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PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF MANUFACTURING COMPANIES IN RWANDA: A CASE OF SULFO RWANDA INDUSTRIES LTD

By

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD IN MASTER OF SCIENCE PROJECT MANAGEMENT SUBMITTED TO SCHOOL/FACULTY OF PROJECT MANAGEMENT, UNIVERSITY OF KIGALI.

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DECLARATION

This research is my original work and has not been presented to any other institution. No part of this research should be reproduced without the author's consent or that of University of Kigali.

Student names: **Mrs. DIANE MUHOZA**

Signature …….. Date……

This research Project has been submitted with our approval as the University of Kigali supervisor.

APPROVAL

This is to approve that the dissertation done under my supervision and guidance.

Declaration by the supervisor

This research has been submitted with our approval as The University of Kigali

Supervisor: Dr. KWENA Ronald**……**

Sign_____ Date_____

DEDICATION

To:

My Husband

My Family

Fellow students and lecturers of UOK

And all those who assisted me during this research project

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I thank the almighty God who is always protecting me since the day I was born and enabled me go all the way through my studies and project successfully. God! I owe you great appreciation.

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Mrs. DIANE MUHOZA

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LIST OF ABBREVIATIONS AND ACRONYMS

ARPU: Average Revenue Per User

CEO: Chief government Officers

CF: Common Fund

KPI: Key Performance Indicators

PM: Project Management

PMBOK: Project Management Body of Knowledge

PMI: Project Management Institute

PMP: Project Management

SIF: organization: and Social Investment Fund

UOK: University Of Kigali

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ABSTRACT

The study entitled ***Project management practices and performance of manufacturing companies in Rwanda: a case of Sulfo Rwanda Industries Ltd .*** *The general objective of the study was to evaluate the effect of project management practices on the performance of manufacturing companies in Rwanda, mainly Sulfo Rwanda Industries Ltd. The specific objectives of the research are; to determine effect of project management practices on ROA of Sulfo Rwanda Industries Ltd; to examine effect of project management practices on ROE of Sulfo Rwanda Industries Ltd; to examine the effect of project management practices on NPM of Sulfo Rwanda Industries Ltd and to find out the effect of project management practices on sales of Sulfo Rwanda Industries Ltd. The study is guided by three main theories namely; Systems Theory; Prospect Theory and Theory of Constraints.* The study used survey research design such as descriptive research design and explanatory survey research. *The target population is 101 respondents of Sulfo Rwanda Industries Ltd . In order to collect, present, analyze and interpret data the researcher used questionnaires and finally the study used descriptive statistics and inferential statistics such as multiple linear regression model. Based on the findings, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to 60.84% of the ROA of Sulfo Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%. Based on the findings, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to 53.3% of variances in ROE of Sulfo Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%. Based on the findings, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to nearly 57.1% of the total variations of NPM of Sulfo Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%. Based on the findings, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to nearly explain 63.7% of the variations in the sales of Sulfo-Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%. The study recommends that management of Sulfo-Rwanda Industries Ltd and policy makers should develop measures to foster utilization of project risk identification practices to achieve significant road construction project performance.*

CHAPTER ONE
INTRODUCTION TO THE STUDY

This chapter covers the background to the study, the problem statement, the general and specific objectives, the research questions and the significance of the study and the scope of the study

1.1. Background to the study

As businesses explore new and higher means for achieving competitive advantage, the capability of each useful space to boost structure performance is beneath scrutiny. Today's very small and medium size organizations manage comes at intervals more and more complicated environments. New development, outsourcing and policy implementation, additionally to ancient, but vital, system development and implementation, area unit amongst the plan project initiatives organization should manage (Karim, 2012).

Project management practices are those fundamental issues inherent in the project, which must be maintained for an efficient and effective implementation of the project (Dissanayaka & Kumaraswamy, 2013). According to Ohara (2015) project management is articulated as a professional's capability to deliver, with due diligence, a project product that fulfils a given mission, by organizing a dedicated project team, effectively combining the most appropriate technical and managerial methods and techniques and devising the most efficient and effective breakdown and implementation routes.

Similarly, Mourshed, Chijioke and Barber (2010) report demonstrated that 58% of 1400 worldwide officials gave priority to strong discipline in project management for future development. Stakeholders are people or firms, such as proprietors, sponsors, organizations that perform, or the general population, who are effectively engaged with the project or whose interests might be emphatically or adversely influenced by the project implementation success. As characterized by Freeman (2015) involvement of stakeholders alludes to joining the interests of proprietors, sponsors, organizations that perform, or the general population, who are effectively engaged with the project or whose interests might be emphatically or contrarily influenced by the project implementation or success. It's key to get the Buy in, sustainability and projects' impact.

The link between projects and innovation is thus brought to the fore by the study of Japanese firms which, during the 1980's, were increasingly successful on the US and European markets. This resulted to strong influence over the project management practices of European and US finns thus constituted to a model o f "best practices" which rapidly became synonymous with efficiency in project and innovation management. (Clark & Fujimoto, 1980)

Performance of projects in USA is undertaken through management practices carried out by various project managers daily. Specific project objectives are set to be achieved at the end of the project. The objectives may vary from one project to the other. Time, cost and quality objectives are however basic and common to almost all projects; they are discussed in the success subject matter of most projects (Belassi &Tukel, 2018). In order to achieve set project objectives, specific Project Management (PM) practices are carried out daily by project managers. It has been argued that the PM practices may vary from organization to organization. Other project managers however argue that since professional practice within the construction industry is required to follow set down guidelines and ethics, PM practices may not necessarily vary from organization to organization; the purpose of adopting a particular practice may therefore be due to peculiar environmental and social demands of the project at hand. Highly satisfactory performance cannot be compromised on and so is the need for optimum practices (Belassi &Tukel, 2018).

In European countries, the factors that affect the individual set project objectives are the ones that confront or promote the project success, outcome or performance. Although project performance is influenced by several factors (Blismas *et al*., 2004), this study focuses on the relationship that exists between PM practices and project performance. Performance of a project Therefore, needs to be measured to pave way for knowing the optimum practices among the lot. During this regard, execution of comes in business enterprises area unit undertaken through num erous project management practices disbursed by numerous project managers daily. (Belassi and Tukel, 2015). Project management practices area unit tried and tested processes collected from experiences and lessons learned and are recurrent and improved to provide consistent outcomes and that they area unit documented as examples, baselines and measures (Karim, 2012).

In Asia, as businesses search for new and better means of achieving competitive advantage, the capacity of every functional area to improve organizational performance is under scrutiny. Today's small and medium size organizations manage projects within increasingly complex environments. New product development, outsourcing and policy implementation, in addition to traditional, but vital, system development and implementation, are amongst the current key project initiatives organizations must manage. In this regard, execution of projects in manufacturing companies 's are undertaken through various project management practices carried out by various project managers daily. Specific project objectives are set to be achieved at the end of the business project. The ability to successfully execute these projects is what drives the realization of intended benefits and the achievement of organizational performance. Organizations that execute projects successfully employ effective project management practices as a tool to achieve business objectives. Given the strategic impact that projects have on a business, organizations must follow effective project management practices that measure progress and risks and ensure the right projects can be delivered in alignment with organizational priorities in order to realize improved organizational performance (Meredith, 2012).

Research on practice of Project Management by Frimpong et al. (2013) in Ghana, on the project management practice in Africa have revealed the causes of overruns for delay and cost in Nigerian construction projects. Studies by Ika et al. (2014) acknowledged the communication role in success of African projects. We are all aware of the issues on management of African project, because number of factors such as Corruption, bad government and inadequate capacity for (project) administration have been described as silent murders of African ventures and development (Collier, 2015; Moyo, 2017).

In African countries like in Kenya, PM organizations in the direction of their having a set of personnel involved in the management of projects. In the past organizations were practicing project management practices and still lost revenue due to inefficiency of production of their products and services hence the need to introduce and embrace Project Management Best Practices(Miles & Huberman, 2015).

In Rwanda, in order to achieve set project objectives, specific Project Management (PM) practices are carried out daily by project managers. It has been argued that the PM practices may vary from organization to organization. Other project managers however argue that since professional practice within the construction industry is required to follow set down guidelines and ethics, PM practices may not necessarily vary from organization to organization; the purpose of adopting a particular practice may therefore be due to peculiar environmental and social demands of the project at hand. Highly satisfactory performance cannot be compromised on and so is the need for optimum practices (Ramabadron *et al*., 2020).

Sulfo Rwanda Industries Ltd is the second largest manufacturing company in Rwanda. It was established in 1962 by Mr.Tajdin H. Jaffer and was then the one and only soap industry in Rwanda. It was founded as a partnership firm and later was incorporated as a Public limited concern. The Sulfo Group owns subsidiary offices in Europe & Africa. It is located in the heart of Kigali. Sulfo Rwanda Industries Ltd has the mission of to be a leader in relevant FMCG segments and to be a key player in selected trading activities. The product of Sulfo Rwanda Industries Ltd comprises of laundry soaps, toilet soaps , powder & liquid detergents, scouring powder ; personal care products both hair care and body care; pure drinking water; plastic moulding, novelty items; corrugated cartons; candles and casseroles & tin containers.

1.2. Statement of the Problem

Adoption of project management practices conceptually enables firms to understand their strategic position and identifying how to make strategic choices for the future and manage strategy in action. Employing strategic management is critical to firm's performance (Johnson et al., 2008). Strategic management demands efficient systems to counter unpredictable events that can sustain their operations and minimize the risks involved (Pearce and Robinson, 2017).

In Rwanda, manufacturing sector in Rwanda is one of the significant supporters of the financial improvement of the nation; it's the most complex in East Africa and is moderately differing. Rwanda manufacturing industry is still small but growing as it contributed about 17% to the country's GDP in 2019 (NISR, 2020). Despite, the fact that the manufacturing sector in Rwandan economy, variations in growth patterns provide a variety of problems that the owner/manager must sometimes overcome. The most essential dream of management board is to see their company expand and thrive for a long time (MINICOM, 2018). The company functions still follow the old and traditional management thinking, whereas marketing innovation are not

included in business plans of almost all manufacturing companies in Rwanda. The result is that ineffective management has forced some companies shut down operations abruptly (MINICOM, 2018).

For instance, financial reports of Sulfo Rwanda (2017), showed that revenue growth of Sulfo-Rwanda declined from 3.4% in 2015 to 3.1% in 2017 and liquidity of Sulfo Rwanda has been declined from 1.33 of current ratio in 2015 downward to 1.28 in 2017 of current ratios(Sulfo-Rwanda Industries report, 2017). According to Turner and Muller (2015) observe that those that are involved in the project handling, fail to take a proactive approach to overcoming the uncertainties. As a result of this, project delays and budget overruns are usually encountered due to an overlook of potential risk. Insufficient information and ineffective management of project not only caused project cost overrun, completion delays but also termination before completion.

The various studied have been done on strategic management practices like Lawal *et al*., (2012) studied the effect of strategic issue management on organizational performance and found evidence that adoption of strategic management techniques improved organizational performance. Heugens (2003) studied strategic issues management and organizational outcomes among Dutch food firms and found that implementation of issues management activities by firms that were exposed to societal or political predicaments significantly and positively influenced organizational outcome variables. Local studies done by Sibomana *et al*., (2021) on the influence of Project Management Practices on Construction Projects in Rwanda, However, local studies were unable to show effect of project management practices and performance of manufacturing companies in Rwanda. Hence, this study seeks to investigate the effect of project management practices on the performance of manufacturing companies in Rwanda , mainly Sulfo Rwanda Industries Ltd .

1.3. Objectives of the study

Under this section the research stresses on the main objective accompanied with its specific objectives.

1.3.1. General objective

The general objective of this study is to evaluate the effect of project management practices on the performance of manufacturing companies in Rwanda , mainly Sulfo Rwanda Industries Ltd .

1.3.2. Specific Objectives

The objectives of this research are:

1. To determine effect of project management practices (project communication management; project risk management ;project scope management ;project cost management) on ROA of Sulfo Rwanda Industries Ltd
2. To examine effect of project management practices (project communication management; project risk management ;project scope management ;project cost management) on ROE of Sulfo Rwanda Industries Ltd
3. To find out the effect of project management practices (project communication management; project risk management ;project scope management ;project cost management) on NPM of Sulfo Rwanda Industries Ltd
4. To find out the effect of project management practices (project communication management; project risk management; project scope management ;project cost management) on sales of Sulfo Rwanda Industries Ltd

1.4. Research questions

1. What is the effect of project management practices on ROA of Sulfo Rwanda Industries Ltd?
2. What is the effect of project management practices on ROE of Sulfo Rwanda Industries Ltd?
3. What is the effect of project management practices on NPM of Sulfo Rwanda Industries Ltd?
4. What is the effect of project management practices on sales of Sulfo Rwanda Industries Ltd ?

1.5. Research hypothesis

H_{01}: There is no significant effect of project management practices on ROA of Sulfo Rwanda Industries Ltd

H_{02}: There is no significant effect of project management practices on ROE of Sulfo Rwanda Industries Ltd

H_{03}: There is no significant effect of project management practices on NPM of Sulfo Rwanda Industries Ltd

H_{04}: There is no significant effect of project management practices on sales of Sulfo Rwanda Industries Ltd

1.6. Scope of the study

This study is restricted in terms concept content scope, geographical scope and time scope

1.6.1. Content scope

This study is in domain of project management. The study covers the relationship between project management practices and small medium enterprises performance in Rwanda especially in Sulfo Rwanda Industries Ltd. The study was restricted to establishing the relationship between project management practices such as project scope management ; project cost management ; project communication management and project risk management as independent variables and also the study was delimited to performance of Sulfo Rwanda Industries Ltd conceptualized by market share , customer satisfaction, numbers of sales and profits

1.6.2. Geographical scope

The research carried out in Sulfo Rwanda Industries Ltd located in Kigali city, Nyarungenge district

1.6.3. Time scope

This analysis can uncover the time of 9 months that is from (February-September 2022) the time for this study scientific research collection of information are going to be for 3 years from 2018 up to 2020

1.7. Significance of the study

This study is very important not only to the researcher, to Sulfo Rwanda Industries Ltd , but also to the UOK community.

1.7.1To the researcher

Apart from academic use as a requirement to complete a Master's of Science in project management, the choice of this topic was justified by our personal concern in order to know effect of project management practice on performance of Sulfo-Rwanda Industries

1.7.2 To management of Sulfo Rwanda Industries Ltd

The study provides them with a channel to express the challenges they face in managing their businesses with regard to project management. After the identification of the issues they are facing, the owners and those charged with management of Sulfo Rwanda Industries Ltd was able to arrive at the most appropriate decision concerning the project management practices to adopt to improve their business performance. At the end of this study, recommendations provided to Sulfo Rwanda Industries Ltd improved its performance.

1.7.3 Significance to UOK

This analysis acted as relevancy alternatives for academicians in UOK would want to try to to their analysis within the same field and that they got a lot of from my findings that was useful

for them each academically and later within the applications of their studies. It absolutely was associate quality within the UOK library and its students could use it in their work assignme nt throughout their room applications.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

Theory reviewed in this chapter is to proffer a better understanding of project management practices by defining and describing concepts of project management practices as well as analyzing its impact on organizational performance. For this purpose, theories associated with impact of project management practices on organizational performance of small and medium size enterprises have been reviewed. The project management practices background is mainly derived from the Project Management Body of Knowledge (PMBOK), written by PMI (2004, 2008).

2.2. Conceptual review

This section deals additional deeply with the literature associated with project management practices that is that the experimental variable and small medium enterprises performance that's the variable quantity of the analysis.

2.2.1. Project management practices

The project management process is complex, usually required extensive and collective attention to a broad aspect of human, budgetary and technical variables (Salma, Abdul, Abdelnaser, & Mahyuddin, 2009). According to Drob, (2009), the appearance and development of the project management has occurred as a consequence of the need to adapt the theory and practice of management to the projects specific. In practice, the application of the tools and techniques of project management is facilitated by the use of specialized software for project management.

Referring to Nufei (2014), a project management is defined as the practice of controlling the realization towards the project goals. This combine the use of the tools as well as the techniques to monitor a quantity and quality of inputs to accomplish the single task with the planned time, budget and quality constrains. According to Comninos (2002), the project management takes part of the system to produce a finished product with the techniques of planning, change management, control and starting anticipative helpful actions. It starts when a strategy is made up to allocate the inputs and resources to the work and complete when the preferred output have been attained. Likewise, it offers a potential structure that facilitate to find and emphases on the

priorities, track and measure the performance, to solve problems, identify unexpected risks that might happen and attain a great performance and possibility of achievement of each business endeavour. The role of project management consists of describing the needs, creating the scope of work, assigning the required resources, planning to execute tasks, monitoring the evolution and adjusting changes from the plan (PMBOK ,2000)

Project management adopted by a firm enabled it to accomplish an activity or a project in an effective and efficient manner (Miller & Lessard, 2011). There are many factors and Project management that determined the performance of projects. They include user involvement, executive management support, proper planning and mobilization of resources, realistic expectations, competent staff, clear vision and objectives, availability of resources, competence in technology, managing scope, managing issues that arise from project teams, monitoring and evaluating project progress, project risk management among others (Skeggs, 2011). However, based on Relative Importance index (RII), project resource mobilization, project monitoring and evaluation, management of group dynamics and project risk management were identified as critical management practices that determined performance of projects (Ugwa & Heupt, 2013).

2.2.1.1. Project communication management

Project communication management is the knowledge area that employs the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval and ultimate disposition of project information, PMI (2004). Gould (2009) defines it as the organisation and control of information transmitted by whatever means to satisfy the needs of the project and includes the processes of transmitting, filtering, receiving, interpreting or understanding information using skills appropriate to the application of the project environment.

Accoring to PMI (2004), project communications involves planning, executing and controlling the acquisition and dissemination of all information relevant to the needs of all project stakeholders. Information includes project status, accomplishments, events that may affect other stakeholder or projects and so on. According to Heerkens (2001) the major project communication management involves communications planning - determining the information and communications needs of the stakeholders; who needs what information, when will they need it and how will it be given to them. PMI (2004) introduces five processes for project

communication management which include identifying stakeholders, planning communication, distributing information, managing stakeholder expectation and reporting performance.

Sixty percent of a project fails because of a lack of good, organized communication management (PMI, 2004). Projects having poor communication among project participants always fail to meet their aim or purpose, which can be due to overrun costs, and/or being late with delivery. As a result, project communication management is one solution that can be used to accomplish this project goal leading to better project performance in terms of timely project completion within the budget (PMI, 2004).

Heerkens (2001) mentions that effective communication among all the stakeholders of the projects is considered as the most vital and crucial factors in order to ensure the success of the project. It is considered as the requirement of getting the right things done in the right manners. As knowledge is considered as power, it is also important to consider that the process of sharing knowledge helps to empower every each and every stakeholders of the project for the support resulting in greater organisation performance (Kerzner, 2009). At the end of the project, a close-out reporting was presented in order finalize the project in the eyes of all the stakeholders as well as serve as a reference for future development. Kerzner (2009) stresses that project success depends greatly on effective project communication management with most project management time spent in some form of communication within the project team or with the customers which is critical for greater organisation performance

2.2.1.2. Projects Risk Management

Risk management is an activity within project management that is gaining importance because businesses are moving towards globalization and because of the increasing competition (Ahmed et al., 2007). The risk management process consists of a series of steps, which are establishing the context, identifying, analyzing, assessing, treating, monitoring and communicating risks, which allow continuous improvement of decision-making (Standards Australia, 1999). Project risk management is a structured approach for the identification, assessment, and prioritization of risks followed by planning of resources to minimize, monitor, and control the probability and impact of undesirable events (Smith and Merritt, 2002). PMBOK (2000) defines risk management as the systematic process of identifying, analyzing, and responding to project risk.

It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of events adverse to project objectives (PMI, 2004).

Risk management begins during project planning phase. During this process, potential risks are assessed and mitigated. Risk management planning process involves identifying risks and developing mitigation strategies and contingency plans to minimize their impact (Royer, 2002). According to Kendrick (2009), risk management in a project or organization is dependent on the ability of the team to understand the sources and variations in projects, and then working to minimize threats while maximizing opportunities wherever it is feasible.

Cretu(2011) described risk management and risk management techniques. Ideally, the risk management process consists of phases including risk identification, risk assessment, risk mitigation and risk monitoring. The process of risk identification tries to determine the source and type of risk. It involves the recognition of conditions that carry potential risk and establish risk responsibilities. Identification of risk forms the basis for risk analysis and control of risk management, which ensures effectiveness in the risk management process. Therefore, risk identification and risk mitigation are crucial aspects in risk management for effective performance of projects.

2.2.1.3. Projects scope management

In the following paragraphs definitions and models of project scope management are given. Kerzner (2019) sees project scope as an outcome of distinguishing wants the requirements of the why project has been established and prioritizing those needs; add of needs for the project. Though scope may be investigated from the originating reasons for the project, it should additionally take into account the expected work, outcomes and deliverables. Brandon (2016) defines scope an outline of the project work to be performed in terms of the specified results. On terribly similar lines is Cuganesan et al. (2012) scope definition states that each project is dead with a group of deliverables, and has an expected closure time and before this closure amount, there are planned set of tasks and activities to complete the project with success. These tasks represent the scope of the project. The Project Management Institute (PMI) (2004), a supplier of elaborated project methodology, defines scope because the add of the product, services and results to be provided as a project. The PM I (2004) defines

scope management because they add of processes required to confirm a project containing all the work needed, and solely the work needed, to complete the project with success.

It additional states project scope management is primary involved with process and dominant what's not enclosed within the project. PMI (2004), indicates that the subsequent things may be thought-about as project scope building blocks: project and merchandise objectives, product or service necessities and characteristics, product acceptance criteria, project boundaries, project necessities and deliverables, project constraints, project assumptions, initial project organization, initial outlined risks, schedule milestones, initial Work Breakdown Structure (WBS), order of magnitude price estimate, project configuration, management necessities and approval necessities.

2.2.1.4. Project cost management

PMI (2004) refers to price project management because the processes needed to confirm that the project is completed among associate degree approved budget as well as resource coming up with, price estimation, price budgeting and value allocating and dominant among the project. Lan gfield Smith et al (2016) outline project price management because the improvement of associate degree organization's price effectiveness by understanding and managing the $64000 causes of price throughout a project's life cycle. They contend that though the predominant focus in price management is on prices, it conjointly Endeavour's to enhance alternative aspects of performance like quality and delivery.

Project cost management entails the procedures necessary to guarantee that the project is finished within the allocated spending limit. More particularly, it covers the procedures needed for cost estimates, planning, and management so that the project can be finished within the set spending limit (PMBOK, 2014). It is primarily concerned with the determining the cost of the resources needed and cost management to complete the project activities within the approved budget. Project cost management has four components such as resource planning; cost estimating; cost budgeting and control and manage costs with their inputs to process the activities, the tools and techniques used during the period and the final outputs of the activities.

Project cost estimation and controlling the cost in the midst of the project are consider to be the most challenging aspects of project cost management. Accordingly, it has been highlighted that while undertaking the initial project cost estimation, the most important elements to be

considered are the work breakdown structure (WBS) along with human resources and procurement planning. There are a number of methods and strategies involved in project cost estimation and planning. The article has highlighted that, though in most cases costs are expressed in monetary values, they can also be measured in other units of measure such as staff hours, materials used, or facilities required. While undertaking the project cost estimation, it is very important to create a detail WBS, where each work package and each activity related to those work packages. It is also believed that for smaller projects cost estimation can be done through a bottom-up approach but for larger projects it is not feasible to go to this detail rather other estimating techniques can be considering for better estimation.

Generally, it is believed that cost management is an extremely important element of project management to run it successfully. The estimated cost and determined budget, which are considered as the project planning processes, is the baseline of the financial aspects in the project and it should be supplemented with a continuous update and accurate control of the costs that the budget can be used effectively in a project (PMI, 2013). Cost control is the process of comparing actual expenditures to the baseline cost plans to determine variances, evaluate possible alternatives, and take appropriate action. Guo-li, (2010) has highlighted that cost control should not only include comparison of planned value and actual cost of each work package, but also should include analysis of the earned value for the costs spent in the project. A correct performance analysis of the current financial status is necessary in order to develop forecasts of future, and final, costs of the project.

2.2.2. Performance of manufacturing companies

In this study, project success is associate approximation for measure organizational results by exploitation project management practices within the organization in a very versatile manner by checking out that practices are best for a given organization. Overall organizational performance are determined supported the performance of the individual project objectives; time, price and quality performances. Main analysis works that have developed formulae for the fifteen measurement of organizational performance are identified; Chan and Chan (2004) created use of key performance indicators (KPIs) in their study into the utilization of KPls for measurement of project success. Four major areas, among others, determined the formulae that were adopted for the measurement of project performance. The areas chosen represent the scales that were adopted for the mensuration. Secondly, Ling et al. (2012), in developing models

for predicting the performance of design-build and design-bid-build comes, created use of the performance metrics for measurement of project performance.

Performance for manufacturing companies can be measured using different factors that can be utilized as indices for determining how well the organization is fairing as far as its financial position is concerned. Through seeking for financing solutions, manufacturing companies can be able to enhance or boost either of the performance indices ensuring more performance and overall growth of the company. Some of the indicators of performance for manufacturing companies include the Working Capital (ROE), Fixed Assets (ROA), Net Income (ROI) and Sales Activities among others.

Working Capital, or Return on Expenditure (ROE), is the current assets less current liabilities for a company and determine how much business a company can be able to handle or how much output it can produce (Investopedia, 2015). Lack of sufficient working capital can lead to a business failing to meet its obligations to its customers, such as failing to meet the demand of its products or failing to deliver in time, leading to loss of customers and business. This index therefore determines how available working capital and how efficiently it is being utilized to meet the obligations of the business in line with its organizational goals and market demands (Mwarari & Ngugi, 2013).

2.3. Theoretical framework

This study was guided by three main theories namely; Systems Theory; Prospect Theory and Theory of Constraints

2.3.1 Systems Theory

Hegel in 1968 built up the theory in nineteenth century to clarify advancement of dynamic procedures. Marx and Darwin used the same hypothetic argument in their bio work. The theory borrows most of the knowledge from Bertalanffy in 1928 in the field of general framework hypothesis. Gerald and Phil (2014) characterize the theory to contain input, processing and output mimicking the structure of organism systems. This can then be applied to any organizational based system having input, processing subsystem and output mechanism. Systems theory suggests the importance of the social, communicative context. With this theory, communication does not happen in isolation, but rather necessitates a communication system; the smallest of which must contain at least two members. It creates a coherent and workable approach but not exhaustive approach. The

basic principles of the theory are; wholeness, openness and hierarchical order. It suggests that anything done by individual impacts others. The theory assumes that it is the interaction of the participants that makes organization what they are.

Mutong'Wa& Khaemba(2014) can make use of the systems theory to experiment the effectiveness of their systems and projects in delivering the set objectives. For example, studies Wishart, (2016) show that utilizing system theory in providing mobile money can be a strategy for MNOs to keep churn rates low and retain customer loyalty. It can help them to acquire new potential customers, find new sources of revenue (such as service sign-up fees, transaction fees), and increase their average revenue per user (ARPU). The system approach in managing mobile money services encompasses many concepts of systems theory such as inputs, outputs, leadership, feedback and control, which are useful in understanding business situations, specifically with MMT. The aspect of feedback to projects from their environments in a view of creating an ever evolving ecosystem with change coming from both within and without the project is important in enhancing project success.

This theory is applicable in this study since Systems Theory can be applied to Project Management and how it helps to deal with project complexity. In particular, it starts with a general description of the Systems Theory, from the definition of a system to the development of the system thinking in project performance. It is not clear if engineering systems constitute a new discipline with theorems and frameworks that could be applied to every type of project performance. Therefore, systems theory provides a framework for defining the subject entity, creating a formalized model of the entity, hence enabling the ability to understand the entity in terms of the elements and their properties, and thereby understanding results. Systems theory states that real systems are open to, and interact with, their environments, and that they can acquire qualitatively new values through emergence, resulting in continual evolution.

2.3.2 Prospect Theory

According to Tversky, (1979) prospect theory helps in decision-making under conditions of risk. Decisions often involve internal conflicts over value trade-offs. This theory is designed to help organizations and individuals to better understand, explain and predict choices in a world of uncertainty. The theory explains how these choices are framed and evaluated in the decision making process. Prospect theory is descriptive and empirical in nature. It focuses on two parts of decision making: the framing phase and the evaluation phase. The framing phase describes how

a choice can be affected by the manner in which it is presented to a decision maker. The evaluation phase consists of two parts, the value function and the weighing function, where the value function is defined in terms of gains and losses relative to the reference point. Prospect theory is used in decision-making where the decision maker multiplies the value of each outcome by its decision weight. Decision weights not only serve as measures of perceived likelihood of an outcome, but also as a representation of an empirically derived assessment of how people arrive at their sense of likelihood (Tversky, 1979).

Risk is an exposure to the possibility of economic or financial loss or gain, or delay as a result of the uncertainty associated with pursuing a certain course of action. When assessing risks in a project, relevant data must be available to enable statistical analysis, otherwise, the experience and knowledge of the decision makers is used to assess the probability of an adverse event. Risks impact projects in a great way by affecting the planned expenses, quality of work and expected project performance. Therefore, risk management is important in managing projects that are exposed to risks in order to ensure that the objectives of the projects are achieved within the constraints of the project. Apart from being significant in risk management, prospects theory is also relevant in monitoring and evaluation, leadership and stakeholder participation. The evaluation phase of the prospect theory incorporates monitoring and evaluation to determine the relevant inputs, reviews, and controls that will lead to the achievement of improved results. Prospect theory also incorporates leadership, which is useful in explaining common patterns of choices by leaders in specific situations. Decision-making requires the participation of stakeholders in order to improve the quality of decisions. This is supported by the prospect theory which addresses how choices are evaluated in the decision making process (Gitau, 2015)

2.3.3 Theory of Constraints

The theory of constraints is a set of management tools created by Eliyahu Goldratt in 1984. The theory is applicable in many areas including project management and performance measurement among many others (Blackstone, 2010). The theory helps organizations to identify the most important constraints or bottlenecks in their processes and systems, and dealing with them in order to improve performance. According to (Goldratt & Cox, 2014) organizational performance is dictated by constraints present in processes and systems. Constraints are restrictions that hinder an organization from maximizing its performance and achieving its goals and objectives. He states that constraints can involve policies, equipment, information, supplies or even people,

and can be either internal or external to an organization. Theory of constraints can be applied in conjunction with other management techniques such as total quality management and risk management to ensure a comprehensive set of techniques that ensure continuous improvement in all areas of operation in an organization. The theory is based on five steps which include: identifying the system's constraints that limit progress toward the goal, exploiting the most important constraint, subordinating everything else to the decision made by managing the system's policies, processes and resources to support the decision, elevating the constraint by adding capacity or changing the status of the original resources to increase the overall output of the constraining task or activity, and finally going back to step one and identify the next most important constraint (Steyn, 2012)

The five steps in applying the theory of constraints enable an organization's management to remain focused on the most important constraints in their systems. Theory of constraints is applicable in many aspects of project management. Monitoring and evaluation is done throughout the steps on the theory of constraints in order to record information regarding the progress of managing the constraints. Step five of the theory of constraints provides for feedback which is important in evaluation of results to determine whether there is progress in achieving project goals and objectives (Steyn, 2012).

Any project risk might be a constraint or could become a constraint (Steyn, 2012). In most cases, risk events that are initially not considered as posing the highest risk are neglected. Often, this may result in a risk event that was initially considered as not being critical becoming the most important constraint. Once a risk event has been identified as important or critical, the focus is to eliminate the risk or reduce either the probability of its occurrence or its impact to a level where it would not be critical any more (Steyn, 2012). Project leadership is critical in executing the theory of constraints. It involves managing project schedules to ensure projects are completed on time and within the scope and budget (IMA, 2012). Managing constraints requires project leaders to coordinate their project teams in order to minimize the effects of constraints effectively. Stakeholder participation is important in any project or organization as they contribute to decision-making to enhance the quality of products and services. In the course of executing a project, stakeholder needs could be expected to change, which leads to changes in scope of the project. This may become a constraint that need to be managed in order to achieve

objectives. Sometimes certain scope changes could be limited depending on the urgency of the process. This is especially applicable in the mobile money industry where changes in market needs or in technology could be addressed by subsequent product generation (Steyn, 2012).

2.4. Empirical review

2.4.1.Project Management Practices and Performance of manufacturing companies

Organizational performance is measured by 2 constructs: project performance and business performance (Mullaly, 2015). Within the case of project performance, project success historically has been measured as project completion on time, cost, and quality performance. As objectives comes and accomplished by groups, one in all the measures of success is what proportion the work team was happy in operating along (Doolen et al., 2013). Potency is found to be loaded highest on meeting scheduled goals and on meeting budget goals; effectiveness, on the opposite hand, is related to satisfaction measures (Dvir et al., 2016). Supported these studies, project performance is measured by 2 constructs: project potency and project effectiveness as follows: Project efficiency: meeting time and budget targets.

Project effectiveness: Meeting client expectations, team satisfaction. Organizational performance adopted from Nahm et al. (2014) measured associate organization's performance by sales growth, come back on investment, market-share gain, and overall competitive position. what is more, Dvir et al. (2016) used similar measures for project success, like whether or not a project resulted in a very printing operation of product or services: Internal organization success factors: Savings advantages of comes, comes leading to sales growth, and overall business performance compared with the previous year. Project management has become a particular thanks to manage business activities today (Filippov and Mooi, 2010).

Project management practices adoption is changing into a key strategy for up organizational performance of manufacturing companies through the execution of flourishing comes (Rooij, 2019). Most of all, project managers are within the front-line once it involves reassuring client satisfaction (Kirsila et al., 2017) thus the importance of the role of project management practices within the success of comes is emphasized.

Dvir et al. (2016) show that organizations have reached the purpose wherever the method of skyrocketing organization performance needs the targeted management attention which was provided solely by competent, committed, we have a tendency to 11-organized and

knowledgeable project groups adopting project management practices.organizational performance needs insight on however strategy, structure, processes and project management practices move with each other (Filippov and Mooi, 2010). Most comes formed with a business perspective and goal concentrate on higher results and organizational performance (Shenhar et al, 2011). Increasing pressure for organizational performance and therefore the would like for simpler ways in which to comprehend organization methods are vital reasons for a growing interest within the ability of project managers by adopting project management practices.

2.4.2. Project Communication Management and Performance of manufacturing companies

Afroze and Khan (2017) study investigated the impact of effective communication practices and project complexity on performance of international development projects. The effects practices in communication and complexity of projects on project performance was measured through a survey method. Questionnaires were sent to 60 international organizations working on such projects. The results of the study showed that these practices have significant and positive impact on project performance; project complexity has a minimal impact on the communication and performance relationship.

Affare (2012) carried out a study on an assessment of project communication management on construction projects in Ghana. The research sampled 97 professionals working with consultants, project clients and contractors with D1K1 classification. The research established that within the Ghanaian construction industry, there is a strong appreciation of the importance of project communication and its importance within the industry. The research also established that poor communication had resulted in project delays, project cost overrun and project abandonment.

Heerkens (2011) mentions that communication and documentation are natural combination as they and therefore the project along from begin to complete and asserts that info distribution makes required info obtainable to project stakeholders in a very timely manner. Constant and effective communication between all the stakeholders of the comes is taken into account because the most important and crucial factors so as to confirm the success of the project. It's thought of because the demand of obtaining the correct things drained the correct manners. As data is taken into account as power, it's additionally vital to contemplate that the method of sharing data helps to empower each each and every stakeholders of the project for the support leading to bigger organization performance (Kerzner, 2019). At the tip of the project, a close-out coverage are conferred so as terminate the project within the eyes of all the stakeholders similarly as function a reference for future development. Kerzner (2019) stresses that project success depends greatly on effective project communication management with most project management time spent in some variety of communication among the project team or with the purchasers that is essential for bigger organization performance.

2.4.3. Project Risk Management and Organizational Performance of manufacturing companies

Risk and risk management could be a major concern for all firms, particularly tiny and medium sized enterprises that are notably sensitive to business risk and competition (Watt, 2017). In manufacturing companies , the danger management perform typically resides with the owner's assessment of threats and opportunities concerning the enterprise (Watt, 2017). Per Howell et al., 2010, effective management of risks concerned in comes ensures all the aspects like flourishing completion of the project, client satisfaction and it improves money performance of the organization. To manage a project properly, by guaranteeing on time completion and to require full profit for manufacturing companies it's crucial to spot, analyze, and management risks concerned during this regard (Howell et al., 2010)

2.4.4. Project scope management and performance of manufacturing companies

Shaping and managing the project scope influences the project's overall success (PMI, 2004). On method space of dominant, the project scope, the PMI argues that it's involved with influencing the factors making project scope changes and therefore the impacts of those changes. More the PMI maintains scope management being to blame for guaranteeing that projected modifications are methodic through change management process. A very important perform of scope

management, by the PMI, is scope management processes responsibility to manage actual project changes, not associated with structure modification management, and desegregation the changes with alternative dominant processes.

The PMI states that uncontrolled changes are usually referred as "scope creep". Scope creep is that the unsought by-product of a badly managed project scope, usually resulting in major difficulties in comes or being a reason for project failure leading to lost customers and reduced profits for manufacturing companies (Dekkers & Forselius, 2017).

2.4.5. Project price Management and performance of manufacturing companies

There is associate increased concentrate on understanding profitableness and prices to drive manufacturing companies potency and ultimately organization performance (Drury, 2008). Based on Drury (2018), project price management features a positive influence on organization performance as financially flourishing organizations rely upon strict project price management. Price is seen as a significant metric of flourishing project management and increased organization performance in terms of increased profits (Mullay, 2015). Project price management improves organization performance in terms of increase in resources management and transparency, decrease in risk (Cicmil et al., 2019).

2.5. Conceptual Framework

Following the previous paragraphs describing the theoretical framework, a abstract framework was developed whereby project management practices were plausible to be the project management information areas (PMI, 2008) because the freelance variables. This framework focuses on four information areas namely: project scope management, project value management, project risk management and project communication management and the way these practices influence organizational performance because the variable.

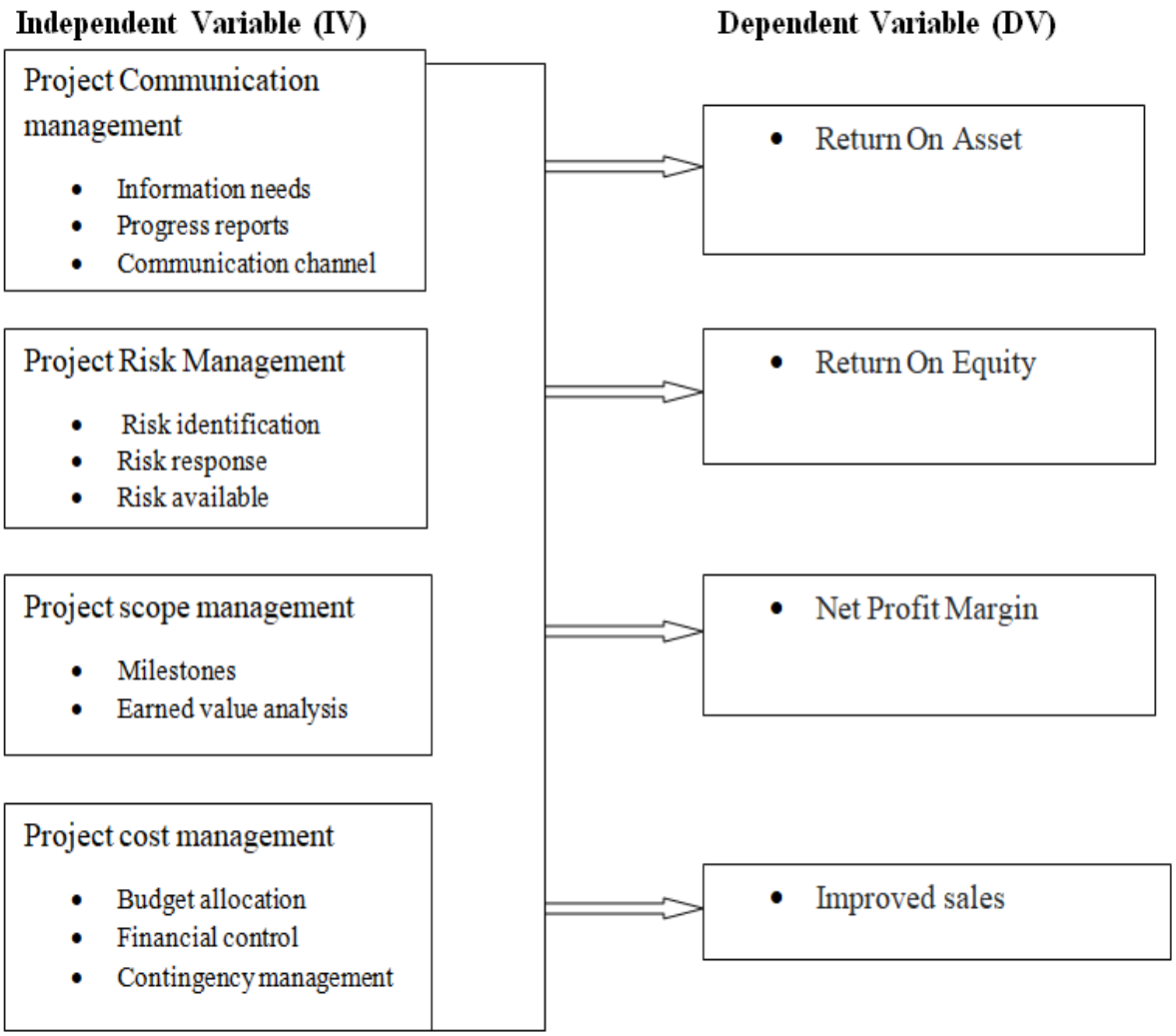

Figure 2.1: conceptual Framework

According to the planned framework, project management practices together with scope management, price management, communication management and risk management meted out are for the needs of effectively managing comes to realize satisfactory project Performance through higher time performance, price performance and quality performance leading to improved organizational performance. Every project team member contains a certain mode of operation among the project management method. A mix of those practices ends up in a twenty one set of evolved practices among a project's life time. Through these practices adopted, an atmosphere is formed wherever everyone on the project understands what should be delivered and the way performance are going to be measured. This avoids the uncertainty that usually permeates a project because it approaches important delivery times. This approach

integrates the project deliverables and clearly demonstrates contribution towards organizational performance outcomes.

2.6. Research Gap

Project management practices involve completing the everyday management activities and choic es to satisfy set project objectives. These practices could vary from organization to organization, as stressed by (Hobday, 2013), one size doesn't work all. This can be particularly therefore for giant organizations versus manufacturing companies . This necessitates sorting out of the connection between project management practices and project performance.

Project performance is taken into account to be tied to project success and this is also related to organizational objective also as its performance.

Organizational performance is so measured victimization bound criteria developed supported the project objectives. Project performance has been measured with many dimensions like price, time, and quality, edges to finish users and edges to national infrastructure, environmental impact and health and safety necessities amongst alternative criteria. During this study, 3 basic project objectives, time, price and quality, were chosen because the criteria for measurement project performance. These are thought-about to be the overarching criteria for assessing project performance and ensuing organizational performance.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents how the mechanisms for data collection are designed and how the research sample is selected. The chapter also presents an overview of how the questionnaire survey was conducted. This chapter discusses in detail the methods utilized to answer the research questions. It presents research designs, population of the study, sample size, sampling techniques, data collection procedure, validity and reliability of research instruments, data processing and data analysis and finally limitations of the study.

3.2 Research design

According to Churchill (2013), a research design may be a framework or arrange for the study used a guide in collection and analyzing knowledge. The study used survey research design such as descriptive research design and explanatory survey research.

Descriptive research design was used to explain the variable under the study such as project management practices such as project scope management ; project cost management ; project communication management and project risk management as independent variables and also the study used descriptive research design to describe the level of performance of Sulfo Rwanda Industries Ltd conceptualized by market share , customer satisfaction, numbers of sales and profits by using quantitative approach

Explanatory studies are characterized by research hypotheses that specify the nature and direction of the relationship between or among variables. The aim of using survey explanatory research design to find out effect of project management practices on performance of Sulfo Rwanda Industries Ltd by using inferential approach.

3.3 Study population

Population is that the totality of person or objects with that a study was involved. A population may be outlined as is that the mass of units of study regarding that, the research worker measured her variable(Mulusa, 2006). To appreciate the objectives of this study, the research worker has targeted one hundred and one workers of Sulfo Rwanda Republic trade (Sulfo-Rwanda Industries report, 2022).

Table 3.1: Population Size

Department	Total population
Project managers	10
Stakeholders	5
Senior Management staffs	22
Sales and Marketing staff	42
Finance staff	6
Operations and IT department	10
Line Managers	6
Total	**101**

Source: Sulfo- Rwanda Industries report (2022)

3.4. Sampling design

This section deals with sample size and sampling techniques

3.4.1. Sample size

A sample is defined as a subset of the population. It comprises some members selected from the population (Teddlie &Tashakkori, 2009). According to Amin (2005) when the population is less that 300 the sample size is universal sample. In this study, the population consists of 101 employees of Sulfo-Rwanda Industries

3.4.2. Sampling procedures

Sampling techniques according to Saunders (2007), provide a variety of different methods that allow the researcher to lessen the total quantity of data desired to be collected by taking into account only data from a sub-group rather than all possible cases. The study used census-sampling procedure, which involves the use of the entire target population of 101 employees of Sulfo-Rwanda Industries. The study also used census method, because the whole population under study was used as it was not large and no need to determine sample size. The researcher interacted with all concerned respondents because they possess the information about the effect of project management on performance of Sulfo-Rwanda Industries Ltd

3.5. Sources of data

3.5.1. Primary data

According to Lancaster (2005) main ways to gather the first knowledge, square measure the form and interview. All primary knowledge from the form were conferred in tables with frequencies and percentages. Lancaster (2005) defines questionnaire as form as a technique of gathering info from respondents regarding attitudes, knowledge, beliefs and perceptions. During this study, the form was composed with closed-ended queries and submitted to worker of Sulfo-Rwanda Industries.

3.5.1.2. Questionnaires

Lancaster (2005) defines questionnaire as form as a technique of gathering info from respondents regarding attitudes, knowledge, beliefs and perceptions. During this study, the form is composed with closed-ended queries and submitted to worker of Sulfo-Rwanda Industries.

3.6. Validity and Reliability

In order to reduce the possibility of getting the wrong answer, attention needs to be kept to the particulars on the research design, Data quality control (Saunders *et. al*; 2009).

3.6.1 Validity

Validity deals with the gathered information actually showing what it seems to be showing, and reliability deals with the concern that different methods might produce different results (Saunders et al., 2007). Validity of associate instrument refers to the extent to that it measures what it claims to live (Mugenda & Mugenda, 2003). In different words, validity is that the degree to which ends up obtained from the analysis of the information really represents the phenomena beneath the study. The study used content validity as a live of the degree to that knowledge obtained from the analysis instruments meaningfully and accurately mirrored the theoretical construct.

The following formula was used to test validity index. According to Sekaran (2006) content validity index should not be less than 0.7.

$$\text{CVI} = \frac{\text{No. of items regarded relevant by judges}}{\text{Total No. of items}} = \frac{30}{34} = 0.882.$$ This implies that research instruments has internal validity because CVI computed is great than 0.7.

3.6.2 Reliability

According to Mugenda & Mugenda (2003), reliability measures the degree to that a selected activity procedure offers similar results over variety of recurrent trials. The study established the reliability by victimization of Cronbach alpha technique. It measures internal consistency of things to the construct. Cronbach's Alpha constant may be a data point for internal dependability, values starting from zero to one and better values indicate larger dependability. Researchers typically use zero as a minimum level (Cortina, 1993), and was the case during this study.

Table 3.2: Reliability Statistics

Cronbach's Alpha	N of Items
.729	30

Source: Primary data, 2022

The results of the reliability test also revealed that all variables were reliable as the average index of 0.729 exceeded the adopted threshold of 0.7. This is an indication that project scope management; project cost management; project communication management; project risk management and performance of Sulfo Rwanda Industries Ltd have relatively high internal consistency and measure the same construct.

3.7. Data processing

Data collected from the completed questionnaires is summarized, edited, coded and tabulated for facilitating data analysis

3.7.1 Coding

To ensure that all answers are coherently and logically recorded to provide consistent information in order to facilitate the understanding of phenomenon and cross check the data collected, the process of editing and coding was considered. The responses to the questionnaire were analyzed descriptively and reported as frequency of responses and percentages and later is analyzed and interpreted using tables.

3.7.2 Editing

The editing helped the researcher to examine data, detect any errors and omission, and to correct them where possible. This was done through checking, inspection, correcting and modifying collected data to ensure the completeness, accuracy, uniformity and comprehensiveness.

3.7.3 Tabular presentation

Tabular presentations was used for presentation of data inform of frequency and percentages. The researcher used SPSS software to analyze data and the presentations were in tables. Table presentations gives clear understanding of the research interpretations for clear and easy understanding of the phenomenon studied

3.7. Data analysis

The data collection was used to visualize their accuracy and if they were complete, then the information was analyzed statistically, and conferred in standout tables so as to draw up logical conclusions, in keeping with the analysis of the objectives, therefore on offer answers to analysis queries. The study used descriptive statistics, inferential statistics such as correlation analysis and multiple linear regression models

Descriptive statistics: Descriptive statistics was used to describe the basic features of the data in the study in the tendencies and then replicated in tabular manner. It involved the use of percentages, frequencies, mean and standard deviation.

Multiple linear regressions: The study adopted a regression equation to show the relationship between independent variables (project scope management; project cost management; project communication management and project risk management) and the dependent variable (Performance of Sulfo-Rwanda Industries measuring ROA, ROE, NPM and sales).

$Y_{1,2,3,4} = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4 +\varepsilon$ Where;

Y= Performance of Sulfo-Rwanda Industries measuring ROA, ROE, NPM and sales

X1=Project communication management
X2=Project risk management
X3=Project scope management
X4=Project cost management

B_0= regression constant ε = error term, $\beta1,\beta2\ldots \beta n$ = coefficients of variation

Hypothesis verification: The result of a statistical test, denoted p, shall be interpreted as follows, the null hypothesis H0 is rejected if $p<0.05$ level of significant. The regression was conducted using a multistage analysis which involving first running the R2 and F-test without the moderator while the second stage involved running the tests with the moderator included. The purpose was to compare the changes in R^2 value and F-value to determine the effect of the moderator in the relationship between independent variables and the dependent variable. Presence of a significant difference would indicate significant effect of the moderator. Hypotheses in the study were tested using beta, t and p values. The test was done at 95% confidence level, 1 tailed test. This implies that the significance value was set at 0.05. The values less than 0.05 were deemed as significant while those greater than the significance value was deemed to be insignificant.

3.9. Limitations of the study

The study may be encountered with several challenges during data collection and analysis. First, the respondents hesitated to provide the required information for fear or leakage of confidential information. Some of employees of Sulfo-Rwanda Industries may not ready to provide information directly to the researchers which pushed them to use.

Employees of Sulfo-Rwanda Industries seem to be so occupied by company activities in that they was found it hard to spare the researchers a few minutes and disappointment of respondents which caused to use more time than expected. To solve these challenges the researcher visited more at Sulfo-Rwanda Industries in order to get all respondents.

Due to the sensitivity of the Sulfo-Rwanda Industries information the respondent may have had an imaginary fear of giving the information to competitors. This limitation may be countered by assuring the respondents that information is purely for academic purposes and would be treated with a lot of confidentiality. An recommendation letter from the University of Kigali was attached to the questionnaires to affirm confidentiality.

The study also was limited to the degree of precision of the data obtained from the respondents through the questionnaires. Whereas secondary data is verifiable since it is obtained from the annual financial report of Sulfo-Rwanda Industries, the primary data is lying on the shortcomings of not being able to verify the information provided.

3.10. Ethical considerations

Berg (2011) suggests that confidentiality is a lively arranges to take away from the analysis records any part that may indicate the subjects' identities. The study was conducted in keeping with the moral codes and commonplace ethical practices needed of any estimable educational analysis in keeping with the moral needs for 'informed consent' in analysis need potential respondents formally providing knowing consent to participate in during in associate exceedingly in a very scientific research as an exercise of their alternative, free from any part of fraud, deceit, duress, or similar unfair inducement or manipulation. Potential participants were educated in writing regarding the aim of this scientific research and their consent was confirmed before filling the questionnaires**.**

CHAPTER FOUR
RESEARCH FINDINGS AND DISCUSSIONS

4.0. Introduction

This chapter discusses the interpretation and presentation of the findings. The purpose of the study was to analyze evaluate the effect of project management practices on the performance of manufacturing companies in Rwanda, mainly Sulfo Rwanda Industries Ltd. The researcher used frequency tables to present data. The finding intention was to answer the study's research hypothesis. Data composed was collated and reports were produced in form of tables and qualitative analysis carried out in prose. The study used descriptive statistics such as mean, frequency, percent and standard deviation as method of data analysis and also the study used inferential statistics such as correlation analysis and multiple linear regression model to find out the effect of project scope management; project cost management; project communication management as independent variable on project risk management on performance of Sulfo Rwanda Industries Ltd

4.1. Response rate

The study was a census conducted on 101 employees of Sulfo-Rwanda Industries and all 101 respondents were completed and returned, this denoted a 100% response rate. This is a dependable data response rate for analysis according to Mugenda and Mugenda (2003) that held that 50% is adequate for analysis in a generalization study, 60% is good, while 70% and above is considered excellent. The excellent response rate can be attributed to the data collection technique used by the researcher, whereby research assistance was involved in dispensing the questionnaires, waiting for respondents to complete, prompting the respondents to fill in the questionnaires through frequent phone calls and picking the questionnaires from the respondents once they were duly filled. The relatively high response rate during the study could be attributed to a few factors including the simple and clarity nature of the questionnaires. This could also be further attributed to rigorous piloting for the tool beforehand. Similarly, the enumerators took time to give a background of the study to the respondents this helped in ensuring that the objective of the questions were met and clearly understood by the respondents coupled with good research ethics that ensured that the responses would be regarded with supreme discretion and would be exclusively used for the study purposes only. Furthermore, the respondents showed a lot of interests in the topic as it related to their daily experiences in the industry and were willing

to put out their ideas and views since the study would contribute directly to improvements in their sector.

4.2. Demographic Characterization of the Respondents

As part of the general statistics, the research required the respondents to indicate the type of the project the company was carrying out, project ownership and the highest level of education. The analysis depended on this information of the respondents to classify the various outcomes of the study.

4.2.1. Gender of Respondents

The study sought to establish the gender of the respondents. The results are as shown in table 4.3 below.

Table 4.1: Gender of Respondents

		Frequency	Percent
Valid	Males	60	59.4
	Females	41	40.6
	Total	101	100.0

Source: Primary data, 2022

According to table 4.2 above, the number of male who responded to the questionnaires was 60 representing a response rate of 59.4% while the number of female who responded to the questionnaires was 41 representing a response rate of 40.6%. The number of male respondents therefore was greater than that of female respondents. This indicated that majority of the licensed road contractors and supervising engineers who took part in manufacturing companies were male, may be because of the gender bias.

4.2.2. Highest academic qualification

Education level of the respondents was a key factor as identified by the researcher. This is because education level is an indication of competency regarding skills and knowhow to tasks allocated and which highly valued within the company. Respondents were requested to indicate their highest level of education attained. This was fundamental in establishing the respondents' level of understanding as well as answering of the questionnaire. The findings on the respondents Education level were as illustrated on Table 4.2.

Table 4.2: Education level of respondents

		Frequency	Percent
Valid	Diploma	11	10.9
	Bachelor's degree	82	81.2
	Masters	6	5.9
	PhD	2	2.0
	Total	101	100.0

Source: Primary data, 2022

The findings in table 4.2, indicates that majority (81.2%) of the respondents had attained degree as their highest academic qualification, 10.9% held diploma as their highest level of education, 5.9% of the participant were masters holders while 2% were PhD's holders. 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. The finding provides a base for argument that the respondents were learned and able to execute their duties and expectations as assigned.

4.2.3. Age of the Respondents

The study sought to ascertain the age of the respondents. The results are as shown in table 4.4 below.

Table 4.3: Age group of respondents

		Frequency	Percent
Valid	Between 20 and 30 years	32	31.7
	Between 31and 40 years	38	37.6
	Between 41and 50 years	21	20.8
	Age above 50 years	10	9.9
	Total	101	100.0

Source: Primary data, 2022

Table 4.3, shows that the majority 37.6% of respondent reported that were aged between 31 and 40 years old, 31.7% of respondents were aged between 20 and 30 years, 20.8% of respondents were aged between 41 and 50 years while the remaining 9.9% of respondents reported that were

aged above 50 years. Majority of employees of Sulfo-Rwanda Industries were of age 31-40 similar to the staff. Age of the respondent's shows that youths were the majority and according to Pala, Eker and Melek (2008) youth are ambitious and quickly adopt to changes as compared to the elderly. However the youth may lack experience and for that matter the balance in organization is brought by the older more experienced staff.

4.2.4. Working experience of respondents

The duration of service of the respondents in the industry was determined in order to relate to quality the reliability of data collected and to relate to the influence of expertise and competency.

Table 4.4: Working experience of respondents

		Frequency	Percent
Valid	Below 5 years	18	17.8
	Between 5 and 8 years	27	26.7
	Above 8 years	56	55.4
	Total	101	100.0

Source: Primary data, 2022

The study requested the respondents to indicate the period they have worked in various infrastructure projects in the public hospitals and as illustrated in Table 4.4, it is indicated that 55.4% of the respondents indicated to have worked for a period above 8 years, 26.7% of the respondents was in the services of Sulfo-Rwanda industries Ltd for the period between 5 and 8 years while the remaining 17.8% of respondents were in the services of Sulfo-Rwanda industries Ltd for the period less than 5 years .This indicates that over 55.4% of the respondents had more than 8 years working experience in the implementation of the infrastructure projects in the public hospitals. Thus, the information provided by the respondents on effect of project management practices on performance of Sulfo-Rwanda industries Ltd could be relied upon. This implies that the study got useful information concerning research objectives, because experienced respondent provided useful information capable to detect the effect of project management on project success though the following table provide another angle on the analysis of the distribution statistics. Again this is supported study done by Osedo (2015) who noted that most of the respondents experienced in their jobs, effectively perform their jobs.

4.3. Descriptive Analysis Results

This section presents descriptive analysis on the data gotten from the respondents in connection with independent variables such as project scope management ; project cost management ; project communication management and as independent variable on project risk management and dependent variable such as performance of Sulfo Rwanda Industries Ltd. The study used a likert scale to collect data on the views of respondents regarding various statements for the variables under study. A scale of 1 – 5 was used where responses were categorized by level of agreement as: 1- Strongly disagree; 2- Disagree; 3- Neutral; 4- Agree; and 5- Strongly Agree. Descriptive analysis involving percentages, mean and standard deviation (Std Dev) was employed to address the first objective of the study based on the data retrieved from the questionnaire. The section describes the data using, frequency, percent, mean and standard deviation. High mean indicated that majority of the responded strongly approved the statements presented to them while standard deviation indicated the degree of dispersion from the mean. The mean value was generated from subtracting the highest value with the lowest value from the Likert scale and then divided by the number of interval classes. The mean value is categorized into very high (4.20- 5.00), high (3.40-4.19), moderate (2.60-3.39), low (1.80-2.59), and very low (1.00-1.79). The standard deviation below 0.5 was interpreted as indicating homogeneity of answers (which means closeness of answers). The standard deviation above 0.5 indicates heterogeneity. This interpretation results are the basis for determining the meaning of each question item in the discussion.

4.3.1. Project communication management used by Sulfo-Rwanda Industries

The study sought to assess Project communication management used by Sulfo-Rwanda Industries. The responses from the respondents were logged on a five-point Likert scale anchored by Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5). Table 4.11 displays the responses to statements regarding to project communication management. The researcher required the respondents to state their level of conformity on the statements in relation to project communication management used by Sulfo-Rwanda Industries and the results were presented in table 4.5.

Table 4.5: Project communication management used by Sulfo-Rwanda Industries

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
Ensuring project outcomes are reviewed to determine the effectiveness of management information and communications processes and procedures.	0	0.0	8	7.9	2	2.0	12	11.9	79	78.2	4.60	.87
Ongoing meetings between management/staff/stakeholders are carried out during project implementation	1	1.0	1	1.0	1	1.0	24	23.8	74	73.3	4.67	.65
The organization has established communication strategies to help minimise potential disputes and misunderstandings during project implementation	4	4.0	1	1.0	4	4.0	17	16.8	75	74.3	4.56	.93
There is a clear communication giving stakeholders opportunity to comment/ cast a vote in order to identify clients needs.	5	5.0	5	5.0	4	4.0	30	29.7	57	56.4	4.28	1.09
Ensuring finalization activities are conducted to ascertain agreed ownership of and responsibility for information.	12	11.9	1	1.0	6	5.9	20	19.8	62	61.4	4.18	1.33
Maintaining customer relationships within established guidelines to ensure clarity of understanding of objectives and to reduce conflict throughout the project life cycle.	0	0.0	10	9.9	4	4.0	30	29.7	57	56.4	4.33	.95
There is effective communication of project objectives to all the stakeholders	3	3.0	15	14.9	2	2.0	10	9.9	71	70.3	4.30	1.23
Overall mean											4.41	1.00

Source: Primary data, 2022

In relation to project communication management used by Sulfo-Rwanda Industries, the results from the table 4.5, indicate that 7.9% of respondents disagreed and 2% of respondent were neutral whereas 11.9% of respondents agreed and the majority 78.2% of respondents strongly agreed that ensuring project outcomes are reviewed to determine the effectiveness of management information and communications processes and procedures as shown by very high mean score of 4.60 with standard deviation of 0.87 which implies that there is strong evidence of existing fact and heterogeneity responses.

The results from the table 4.5, indicate that 1% of respondents strongly disagreed, 1% of respondents disagreed and 1% of respondent were neutral whereas 23.8% of respondents agreed and the majority 73.3% of respondents strongly agreed that Ongoing meetings between management/staff/stakeholders are carried out during project implementation as shown by very high mean score of 4.67 with standard deviation of 0.65 which implies that there is strong evidence of existing fact and heterogeneity responses.

The results from the table 4.5, indicate that 4% of respondents strongly disagreed, 1% of respondents disagreed and 4% of respondent were neutral whereas 16.8% of respondents agreed and the majority 74.3% of respondents strongly agreed that the organization has established communication strategies to help minimise potential disputes and misunderstandings during project implementation as shown by very high mean score of 4.56 with standard deviation of 0.93 which implies that there is strong evidence of existing fact and heterogeneity responses.

The results from the table 4.5, indicate that 5% of respondents strongly disagreed, 5% of respondents disagreed and 4% of respondent were neutral whereas 29.7% of respondents agreed and the majority 56.4% of respondents strongly agreed that there is a clear communication giving stakeholders opportunity to comment/ cast a vote in order to identify clients needs.as shown by very high mean score of 4.28 with standard deviation of 1.09 which implies that there is strong evidence of existing fact and heterogeneity responses.

The results from the table 4.5, indicate that 11.9% of respondents strongly disagreed, 1% of respondents disagreed and 5.9% of respondent were neutral whereas 19.8% of respondents

agreed and the majority 61.4% of respondents strongly agreed that ensuring finalization activities are conducted to ascertain agreed ownership of and responsibility for information as shown by very high mean score of 4.18 with standard deviation of 1.33 which implies that the fact appear more and heterogeneity responses.

The results from the table 4.5, indicate that 9.9% of respondents disagreed and 4% of respondent were neutral whereas 29.7% of respondents agreed and the majority 56.4% of respondents strongly agreed that maintaining customer relationships within established guidelines to ensure clarity of understanding of objectives and to reduce conflict throughout the project life cycle as shown by very high mean score of 4.33 with standard deviation of 0.95 which implies that there is strong evidence of existing fact and heterogeneity responses.

The results from the table 4.5, indicate that 3% of respondents strongly disagreed, 14.9% of respondents disagreed and 2% of respondent were neutral whereas 9.9% of respondents agreed and the majority 70.3% of respondents strongly agreed that there is effective communication of project objectives to all the stakeholders as shown by very high mean score of 4.30 with standard deviation of 1.23 which implies that there is strong evidence of existing fact and heterogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to project communication management used by Sulfo-Rwanda Industries was at very high extent with the average mean of 4.41, which is interpreted as a high mean, and the standard deviation of 1.00, which implies that there is strong evidence of existing of fact and heterogeneity response that project communication management used by Sulfo-Rwanda Industries at very high extent. This is in line with the findings of Afroze and Khan (2017), who showed that these practices have significant and positive impact 29 on project performance; project complexity has a minimal impact on the communication and performance relationship. This concur with the findings of Affare (2012) who established that poor communication had resulted in project delays, project cost overrun and project abandonment.

4.3.2. Project Risk Management used by Sulfo-Rwanda Industries

The study sought to assess project risk Management used by Sulfo-Rwanda Industries. The responses from the respondents were logged on a five-point Likert scale anchored by Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5). Table 4.11 displays the responses to statements regarding to project Risk Management used by Sulfo-Rwanda Industries. The researcher required the respondents to state their level of conformity on the statements in relation to project Risk Management used by Sulfo-Rwanda Industries and the results were presented in table 4.6.

Table 4.6: Project Risk Management used by Sulfo-Rwanda Industries

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
There exists a documented plan for reporting events that may pose potential uncertainties on delivery of services.	12	11.9	2	2.0	4	4.0	9	8.9	74	73.3	4.30	1.36
Breakdown in correspondence among government and temporary workers	3	3.0	12	11.9	4	4.0	12	11.9	70	69.3	4.33	1.18
Continuous project cost adjustments to mitigate project cost overrun	0	0.0	3	3.0	0	0.0	12	11.9	86	85.1	4.79	.59
There is effective communication of potential and identified problems to stakeholders.	1	1.0	18	17.8	9	8.9	2	2.0	71	70.3	4.23	1.25
A project managers effectively manage, evaluates and records potential and identified uncertainties.	2	2.0	17	16.8	5	5.0	16	15.8	61	60.4	4.16	1.22
There is enough data on events that can help the organization to learn from its own mistakes.	13	12.9	2	2.0	1	1.0	16	15.8	69	68.3	4.25	1.37
There is a review process after the application of the mitigation measures for the identified uncertainties.	2	2.0	11	10.9	3	3.0	3	3.0	82	81.2	4.50	1.10
Overall mean											**4.36**	**1.15**

Source: Primary data, 2022

The results from the table 4.6, indicate that 11.9% of respondents strongly disagreed, 2% of respondents disagreed and 4.0% of respondent were neutral whereas 8.9% of respondents agreed and the majority 73.3% of respondents strongly agreed that there exists a documented plan for reporting events that may pose potential uncertainties on delivery of services very high mean score of 4.30 with standard deviation of 1.36 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings from the table 4.6, indicate that 3% of respondents strongly disagreed, 11.9% of respondents disagreed and 4.0% of respondent were neutral whereas 11.9% of respondents agreed and the majority 69.3% of respondents strongly agreed that breakdown in correspondence among government and temporary workers very high mean score of 4.33 with standard deviation of 1.18 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings from the table 4.6, indicate that 3% of respondents disagreed whereas 11.9% of respondents agreed and the majority 85.1% of respondents strongly agreed that continuous project cost adjustments to mitigate project cost overrun very high mean score of 4.79 with standard deviation of 0.59 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings from the table 4.6, indicate that 17.8% of respondents strongly disagreed, 8.9% of respondents disagreed and 2% of respondent were neutral whereas 2% of respondents agreed and the majority 70.3% of respondents strongly agreed that there is effective communication of potential and identified problems to stakeholders very high mean score of 4.23 with standard deviation of 1.25 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings from the table 4.6, indicate that 2% of respondents strongly disagreed, 16.8% of respondents disagreed and 5% of respondent were neutral whereas 15.8% of respondents agreed and the majority 60.4% of respondents strongly agreed that a project managers effectively manage, evaluates and records potential and identified uncertainties high mean score of 4.16 with standard deviation of 1.22 which implies that the fact appear more and heterogeneity responses.

The findings from the table 4.6, indicate that 12.9% of respondents strongly disagreed, 2% of respondents disagreed and 1% of respondent were neutral whereas 15.8% of respondents agreed and the majority 68.3% of respondents strongly agreed that there is enough data on events that can help the organization to learn from its own mistakes very high mean score of 4.25 with standard deviation of 1.37 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings from the table 4.6, indicate that 2% of respondents strongly disagreed, 10.9% of respondents disagreed and 3% of respondent were neutral whereas 3% of respondents agreed and the majority 81.2% of respondents strongly agreed that there is a review process after the application of the mitigation measures for the identified uncertainties very high mean score of 4.50 with standard deviation of 1.10 which implies that there is strong evidence of existing fact and heterogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to Project Risk Management used by Sulfo-Rwanda Industries was at very high extent with the average mean of 4.36, which is interpreted as a high mean, and the standard deviation of 1.15, which implies that there is strong evidence of existing of fact and heterogeneity response that project Risk Management used by Sulfo-Rwanda Industries at very high extent. The outcomes agreed with Ngundo (2014) that ascribed the low degrees of task accomplishment to inability to successfully get ready for venture dangers bringing about poor hazard distinguishing proof, evaluation, prioritization, relief and control and in general inability to make venture execution progress.

4.3.3.Projects Scope management used by Sulfo-Rwanda Industries

The study sought to get answers on the awareness of the respondents on Projects Scope management used by Sulfo-Rwanda Industries. The responses from the respondents were logged on a five-point Likert scale anchored by Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5). Table 4.7, displays the responses to statements regarding projects scope management used by Sulfo-Rwanda Industries.

Table 4.7: Projects scope management used by Sulfo-Rwanda Industries

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
All project stakeholders are engaged in scope management	8	7.9	11	10.9	2	2.0	9	8.9	71	70.3	4.23	1.36
Creating Work Breakdown Structure provides the necessary framework for detailed cost estimating and control, along with guiding schedule development and control	0	0.0	0	0.0	1	1.0	7	6.9	93	92.1	4.91	.32
Scope control is one of the key factors considered before and after the implementation of the project	1	1.0	6	5.9	9	8.9	18	17.8	67	66.3	4.43	.95
A clear scope plan is shared with the project team before the project is implemented	0	0.0	12	11.9	11	10.9	7	6.9	71	70.3	4.36	1.08
Scope verification is normally conducted during the implementation of every project	0	0.0	11	10.9	6	5.9	23	22.8	61	60.4	4.33	1.00
Establishing designated measurable project benefits and outcomes to enable quantified evaluation of project performance.	1	1.0	8	7.9	7	6.9	52	51.5	33	32.7	4.07	.90
Developing scope management plans and implementing them to ensure clarity of understanding and ongoing management of project scope.	2	2.0	4	4.0	7	6.9	19	18.8	69	68.3	4.48	.93
Managing the impact of scope change within established time, cost and quality constraints to meet project objectives.	0	0.0	0	0.0	1	1.0	6	5.9	94	93.1	4.92	.31
Overall mean											**4.46**	**0.85**

Source: Primary data, 2022

In regard to projects scope management used by Sulfo-Rwanda Industries, the findings in Table 4.7, indicate that 7.9% of respondents strongly disagreed, 10.9% of respondents disagreed and 2% of respondents were neutral whereas 8.9% of respondents agreed and the majority 70.3% of respondents strongly agreed that all project stakeholders are engaged in scope management as shown by very high mean score of 4.23 and standard deviation of 1.36 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings in Table 4.7, indicate that none of respondents strongly disagreed and 2% of respondents were neutral whereas 6.9% of respondents agreed and the majority 92.1% of respondents strongly agreed that creating Work Breakdown Structure provides the necessary framework for detailed cost estimating and control, along with guiding schedule development and control as shown by very high mean score of 4.91 and standard deviation of 0.32 which implies that there is strong evidence of existing fact and homogeneity responses.

The findings in Table 4.7, indicate that 1% of respondents strongly disagreed, 5.9% of respondents disagreed and 8.9% of respondents were neutral whereas 17.8% of respondents agreed and the majority 66.3% of respondents strongly agreed that scope control is one of the key factors considered before and after the implementation of the project as shown by very high mean score of 4.43 and standard deviation of 0.95 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings in Table 4.7, indicate that 11.9% of respondents disagreed and 10.9% of respondents were neutral whereas 6.9% of respondents agreed and the majority 70.3% of respondents strongly agreed that a clear scope plan is shared with the project team before the project is implemented as shown by very high mean score of 4.36 and standard deviation of 1.08 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings in Table 4.7, indicate that 10.9% of respondents disagreed and 5.9% of respondents were neutral whereas 22.8% of respondents agreed and the majority 60.4% of respondents strongly agreed that scope verification is normally conducted during the implementation of every project as shown by very high mean score of 4.33 and standard deviation of 1.00 which implies that there is strong evidence of existing fact and heterogeneity responses. The findings concur with

PMI (2014) who postulates that scope management in projects includes ascertaining that the project has all tasks and activities necessary for it to be completed successfully. Also, the basic matrix that is used for scope planning analysis involves the initiation, planning, and definition. This can call for verification and change control when interspersed. It also agrees with Band and Pretorius, (2016) that scope inputs require the description of program deliverables, selection program criteria, planning, strategically, and historical information.

The findings in Table 4.7, indicate that 1% of respondents strongly disagreed, 7.9% of respondents disagreed and 6.9% of respondents were neutral whereas 32.7% of respondents strongly agreed and the majority 51.5% of respondents agreed that establishing designated measurable project benefits and outcomes to enable quantified evaluation of project performance as shown by very high mean score of 4.07 and standard deviation of 0.90 which implies that the fact appear more and heterogeneity responses.

The findings in Table 4.7, indicate that 2% of respondents strongly disagreed, 4% of respondents disagreed and 6.9% of respondents were neutral whereas 18.8% of respondents agreed and the majority 68.3% of respondents strongly agreed that developing scope management plans and implementing them to ensure clarity of understanding and ongoing management of project scope as shown by very high mean score of 4.48 and standard deviation of 0.93 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings in Table 4.7, indicate that none of respondents strongly disagreed and 1% of respondents were neutral whereas 5.9% of respondents agreed and the majority 93.1% of respondents strongly agreed that managing the impact of scope change within established time, cost and quality constraints to meet project objectives as shown by very high mean score of 4.92 and standard deviation of 0.31 which implies that there is strong evidence of existing fact and homogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to projects scope management used by Sulfo-Rwanda Industries was at very high extent with the average mean of 4.46, which is interpreted as a high mean, and the standard deviation of 0.85, which implies that there is strong evidence of existing of fact and heterogeneity response that projects scope management used by Sulfo-Rwanda Industries at very high extent. The study findings agree with

those of Fageha and Aibinu (2017) that a well-defined project scope facilitates successful completion of projects within the scheduled time, cost estimates and quality measures and that scope definition is conducted during the pre-planning stage. Morris (2005) also explained that the planning period needs the allocation of a significant amount of time, funds and human resources. This effort is confirmed to be a suitable way of improving project success and notably reducing risks that might come up during project implementation.

According to all staff interviewed, scope change occurred during the project implementation. In fact one participant observed that a change may come right after start or even when the project is about to end. Such changes were observed to greatly interfere with the project deliverables and time however on a positive note, when handled well it produced acceptable deliverables. A great majority observed that the main cause of scope change is ill-definition of the problem right from the start. ―When the sponsor or client describes their needs and the team does not take the initiatives to clearly understand and also help the client understand all dimensions of the project, changes are bound to happen. Most adjustment caused the cost of the project to increase because the team had to revisit the entire project scheme and adjust on the budget. The findings were consistent with the theory of constraints which is a management paradigm that views any manageable system as being limited in achieving more of its goals by a very small number of constraints. The few respondents who disagreed to the statement positions and those who were neutral could have achieved more realistic results regarding project regulatory compliance changes as a contributing variable for project completion. Contingency theory was also observed to be consistent with the findings for assuming that no single type of project completion is equally applicable to all scope changes. Rather, project effectiveness is dependent on a fit or match between the type of technology, environmental volatility, the size of the project, the features of the project completion and its information system (Woods, 2012). Different approach of dealing with project completion could result to different findings.

4.3.4. Project cost management used by Sulfo-Rwanda Industries

The analysis data was obtained by a 1 to 5 range likert scale with one equal to strongly disagree, two equals to disagree, three equals to neutral, four equals to agree and five equals to strongly agree. The respondents specified their levels of acceptance and rejection of the funding for

projects costs factors effecting project implementation. The measure permitted the participants to express their degree of acceptance or rejection to specific statements

Table 4.8: Project cost management used by Sulfo-Rwanda Industries

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
Financing of projects is normally secured before the beginning of every project in the county	6	5.9	9	8.9	3	3.0	11	10.9	72	71.3	4.33	1.24
Ensuring project costs are estimated to enable budgets to be developed and agreed cost management processes implemented at an appropriate level throughout the project life cycle.	10	9.9	6	5.9	1	1.0	11	10.9	73	72.3	4.30	1.34
The cost plan was clear and detailed on drawing of specifications	3	3.0	6	5.9	12	11.9	18	17.8	62	61.4	4.29	1.08
Ensuring cost management plans are developed and implemented to ensure clarity of understanding and ongoing management of project finances.	7	6.9	13	12.9	2	2.0	13	12.9	66	65.3	4.17	1.34
Implementing agreed financial management procedures and processes to monitor actual expenditure and to control costs.	1	1.0	5	5.0	3	3.0	4	4.0	88	87.1	4.71	.83
There is a department set aside to ensure that project costs are controlled.	1	1.0	4	4.0	3	3.0	42	41.6	51	50.5	4.37	.81
Overall mean											4.36	1.10

Source: Primary data, 2022

The findings in Table 4.8, indicate that 5.9% of respondents strongly disagreed, 8.9% of respondents disagreed and 3% of respondents were neutral whereas 10.9% of respondents agreed and the majority 71.3% of respondents strongly agreed that financing of projects is normally secured before the beginning of every project in the county as shown by very high mean score of

4.33 and standard deviation of 1.24 which implies that there is strong evidence of existing fact and heterogeneity responses. Study results are in agreement with the findings by Ayodele and Alabi (2014) describe cost control as a method of controlling the cost of building within a determined value during the design stage. This involves the preparation of an approximate estimate to which the project is committed, and the refining of the cost as the design detail developers.

The findings in Table 4.8, indicate that 9.9% of respondents strongly disagreed, 5.9% of respondents disagreed and 1% of respondents were neutral whereas 10.9% of respondents agreed and the majority 72.3% of respondents strongly agreed that Sulfo-Rwanda ensuring project costs are estimated to enable budgets to be developed and agreed cost management processes implemented at an appropriate level throughout the project life cycle as shown by very high mean score of 4.30 and standard deviation of 1.34 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings in Table 4.8, indicate that 6.9% of respondents strongly disagreed, 12.9% of respondents disagreed and 2% of respondents were neutral whereas 12.9% of respondents agreed and the majority 65.3% of respondents strongly agreed that Sulfo-Rwanda ensuring cost management plans are developed and implemented to ensure clarity of understanding and ongoing management of project finances as shown by very high mean score of 4.17 and standard deviation of 1.34 which implies that the fact appear more and heterogeneity responses.

The findings in Table 4.8, indicate that 1% of respondents strongly disagreed, 5% of respondents disagreed and 3% of respondents were neutral whereas 4% of respondents agreed and the majority 87.1% of respondents strongly agreed that Sulfo-Rwanda implementing agreed financial management procedures and processes to monitor actual expenditure and to control costs as shown by very high mean score of 4.71 and standard deviation of 0.83 which implies that there is strong evidence of existing fact and heterogeneity responses. Chigara, Moyo and Mudzengerere (2018) describes cost control as a systematic application of cost control criteria to the design process so as to maintain in the first place a sensible and economic relation between cost, quality, utility and appearance and in the second place, such overall control of proposed expenditure as circumstances might dictate. He stressed further that cost control does not merely estimate the tender sum but probe deeper into the cost implication of each building element

whereby each design decision maintain a sensible relationship through the design and construction stages

The findings in Table 4.8, indicate that 1% of respondents strongly disagreed, 4% of respondents disagreed and 3% of respondents were neutral whereas 41.6% of respondents agreed and the majority 50.5% of respondents strongly agreed that there is a department set aside to ensure that project costs are controlled as shown by very high mean score of 4.37 and standard deviation of 0.81 which implies that there is strong evidence of existing fact and heterogeneity responses.

The findings in Table 4.8, indicate that 3% of respondents strongly disagreed, 5.9% of respondents disagreed and 11.9% of respondents were neutral whereas 17.8% of respondents agreed and the majority 61.4% of respondents strongly agreed that the cost plan was clear and detailed on drawing of specifications as shown by very high mean score of 4.29 and standard deviation of 1.08 which implies that there is strong evidence of existing fact and heterogeneity responses. The results disclosed an overall positive influence of the funding processes costs management that resulted on a positive result on cost management and project implementation. These findings are also confirmed by Macharia and Ngugi (2014) who noted that funding and funding procedure is key in execution of infrastructure projects and a procedure that is not explicitly documented according to the parameters of the funding agency may hinder the execution of projects that are planned to be accomplished.

Briefly, the overall mean of respondents on the statements regarding to project cost management used by Sulfo-Rwanda Industries was at very high extent with the average mean of 4.37, which is interpreted as a high mean, and the standard deviation of 0.62, which implies that there is strong evidence of existing of fact and heterogeneity response that project cost management used by Sulfo-Rwanda Industries at very high extent. The findings agree with Lukale (2015) that cost estimating, cost budgeting, and cost control are three cost-related processes that interact with each other and with other areas of project management and that all of these processes require effort and a working knowledge of project costing. It also concurs with Khwasira, Wambugu, and Wanyoike, (2016) that the process of cost estimating involves resource planning with the knowledge that scope change can affect project tasks and activities means rework costs for work that has already started or wasn't completed. The study findings are in agreement with literature

review by Hatamleh, et al., (2018) that cost estimation is considered to be one of the most significant processes in project cost management. It is the initial stage of the project cost at various project development stages. As utilized in the development process of the project, project cost estimate consists of all capital expenditures, including constructing and landscaping but does not usually consists of capital support expenditures.

4.3.5. Level of performance of SULFO- Rwanda Industries Ltd

The study sought to assess the level of performance of Sulfo Rwanda. To achieve this, the respondents were asked to give their opinion showing the level of their agreement or disagreement with the statement provided in a Likert scale of 1- 5 where: Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and Strongly disagree (SD) = 1, F=Frequency. The study used descriptive statistics such as mean, frequency and standard deviation as method of data analysis. The findings are presented in Table 4.9.

Table 4.9: Level of performance of SULFO- Rwanda Industries Ltd

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
Higher degree of project successes increases the competitive advantage and market share	7	6.9	10	9.9	0	0.0	19	18.8	65	64.4	4.24	1.27
The projects were completed within set budget indicating the effectiveness of the projects and efficiency with the allocated resources.	0	0.0	11	10.9	3	3.0	15	14.9	72	71.3	4.47	.99
Projects delivered normally satisfy their stakeholder's expectations	15	14.9	1	1.0	0	0.0	13	12.9	72	71.3	4.25	1.43
Sulfo-Rwanda Industries has a high return on investment	1	1.0	17	16.8	4	4.0	9	8.9	70	69.3	4.29	1.19
Gross revenue of the Sulfo-Rwanda Industries has improved	2	2.0	15	14.9	4	4.0	20	19.8	60	59.4	4.20	1.17
The net income went increasing year by year in the last 3 years	7	6.9	7	6.9	2	2.0	12	11.9	73	72.3	4.36	1.24
The turnover ratios of the Sulfo-Rwanda Industries have been improving in recent years	8	7.9	11	10.9	3	3.0	9	8.9	70	69.3	4.21	1.36
There is increase of sales volumes of small business enterprise	0	0.0	0	0.0	1	1.0	6	5.9	94	93.1	4.92	.31
The number of customers of Sulfo-Rwanda Industries has been increased over the last 3 years	1	1.0	7	6.9	7	6.9	52	51.5	34	33.7	4.10	.88
Sulfo-Rwanda Industries is witness a growing market share	2	2.0	4	4.0	6	5.9	22	21.8	67	66.3	4.47	.92
Overall mean											**4.35**	**.36**

Source: Primary data, 2022

In referring to the table 4.9, indicated that 6.9% of respondents strongly disagreed and 9.9% of respondents disagreed whereas 18.8% of respondents agreed and the majority 64.4% of respondents strongly agreed that higher degree of project successes increases the competitive

advantage and market share as indicated by very high mean score of 4.24 and standard deviation of 1.27 which implies that there is strong evidence of existing fact and heterogeneity responses.

The results from the table 4.9, show that 10.9% of respondents disagreed and 3% of respondents were neutral whereas 14.9% of respondents agreed and the majority 71.3% of respondents strongly agreed that the projects were completed within set budget indicating the effectiveness of the projects and efficiency with the allocated resources as indicated by very high mean score of 4.47 and standard deviation of 0.99 which implies that there is strong evidence of existing fact and heterogeneity responses.

From the findings in Table 4.9, show that 14.9% of respondents strongly disagreed and 1% of respondents disagreed whereas 12.9% of respondents agreed and the majority 71.3% of respondents strongly agreed that projects delivered normally satisfy their stakeholder's expectations as indicated by very high mean score of 4.25 and standard deviation of 1.43 which implies that there is strong evidence of existing fact and heterogeneity responses

From the findings in Table 4.9, show that 1% of respondents strongly disagreed, 16.8% of respondents disagreed and 4% of respondents were neutral whereas 8.9% of respondents agreed and the majority 69.3% of respondents strongly agreed that Sulfo-Rwanda Industries has a high return on investment as indicated by very high mean score of 4.29 and standard deviation of 1.19 which implies that there is strong evidence of existing fact and heterogeneity responses.

From the findings in Table 4.9, show that 2% of respondents strongly disagreed, 14.9% of respondents disagreed and 4% of respondents were neutral whereas 19.8% of respondents agreed and the majority 59.4% of respondents strongly agreed that gross revenue of the Sulfo-Rwanda Industries has improved as indicated by high mean score of 4.20 and standard deviation of 1.17 which implies that the fact appear more and heterogeneity responses.

From the findings in Table 4.9, show that 6.9% of respondents strongly disagreed, 6.9% of respondents disagreed and 2% of respondents were neutral whereas 11.9% of respondents agreed and the majority 72.3% of respondents strongly agreed that the net income went increasing year by year in the last 3 years as indicated by very high mean score of 4.36 and standard deviation of 1.24 which implies that there is strong evidence of existing fact and heterogeneity responses.

From the findings in Table 4.9, show that 7.9% of respondents strongly disagreed, 10.9% of respondents disagreed and 3% of respondents were neutral whereas 8.9% of respondents agreed and the majority 69.3% of respondents strongly agreed that the turnover ratios of the Sulfo-Rwanda Industries have been improving in recent years as indicated by very high mean score of 4.21 and standard deviation of 1.36 which implies that there is strong evidence of existing fact and heterogeneity responses.

From the findings in Table 4.9, show that none of respondents strongly disagreed and 1% of respondents were neutral whereas 5.9% of respondents agreed and the majority 93.1% of respondents strongly agreed that there is increase of sales volumes of small business enterprise as indicated by very high mean score of 4.92 and standard deviation of 0.31 which implies that there is strong evidence of existing fact and homogeneity responses.

From the findings in Table 4.9, show that 1% of respondents strongly disagreed, 6.9% of respondents disagreed and 6.9% of respondents were neutral whereas 33.7% of respondents strongly agreed and the majority 51.5% of respondents strongly agreed that the number of customers of Sulfo-Rwanda Industries has been increased over the last 3 years as indicated by high mean score of 4.10 and standard deviation of 0.88 which implies that the fact appear more and homogeneity responses.

From the findings in Table 4.9, show that 2% of respondents strongly disagreed, 4% of respondents disagreed and 5.9% of respondents were neutral whereas 5.9% of respondents agreed and the majority 66.3% of respondents strongly agreed that Sulfo-Rwanda Industries is witness a growing market share as indicated by very high mean score of 4.47 and standard deviation of 0.92 which implies that there is strong evidence of existing fact and heterogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to M Level of performance of SULFO- Rwanda Industries Ltd was at very high extent with the average mean of 4.35, which is interpreted as a high mean, and the standard deviation of 0.36, which implies that there is strong evidence of existing of fact and heterogeneity response that performance of SULFO- Rwanda Industries Ltd has been improved at very high extents. The findings concur with Rugenyi (2016) who explained that a project may be completed on time, budget, and meet all pre-established requirements but fail to meet the expectations of key stakeholders such as the customer. Stakeholders' satisfaction is therefore an important measure of project success in the building construction industry. It also agrees with Osedo (2015) that project managers have the responsibility of ensuring that key stakeholders are involved at every step of the project so as they can clarify their expectations continually.

4.3.6. Financial ratios analysis of SULFO- Rwanda Industries Ltd from 2018-2020

The study sought to analyze the level of financial performance of SULFO- Rwanda Industries Ltd over the 3 years from 2018 up to 2020. The study used descriptive statistics such as percentage, mean and standard deviation. The financial ratios computed were return on assets, return on equity, net profit margin. These ratios were chosen because return on assets, return on equity, net profit margin indicates the level of effectiveness of utilization of company resource to improve company values and how this profit generating wealth among to shareholders.

Table 4.10: Net profit Margin (NPM) from 2018 up to 2020

Years	Sales	Net income	NPM
2018	14,368,986,087	282,259,735	1.96
2019	18,567,005,662	504,271,565	2.72
2020	17,615,244,057	818,696,204	4.65
Min	**14,368,986,087**	**282,259,735**	**1.96**
Max	**18,567,005,662**	**818,696,204**	**4.65**
Mean	**16,850,411,935**	**535,075,835**	**3.11**
St.dev	**2,201,037,987**	**269,541,645**	**1.39**

Source: Sulfo Rwanda, 2018-2020

The results indicated that net profit margin of Sulfo Rwanda industries has been steady increase during the period for 2018 to 2020 where in 2018, net profit margin was 1.96 percent. In 2019, NPM was rated at 2.72%, it increased from 1.96 % in 2018 and went up to 2.72%in 2019 while in 2020, NPM was rated at 4.65% which implies for every Rwfs 100 of sales generate a net profit 4.65 Rwfs . It is therefore implying that the Sulfo-Rwanda Ltd have been receiving a lot of clients who bought its products which eventually return them with an interest charge

The results indicated that over the last 3 years, the minimum of net profit margin of Sulfo-Rwanda Ltd was 1.96% whilst the maximum value of net profit margin of Sulfo-Rwanda Ltd was 4.65%. The average value of net profit margin of Sulfo-Rwanda Ltd was 3.11% with standard deviation of 1.39%. The supposes that this increase of NPM of Sulfo-Rwanda Ltd may indicate Sulfo-Rwanda Ltd has effective in management operation such as from effective management of company resource, more investment in technology and proper method of operational of employees and this can impact the financial welfare of every person involved with firms' operation such as employees, stakeholders and government. These findings are in the line with Violet & Jane (2016), posited that the decline of NPM could be indicators that firms is not operating at peak efficiency and correcting this problem could involve the layoff of workers to

reduce payroll or adjusting building materials and operational procedures to reduce operating costs and shorten the time it takes to create credit products. This finding agrees with Salehi (2018), found that effective project management practices play significant role in improving net profit of manufacturing companies since project management practices play a major role in resource allocation of company

Table 4.11: Return on Assets (ROA) from 2018 up to 2020

Variable	Net income	Total assets	ROA
2018	282,259,735	7,709,580,134	3.66
2019	504,271,565	8,523,897,124	5.92
2020	818,696,204	8,825,247,546	9.28
Min	**282,259,735**	**7,709,580,134**	**3.66**
Max	**818,696,204**	**8,825,247,546**	**9.28**
Mean	**535,075,835**	**8,352,908,268**	**6.29**
St.dev	**269,541,645**	**577,153,650**	**2.83**

Source: Sulfo Rwanda, 2018-2020

The table 4.11, shows the return on asset of Sulfo Rwanda industries during the covered period from 2018 up to2020. The results show that there is steady increase of ROA of Sulfo Rwanda industries where in 2018, the ROA was declined from 4.52% in 2017 down to 3.66% in 2018. In 2019, ROA of Sulfo-Rwanda Ltd was 5.92% and by 2020, ROA was recorded at 9.28%. This means that there has been a progressive growth on the ROA which shows a good sign of performance in terms of profitability. There are many factors which might have led to the above observed trends and one of the main things which might have triggered this is the change in accounting policy disclosure.

The mean value of ROA of Sulfo-Rwanda Ltd from 2018 up to 2020 is 6.29%. This 6.29% return on assets goes to investors. This value is very high, and it means that Sulfo-Rwanda Ltd is generating enough profit. The range of ROA was a maximum of 9.28% and a minimum of 3.66%. The value of the standard deviation for ROA of Sulfo-Rwanda Ltd was 2.83%; this implies that ROA of Sulfo-Rwanda Ltd varies from the mean by 1.99% which indicates that there was low variation from the mean, the lower standard deviation is a good indication that most of the observations are concentrated around the mean. The above figure shows that most of Sulfo-Rwanda Ltd generate huge amount of profit a contributed by their company assets. The implication of the results is that an increase in capital structure is associated with a decrease in ROA. Furthermore, the findings reveal that capital structure is negatively associated with ROE. The results further indicate that the association between project management practices and ROE is significant at 5%

level of significance. The study found that application of project management practices practices would led to an increase in return on assets for listed manufacturing firms to a great extent as indicated by a mean value of financial performance. The finding was comparable to Riley (2012) who established that firms grow in order to achieve more return on assets from increased sales, maximized profits and increased market share. The growth of every Investments Limited firm is financed by different cash flow activities on return on assets.

Table 4.12: Return on Equity (ROE) from 2018 up to 2020

Variable	Net income	Total equity	ROE
2018	282,259,735	4,387,740,424	6.4
2019	504,271,565	4,750,882,121	10.6
2020	818,696,204	4,960,016,347	16.5
Min	**282,259,735**	**4,387,740,424**	**6.40**
Max	**818,696,204**	**4,960,016,347**	**16.50**
Mean	**535,075,835**	**4,699,546,297**	**11.17**
St.dev	**269,541,645**	**289,571,162**	**5.07**

Source: Sulfo Rwanda, 2018-2020

The table above shows the Return on Equity (ROE) of Sulfo Rwanda industries during the covered period from 2018 up to 2020. The results show that there is steady increase of Return on Equity (ROE) of Sulfo Rwanda industries where in 2018, ROE of Sulfo-Rwanda Ltd was 6.4%. IN 2019, ROE was 10.6% and by 2020, ROE was recorded at 16.5%. This implies that although there was an increase in 2020 and, the trend seems to be showing an improvement on the values which the shareholders get at the end of the year as the return

The results in table 4.12, further indicate that return on equity (ROE) ratio had a mean value of 11.17% and standard deviation of 5.07%. The minimum observed value indicated by return on equity was 6.40% while the maximum value was16.5%, positive return on equity means that some manufacturing companies were generating profit (ROE) while negative minimum observed value indicates that some companies were operating at loss. This indicates that contribution of shareholders fund (equity) on generating company income is greater than contribution of company assets in generating company income in five years' time. These results also mean that manufacturing companies have less utilization of assets to generate profit than shareholders fund or company equity. This could suggest good returns during the duration under review despite the effects encountered at the time of post-election crises when there were unfavorable economic indicators. On other hand, it suggests a bad picture for Kenyan companies when comparing with Abor (2005) study on Ghana companies; return on equity (ROE) average which was 37%. In

conclusion, Return on Equity (ROE) of Sulfo Rwanda industries was good because was great than 1% for each year has been increased compared to their previous years. The listed manufacturing firms therefore, exhibits aggressive policy towards project management practices practices to any inadequacy of financial performance by return on equity. This disagreed with Khalaf and Mari'e (2011) who did a study on the effect of financial ratios, firm size and cash flow from operating activities on earning per share. The study empirically proved that a profitability ratio, the market ratio, cash flow from operations / sales and return on equity ratios has a significant impact on earnings per share. The study found out that company's performance and cash flow have a significant negative relationship on earning based measures are more related to stock returns and depict the company performance better than cash flow measures in some companies with higher accruals. The study found that increase in cost of operations to losses predicts financial performance.

4.4. Multiple linear regression model

This section consists of regression analysis. The section was meant to achieve both general and specific objectives in establishing the relationships that exists between the study variables. The Statistical Package for Social Sciences (SPSS) was used to code, enter and compute the measurements of the multiple regressions for the study

4.4.1. Effect of project management practices on ROA of Sulfo Rwanda Industries Ltd

The study determined the regression analysis to demonstrate the relationship between the independent variables and the dependent variable. Specifically, the regression analysis provides the effect of project risk management, project scope management, project cost management and project communication management on ROA of Sulfo Rwanda Industries Ltd at a 5% significance level. This section, therefore, provides the model summary, analysis of variance, and regression coefficients.

Table 4.13: Model Summary of the effect of project management practices on ROA of Sulfo Rwanda Industries Ltd

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.780[a]	.6084	.594	.37332

a. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

From the study findings, it is notable is notable that correlation determination of by R^2 value (0.6084). The study results imply project risk management, project scope management, project cost management and project communication management jointly accounted for 60.84% of the ROA of Sulfo Rwanda Industries Ltd as represented by the R^2 . This therefore means that other factors not studied in this research contribute 39.1% to the ROA of Sulfo Rwanda Industries Ltd. This implies that these variables are very significant and need to be factored to ROA of Sulfo Rwanda Industries Ltd. Therefore, further research should be conducted to investigate the other factors (39.1 percent) that influence ROA of Sulfo Rwanda Industries Ltd

Table 4.14: ANOVA of the effect of project management practices on ROA of Sulfo Rwanda Industries Ltd

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.568	4	3.642	24.356	.000[b]
	Residual	14.355	96	.149		
	Total	28.923	100			

a. Dependent Variable: ROA of Sulfo Rwanda Industries Ltd

b. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

Table 4.15, shows the Analysis of Variance (ANOVA) of regression analysis between independent variable including project management practices and a dependent variable; ROA of Sulfo-Rwanda Ltd. Further, the analysis of variance was used to examine whether the regression model was a good fit for the data. The F-critical (4, 96) was 2.46 while the F-calculated was 24.356 as shown in Table 4.14. This shows that F-Calculated was greater than the F-critical and hence there is significant linear relationship between the project planning and ROA of Sulfo Rwanda Industries Ltd. In addition, the p-value was 0.000, which was less than the significance level (0.05). Therefore, the model can be considered to be a good fit for the data and hence it is appropriate in predicting the influence of the four independent variables (project risk management, project scope management, project cost management and project communication management) on the dependent variable (ROA of Sulfo Rwanda Industries Ltd).

Table 4.15: Regression coefficients of the effect of project management practices on ROA of Sulfo Rwanda Industries Ltd

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	.895	.294		3.044	.008
X1=Project communication management	.369	.081	.369	4.559	.000
X2=Project risk management	.201	.066	.133	3.045	.008
X3=Project scope management	.187	.075	.175	2.476	.015
X4=Project cost management	.308	.058	.383	5.317	.000

a. Dependent Variable: ROA of Sulfo Rwanda Industries Ltd

The Multiple regression model equation would be ($Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \varepsilon$) becomes:

$Y_1 = 0.895 + 0.369X_1 + 0.161X_2 + 0.187X_3 + 0.308X_4$.

According to the regression equation established, taking all factors into account project risk management, project scope management, project cost management, project communication management constant at zero, ROA of Sulfo Rwanda Industries Ltd was 0.895.

The findings from the table 4.15, revealed that project communication management has significance positive effect on in ROA of Sulfo Rwanda Industries Ltd as indicated by $\beta_1 = 0.369$, p-value=0.000<0.05, t=4.559. The implication is that an increase of one unit in project communication management would lead to an increase in ROA of Sulfo Rwanda Industries Ltd by 0.369 units.

The findings from the table 4.15, revealed that project risk management has significance positive effect on ROA of Sulfo Rwanda Industries Ltd as indicated by $\beta_2 = 0.201$, p-value=0.008<0.05, t=3.045. The implication is that an increase of one unit in project risk management would lead to an increase in ROA of Sulfo Rwanda Industries Ltd by 0.201 units.

The findings from the table 4.15, revealed that project scope management has significance positive effect on ROA of Sulfo Rwanda Industries Ltd as indicated by $\beta_3 = .187$, p-value=0.015

<0.05, t=2.476. The implication is that an increase of one unit in project scope management would lead to an increase in ROA of Sulfo Rwanda Industries Ltd by 0.187 units.

The findings from the table 4.15, revealed that project cost management has significance positive effect on ROA of Sulfo Rwanda Industries Ltd as indicated by β_4= 0.308, p-value=0.000<0.05, t=5.317. The implication is that an increase of one unit in project cost management would lead to an increase in ROA of Sulfo Rwanda Industries Ltd by 0.308 units.

4.4.2. Effect of project management practices on ROE of Sulfo Rwanda Industries Ltd

The study determined the regression analysis to demonstrate the relationship between the independent variables and the dependent variable. Specifically, the regression analysis provides the effect of project risk management, project scope management, project cost management and project communication management on ROE of Sulfo Rwanda Industries Ltd at a 5% significance level. This section, therefore, provides the model summary, analysis of variance, and regression coefficients.

Table 4.16: Model Summary of the effect of project management practices on ROE of Sulfo Rwanda Industries Ltd

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.730[a]	.533	.513	.45995

a. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

The model summary in table 4.16, recorded the results on the degree to which variance in ROE of Sulfo Rwanda Industries Ltd is caused by changes in the predictor variables of the study (project risk management, project scope management , project cost management and project communication management). R embodies the correlation coefficient which shows the strength of the relationship between the independent and deponent variables of the study. Thus, an R of 0.730 demonstrates a positive relationship between the study variables. The study established an R2 (R-Square) of 0.533 which indicates that 53.3% of variances in ROE of Sulfo Rwanda Industries Ltd are caused by variances in project risk management, project scope management , project cost management , project communication management. Therefore, 46.7% of other changes in ROE of Sulfo Rwanda Industries Ltdare caused other variables not covered in the study objectives.

Table 4.17: ANOVA of the effect of project management practices on ROE of Sulfo Rwanda Industries Ltd

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.656	4	5.664	27.340	.000[b]
	Residual	19.886	96	.207		
	Total	42.543	100			

a. Dependent Variable: ROE of Sulfo Rwanda Industries Ltd

b. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

Results in table 4.17, show that the model of the study was significant at 0.000% level of significance which suggests that the data was ideal for making study inferences as the significance level was below 0.05. An F statistics of 27.340 which was established as the ratio of Mean Square Regression to the Mean Square Residual, further showed that the model of the study was significant as evident by the significance level of 0.000 < 0.05, demonstrating that changes in project management practices such as project risk management, project scope management, project cost management , project communication management significantly causes changes in ROE of Sulfo Rwanda Industries Ltd.

Table 4.18: Regression Coefficients of the effect of project management practices on ROE of Sulfo Rwanda Industries Ltd

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	.866	.305		2.844	.005
X1=Project communication management	.160	.045	.005	3.555	.001
X2=Project risk management	.442	.149	.475	2.964	.004
X3=Project scope management	.279	.124	.297	2.251	.027
X4=Project cost management	.151	.044	.004	3.432	.000

a. Dependent Variable: ROE of Sulfo Rwanda Industries Ltd

The equation ($Y_2 = \beta 0+\beta_1 x_1+\beta_2 x_2+\beta_3 x_{3+}\beta_4 x_4+\varepsilon$) becomes:

ROE of Sulfo Rwanda Industries Ltd = $0.866+0.160x_1+0.442x_2+0.279x_{3+}0.151x_4$

According to the regression equation established, taking all the independent variables (project risk management, project scope management , project cost management , project communication management) into constant at zero, ROE of Sulfo Rwanda Industries Ltd was 0.866. The data

findings analyzed also showed that all the independent variables had a positive and significant effect on ROE of Sulfo Rwanda Industries Ltd as indicated by beta values.

The regression results revealed that project communication management has significance positive effect on ROE of Sulfo Rwanda Industries Ltd as indicated by β_1= 0.160, p-value=0.001<0.05, t= 3.555. The implication is that an increase of one unit in project communication management would lead to an increase in ROE of Sulfo Rwanda Industries Ltd by 0.160 units.

The regression results revealed that project risk management has significance positive effect on ROE of Sulfo Rwanda Industries Ltd as shown by β_2= 0.442, p=0.004<0.05, t=2.964. This shows that when there is an increase of one unit in project risk management would lead to an increase in ROE of Sulfo Rwanda Industries Ltd by 0.442 units.

The regression results revealed that project scope management has significance positive effect on ROE of Sulfo Rwanda Industries Ltd as indicated by β_3= 0.279, p-value=0.027<0.05, t= 2.251. The implication is that an increase of one unit in project scope management will increase ROE of Sulfo Rwanda Industries Ltd by 0.279 units.

The regression results revealed that project cost management has significance positive effect on ROE of Sulfo Rwanda Industries Ltd as indicated by β_4= 0.151, p-value =0.000<0.05, t= 3.432. The implication is that an increase of one unit in project cost management would lead to an increase in ROE of Sulfo Rwanda Industries Ltd by 0.151 units.

4.4.3. Effect of project management practices on NPM of Sulfo Rwanda Industries Ltd

The study determined the regression analysis to demonstrate the relationship between the independent variables and the dependent variable. Specifically, the regression analysis provides the effect of project risk management, project scope management, project cost management and project communication management on NPM of Sulfo Rwanda Industries Ltd at a 5% significance level. This section, therefore, provides the model summary, analysis of variance, and regression coefficients.

Table 4.19: Model Summary of the effect of project management practices on NPM of Sulfo Rwanda Industries Ltd

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.762[a]	.580	.571	.34798

a. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

The coefficient of determination was denoted by the adjusted r-squared which provides explanations to the total variations in the dependent variables due to the changes in the value of the dependent variables. The results in table 4.19, shown above shows that, the r-squared value was 0.571, which indicate that nearly 57.1% of the total variations of NPM of Sulfo Rwanda Industries Ltd can be attributed to the changes in the value of the independent variables (project risk management, project scope management, project cost management and project communication management) captured by the study model and at confidence level of 95%. Therefore, 42.7% of other changes in NPM of Sulfo Rwanda Industries Ltd are caused other variables not covered in the study objectives.

Table 4.20: ANOVA of the effect of project management practices on NPM of Sulfo Rwanda Industries Ltd

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.259	4	8.064	33.185	.000[b]
	Residual	23.371	96	.243		
	Total	55.630	100			

a. Dependent Variable: Y= NPM of Sulfo Rwanda Industries Ltd

b. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

The research study determined that all the variables were significant at their significance level which was lower than 0.05. The predictor variables were regressed against NPM of Sulfo Rwanda Industries Ltd. The overall model was significant because calculated Statistic of 33.185 was large than the critical $F(V_1=4, V_2=96)= 2.46$ and also because p-value calculated =0.000 is less than critical p-value=0.05 level of significant. This finding shows that the study model is significant and can be applied for the purposes of making predictions at 5% level of significance. Therefore, this implies that the variables: project risk management, project scope management, project cost

management and project communication management are good predictors of NPM of Sulfo Rwanda Industries Ltd.

Table 4.21: Regression coefficients of the effect of project management practices on NPM of Sulfo Rwanda Industries Ltd

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	.668	.283		2.360	.010
X1=Project communication management	.522	.067	.466	7.846	.000
X2=Project risk management	.170	.055	.165	3.122	.002
X3=Project scope management	.103	.035	.134	2.942	.008
X4=Project cost management	.455	.078	.419	5.840	.000

a. Dependent Variable: Y= NPM of Sulfo Rwanda Industries Ltd

$$Y_3 = \beta 0+\beta_1 x_1+\beta_2 x_2+\beta_3 x_3+\beta_4 x_{34}+e$$

Based on the findings above the model is represented as follows:

NPM of Sulfo Rwanda Industries Ltd = $0.668+0.522X_1+0.170X_2+0.103\ X_3+0.455X_4$

The regression equation in Table 4.21, has established that taking all factors into account (project risk management, project scope management, project cost management and project communication management) constant at zero, NPM of Sulfo Rwanda Industries Ltd was 0.668

The regression results revealed that Project communication management has significance positive effect on NPM of Sulfo Rwanda Industries Ltd as indicated by β_1= 0.522, p-value=0.000<0.05, t=7.846. The implication is that an increase of one unit in Project communication management would lead to an increase in on NPM of Sulfo Rwanda Industries Ltd by 0.522 units.

The regression results revealed that project risk management has significance positive effect on NPM of Sulfo Rwanda Industries Ltd as shown by β_2= 0.170, p=0.002<0.05, t=3.122. This shows that when there is an increase of one unit in project risk management would lead to an increase in NPM of Sulfo Rwanda Industries Ltd by 0.170 units.

The regression results revealed that project scope management has significance positive effect on NPM of Sulfo Rwanda Industries Ltd as indicated by β_3= 0.103, p-value=0.008<0.05, t= 2.942.

The implication is that an increase of one unit in project scope management will increase NPM of Sulfo Rwanda Industries Ltd by 0.103 units.

The regression results revealed that project cost management has significance positive effect on NPM of Sulfo Rwanda Industries Ltd as indicated by β_4= 0.455, p-value =0.000<0.05, t=5.840. The implication is that an increase of one unit in project cost management would lead to an increase in NPM of Sulfo Rwanda Industries Ltd by 0.455 units.

4.4.4. Effect of project management practices on sales revenue of Sulfo Rwanda Industries Ltd

The study determined the regression analysis to demonstrate the relationship between the independent variables and the dependent variable. Specifically, the regression analysis provides the effect of project risk management, project scope management, project cost management and project communication management on sales revenue of Sulfo Rwanda Industries Ltd at a 5% significance level. This section, therefore, provides the model summary, analysis of variance, and regression coefficients.

Table 4.22: Model Summary of the effect of project management practices on sales revenue of Sulfo Rwanda Industries Ltd

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.807[a]	.651	.637	.21422

a. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

In Table 4.22, the correlation coefficient (R) of 0.807 shows that there is a strong positive joint correlation between project cost management (project communication management; project risk management, project scope management and project cost management) with sales of Sulfo-Rwanda Industries Ltd. From the study findings, it is notable is notable that the adjusted coefficient of determination given by R^2 is 0.637, indicating that the four independent variables (project communication management; project risk management, project scope management and project cost management) explain 63.7% of the variations in the sales of Sulfo-Rwanda Industries Ltd. This therefore means that other factors not studied in this research contribute 36.3% to the sales of Sulfo-Rwanda Industries Ltd. This implies that these project management variables are very significant and need to be factored to improve performance of Sulfo-Rwanda Industries Ltd .

Table 4.23: ANOVA of the effect of project management practices on sales revenue of Sulfo Rwanda Industries Ltd

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.227	4	2.057	44.818	.000[b]
	Residual	4.405	96	.046		
	Total	12.632	100			

a. Dependent Variable: Sales of Sulfo-Rwanda Industries

b. Predictors: (Constant), X4= Project risk management, X1= Project scope management , X2= Project cost management , X3=Project communication management

Further, the analysis of variance was used to examine whether the regression model was a good fit for the data. The F-critical (4, 96) was 2.46 while the F-calculated was 44.818 as shown in Table 4.23. This shows that F-calculated was greater than the F-critical and hence linear relationship between the project management and sales of Sulfo-Rwanda Industries Ltd. In addition, the p-value was 0.000, which was less than the significance level (0.05). Therefore, the model can be considered to be a good fit for the data and hence it is appropriate in predicting the influence of the four independent variables (project management) on the dependent variable (sales of Sulfo-Rwanda Industries Ltd) this shows that the overall model was significant in predicting project management practices influencing sales of Sulfo-Rwanda Industries Ltd.

Table 4.24: Regression coefficients of the effect of project management practices on sales revenue of Sulfo Rwanda Industries Ltd

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	1.130	.276		4.094	.000
X1=Project communication management	.254	.045	.375	5.650	.000
X2=Project risk management	.240	.038	.446	6.323	.000
X3=Project scope management	.237	.066	.274	3.600	.001
X4=Project cost management	.001	.048	.002	.028	.977

a. Dependent Variable: Sales of Sulfo-Rwanda Industries

The equation ($Y_4 = \beta 0+\beta_1 x_1+\beta_2 x_2+\beta_3 x_3+\beta_4 x_4$) becomes:

Sales of Sulfo-Rwanda Industries = $1.130+0.254X_1 +0.240X_2+0.237X_3 +0.001X_4$

The regression equation above has established that taking all factors into account (project communication management; project risk management, project scope management and project cost management) constant at zero. Sales of Sulfo-Rwanda Industries Ltd was 1.130

At 5% level of significance, only three variables of project management practices such as project communication management; project risk management, project scope management were statistically significant effect on sales of Sulfo-Rwanda Industries Ltd with the coefficient of regression values: ß0=1.130, ß1=0.254, ß2=0.240, ß3=0.237 respectively as their p-value is within the recommended thresholds of($p< 0.05$) while project cost management was found to be insignificant to sales of Sulfo-Rwanda Industries Ltd with the coefficient of regression values $\beta_4= 0.001$

The regression results revealed that have significance positive project communication management effect on sales of Sulfo-Rwanda Industries Ltd as indicated by $\beta_1=0.254$, $p=0.000<0.05$, $t=5.650$. The implication is that an increase of one unit in project communication management would lead to an increase in sales of Sulfo-Rwanda Industries Ltd by 0.254 units.

The regression results revealed that have significance positive project risk management effect on performance of Sulfo-Rwanda Industries Ltd as indicated by $\beta_2=0.240$, $p=0.000<0.05$, $t=6.323$. The implication is that an increase of one unit in project risk management would lead to an increase in sales of Sulfo-Rwanda Industries Ltd by 0.240 units. This is accordance to Wanyonyi (2015) who argued that risk could be defined in projects as the likelihood of a program objective occurrence which is likely to have an effect and is measured in terms of probability and consequences thus risk management activities have a positive impact on timely program delivery. Also, in relation to the findings, Kisaka and Musomi (2017) mention that Projects are filled with uncertainties and failure to properly recognize or handle these uncertainties can lead to serious issues and problems quickly.

The regression results revealed that have significance positive project scope management effect on sales of Sulfo-Rwanda Industries Ltd as indicated by $\beta_3=0.237$, $p=0.001<0.05$, $t=3.600$. The implication is that an increase of one unit in project scope management would lead to an increase in sales of Sulfo-Rwanda Industries Ltd by 0.237 units. The study results are in tandem with

literature review by According to Adler and Smith (2009) while a project's scope and schedule expectations have their own set of standards and principles, project cost reporting seems to be an underdeveloped discipline today.

The regression results revealed that project cost management had insignificant effect on sales of Sulfo-Rwanda Industries Ltd as indicated by β_4=0.001, p=0.977> 0.05, t= 0.028 The implication is that an increase of one unit in project scope management would lead to an increase in sales of Sulfo-Rwanda Industries Ltd by 0.001 units but not significant. This findings are in disagreement with Chigara, Moyo, & Mudzengerere (2013), observed that in the majority of cases, contractors' efforts to manage projects costs are centred on management of project resources. Contrary to having cost management systems in place, contractors admit experiencing cost overruns on their projects.

4.5. Testing research hypothesis

The result of a statistical test, denoted p, shall be interpreted as follows, the null hypothesis H0 is rejected if p<0.05 level of significant and also if F-test is great than F-critical

4.5.1.Testing research hypothesis one

Hypothesis one states that there is no significant effect of project management practices on ROA of Sulfo Rwanda Industries Ltd**.** As indicated in the table 4.15, the F-test value was 24.356 with significance value of 0.00 at 5% level of significance. Since the p-value obtained was less than 0.05 and also F-calculated was 24.356 is greater than F-critical (4, 96) was 2.46 which implies that was significant hence the conclusion that the regression model was good. Therefore, the null hypothesis stated that there is no significant effect of project management practices on ROA of Sulfo Rwanda Industries Ltd was rejected as the results of the study showed that there is statistical significant there is significant effect of project management practices on ROA of Sulfo Rwanda Industries Ltd. Hence it is appropriate in predicting the influence of the four independent variables (project risk management, project scope management, project cost management and project communication management) on the dependent variable (ROA of Sulfo Rwanda Industries Ltd).

4.5.2. Testing second research hypothesis

Hypothesis one states that there is no significant effect of project management practices on ROE of Sulfo Rwanda Industries Ltd. As indicated in the table 4.15, the F-test value was 24.356 with significance value of 0.00 at 5% level of significance. Since the p-value obtained was less than 0.05 and also F-calculated was 27.340 is greater than F-critical (4, 96) was 2.46 which implies

that was significant hence the conclusion that the regression model was good. Therefore, the null hypothesis stated that there is no significant effect of project management practices on ROE of Sulfo Rwanda Industries Ltd was rejected as the results of the study showed that there is statistical significant there is significant effect of project management practices on ROE of Sulfo Rwanda Industries Ltd.. Hence it is appropriate in predicting the influence of the four independent variables (project risk management, project scope management, project cost management and project communication management) on the dependent variable (ROE of Sulfo Rwanda Industries Ltd).

4.5.3. Testing third research hypothesis

Hypothesis three states that there is no significant effect of project management practices on NPM of Sulfo Rwanda Industries Ltd**.** As indicated in the table 4.15, the F-test value was 24.356 with significance value of 0.00 at 5% level of significance. Since the p-value obtained was less than 0.05 and also F-calculated was 33.185 is greater than F-critical (4, 96) was 2.46 which implies that was significant hence the conclusion that the regression model was good. Therefore, the null hypothesis stated that there is no significant effect of project management practices on NPM of Sulfo Rwanda Industries Ltd was rejected as the results of the study showed that there is statistical significant there is significant effect of project management practices on of NPM of Sulfo Rwanda Industries Ltd. . Hence it is appropriate in predicting the influence of the four independent variables (project risk management, project scope management, project cost management and project communication management) on the dependent variable (of NPM of Sulfo Rwanda Industries Ltd).

4.5.4. Testing third research hypothesis

Hypothesis four states that there is no significant effect of project management practices on sales of Sulfo Rwanda Industries Ltd **.** As indicated in the table 4.15, the F-test value was 24.356 with significance value of 0.00 at 5% level of significance. Since the p-value obtained was less than 0.05 and also F-calculated was 44.818 is greater than F-critical (4, 96) was 2.46 which implies that was significant hence the conclusion that the regression model was good. Therefore, the null hypothesis stated that there is no significant effect of project management practices on sales of Sulfo Rwanda Industries Ltd was rejected as the results of the study showed that there is statistical significant there is significant effect of project management practices on sales of Sulfo-Rwanda Industries Ltd. Hence it is appropriate in predicting the influence of the four

independent variables (project risk management, project scope management, project cost management and project communication management) on the dependent variable (sales of Sulfo-Rwanda Industries Ltd).

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

5.0. Introduction

This chapter covers that summary of the findings, recommendations for policy and practice, conclusions and recommendations for further studies.

5.1. Summary of findings

This section presented the summary of findings based on the research objectives such as to determine effect of project management practices on ROA of Sulfo Rwanda Industries Ltd; to examine effect of project management practices on ROE of Sulfo Rwanda Industries Ltd; to examine the effect of project management practices on NPM of Sulfo Rwanda Industries Ltd and to find out the effect of project management practices on sales of Sulfo Rwanda Industries Ltd

5.1.1. Effect of project management practices on ROA of Sulfo Rwanda Industries Ltd

For the first research objective, the results revealed that project communication management such as project communication management; project risk management; project scope management and project cost management on ROA of Sulfo Rwanda Industries Ltd as indicated by (β_1= 0.369, p-value=0.000<0.05, t=4.559);(β_2= 0.201, p-value=0.008<0.05, t=3.045); (β_3=0.187, p-value=0.015 <0.05, t=2.476) and also (β_4= 0.308, p-value=0.000<0.05, t=5.317) which implies that an increase of one unit in project communication management; project risk management; project scope management and project cost management would lead to an increase 0.369; 0.201; 0.187and 0.308 units in ROA of Sulfo Rwanda Industries Ltd

5.1.2. Effect of project management practices on ROE of Sulfo Rwanda Industries Ltd

For the second research objective, the results revealed that project communication management such as project communication management; project risk management; project scope management and project cost management on ROE of Sulfo Rwanda Industries Ltd as indicated by (β_1= 0.160, p-value=0.001<0.05, t= 3.555) ;(β_2= 0.442, p=0.004<0.05, t=2.964); (β_3= 0.279, p-value=0.027<0.05, t= 2.251) and also (β_4= 0.151, p-value =0.000<0.05, t= 3.432) which implies that an increase of one unit in project communication management; project risk management; project scope management and project cost management would lead to an increase0.160; 0.442; 0.279 and 0.151units in ROE of Sulfo Rwanda Industries Ltd

5.1.3. Effect of project management practices on NPM of Sulfo Rwanda Industries Ltd

For the second research objective, the results revealed that project communication management such as project communication management; project risk management; project scope management and project cost management on NPM of Sulfo Rwanda Industries Ltd as indicated by (β_1= 0.522, p-value=0.000<0.05, t=7.846) ;(β_2= 0.170, p=0.002<0.05, t=3.122); (β_3= 0.103, p-value=0.008<0.05, t= 2.942) and also (β_4= 0.455, p-value =0.000<0.05, t=5.840) which implies that an increase of one unit in project communication management; project risk management; project scope management and project cost management would lead to an increase 0.103; 0.170; 0.103and 0.455units in NPM of Sulfo Rwanda Industries Ltd

5.1.4. Effect of project management practices on sales of Sulfo Rwanda Industries Ltd

For the fourth research objective, the results revealed that project communication management such as project communication management; project risk management; project scope management and project cost management on sales of Sulfo-Rwanda Ltd as indicated by (β_1=0.254, p=0.000<0.05) ;(β_2=0.240, p=0.000<0.05, t=6.323); (β_3=0.237, p=0.001<0.05) and also (β_4=0.001, p=0.977> 0.05, t= 0.028) which implies that an increase of one unit in project communication management; project risk management; project scope management and project cost management would lead to an increase 0.254; 0.240; 0.237 and 0.001 units in sales of Sulfo-Rwanda Ltd

5.2. Conclusion

Based on the findings revealed in chapter fourth, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to 60.84% of the ROA of Sulfo Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%.

Based on the findings revealed in chapter fourth, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to 53.3% of variances in ROE of Sulfo Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%.

Based on the findings revealed in chapter fourth, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to nearly 57.1% of the total variations of NPM of Sulfo Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%.

Based on the findings revealed in chapter fourth, the study concluded that the combination of all four independent variable such as project communication management; project risk management, project scope management and project cost management contribute to nearly explain 63.7% of the variations in the sales of Sulfo-Rwanda Industries Ltd as represented by the R^2 captured by the study model and at confidence level of 95%.

5.3. Recommendations

Based on the results of the survey and the testing of the hypotheses, the authors recommend the following:

The study revealed that appropriate communication channel ensures that information is transmitted on time and in the right format and also that user friendly communication tools and techniques are critical during implementation of the project. Thus the study recommends that stakeholders in the building industry should adopt most forms of communication among them written form (site instruction books), email, verbal instructions (telephone) and messaging including WhatsApp. This is to ensure that information is communicated without error and on time.

Project activities should be communicated to every party concerned during implementation of projects and the manufacturing companies should establish the right channels of delivery messages and feedback in both top-down and bottom-up communication.

The organization should set up functional communication systems which are open and confidential for use by all stakeholders. It should create a ‘we’ feeling through communication of relevant only information to specific audiences. The content, audience and timing of communication matters most.

The study recommends that the organization conducts comprehensive risk management. This risk management should follow all the steps in the risk management framework. There should be risk events identification, quantification assignment of risk mitigation measures, allocation of

adequate resources, implementation, monitoring and control. It is also recommended that the organization creates a risk register that is regularly updated ii each of the projects.

The study recommends that management of Sulfo-Rwanda Industries Ltd and policy makers should develop measures to foster utilization of project risk identification practices to achieve significant road construction project performance. Measures should be deployed to ensure effective supervision of project personnel, proper screening of project risks, ensure effective technical specification and identification of project cost such as compensation litigations, ensure information sharing, adequate project environmental impact assessment, promote risk registration to achieve expected road project outcomes.

The study recommend that management of Sulfo-Rwanda Industries Ltd should deploy policy measures that should foster project control risk management practices such as monitoring projects progress, continuous project cost adjustment to mitigate project cost overrun and there existed compliance with project contract requirement and evaluation of projects design, error elimination to avoid deviation, project risk auditing , effective scheduling of budget for project activities, coordination of road project operations, contingency management, sharing of knowledge and skills on past project risks responses and enhanced learning among stakeholders contribute to a significant improve achievement of project performance outcomes.

The management of Sulfo-Rwanda Industries Ltd needs to strengthen their change definition and control in such a way that systems that help define scope change and how it was controlled are implemented.

The study recommends that there is need to enhance methods of cost estimation to improve performance of Sulfo-Rwanda Industries Ltd. There is need to enhance cost control as a method of controlling the cost of building within a determined value during the design stage.

5.4 Suggested further studies

The study focused on how project management practices affect performance of manufacturing companies in Rwanda. Therefore, further study should be carried out focusing on other variables that have not been studied to address that gap as indicated in the coefficient of determination.

1) The role of leadership styles on performance of manufacturing companies in Rwanda

2) The effect of Monitoring and evaluation reports on performance of manufacturing companies in Rwanda
3) The effect of community participation on performance of manufacturing companies in Rwanda.

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APPENDICES

Appendix I: Research Questionnaire

I, DIANE MUHOZA, a student at UoK , pursuing a degree of Master in Project Management. As a requirement for the award of the degree, I am conducting a research study on the **"Assessment of the impact of project management practices on small medium enterprises performance in Rwanda, a case study of Sulfo Rwanda Industries Ltd "** To enable me complete this research study, I kindly request you to fill the attached questionnaire. Please answer all questions as completely, correctly and honestly as possible to ensure objective research findings. Your response and opinions was treated with utmost confidentiality and will only be used for this research study. Do not write your name anywhere in this questionnaire.

PART A: Respondent's Demographic Information

1. **What is your gender? (Tick One)**
   a) Male [ ]
   b) Female [ ]

2. Please indicate your age bracket. (Tick One)

a) 21-30 years [ ]
b) 31-40 years [ ]
c) 41-50 years [ ]
d) Above 50 years [ ]

3. What is your highest academic qualification? (Tick One)

a) Certificate [ ]
b) Diploma [ ]
c) Undergraduate [ ]
d) Postgraduate [ ]

4. For how long have you worked in the organization? (Tick One)

a) Less than 2 years [ ]

b) 2 – 5 years [ ]

c) 6 – 10 years [ ]

d) More than 10 years [ ]

5. What is your professional orientation in the organization? (Tick One)

a) IT [ ]

b) Finance [ ]

c) Customer Care [ ]

d) Audit & Quality [ ]

e) Marketing [ ]

PART B: Project Management Practices Influencing the Performance of SULFO Rwanda

The table below indicates the project management of SULFO Rwanda. Please indicate your opinion on the scale of 1 to 5, where 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree.

Statement	1	2	3	4	5
Project Communication management					
Ensuring project outcomes are reviewed to determine the effectiveness of management information and communications processes and procedures.					
Ongoing meetings between management/staff/stakeholders are carried out during project implementation					
The organization has established communication strategies to help minimise potential disputes and misunderstandings during project implementation					
There is a clear communication giving stakeholders opportunity to comment/ cast a vote in order to identify clients needs.					
Ensuring finalization activities are conducted to ascertain agreed ownership of and responsibility for information.					
Maintaining customer relationships within established guidelines to ensure clarity of understanding of objectives and to reduce conflict throughout the project life cycle.					
There is effective communication of project objectives to all the stakeholders					
Project Risk Management					
There exists a documented plan for reporting events that may pose potential					

uncertainties on delivery of services.					
There is effective communication of potential and identified problems to stakeholders.					
A project managers effectively manage, evaluates and records potential and identified uncertainties.					
There is enough data on events that can help the organization to learn from its own mistakes.					
There is a review process after the application of the mitigation measures for the identified uncertainties.					
Projects Scope management					
Project authorization confirmed with higher authority.					
Identifying project objectives, deliverables, constraints and principal work activities.					
Scope control is one of the key factors considered before and after the implementation of the project					
A clear scope plan is shared with the project team before the project is implemented					
Scope verification is normally conducted during the implementation of every project					
Establishing designated measurable project benefits and outcomes to enable quantified evaluation of project performance.					
Developing scope management plans and implementing them to ensure clarity of understanding and ongoing management of project scope.					
Managing the impact of scope change within established time, cost and quality constraints to meet project objectives.					
Project Cost management					
Determining resource requirements for individual tasks to provide a basis for attributing expenditure.					
Ensuring project costs are estimated to enable budgets to be developed and agreed cost management processes implemented at an appropriate level throughout the project life cycle.					
Ensuring cost management plans are developed and implemented to ensure clarity of understanding and ongoing management of project finances.					

Implementing agreed financial management procedures and processes to monitor actual expenditure and to control costs.					
Selecting cost analysis methods and tools to identify cost variations, evaluate options and recommend actions to higher project authority.					

PART C: Performance of SULFO Rwanda

The table below indicates the performance of SULFO Rwanda. Please indicate your opinion on the scale of 1 to 5, where 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree.

Statements	**1**	**2**	**3**	**4**	**5**
Higher degree of project successes increases the competitive advantage and market share					
Better understanding of project requirement leading to motivated staff					
Provide customer advantage arising from meeting customer expectations					
Sulfo-Rwanda Industries has a high return on investment					
Gross revenue of the Sulfo-Rwanda Industries has improved					
The net income went increasing year by year in the last 3 years					
The turnover ratios of the Sulfo-Rwanda Industries have been improving in recent years					
There is increase of sales volumes of small business enterprise					
The number of customers of Sulfo-Rwanda Industries has been increased over the last 3 years					
Sulfo-Rwanda Industries is witness a growing market share					

Thank you for your participation!!!

Appendix II: Acceptance letter for data collection

SULFO RWANDA INDUSTRIES LTD

#12 KN 82 ST, B.P.90, KIGALI, RWANDA, EAST AFRICA
Tel.: (+250) 0252575457, 0252576472, 0788305979 Email: info@sulfo.com
Fax: (+250) 0252574573 eFax: +4487013123S0 Web: www.sulfo.com Company Code: 100028318

Ref: 585/SUL/DG/BC/22

Kigali,
19th September, 2022

Ms MUHOZA Diane
University of Kigali
GASABO DISTRICT

Re: Your request for research on "Project management practices and performance of manufacturing Companies in Rwanda".

With reference to your letter dated 13/09/2022, we are pleased to grant you permission to conduct your research on 22/09/2022 in our Accounts Department.

During your research, you will be facilitated by our Assistant Manager- Accounts. However, it should be noted that confidentiality is needed for the data collected.

With kind regards,

H. Dharmarajan
Managing Director

CC:
-Manager Finance & Accounts
-HR Department

This document is valid only if it is digitally signed.

Digitally signed by HR/Authorised Signatory
2022.09.19 14:17:54 +02'00'

Manufacturers (Soaps/Cosmetics/Toiletries/Drinking water/Confectionery/Packaging)
LPG Bottling & Distribution • Importers • Exporters • General Trading • Garage & Tool Room

Appendix III: Financial statements of Sulfo-Rwanda Ltd from 2018-2020

SULFO RWANDA INDUSTRIES LTD

PROFIT & LOSS A/C FOR THE YEAR ENDED ON DECEMBER 31, 2020

	Sch	Current Year	Previous Year
INCOME / SALES	1	18,567,005,662	17,615,244,057
COST OF SALES	2	14,520,885,864	14,198,078,761
Gross Profit		**4,046,119,798**	**3,417,165,296**
Administration & Personnel Costs	3	1,713,739,260	1,598,545,350
Selling, Distribution & Other General Overheads	4	350,087,379	466,463,713
Other Operating Costs	5	565,903,123	552,077,312
Total Expenditure		**2,629,729,762**	**2,617,086,375**
Operating Profit / (Loss)		**1,416,390,036**	**800,078,921**
Other Non Operating Incomes	6	36,650,130	31,734,535
Finance Costs	7	288,952,543	101,524,300
Profit / (Loss) for the period before Tax		**1,164,087,623**	**730,289,156**
PROVISION FOR -			
Current Tax		298,086,101	220,533,009
Deferred tax		47,305,317	5,484,582
PROFIT / (LOSS) AFTER TAX		**818,696,204**	**504,271,565**

SIGNIFICANT ACCOUNTING POLICIES & NOTES ON ACCOUNTS

For Raj,Ashiwal & Mehta Associates Ltd.
Certified Public Accountants

R.A.M. Certified Public Accountants Rwanda 20-21

Kigali. **19-Mar-21**

For SULFO RWANDA INDUSTRIES LTD

SULFO RWANDA INDUSTRIES S.A. B.P. 90 KIGALI REP. DU RWANDA

Kigali. **Director** **19-Mar-21**

STATEMENT OF FINANCIAL POSITION AS AT DECEMBER 31, 2020

	Sch	Current Year	Previous Year
ASSETS			
Non Current Assets			
Property & Equipments	8	2,349,972,065	2,005,637,514
Investments	9	2,000,000	2,000,000
		2,351,972,065	**2,007,637,514**
Current Assets			
Inventory	10	4,581,773,812	4,256,544,282
Trade & Other Receivables	11	1,463,261,012	2,031,692,560
Cash & Bank	12	428,240,657	228,022,768
		6,473,275,481	**6,516,259,610**
Current Liabilities			
Trade & Other Payables	13	3,143,222,523	2,858,646,897
Bank Overdraft	14	371,192,431	595,151,197
Tax Payable		128,132,790	**143,838,775**
		3,642,547,744	**3,597,636,869**
Net Current Assets/ (Liabilities)		2,830,727,736	2,918,622,741
Total Assets		**5,182,699,801**	**4,926,260,256**
EQUITY & LIABILITIES			
Capital Employed			
Share Capital	15	2,300,000,000	2,300,000,000
Capital reserves	16	1,137,834,597	1,137,834,597
Retained Earnings	17	1,522,181,750	1,313,047,524
Shareholders' Funds		**4,960,016,347**	**4,750,882,121**
Non Current Liabilities			
Deferred Tax		222,683,454	175,378,135
Total Non Current Liabilities		222,683,454	175,378,135
Total Equity & Liabilities		**5,182,699,801**	**4,926,260,256**

SIGNIFICANT ACCOUNTING POLICIES & NOTES ON ACCOUNTS

The Schedules reffered to the above and the notes thereon, if any, form an integral part of Balance Sheet.

As per our report of even date

For Raj,Ashiwal & Mehta Associates Ltd.
Certified Public Accountants

Kigali. **19-Mar-21**

For SULFO RWANDA INDUSTRIES LTD

Director

Kigali. **19-Mar-21**

SULFO RWANDA INDUSTRIES LTD

CASH FLOW STATEMENT FOR THE YEAR ENDED ON DECEMBER 31, 2020

	Current Year	Previous Year
CASH FLOW FROM OPERATING ACTIVITIES		
Operating Profit before tax	1,164,087,623	730,289,156
Adjustment for:		
Depreciation	334,870,130	277,193,416
Other Non Operating Incomes	(36,650,130)	(31,734,535)
Profit before working capital chages	1,462,307,623	975,748,037
Working Capital Changes		
(Increase)/Decrease in Inventory	(325,229,530)	(426,734,964)
(Increase)/Decrease in Trade & Other Receivables	568,431,551	(336,460,545)
Increase/(Decrease) in Trade & Other Payables	284,575,626	135,946,011
Working Capital Changes	527,777,647	(627,249,498)
Taxation Paid	(671,218,283)	(82,685,505)
Net Cash flow from Operating Activities	1,318,866,987	265,813,034
CASHFLOW FROM INVESTING ACTIVITIES		
Purchase of Non Current Assets	(679,204,681)	(234,166,089)
Other Non Operating Incomes	36,650,130	31,734,535
Machine in transit	-	23,431,502
Net Cash flow from Investing Activities	(642,554,551)	(179,000,052)
CASHFLOW FROM FINANCING ACTIVITIES		
Dividend Paid	(252,135,782)	(141,129,868)
Net Cash flow from Financing Activities	(252,135,782)	(141,129,868)
NET INCREASE IN CASH AND CASH EQUIVALENTS	424,176,654	(54,316,886)
Cash and cash equivalents at the beginning of the year	(367,128,429)	(312,811,543)
Cash and cash equivalents at the end of the year	57,048,225	(367,128,429)

For Raj,Ashiwal & Mehta Associates Ltd.
Certified Public Accountants

Kigali. 19-Mar-21

For SULFO RWANDA INDUSTRIES LTD

Director

Kigali. 19-Mar-21

SULFO RWANDA INDUSTRIES LTD

PROFIT & LOSS A/C FOR THE YEAR ENDED ON DECEMBER 31, 2019

	Sch	Current Year	Previous Year
INCOME / SALES	1	17,615,244,057	14,368,986,087
COST OF SALES	2	14,097,462,609	11,858,000,096
Gross Profit		**3,517,781,448**	**2,510,985,991**
Administration & Personnel Costs	3	2,036,321,854	1,746,186,801
Selling, Distribution & Other General Overheads	4	129,303,361	52,160,519
Other Operating Costs	5	552,077,312	536,337,493
Total Expenditure		**2,717,702,527**	**2,334,684,813**
Operating Profit / (Loss)		**800,078,921**	**176,301,178**
Other Non Operating Incomes	6	31,734,535	328,091,257
Finance Costs	7	101,524,300	117,702,370
Profit / (Loss) for the period before Tax		**730,289,156**	**386,690,065**
PROVISION FOR -			
Current Tax		220,533,009	97,184,181
Income Tax Earlier Years		-	-
Deferred tax		5,484,582	7,246,149
PROFIT / (LOSS) AFTER TAX		**504,271,565**	**282,259,735**

SIGNIFICANT ACCOUNTING POLICIES & NOTES ON ACCOUNTS

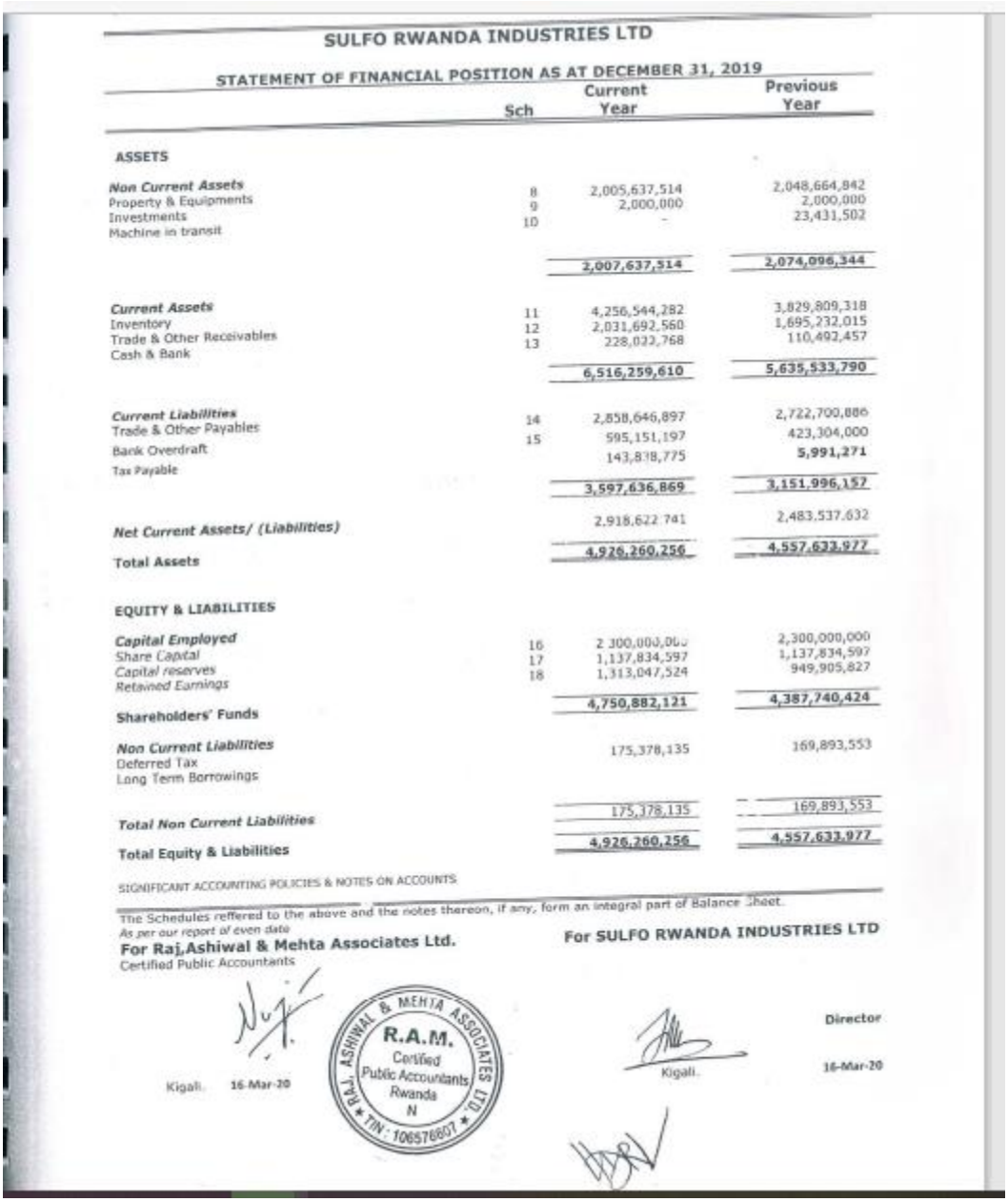
For Raj,Ashiwal & Mehta Associates Ltd.
Certified Public Accountants

Kigali. 16-Mar-20

For SULFO RWANDA INDUSTRIES LTD

Kigali. 16-Mar-20

Director



SULFO RWANDA INDUSTRIES LTD

STATEMENT OF FINANCIAL POSITION AS AT DECEMBER 31, 2019

	Sch	Current Year	Previous Year
ASSETS			
Non Current Assets			
Property & Equipments	8	2,005,637,514	2,048,664,842
Investments	9	2,000,000	2,000,000
Machine in transit	10	-	23,431,502
		2,007,637,514	2,074,096,344
Current Assets			
Inventory	11	4,256,544,282	3,829,809,318
Trade & Other Receivables	12	2,031,692,560	1,695,232,015
Cash & Bank	13	228,022,768	110,492,457
		6,516,259,610	5,635,533,790
Current Liabilities			
Trade & Other Payables	14	2,858,646,897	2,722,700,886
Bank Overdraft	15	595,151,197	423,304,000
Tax Payable		143,838,775	5,991,271
		3,597,636,869	3,151,996,157
Net Current Assets/ (Liabilities)		2,918,622 741	2,483.537.632
Total Assets		4,926,260,256	4,557,633,977
EQUITY & LIABILITIES			
Capital Employed			
Share Capital	16	2,300,000,000	2,300,000,000
Capital reserves	17	1,137,834,597	1,137,834,597
Retained Earnings	18	1,313,047,524	949,905,827
Shareholders' Funds		4,750,882,121	4,387,740,424
Non Current Liabilities			
Deferred Tax		175,378,135	169,893,553
Long Term Borrowings			
Total Non Current Liabilities		175,378,135	169,893,553
Total Equity & Liabilities		4,926,260,256	4,557,633,977

SIGNIFICANT ACCOUNTING POLICIES & NOTES ON ACCOUNTS

The Schedules reffered to the above and the notes thereon, if any, form an integral part of Balance Sheet.

As per our report of even date

For Raj,Ashiwal & Mehta Associates Ltd.
Certified Public Accountants

Kigali. 16-Mar-20

RAJ, ASHIWAL & MEHTA ASSOCIATES LTD. R.A.M. Certified Public Accountants Rwanda N TIN: 106576807

For SULFO RWANDA INDUSTRIES LTD

Director

Kigali. 16-Mar-20

SULFO RWANDA INDUSTRIES LTD

CASH FLOW STATEMENT FOR THE YEAR ENDED ON DECEMBER 31, 2019

		Previous Year
CASH FLOW FROM OPERATING ACTIVITIES		
Operating Profit before tax	**730,289,156**	**386,690,065**
Adjustment for:		
Depreciation	277,193,416	254,419,178
Other Non Operating Incomes	(97,130,759)	(96,287,677)
Proceeds on Sale of Non Current Assets	-	
Profit before working capital chages	**910,351,813**	**544,821,566**
Working Capital Changes		
(Increase)/Decrease in Inventory	(426,734,964)	302,053,637
(Increase)/Decrease in Trade & Other Receivables	(336,460,545)	(383,003,433)
Increase/(Decrease) in Trade & Other Payables	135,946,011	(1,160,688,489)
Working Capital Changes	**(627,249,498)**	**(1,241,638,285)**
Taxation Paid	(82,685,505)	(85,317,494)
Net Cash flow from Operating Activities	**200,416,810**	**(782,134,213)**
CASHFLOW FROM INVESTING ACTIVITIES		
Purchase of Non Current Assets	(234,166,089)	(207,260,151)
Proceeds on Sale of Non Current Assets	-	-
Other Non Operating Incomes	97,130,759	96,287,677
Machine in transit	23,431,502	(23,431,502)
Net Cash flow from Investing Activities	**(113,603,828)**	**(134,404,976)**
CASHFLOW FROM FINANCING ACTIVITIES		
Increase in capital		1,178,000,000
Dividend Paid	(141,129,868)	(225,523,893)
Net Cash flow from Financing Activities	**(141,129,868)**	**952,476,107**
NET INCREASE IN CASH AND CASH EQUIVALENTS	(54,316,886)	35,937,918
Cash and cash equivalents at the beginning of the year	(312,811,543)	(348,749,461)
Cash and cash equivalents at the end of the year	**(367,128,428)**	**(312,811,543)**

For Raj,Ashiwal & Mehta Associates Ltd.
Certified Public Accountants

R.A.M. Certified Public Accountants Rwanda N TIN: 106576807

Kigali. 16-Mar-20

For SULFO RWANDA INDUSTRIES LTD

Director

Kigali. 16-Mar-20