the 1960s and early 1970s many project management tools and techniques focused on the implementation phase of the project life cycle. By the1980s emphasis had shifted to the initiation Phase of the project.Project Scheduling entails detailing activities into their proper sequence, with appropriate relationships defined, consistent with the execution plan. It's imperative that the schedule is imbedded in the project management system.

In India, according to R.Vidhyasri; et al (2017), he stated that it is well known that construction is an incredible game of risk. Before starting a construction project, proper planning and scheduling are needed to bring out the construction activities in a sequential manner. Even though it was clear that internal and external problems will affect the actual accomplishment of the schedule. Scheduling is a vital part of life and most important part of every plan and in other words it is the timetable of work. It directs the managers in a right path towards their goals. It involves charting the requirements for the resources or the progress anticipated in completing components activities over the project's consumption of time.

In Malaysia Construction industry contributed around 3 percent to the Gross Domestic Product in the year 2010. However, it makes up an important part of the Malaysian economy due to the involvement with other industry branches such as the metals processing industry and the mechanical engineering. Therefore, the construction industry is a substantial economic driver for Malaysia. However, construction has been facing numerous issues and one of them is time management issues which have cause delayed completion of a project. According to Lok; et al (2015)

Construction industry is complex in nature because it contains large number of project parties as clients, consultants, contractors, stakeholders, shareholders, and regulators. The complexity and fragmented nature of the industry and its highly casual employment of labour makes it sensitive to poor contract performance. Basically, it is this unique characteristic of the industry that kept this problem in Akure Nigeria unnoticed. However, poor construction performance has created economic situation which the industry cannot manage and at the same time the industry stakeholders or contractors do not know how to document these problems for future references. Successful building construction projects are those projects finished on time, within budget, in accordance with specifications and to stakeholders' satisfaction.(Babalola; et al,2015)

In China, according to Xiaoqian; et al, (2004) , he considers all as familiar scenario.He said that an organization sets a tight schedule for a product development project where its scope is not fully defined initially. Soon it becomes apparent that underestimated changes are reducing actual productivity and causing extra work. The project falls its ambitious schedule. The delays expose the project to unexpected technological and regulatory changes, and hence more rework and lower productivity. Suppose that there is no provision in the project schedule and budget for any of this.

Further delays and cost escalation prompt the organization to change the number of tasks to be produced to stay within budget limit and agree to an even more ambitious, success-oriented, and potentially disastrous "rescue plan" to salvage the

project. The example above demonstrates that the effects of willingness and decision to hasten projects might be quite counter-intuitive and often prompt dysfunctional management actions. This is because projects are" complex" systems as they consist of multiple interdependent components and feedback processes; are highly dynamic; involve nonlinear relationships; involve both "hard" and "soft" data. The impacts of management decisions and actions are delayed, non-linear, indirect, and self-reinforcing. Hence, before the fact or even after they have occurred their full significance is difficult to perceive. According to Xiaoqian; et al, (2004)

Scheduling of construction projects is an involvement exercise based on several parameters, attributes, and various factors. These factors and attributes are to be judged and considered appropriately by involving expertise and experienced professionals since the involvement of professionals and community seems to be very important in making a successful project.

The factors influencing construction schedule vary to a greater extent from people/staff attitude and behavior, the current timeline status, financing mode, completion pressure and requirement urgency, which all make the spread of factors very wide. Each factor contributes some influence on scheduling to the maximum extent. Hence, the scheduler and schedule making should have a full pledged wider perspective of all aspects which contribute to the project. According to R. Vidhyasri; et al (2017)

The delay affects all people and organizations involved in the project. This is especially true for the owner's business since delaying the start-up of the project will impede obtaining the expected project revenue and will increase financial costs. In addition, the owner may face several other difficulties resulting from the commitments assumed based on the delivery date established in the contract.(Romel G; et al ,2015).

According to PMI-PMBOK project schedule development uses the outputs from the processes to define activities, sequence activities, estimate activity resources, and estimate activity durations in combination with the scheduling tools to produce the schedule model. The finalized and approved schedule is the baseline that will be used in the Control Schedule process. As the project activities are being performed, most of the effort in the Project

(PMI, 2013). The project management processes include activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development and Schedule Control. Project time management can be used as an indicator to assess contractor's performance to the completion of a project as per time frame.

In Rwanda, the 7 billion facility is placed on 18,479 square meters and is meant to reduce the spread of diseases in the region through natural ventilation systems, isolated services, and improved access to hand-washing stations.

The construction will also use exterior corridors, further limiting the risk of airborne transmission. The building's largest program private rooms and open wards are each set back from the building's face to provide dedicated balconies, shading, and outdoor space throughout the facility. Thus, it is in this regards that the researcher undertakes the research dissertation on the effect of schedule management on project performance using a case of Norrsken House Kigali,2021-June 2022.

3.STATEMENT OF THE PROBLEM

Pinto and Slevin, (1988) in their write up show that it is crucial the project manager preparesa project schedule and follows it through the entire project group processes. Severally, the construction sector in Rwanda has not beenable to meet project timelines, budget compliance and other quality requirements; all ofwhich are poor performance indicators (World Bank Report, 2015).

Scheduling in construction projects is the process of listing of tasks, activities, milestones with a planned start and finish date. The importance of scheduling in construction projects cannot be neglected since it plays a crucial role in a project's success. Proper scheduling would ensure the completion of the project on time and within budget. Not only does it outline the pace of the work but also how the tasks are executed. Added to that, scheduling defines method and sequence in which materials are delivered. Finally, it permits adjustments to accommodate changes and unanticipated events.

According to the Project Management Institute, 9.9% of every dollar invested in a project is wasted due to poor project performance. That's $99 for every $1,000 spent. If your projects are running over budget, take another look at how you're scheduling tasks and resources. Secondly only to selecting a good project team, a well-designed schedule is key to having a successful project. PMI, (2013).

An organization sets a tight schedule for a product development project where its scope is not fully defined initially.

Soon it becomes apparent that underestimated changes are reducing actual productivity and causing extra work. The project falls behind its ambitious schedule. The delays expose the project to unexpected technological and regulatory changes, and hence more rework and lower productivity.

Therefore for bridging the gap existing as hghlghted earlier, the researcher comes up in undertaking research on effect of schedule management on project performance in construction projects in Rwanda using a case of Norrsken House Kigali,2021-June 2022.

4.OBJECTIVE

The general objective of this research paper was to highlight the effect of schedule management on performance of construction project in Rwanda.

5.LITERATURE REVIEW

5.1 Theoretical framework

The theoretical review for this study is based on the relevant theories that explain the effect of project schedule management on project performance. This study focused on two theories as debated by various researchers.

1. Complexity theory

Complexity theory has become a broad platform for the investigation of complex interdisciplinary situations. It developed from and includes the earlier field of study known as chaos theory and can be defined as the study of how order and patterns arise from apparently chaotic systems—and, conversely, how complex behaviour and structures emerge from simple underlying rules (Cook-Davies, Cicmil, Crawford, & Richardson, 2007).Projects are described as "chaordic," a system that blends characteristics of apparent order at the macro level with chaos or uncontrollability at the detail level (Woolf, 2007). In terms of project performance, it requires practices that require adherence to rigid, global responses unsuitable for addressing the changing needs of most projects. *Complexity Theory and Project Management* shifts this paradigm to create opportunities for expanding the decision-making process in ways that promote flexibility and increase effectiveness. (Woolf, 2007)

2 .Project Management Theory

In his attempt to define a Project Management Theory, Morris (2016) identified project management as the involvement of a combination of scope management, activity scheduling (time management), and cost and resource management. Morris further argued that managing people was generally an important aspect of most management, including communications, leadership, and team working. Koskela & Howell (2002) have raised the need to introduce alternative theoretical approaches to the study of projects, and to identify the implications that they may have for how we organize and manage projects. Most textbooks and professional associations for project management promote this normative view of the field as practiced, which can be summarized as the application of knowledge, skills, tools, and techniques to project activities to meet project requirements.

Morris (2016) has called for a re-examination of the dominant doctrines in project management for their failure to deliver on their promises. Nonetheless, there are limitations to this self-critique; the tendency in the field is still to start from the assumption that the basic framework of project management is compelling and essentially sound. Efforts have therefore been directed instead towards searching for improvements in traditional models and skills towards a model which better represents the 'true nature of projects, or for a method of project management based on 'critical success factors.To address this situation, we intend through this paper to create an opportunity to stand back and problematize that which seems known and accepted about projects. In particular, the paper will explore the potential of critical research in enhancing the intellectual basis of the project management subject area.This study applied this theory in staff allocation/assignment to projects and resource scheduling. However, Morris concluded that no one theory could encompass project management, thus it was a collection of various theories. This study agreed with the above argument.

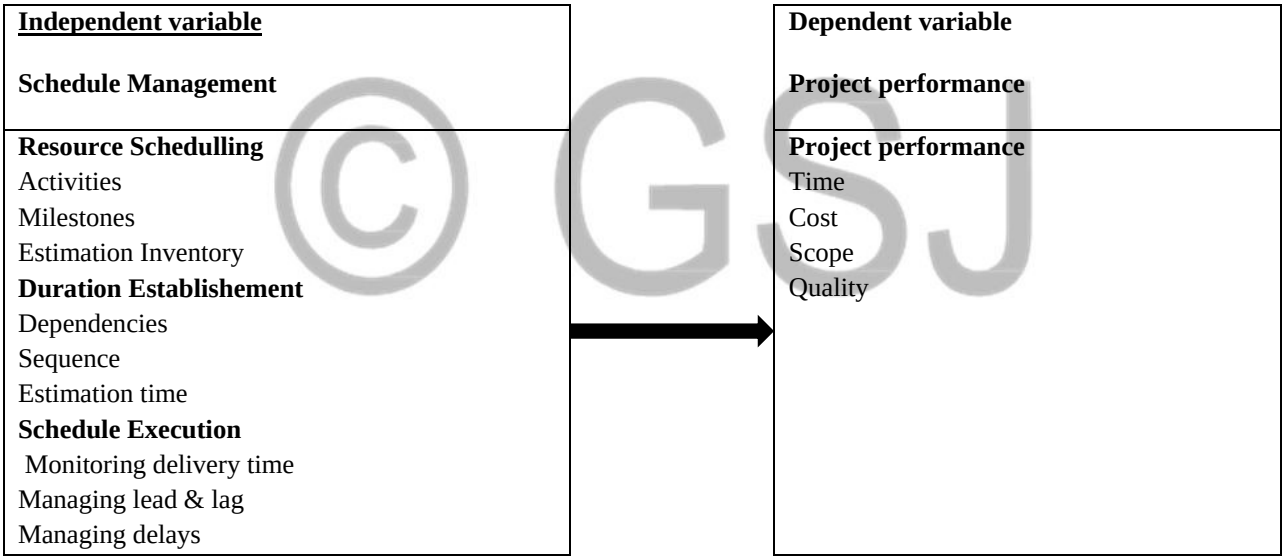
3. Theory of performance

Elger, (2017) identified attributes of performance as the quality of results or products, cost-effectiveness capacity and capability, levels of knowledge and skills, and identity and motivation. These components were applied by the study in identifying what NGOs in Rwanda consider to be indicators of project performance and how these were applied in

measuring project performance. The theory also indicated some factors of performance were unchangeable; most factors were influenced by the individual performer or by other individuals. This implied a behavioral approach to project performance and highlighted the importance of the project team. This theory was very useful in the study since NGO projects were in the social sector which had a major emphasis on software aspects such as people relations and competencies in the measurement of organizational and project performance. Another application of the theory of Performance in this study came in budgeting. Nabil, & Adnan (2015) identified budgeting had to do with holding organizations accountable for program results, promoting a focus on results and citizen satisfaction, planning to meet program objectives, and improving legislative oversight by providing useful data for consideration. This association of accountability to budgets may not always hold since it presupposed that organizations would consider budgets to be a performance aspect.

5.2 Conceptual Framework

Conceptual framework, according to (Stratman & Roth, 2016), are structured from a set of broad theories and ideas that help a researcher in properly identifying the problem they are looking at, frame their research questions and find suitable literature. Most academic research uses a conceptual framework at the outset because it helps the researcher to clarify research question and objectives. For purposes of this study, the dependent variable is project performance in terms of **r**ealization of set objectives**,** project timeliness**, c**ompletion with a set budget**,** project quality performance, project scope performance, and stakeholder Satisfaction whereas the independent variables are project schedule management practice such as inventory management of resources,in terms of JIT, MRP,EOQ,Days sales of inventory,the project progress feedback in terms of budget, schedule status, project goals and project description and finally delivery time in terms of calendar days, working days, promise time and required time.



(Source: Researcher's illustration, 2022)

Figure 5.1: Conceptual framework

6.RESEARCH METHODOLOGY

6.1 Research Design

This study adopted both quantitative and qualitative research design. Quantitative research design since, the study will be used descriptive design while qualitative design since, the study was used with qualitative data. Qualitative approach is believed to be easy to understand for most of the audience which represents data in a narration whereas quantitative approach represents data in mathematical calculations, percentage, and computations. Descriptive research design was useful in describing project schedule management in term of project resource planning schedule, project scheduling techniques; monitoring activities schedule and project control activities and descriptive research design will be useful in describing the level of project performance in term of project timely completion, respecting project scope of work, delivery

within project budget (cost), achieved project objectives, delivery project quality. The study used correlation approach to establish the relationship between project schedule management and performance of construction projects in Rwanda.

6.2 Population of the study

According to Ngechu (2016), a population is a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. The population of interest of this study was 90employees of construction of Norrsken House Kigali Project.

Department	**Population size**
Project managers	4
Monitory and Evaluation	6
Finance and Accounting	6
Filed operator site engineers	24
Coordinators	12
Assistant staff operator	26
Contract and claim engineers of the consultant	12
Total	90

(Source: Norrsken House Kigali Project,2022)
Table 6.1: Population size

© GSJ

6.3. Sampling design
This section deals with sample size and sampling technique

6.3.1. Sample size

A sample is defined as a subset of the population. It comprises some members selected from the population (Kothari, 2011). According Zikmund (2015) when the population is less that 100 the sample size is universal sample. In this study the population consisted of 90 employees of construction Norrsken House Kigali Project.

6.3.2. Sampling technique

Sampling techniques according to Saunders *et al*., (2017), provide a variety of different methods that allow the researcher to lessen the total quantity of data desired to be collected by considering only data from a sub-group rather than all possible cases. The study used census-sampling procedure (Universal sampling), which involves the use of the entire target population of 90 employees of construction of Norrsken House Kigali Project. The researcher used purposive sampling

6.4 Types of data
The study collected both quantitative and qualitative data. Basically, Qualitative data focused on respondent's perceptions towards the respective study's objectives, while the quantitative methods focused on frequencies and percentages with regards to the relevant data as collected from the respective respondents. With regard the nature of this study both primary and secondary data were used

6.4.1 Primary Data Collection.
Primary data collection is the gathering of raw data collected at the source. It is a process of collecting the original data collected by a researcher for a specific research purpose. It could be further analyzed into two segments: qualitative research and quantitative data collection methods. The qualitative research methods of data collection do not involve the collection

of data that involves numbers or a need to be deduced through a mathematical calculation, rather it is based on the non-quantifiable elements like the feeling or emotion of the researcher. This study used an open-ended questionnaire and interview as qualitative research method**.** Quantitative methods are presented in numbers and require a mathematical calculation to deduce. An example would be the use of a questionnaire with close-ended questions to arrive at figures to be calculated mathematically.

In this study, the researcher used questionnaire with close-ended questions which help to compute mean, standard deviation, correlation, and regression of the variable under the study.

6.4.2 Secondary data collection

Secondary data are defined as the data that have already been gathered and analyzed by some other scholars or researchers (Kothari, 2011). In this study, the secondary data that to be come from research articles, various publications, journals, books, annual reports, magazines and newspapers and success stories of construction of Norrsken House Kigali Project.

6.4.3 Data collection instruments

The study was incorporated the use of various tools in the process of data collection in a bid to come up with sound, concrete, and credible research findings. The researcher therefore amalgamated the use of questionnaire, and documentary analysis in the process of collecting primary data. Secondary data were obtained from literature review (including books, articles, and reports) as well as the project reports and documents. Given the fact that the goal of this research is to explore and evaluate the practical management of time in construction for the two construction projects, the data collection methods were used in this research is qualitative.

6.4.4 Questionnaire

A questionnaire is a pre-formulated written set of questions to which the respondents record the answers usually within rather closely delineated alternatives. A Likert scale of five responses were used. Likert scale is an interval scale that specifically uses five anchors of strongly disagrees, disagree, neutral, agree and strongly agree. The Likert scale measures the level of agreement or disagreement. Likert scales are good in measuring perception, attitude, values, and behaviour. The Likert scale has scales that assist in converting the qualitative responses into quantitative values (Mugenda & Mugenda, 2011). Open ended questions were also useful because it helped the respondents to provide their perception and opinion regarding the use of project management information system and its effect on performance of construction of road in Norrsken House Kigali Project. The questionnaire was used to collect information from 90 employees of Norrsken House Kigali Project.

6.5 Reliability and validity of the measurement instrument

This section deals with reliability and validity of the measurement instrument:

6.5.1 Validity of the measurement instrument

Cook and Campbell (2009) define validity as the "best available approximation to the truth or falsity of a given inference, proposition or conclusion. After constructing the questionnaire, the researcher contacted two research experts to determine whether questionnaire tool will be valid in a way of collecting information that was used in understanding the research problem. Hence the researcher constructed the validity of the instruments by using expert judgment method.

6.5.2 Reliability of the measurement instrument

According to Saunders *et al*, (2017), reliability refers to the consistency of measurement and is frequently assessed using the test–retest reliability method. Reliability was increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. The researcher selected a pilot group of employees giving consistent results, and it was done before actual data collection to remove bias and subjectivity on the side of researcher. The method was found to be more reliable for data collection since there was no biasness noted. The answers were submitted to a reliability analysis (with SPSS) for computation of the Cronbach's Alpha. According to Sekaran (2015) Alpha values for each variable under study should not be less than 0.7 for the statements in the instruments to be deemed reliable. The validity and reliability toward pre-test were allowed the researcher to check on whether the data that collected can easily be processed and analyzed. Any question which is found ambiguous or interpreted differently during the pre-

testing was rephrased so that it can have the same meaning to all respondents. Views that were given by the respondent's during pre-testing was analyzed through SPSS 23 rd version spread sheet and used in order to improve the In addition, validity is based on the statement that what is being studied can be measured or captured, seeks to validate the reality and truth of any result or conclusions drawn from the data, indicates that the conclusions drawn are dependable and that the methods justify the conclusions.

Validity of research instruments is established when what was targeted to be measured is carried out clearly without accidentally including additional factors. The instrument of this research was measured through the opinion of experts especially the research supervisor, who is knowledgeable and tested during the pilot study. Any ambiguity or non-clarity was cleared before the field for data collection. The validity was tested using Content Validity Index (CVI) using questionnaires before actual collection of data. The following formula was used to test validity index. The following formula was used to test validity index. According to Sekaran (2015) content validity index should not be less than 0.7.

$$\text{CVI} = \frac{\text{No. of items regarded relevant by judges}}{\text{Total No. of items}}$$

The questionnaire is supposed to be valid if calculated C.V.I is greater than 0.70. The participation of respondents is also supposed to be 100%. Reliability measures the degree of consistency and precision of the instrument under some circumstances. The same research respondents using the same instrument should generate the same results under identical conditions.

6.6 Data processing and analysis

6.6.1 Data processing

Burns and Burns (2016) point it out as a process of bringing order, structure and meaning to the mass information collected. After collecting data, the method of converting raw data into meaningful statement includes data processing. Data reduction or processing mainly involves various manipulations necessary for preparing the data for analysis.

The process (of manipulation) could be manual or electronic. Therefore editing, coding and tabulating code are the processing steps that were used to process the collected data for a better and efficient analysis. The procedures in converting raw data into information include editing, coding, data entry and data analysis. These procedures are discussed in the following sub-sections. Data collected were handled as follows:

6.6.2 Data analysis

According to Walten& Fraenkel (2001), the analysis of data allows the researcher to organize the data collected during the study to assess and evaluate the findings to arrive at some reasonable, valid and relevant conclusion. This study employed a descriptive statistical method for representing and summarizing of the bio data. This section deals with the methods of analysis that was used by researcher. The study used descriptive statistics such as mean, standard deviation and frequency to achieve the first objectives which are to examine influence of project resource planning schedule on performance of construction projects; second objective; assess influence of scheduling techniques on performance of construction projects and also it was used to achieve the third objective which is investigate influence of activity monitoring on performance of construction projects for the period under Qualitative data were analyzed using content analysis and this involved organizing data into categories, coding and sorting them to identify patterns and interpret meaning of responses. Cant *et al*., (2011) argues that this method allows researchers to categorize the information and organize them into themes and patterns for easy interpretation. On the other hand, qualitative data were presented in a narrative form and inferences drawn from it.

7.DATA ANALYSIS, INTERPRETATION AND PRESENTATION OF FINDINGS

4.1 Profile of Respondents

In this study, profile of respondents showed social demographic characteristics of respondents include gender, age, marital status, educational level, and experiences as detailed in tables.

Gender of respondents

Findings showed the gender of respondents as vital because it presents sex characteristic of respondents in this study as shown in table 7.1.

Table 7.6: Distribution of respondents by Gender

Gender	Frequency	Percent
Male	54	60
Female	36	40
Total	**90**	**100.0**

Source: *Field results (2022)*

Findings in table 7.1 show distribution of respondents by gender which present 60% respondents males or men participated in this study, while females were 40% of respondents. To having findings from both sexes help us to possess quality data of this research.

Age distribution of respondents

Findings show that majority of respondents were in range between 25-30years followed by 35-40 years as detailed below.

Table 7.7: Distribution of respondents by Ages

Ages	Frequency	Percent
25-35	61	67.8
35-45	20	22.2
45-55	7	7.7
+55	3	3.3
Total	**90**	**100.0**

Source: *Field results (2022)*

Findings in Table 7.2 show distribution of respondents by ages where majority of 67.8% respondents have age between 25-35years; 22.2% respondents have 35-45years old; 7.3% respondents have age from 45-55years while 3.3% respondents have age of 55years and above. In the construction of Norrsken House Kigali Project, they employed mature people who know management of schedules to stimulate project performance

Marital Status of Respondents

Findings in table 7.3 show marital status distribution of respondents constituted by single, married, divorced/separated, and widowers.

Table 7.8: Marital status distribution of respondents

Marital Status	Frequency	Percent
Single	22	24.4
Married	53	58.9
Divorced/separate	8	8.9
Widow (er)	7	7.8
Total	90	100.0

Source: *Field results (2022)*

Findings shown in table 7.3 presents 24.4% of respondents are married, followed by 58.9% of respondents were single; 8.9% respondents were divorced/separate with their spouses; while 8.3% involved in this study were Widow (er) in construction of Norrsken House Kigali Project.

Highest Educational level of Respondents

Findings in table 7.4 show educational level of respondents selected from employees worked in the construction of Norrsken House Kigali Project.

Table 7.9: Educational level of respondents

Education background	Frequency	Percent
Secondary level	39	43.3
Diploma	28	31.1
Bachelor degree	17	18.9
Master's degree	6	6.7
Total	90	100.0

Source: *Field results (2022)*

The above table 7.4 shows that education background of respondent majority of 43.3% respondents have secondary level, followed by 31.1% respondents who have diploma, and 18.9% respondents have a bachelor degree while 6.7% have a Master's degree. This is clearly that in the construction project of Norrsken House Kigali Project the employee were evenly qualified.

Experience of respondents in the construction projects.

Findings indicated experience distribution of respondents in the construction Project as shown in table

Table 7.10: Experience distribution of respondents

	Experience of respondents	Frequency	Percent
	≤ 1year	7	7.8
	2-4years	28	31.1
Valid	5-7years	49	54.4
	8years and above	6	6.7
	Total	90	100.0

Source: *Field results (2022)*

Findings in table 7.5 present experience of respondents in construction project; majority of 54.4% of respondents have experience between 5-7years in construction projects ; followed by those 31.1% respondents who have 2-4years of experience; while 6.7 % respondents have experiences of 8years and above in construction projects. This is an indicator of how experienced employees performed well the construction of Norrsken House Kigali Project.

7.1.2 Descriptive statistics results indicated achievements of research objectives

Findings in this section show perception of respondents the influence of activity planning on performance of construction projects; influence of activity resourcing on the performance of construction projects; influence of activity monitoring on performance of construction projects; influence of activity control on performance of construction projects; and the influence of schedule techniques on performance of Norrsken House Kigali Project.

7.2 To examine effect of resource scheduling on project performance

This section presents the findings on the effect of resource scheduling on project performance

Table: 7.6 Views on the effect of resource scheduling on project performance

Statements	SD		D		N		A		SA	
	Fi	%	Fi	%	fi	%	fi	%	fi	%
Activities are clearly defined to ensure project performance	0	0.0	0	0.0	0	0.0	5	6	85	94
Milestones are well defined and flexible for unexpected circumstances	0	0	4	5	3	3	15	16	68	76
Estimating inventory has an effect on project planning	0	0	3	3	2	2	17	19	68	76

Source: Primary data, 2022

The findings indicated that 0.0% of respondents strongly disagreed, 0.0% of respondents disagreed and 0.0% of respondents were neutral while 6% of respondents agreed and the majority 94% of respondents strongly agreed that Activities are clearly defined to ensure project performance

The findings indicated that 0% of respondents strongly disagreed, 3% of respondents disagreed and 5% of respondents were neutral while 19% of respondents agreed and the majority 76% of respondents strongly agreed that Milestones are well defined and flexible for unexpected circumstances

The findings indicated that 0% of respondents strongly disagreed, 3% of respondents disagreed and 3% of respondents were neutral while 19% of respondents agreed and the majority 76% of respondents strongly agreed that Estimating inventory has an effect on project planning

The performance of any project depends on the achievement of certain critical success factors. The accomplishment of the key project deliverables within the specified time frame can be seen as a key indicator for the success of the project. However, this is not the only way in which project managers can be able to measure project success (Lester, 2007). Project success is dependent on key factors within the environment that directly impact on the project. It is possible that the project manager might have set key performance indicators to measure the success of the project and by the end of the project; these might not have been achieved upon time scheduling.

7.3 To examine Effect of Duration Establishment on project performance.

This section shows the point of views on the influence of project financing on performance of power transmission in Rwanda.

Table: 7.7 Views on the effect of Duration Establishment on project performance.

Statements	SD		D		N		A		SA	
	Fi	%	Fi	%	fi	%	fi	%	fi	%
Project time estimation is well estimated by project management	0	0.0	0	0.0	0	0.0	5	6	85	94
Dependencies in project schedule are well arranged and clearly defined in the project plan	0	0	4	4	3	3	15	16	68	76
The sequence of activities in the schedule are very well defined and respected during schedule performance	1	1	3	3	2	2	17	19	67	74

Source: Primary data, 2022

The findings indicated that 0.0% of respondents strongly disagreed, 0.0% of respondents disagreed and 0.0% of respondents were neutral while 5% of respondents agreed and the majority 95% of respondents strongly agreed that Project time estimation is well estimated by project management.

The findings indicated that 0% of respondents strongly disagreed, 4% of respondents disagreed and 3% of respondents were neutral while 16% of respondents agreed and the majority 76% of respondents strongly agreed that the sequence of activities in the schedule are very well defined and respected during schedule performance.

The findings indicated that 1% of respondents strongly disagreed, 3% of respondents disagreed and 2% of respondents were neutral while 19% of respondents agreed and the majority 74% of respondents strongly agreed that The sequence of activities in the schedule are very well defined and respected during schedule performance.

For project performance of the project product, the project manager should effectively estimate costs, track expenditure over time and adequately react to situations when the financial resources are over-spent or under-spent, or there are opportunities for savings in the project budget.

Through the interview conducted with the project manager of this project said that the sequence of activities in the schedule are very well defined and respected during schedule performance and this is definitely affecting project on way aother

7.4 To examine the effect of scheduling execution on project performance

Table 7.8 Views on the effect of scheduling on project performance.

Statements	**SD**		**D**		**N**		**A**		**SA**	
	Fi	**%**	**Fi**	**%**	**fi**	**%**	**fi**	**%**	**fi**	**%**
Delivery time is very well monitored by respecting planned schedule	0	0.0	4	4	9	10	27	30	50	56
Lead and Lags are very well managed to ensure balance of schedule	0	0	2	4	3	3	18	20	67	73
Delays are considered and given attention to reduce effect of missing delivery time	1	1	3	3	2	2	17	19	67	73

Source: Primary data, 2022

The findings indicated that 0.0% of respondents strongly disagreed, 4% of respondents disagreed and 10.0% of respondents were neutral while 30% of respondents agreed and 56% of respondents strongly agreed that delivery time is very well monitored by respecting planned schedule.

The findings indicated that 0% of respondents strongly disagreed, 4% of respondents disagreed and 3% of respondents were neutral while 20% of respondents agreed and the majority 73% of respondents strongly agreed that Lead and Lags are very well managed to ensure balance of schedule

The findings indicated that 1% of respondents strongly disagreed, 3% of respondents disagreed and 2% of respondents were neutral while 19% of respondents agreed and the majority 73% of respondents strongly agreed that delays are considered and given attention to reduce effect of missing delivery time

Table 7.9: The table that shows correlations between Effect of schedule management on project performance in construction project

Correlation analysis

[Dataset1] C: \Program file/IBM/SPSS/Statistics/English

		Schedule management	Project performance
Schedule management	Pearson correlation	1.00	.76521**
	Sig (2-tailed)	.	.000
	N	90	90
Project performance	Pearson correlation	.76521	1.00
	Sig (2-tailed)	.000	.

	N	90	90

(Source: Author's calculations,2022)

**. Correlation is significant at the 0.01 level (2-detailed)

From the table 7.9, findings show a strong significant positive relationship between the variables (r=0.76521**, p>0.01) which presupposes that if the schedule management was maintained properly, the project performance would be increased by 76.52%. Therefore 23.48% is the gap that needs to be filled by performance and this is majorly due to short falls of schedule management practices in the project performance. This has been linked to the benefits of schedule management while maintaining the benefits of project performance available anytime to aid management make decisions (Lancouch 2003). Therefore, there existed a positive correlation between schedule management and project performance.

7.5 Inferential Statistics

Further the study carried out inferential statistics to examine the model as conceptualized in literature review. Correlation analysis was used to show the strength of the relationship between dependent and independent variables while regression analysis was used to confirm or reject hypothesis of this research study. In addition, correlation analysis was used as a multicollinearity test whereby if two independent variables had correlation coefficient of + or – 0.7, then multicollinearity was a problem.

7.5.1. Correlation analysis

Table 7.10 Summary of Correlation

[Dataset1] C: \Program file/IBM/SPSS/Statistics/English

Pearson correlation	Y	X1	X2	X3
Project performance Y	1	0.3825**	0.3642**	0.5542**
		0.00	0.000	0.000
	90	90	90	90
Resource Scheduling X1	0.3825**	1	0.1425*	0.3792*
	0.000		0.000	0.000
	90	90	90	90
Duration establishiment X2	0.3642**	0.23510**	1	0.43604**
	0.000	0.000		0.000
	90	0.0426**	90	90
Scheduling Execution X3	0.5542**	-0.0563**	0.2637*	1
	0.000	0.000	0.000	
	90	90	90	90

(Source: Author's calculations,2022)

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Key 1: Project performance

Key 2- resource scheduling

Key 3- duration establishment

Key 4- scheduling execution

Results in Table 7.10 revealed that there was a positive between resource scheduling and project performance this was explained by the value of 0.3825 at the probability value less than 0.05, this implies that a unit increase of resource scheduling of 38.25% on project performance.

Secondly, there was a positive significant relationship between duration establishment and project performance, this was explained by the correlation analysis of 0.3642 and the probability of less than 0.05. This implies that a unit increase in duration establishment increases project performance 36.42%.

Thirdly, there was a positive and significant relationship between scheduling and project performance, this was explained by the correlation analysis of 0.5542 and the probability value less than 0.05. This implies a unit of scheduling increase the project performance by 55.42%.

7.6 Regression analysis

Regression analysis was employed to investigate the relationship between the variables. These included an error term, whereby the dependent variable was expressed with a combination of independent variables. The regression model was therefore used to describe how the mean of the dependent variable changes with the changing conditions which confirm or reject the hypothesis of this research dissertation.

$Yi = \alpha + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \acute{\varepsilon}$

Where:

Yi= Project performance

β = regression coefficient (parameter of the function)

X_1= resource scheduling

X_2= duration establishment

X_3= scheduling execution

έ representing the error term

7.7 Strength of the model

Table 7.11: Model Summary

[Dataset1] C: \Program file/IBM/SPSS/Statistics/English

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.79248a	0.6280	0.604	0.86281

Source:(Author's calculations,2022)

a Predictors: (Constant), resource scheduling, duration establishment, scheduling execution

The model summary Table 7.11 shows the coefficient of determination which shows the model explanatory power. An R squared of 0.628 shows that 62.8% of the changes in project performance can be jointly explained by resource scheduling, duration establishment, scheduling execution and 37.2% were explained by other factors that were no mentioned in the model.

7.8 ANOVA

Table 7.12ANOVA

[Dataset1] C: \Program file/IBM/SPSS/Statistics/English

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.248	3	6.75	8.78	.000[a]
	Residual	66.141	86	.7691		
	Total	86.389	89			

a. Predictors: ((Constant), resource sheduling, duration establishment, scheduling execution

b. Dependent Variable: Project performance

Source:(Author's calculations,2022)

Results in Table 7.12 show that resource schedule, duration establishment, scheduling execution (F=8.78, p value =0.000) showed that there was a significant relationship between resource scheduling, duration establishment, scheduling execution since the slope is not zero.

Table 7.13: Coefficients of multiple regression analysis

[Dataset1] C: \Program file/IBM/SPSS/Statistics/English

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.0644	0.0227	0.0469	2.84	0.014
Resource scheduling	0.36569	0.1340	0.03595	2.73	0.018
Duration establishment	0.21824	0.0730	0.03725	2.99	0.013
Scheduling execution	0.12171	0.0395	0.0849	3.08	0.000
a. Dependent Variable: Project performance					

Source:(Author's calculations,2022)

Dependent Variable: project performance

The established multiple linear regression equation was:

$Yi = 0.0644 + 0.36569(X1) + 0.21824(X2) + 0.12171(X3) + ε$

Using the hypothesis testing:

The first question to be answered is that resource scheduling has a statistical significance project performance. To test this regression analysis carried out, Results in Table 7.13 showed that there is a positive and significant relationship between resource scheduling and project performance, this was explained by the values of $\beta_1 = 0.36569$, t= 2.73, and the probability value=0.018 of less than 0.05. Since f calculated is below p value this implies that that resource scheduling has a statistical significance on project performance, and this implies that a unit change resource scheduling increases project performance by 0.36569 units. It thus, implies that resource scheduling has a positive significant effect on project performance since the coefficient is positive.

The second question answered is that duration establishment has a statistical significance project performance. Regression analysis showed that there is a positive and significant relationship between duration establishment and project performance, this was explained by the values of β_2= 0.21824, t= 2.99 and the probability value of less than 0.05. Since p-value=0.013 is below to 0.05 Hence. This conform that that duration establishment has a statistical significance on project performance. This implies that a unit change in duration establishment increases project performance by 0.21824units. It implies that duration establishment has a positive significant effect project performance since the coefficient is positive.

The third question answered is that scheduling execution has a statistical significance on project performance. To achieve this, regression analysis was carried, and the results showed that there is a positive and significant relationship between Scheduling execution and project performance, this was explained by the values of $\beta_3 = 0.12171$, t= 3.08, and the probability values of less than 0.05. Since p-value calculated =0.000 is less than 0.05 this confirm that that Scheduling execution has a statistical significance on project performance. This implies that a unit change in Scheduling execution increases project performance by 0.12171 units. It implies that scheduling execution has positive effect on project performance since the coefficient is positive.

8.DISCUSION, RECOMMENDATIONS AND CONCLUSION

8.1 Summary of findings

The general objective of this dissertation was to assess the schedule management and projects performance using a case of Norrsken House Kigali Project. Below are the summaries of findings based on the stated objectives

1.Objective one and research question one: Examine the effect of resource scheduling on project performance

The first question to be answered is that resource scheduling has a statistical significance project performance. To test this regression analysis carried out, Results in Table 4.8 showed that there is a positive and significant relationship between resource scheduling and project performance, this was explained by the values of $\beta_1 = 0.36569$, t= 2.73, and the probability value=0.018 of less than 0.05. Since f calculated is below p value this implies that that resource scheduling has a statistical significance on project performance, and this implies that a unit change resource scheduling increases project performance by 0.36569 units.

2. Objective two and research question two: Examine the effect of duration establishment on project performance

The second question answered is that duration establishment has a statistical significance project performance. Regression analysis showed that there is a positive and significant relationship between duration establishment and project performance, this was explained by the values of β_2= 0.21824, t= 2.99 and the probability value of less than 0.05. Since p-value=0.013 is below to 0.05 Hence. This conform that that duration establishment has a statistical significance on project performance. This implies that a unit change in duration establishment increases project performance by 0.21824units

3. Objective three: The effect of scheduling execution on project performance

The third question answered is that scheduling execution has a statistical significance on project performance. To achieve this, regression analysis was carried, and the results showed that there is a positive and significant relationship between Scheduling execution and project performance, this was explained by the values of β_3 = 0.12171, t= 3.08, and the probability values of less than 0.05. Since p-value calculated =0.000 is less than 0.05 this confirm that that Scheduling execution has a statistical significance on project performance. This implies that a unit change in Scheduling execution increases project performance by 0.12171 units.

8.2 Conclusion

The research paper concluded that schedule management had significant influence on project performance. This was explained by the data findings where it showed a positive and significant relationship between dependent and independent variables. Therefore, as explained earlier, resource scheduling had significant effect on project performance, this was explained by the value of 0.36569 at the probability value less than 0.05.

Secondly, there was a positive significant relationship between duration establishment and project performance, this was explained by the correlation analysis of 0.21824 and the probability of less than 0.05.

Thirdly, there was a positive and significant relationship between schedule execution and project performance, this was explained by the correlation analysis of 0.12171 and the probability value less than 0.05. Thus, there was a project financing on project performance based on the result findings.

8.3Recommendations

During the study, several inefficiencies were identified that could handicap the smooth running of the schedule management on project performance. Hence the study recommended the following:

1 General recommendation

The findings revealed that if schedule management was maintained properly, the performance would be increased by 76.52%. Therefore, through the management, 23.48% was considered as the gap that needs to be filled by performance and this was majorly due to short falls of the schedule management practices in the project performance. This was linked to the benefits of schedule management while maintaining the benefits of project performance available anytime to aid management make decisions (Lancouch 2003). Therefore, there existed a positive correlation between schedule management and its performance in Rwanda.

1.Objective one: Examine effect of resource scheduling on the project performance of Norrsken House Kigali Project

Results revealed that there was a positive between resource scheduling and project performance this was explained by the value of 0.3825 at the probability value less than 0.05, this implies that a unit increase of resource scheduling of 39.825% on project performance. Thus, the management should focus on more on resource to make the project performed such defining activities, milestones and estimating inventory to ensure there is project performance. Thus, resource scheduling could alter project performance. Thus, These findings are in line with the study objective (#1) which is to examine effect of resource scheduling on the project performance of Norrsken House Kigali Project , this was backed by Obegi & Kimutai (2017) assessed the resource scheduling and project performance of 8 international not-for-profit organizations in Nairobi City County using correlation analysis, Kenya, where there was a significant relationship between resource scheduling and project performance

2. Objective two: Examine the effect of duration establishment on project performance of Norrsken House Kigali Project

There was a positive significant relationship between duration establishment and project performance, this was explained by the correlation analysis of 0.3642 and the probability of less than 0.05. This implies that a unit increase in duration establishment increases project performance 36.42%. The management team should target duration establishment such as time estimation ,sequencing activities,. As a result, those elements might be able to significantly improve the projects performance in construction of Norrsken House Kigali Project. These findings are in line with the study objective (#2) which is to the effect of duration establishment on project performance of Norrsken House Kigali Project , this was also backed by Romel et al, (2018) Stated that project execution is one of the most critical factors of project success.

3. Objective three: The effect of scheduling execution on project performance

There was a positive and significant relationship between scheduling execution and project performance, this was explained by the correlation analysis of 0.5542 and the probability value less than 0.05. This implies a unit of scheduling execution increase the project performance by 55.42%. The management should take into consideration scheduling execution the project performance in Rwanda. The findings' outcomes. These findings suggest that, once respected, management of these approaches can have a considerable impact on the success of project performance.These findings are in line with the study objective **(#3)** which is to examine the effect of scheduling execution on project performance , this was backed by Hwang et al. (2013) studied critical factors affecting scheduling execution on public construction projects who said that as well as inadequate scheduling execution in the project performance also has a negative impact on project performance.

REFERENCES

Ahsan, K., & Gunawan, I. (2015). Analysis of cost and schedule performance of international development projects. *International Journal of Project Management*. 28(1), 68-78.

Al-Marri , S. H (2019).Effective time management and organisational performance: a case study of Qatar non-governmental organisatons (NGOs)(Unpublished thesis of degree of Doctor of Philosophy). *Cardiff Metropolitan University, Cardiff city.*

Arasa R & Kioko M. (2013), An examination of the NGO sector competitive environment in Kenya. *International Journal of Science and Research (IJSR), 2(5),21-43.*

Arditi, J. (2014). Building theories of project management: Past research, questions for the future. *International Journal of Project Management, 22(3), 183-191.*

Asango, O. T.(2017).The role of time management strategies on organizational performance: case study of Kenya Red Cross, Kisii County. (*unpublished of Diploma in Human Resource Management).KISII University, Nairobi, Kenya.*

Asimah, E.D., Yusheng, K.& Nyarko, F.K. (2018).The Effect of Time Management on Productivity in Financial Institutions: A Case Study of Ghana Commercial Bank, Hohoe. *International Journal of Management Sciences and Business Research, 7(2),83-107*

Association for Project Management (2012). APM Body of Knowledge - 6th edition. *Association for Project Management: Buckinghamshire, UK.*

Atkinson, R. (2016). Project management: Cost, time and quality, two best guesses and a phenomenon; It's time to accept other success criteria. *International Journal of Project Management, 17(6), 337-342.*

Babalola; et al. (2015).*Factors influencing the performance of construction projects in Akure, Nigeria*

Baker, B. N., Murphy, D. C., & Fisher, D. (2013). Factors affecting project success. In D. I. Cleland, & R. W. King (Eds.), Project management handbook (pp. 669-685). *New York: Van Nostrand Reinhold.:*

Baldwin, A. & Bordoli, D., (2014). *A Handbook for Construction Planning and Scheduling. 1st ed.*

Belassi, W., & Tukel, O. I. (2016). A new framework for determining success/failure factors in projects. *International Journal of Project Management, 14(3), 141-151.*

Belout, A. (2018). Effects of HRM on project effectiveness and success: Toward a new conceptual framework. *International Journal of Project Management, 16(1), 21-26.*

Braimah, N., 2013. Construction delay analysis techniques: A review of application issues and improvement needs. *International Journal of Management Sciences and Business Research, 7(3), 506-531.*

Buckle, P., & Thomas, J. (2014). Deconstructing project management: A gender analysis of project management guidelines. *International Journal of Project Management, 21(6), 433-441.*

Burns, R.B. and Burns, R.A. (2016), Business Research Methods and Statistics using SPSS. *New Delhi: SAGE Publications Ltd.*

Cant, C., Gerber-Nel, D., Nel, M and Kotze, T. (2011). Marketing Research.Claremont*: New Africa Education.*

Chapman, R. J. (2018). The role of system dynamics in understanding the impact of changes to key project personnel on design production within construction projects. *International Journal of Project Management, 16(4), 235-247.*

Chen, T.T., (2017). Critical success factors for construction partnering in Taiwan. *International Journal o f Project Management, 25 (5), 475—484.*

Chin, L. S. & Hamid, A. R. A., (2015). *The practice of time management on construction project. Aalborg, Denmark, Elsevier Ltd.*

Churchill, G. A. and Brown, T.J. (2016). Basic Marketing Research/ Ohio: *Thompson Corporation.*

Clarke, A. (2009). A practical use of key success factors to improve the effectiveness of project management. *International Journal of Project Management, 17(3), 139-145.*

Cooper, D. R., & Schindler, P. S. (2017). Business research methods.(9th Ed). *New Delhi, India: McGraw-Hill Publishing, Co. Ltd.*

De Furia, L.G. (2016). *Project Management Recipes for Success. New York: CRC Press.*

Frame, J. D. (2019). Project management competence: *Building key skills for individuals, teams and organisations. San Francisco: Jossey-Bass.*

Helmuth, U. (2011), *The impact of performance budgeting on public management, University of St.*

Hodgson, D. E. & Cicmil, S. (2015). *The case of project management. Journal of Management Studies, 39(6) 803-21.*

Keane, J. & Caletka, T. (2016). *Delay Analysis in Construction Contracts. s.l.:John Wiley & Sons.*

Kerzner, H., (2009). *A Systems Approach to Planning, Scheduling and Controlling. s.l.:John Wiley & Sons, Inc.,.*

Koskela, L., & Howell, G. (2002). The underlying theory of project management is obsolete. Proceedings of PMI Research Conference 2002 (pp. 293-301). *Newtown Square, PA: Project Management Institute.*

Kombo, K. D., & Tromp, L. D. (2015). Proposal and writing: *An introduction. Nairobi: Paulines Publications Africa.*

Kothari, C. R. (2011). Research methodology: Methods & techniques. New Delhi*: New Age International Limited Publishers.*

Kreiner, K. (2015). In search of relevance: *Project management in drifting environments. Scandinavian Journal of Management, 11(4), 335-346.*

Lok, S. and Rahim, D. (2015). The practice of time management on construction project. *The 5th International Conference of Euro Asia Civil Engineering Forum (EACEF-5)*

Memon, A. H., Rahman, I. A., Ismail, I. & Zainun, N. Y., (2014). *Time Management Practices in Large Construction Projects. s.l., s.n.*

Meredith, J. R., & Mantel, S. L. (2014). Project management A managerial approach (5th ed.). *New York: John Wiley & Sons.*

Metcalfe, B. (2017). Project management system design: A social and organisational analysis. *International Journal of Production Economics, 52(3) 305-316.*

Mir, F. A., & Pinnington, A. H. (2014).Exploring the value of project management: linking project management performance and project success. *International journal of project management, 32(2), 202 - 217.*

Morris, P. W. G. (2016). Science, objective knowledge and the theory of project management. *Proceedings of the Institute of Civil Engineering, 150, 82–90.*

Mubarak, S., (2015). Construction Project Scheduling and Control. 3 ed. Hoboken, New Jersey: *John Wiley & Sons, Inc..*

Mugenda, O., Mugenda, A. (2011). Research Methods: Quantitative and qualitative approaches .Nairobi: *African center for technology studies.*

Nabil, E. S. & Adnan, E., (2015). Application of Project Time Management Tools and Techniques to the Construction Industry in the Gaza Strip. *The Australian Journal of Construction Economics and Building, 5(1).126-146.*

Ngechu M (2016). Understanding the Research Process and Methods: *An Introduction to Research Methods Nairobi, Acts Press.*

Romel, T(2015).*The Use of Project Time Management Processes and the Schedule Performance of Construction Projects in Mexico.*

Romel ,G. S.C& Gilberto, A. C. S.(2018).Project Time Management and Schedule Performance in Mexican Construction Projects . *Review of International Comparative Management, 11 (1), 43-51.*

Rwanda National Construction Industry Policy (2009). Kigali Rwanda

Obegi, D. O. & Kimutai, G. J. (2017). Resource scheduling and project performance of international not-for-profit organizations in Nairobi City County, Kenya. *International Academic Journal of Information Sciences and Project Management, 2(2), 199-217*

Orodho, A., J (2014). *Essentials of Educational and Social Science Research Methods. Nairobi: Mazola Publishers.*

PMI (2013). A Guide to the Project Management Body of Knowledge (PMBOK Guide) Fifth edition. *Project Management Institute: Philadelphia, PA, USA.*

Rahrovani,A., Stallworthy, E. A., & Kharbanda, O. P. (2014). *International construction and the role of project management, Aldershot, UK: Gower.*

Salunkhe, T. (2018). Effect of construction delays on project time overrun. *International Journal of Research in Engineering and Technology eISSN:*

Saunders, M. Lewis, P. & Tronhill, A. (2017), *Research Methods for Business Students, (3rd Edition), England: Prentice-Hall.*

Sekaran, U. (2015). Research methods for business: *A skill building approach (4th edition). New Delhi: John and Sons, Inc.*

Shamp, P.(2017).Scheduling Strategies for Construction Project Managers Toward On Time Delivery(Unpunished thesis of Doctoral of Business Administration). *Walden University, Minnesota, USA.*

Singh R. (2009). Cost and Time Overruns in Infrastructure Projects: *Extent, Causes and Remedies. Working Paper No. 181, Department of Economics, University of Delhi, Nueva Deli, 5-10.*

Solís, R. Martínez G., and González J. (2009). Case Study of Construction Delays in a Mexican Project" (Original title in Spanish: Estudio de Caso: Demoras en la construcción de un Proyecto en México. *Ingeniería, Revista Académica de la FIUADY, 13 (1), 41-48.*

Solís-Carcaño, R. G., Corona-Suárez, G. A. & García-Ibarra, A. J., (2015). The Use of Project Time Management Processes and the Schedule Performance of Construction Projects in Mexico. *Journal of Construction Engineering, 3(5),32-45.*

Thomas, J. (2014). Problematizing project management. Paper presented to Making Projects Critical *Workshop, Bristol Business School, UWE, Bristol, UK*

Vidhyasri, R. (2017).International Journal of Civil Engineering and Technology (IJCIET) Volume 8, *Issue 3, March 2017, pp. 146–157 Article ID: IJCIET_08_03_015.*

Walta, H. (2015). Dutch project management body of knowledge policy. *International Journal of Project Management, 13(2), 101-108.*

Walten, N.E., & Fraenkel, J.R. (2001).Educational Research :*A Guide To The Process.2nd ed. New Jersey: Lawrence Erlbaum Associates.*

Wideman, R. M. (2015). Criteria for a project management body of knowledge. *International Journal of Project Management, 13(2), 71-75*

Wiig, K. M. (2017). Knowledge management: *An introduction and perspective. Journal of Knowledge Management 1(1) 6-14.*

Xiaoqian, N. (2004). *The Influence of Schedule Target on Project Performance*

Yegetahun, A.(2018). *The practice of time management in construction projects: case study of Bole*-Lemi Phase Ii And Kilinto Industrial Park Construction Projects(Unpublished thesis of Master of Arts in Project Management). *Addis Abeba University, Addis Abeba.*

Young, T. (2014). The handbook of project management A practical guide of effective policies and procedures. *London: Kogan Page.*

Zikmund,G. (2015). Research in social work:A primer,first edition. USA: *Peacork Publishing House,Inc.*

APPENDICES

Appendix I: Questionnaire addressed to employees of construction project

Dear Respondent,

My name is NEMEYE LISA; I am conducting academic researcher paper on *"***The effect of schedule management on project performance in construction projects in Rwanda**" as a partial fulfillment of the requirement for the award of a Master of Business Administration / Project Management. I kindly request your assistance by availing time to respond to the questionnaire. A copy of the final report will be made available to you at your request, the information given will be treated with high confidentiality.

Section A: Profile of respondents

SN	Answer
1.Gender	Male ☐ Female ☐
1.Age	Record actual age in complete years, e.g. 24, 39 .....years
3. Educational Background	1: Secondary level ☐ 2: Diploma ☐ 3: Bachelor's degree ☐ 4: Master's degree ☐
4. Working experience	Record actual number of years. E.g. 5, 9 .....

Section B: Effect of resource scheduling on project performance.

5. Indicate to which extent you disagree or agree with the following statements using the following 1-5 extent scale in the below table. 1. Strongly agree, 2 agree, 3 neutral, 4 disagree and 5 strongly disagree

Statements	**SA**	**A**	**N**	**D**	**SD**
Activities are clearly defined to ensure project performance					
Milestones are well defined and flexible for unexpected circumstances					
Estimating inventory has an effect on project planning					

Section C: Effect of Duration Establishment on project performance.

5. Indicate to which extent you disagree or agree with the following statements using the following 1-5 extent scale in the below table. 1 Strongly agree, 2 agree, 3 neutral, 4 disagree and 5 strongly disagree

Statements	**SA**	**A**	**N**	**D**	**SD**
Project time estimation is well estimated by project management					
Dependencies in project schedule are well arranged and clearly defined in the project plan					
The sequence of activities in the schedule are very well defined and respected during schedule performance					

© GSJ

Section D: Effect of Scheduling Execution on project performance

Indicate to which extent you disagree or agree with the following statements using the following 1-5 extent scale in the below table. 1. Strongly agree, 2 agree, 3 neutral, 4 disagree and 5 strongly disagree

Statements	**SA**	**A**	**N**	**D**	**SD**
Delivery time is very well monitored by respecting planned schedule					
Lead and Lags are very well managed to ensure balance of schedule					
Delays are considered and given attention to reduce effect of missing delivery time					

© GSJ