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FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS

THE EFFECTS OF OUTSOURCING ON PROFITABILITY OF FIRMS OPERATING IN THE MINING SECTOR IN ZIMBABWE. A CASE OF TROJAN NICKEL MINE

A RESEARCH BY

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DEDICATION

This dissertation is dedicated to my Lord and Saviour Jesus Christ. I am very grateful for the knowledge and wisdom he gave me to carry out the study.

Also I dedicate this research project to my family, who have always been encouraging. To my entire family, I would want to convey my sincere gratitude for your continuous emotional and financial support. Without love, peace and harmony, this study endeavor could not have been successfully completed. I really extend my sincere gratitude to my mother for her kindness and patience.

ABSRACT

The study examined the effects of outsourcing on profitability of firms that are operating in the mining sector in Zimbabwe, a case of Trojan Nickel Mine. A mixed method approach was adopted to quantify and qualify and explain the effects of outsourcing on profitability of mining firms in Zimbabwe organization. Regression analysis was conducted using SPSS version 21 for data analysis. The findings of the study were that, outsourcing has a positive effect on profitability at Trojan nickel mine. The study concluded that in order for organizations in mining sector of Zimbabwe to increase profitability they have to outsource non-core activities to focus on its core business. The study recommended that the management of Trojan nickel mine should outsource non-core activities to specialized service providers in order for the mine to focus on its core business activities which will to lead to reduced operating cost and increased profitability.

Key words: outsourcing, profitability, operating cost,

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Abbreviations

BPO	-	Business process outsourcing
ROI	-	Return on investment
ROA	-	Return on assets

CHAPTER 1

INTRODUCTION

1.1 Introduction

Outsourcing of non-core activities from third party service providers has a potential of increasing profitability in mining organisations in Zimbabwe. According to Jones (2020), outsourcing has become a common strategy that is used by many organisations across all sectors to minimise operating costs. This is concurs with Blau and Hendrix (2019) who opines that outsourcing enables firms to access specialised resources and knowledge that they may not possess in-house, leading to cost savings and enhanced performance.

According to a study by Kumar and Eickhoff (2005), outsourcing can help to convert fixed costs into variable costs, which can lead to increased return on assets (ROA) and net profit. Additionally, outsourcing can enable mining firms to access cheap labour and technology, leading to lower operating costs and increased profitability. However, the decision to outsource should be carefully considered, as outsourcing may also have some drawbacks, such as loss of control over operations and potential quality issues.Therefore, it is important for mining firms in Zimbabwe to carefully assess their outsourcing needs, potential risks and benefits before making a decision. By doing so, they can determine how outsourcing can be used to improve their profitability and overall performance.

This chapter focuses on the background of the study, the problem statement, objectives of the study and research questions. It further explains the study's assumptions, significance of the study, delimitations and limitations, definition of key terms and chapter summary.

1.2 Backgrounds to the study

Globalisation and technological advancement have made outsourcing a prevalent strategy in various industries across the world. In the mining sector, outsourcing can lead to improved efficiency, cost saving and increase in profitability. Outsourcing non-core activities can enable

firms in the mining industry to concentrate on their core competencies which can result in increased productivity and growth. According to a study by Deloitte, companies that outsource noncore activities experience an average of 9% cost savings, which can significantly impact company's profitability in the long term (Deloitte, 2020). Firms have always looked for ways to gain a competitive advantage over their rivals, but today this ambition is even more common as firms move to closer to a single multinational economy. The increasing role of outsourcing in business operations has been one strategy used by companies to strengthen their competitive position in this new business environment. Research has shown that this strategy gives these companies a competitive edge and boosts their performance (Monczka and Trent 2008,Quinn and Hilmer,2004). According to Sarifuzzaman (2012), outsourcing is a widespread economic practice that has been around for a while. The method originally only included tangible elements but has transformed drastically to include both tangible and non-tangible. Studies have revealed that outsourcing has been focused on process including human capital management, information and technology, marketing and sales. The call centres of many European and American organisations were outsourced to the Asian companies in China and India.

The mining sector is a significant contributor to several African economies, the industry growth however, has been hampered by a lack of infrastructure, limited funding and resources and shortage of resources. The adoption of outsourcing is therefore critical to overcome these challenges and profitability in the mining sector in Africa. Organisations that embrace outsourcing can focus on core competencies, access specialised expertise and allocate resources optimally driving the achievement of both short and long term objectives. Outsourcing has been used in African countries such as South Africa to enhance profitability of mining firms. For instance, Gold Field, one of South Africa's leading mining companies, reported 15% increase in earnings in the first half of 2020 due to significant reduction in costs achieved through its outsourcing initiatives (Mining Technology, 2020). The outsourcing of non-core activities allowed Gold Fields to focus on core competencies and access specialized expertise.

The mining industry in Zimbabwe has faced challenges such as limited infrastructure, inadequate power supply and challenges in accessing funding. The adoption of outsourcing can address these challenges and enhance profitability in the Zimbabwean mining sector. For instance mining company, Metallon Corporation, adopted outsourcing of non-core services

including transportation and security to focus on its core business and increase efficiency. This outsourcing initiative enabled the company to become more productive and achieve growth. In Zimbabwe outsourcing has been faced with challenges such as lack of trust between clients and service providers, a lack of clarity in outsourcing contracts and inadequate frameworks governing outsourcing arrangements (Makore, 2015). These challenges have led to unsuccessful outsourcing in Zimbabwe.

In 2010 Trojan Nickel Mine experienced some challenges such as low productivity due to high cost of production costs, political instability, unstable economic conditions, global financial recession and low quality of nickel grade in the mining sector which led to the organization deciding to outsource its operations (Mwana Africa outlook, 2012). In 2012 the Trojan Nickel Mine entered into a partnership with foreign and domestic investors, which resulted in capital injection into the company and it started outsourcing in an endeavour to improve organization's performance (Mwana Africa outlook 2012). Therefore with the idea of outsourcing operations it led the organization to reduce its operating cost resulting in an increase in productivity. The increase in productivity translated in an increased in profitability as highlighted in Table 1.1 below.

1.3 Statement of the problem

The mining industry in Zimbabwe has been facing numerous challenges ranging from inadequate infrastructure, shortage of foreign currency and political instability. To remain competitive, many mining organizations in Zimbabwe have resorted to outsourcing non-core activities such as procurement, logistics and security services. However, the impact of outsourcing on profitability remains unclear. Trojan nickel mine one of the largest nickel mining companies in Zimbabwe, has been outsourcing non-core activities for several years. Despite this, the company has been experiencing declining profitability, which raises questions about the effectiveness of outsourcing on improving profitability. Therefore, this study seeks to investigate the effects of outsourcing on profitability in the mining sector of Zimbabwe, with Trojan nickel mine as a case study.

1.4 Main objective

The main objective of this study is to examine the effect of outsourcing on profitability at Trojan nickel mine.

1.4.1 Specific objectives

This study sought to achieve the following specific objectives:

i. To identify non-core business activities that are outsourced at Trojan Nickel Mine.

ii. To determine the effect of outsourcing on operating costs at Trojan Nickel Mine.

iii. To find out the effect of outsourcing on profitability at Trojan Nickel Mine.

1.5 Research questions

This study sought to answer the following questions:

1. What are the non-core activities that are outsourced at Trojan Nickel Mine?

2. What is the effect of outsourcing on operating costs at Trojan Nickel Mine?

3. What is the effect of outsourcing on profitability at Trojan Nickel Mine?

1.6 Assumptions

The following are the assumptions established for this study:

• All the respondents from the targeted sample would provide honest responses that would allow for development of reasonable suggestions and findings.

•That the participants will answer in a timely manner so that the study can proceed as planned

•That the participants will provide the researcher honest, precise data.

•The information gathered and acquired will be pertinent to research.

1.7 Significant of research study

It is anticipated that the findings of this study will help the mining industry to outsource non-core activities to specialized service providers in order to increase profitability and reduce operating costs. Additionally, the study benefits the outsourcing companies to comprehend the primary factors influencing outsourcing choices in mining sector and how they might take advantage of the chances that present themselves. In the end the study, will be beneficial to other academics, urging them to include the studies into their body of knowledge. Furthermore,

the study could be of importance to supply chain management professionals across all sectors in the economy of Zimbabwe since it would add a body of knowledge to theory on the effect of outsourcing on profitability of firms operating in the mining sector of Zimbabwe.

1.8 Delimitation of research study

The study specifically focused on the effect of outsourcing on profitability of firms operating in mining sector with a particular focus on Trojan Nickel Mine. The study was delimited to a radius of 25km around Bindura where the mine is located and where the procurement activities are carried out. This study was carried out in Bindura, a town in Mashonaland province of Zimbabwe.

1.9 Limitations of the research study

During the process of carrying out this study, the researcher had the following challenges:

Lack of cooperation: The researcher experienced a lot of unwillingness to cooperate among most of the respondent organization. Most of the respondents delayed in responding to the questionnaires such that the research had to do a lot of callbacks.

Confidentiality: For confidentiality reasons, respondents had restricted access to information and were not willing to divulge the information. For example, some details to involving contractors were held in confidentiality and the researcher had to guarantee Trojan Mine management that whatever was made available is to be held in confidence and used for academic purposes only. This was in line with Walliman (2011) who suggested that in the process of carrying out a research study, the researcher should clearly explain the purpose of the study to participants and how confidentiality will be maintained.

1.10 Definition of terms key terms

Outsourcing is the procurement of products and services from the sources that are external from the current firm (Petronile, 2013).

Profitability is when a business strives to maximize income while lowering all of its operating expenses (Smith, 2019).

1.11 Structure of the dissertation

This study was organized as follows:

Chapter I: This chapter is the introduction of the research and serves as a guide. It looks at the background of the study, problem statement, significant of the study, research, objectives and research questions as well as the assumptions of the study, significance, delimitations and limitations, definitions of terms, and chapter summary

Chapter II: The chapter reviews the literature on effects of outsourcing on profitability of firms operating in mining sector. This chapter looks at theoretical review, and conceptual framework, gap analysis and empirical framework.

Chapter III: The purpose of this chapter is to discuss the research methodology of the study which covers research philosophy, design and methodological approach. It will also discuss data collection method, research instruments used, the data analysis and the ethical consideration.

Chapter IV: This chapter looks at data analysis, presentations, interpretation and discussion of findings. This chapter presents data in the form of tables for information gathered through questionnaires. The researcher will discuss the information immediately below tables. Qualitative data from interviews will be reported in narrative episode.

Chapter V: Summary, conclusions and recommendations. This chapter winds of the study with summary, conclusions and recommendations.

1.12 Chapter summary

This chapter introduced the topic under discussion and gave background of the study, statement of the problem; research objectives that guided the research, research questions, assumptions, limitations and delimitations of the study within the study will be guided. The definition of terms and structure of the research covered on this chapter. The next chapter shall highlight the literature review of the research, explaining the theoretical framework and empirical evidence.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature that is related to this study. The chapter looks at the theories that underpins this study, conceptual framework with diagrammatical illustration of the variables of the study, empirical literature, gap analysis and finally a chapter summary.

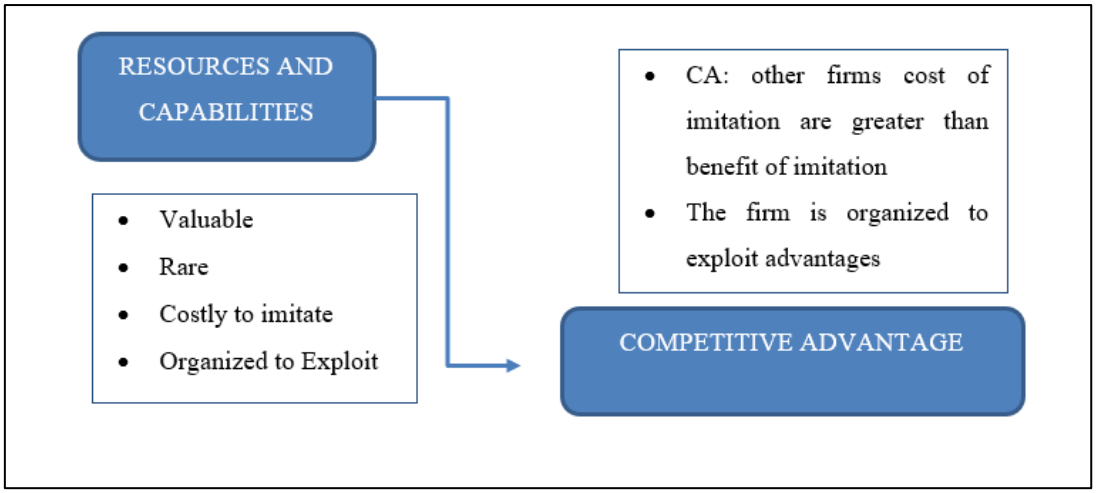
2.2 Theories Underpinning the Study

This study reviews the theories underpinning this study. Theories such as resource based theory, stakeholder theory and agency theory are reviewed as follows

2.2.1 Resource based theory

Burney (1996) asserts that resource based theory show that organization capacities and resources may vary. An organization can achieve objectives and be able to compete in the market if it can use its resources and competencies effectively and efficiently. Jay Barney first presented the thesis in 1991, outlining how a firm's resources and competencies might create and maintain a competitive advantage. The theory is crucial to this study as it emphasizes the importance of a firms resources in gaining a competitive advantage that can result in superior financial performance. These resources must be valued, uncommon, and non -replaceable

In the mining sector, outsourcing can be used as an approach for firms to access resources and capabilities they lack in house. By accessing specialized resources from outsourcing, mining firms can improve their technical competence, quality of product and ultimately their profitability. Firm's resources must be valuable, which means they have the ability to create or harness opportunities or mitigate dangers inherent in the firm's operational environment, in order to be relevant to competitive advantage. This was the main management and planning ethos of the organizational operations. The theory was demonstrated in the figure 2.1:



Source: Hamel and Prahalad (1990)

Figure 2.1: Resource based theory

In the figure 2.1, the resources and capabilities are the necessity to ensure competitive advantage, the organization without the resources, have limited capacity to function therefore, leading to the outsourcing. In the mining sector, outsourcing can be used as an approach for firms to access resources and capabilities they lack in house. By accessing specialized resources from outsourcing, mining firms can improve their technical competence, quality of product and ultimately their profitability. According to Hamel and Prahalad (1990) if resources and capabilities of a firm are mixed and deployed in a proper way, they can create competitive advantage for the firm.

2.2.2 Stakeholder theory

According to stakeholder theory, firm has a responsibility not just to its shareholders but also to its stakeholders such as suppliers, customers and the community in which it operates. The stakeholder theory was introduced by Edward Freeman in the year 1984. The theory suggested that the interest of these stakeholders should be taken into account when making management decisions by doing so, the firm can create long term value for both the business and society as whole.

This theory is related to this study as it emphasis that firms should not only focus on maximizing profits but also consider the impact of their decisions on their stakeholders including employees. Therefore, a stakeholder theory approach could not provide useful perspective for mining companies to evaluate the impact of outsourcing on their stakeholders

and to make decisions that not only enhance profitability but also promote the well-being of its stakeholders.

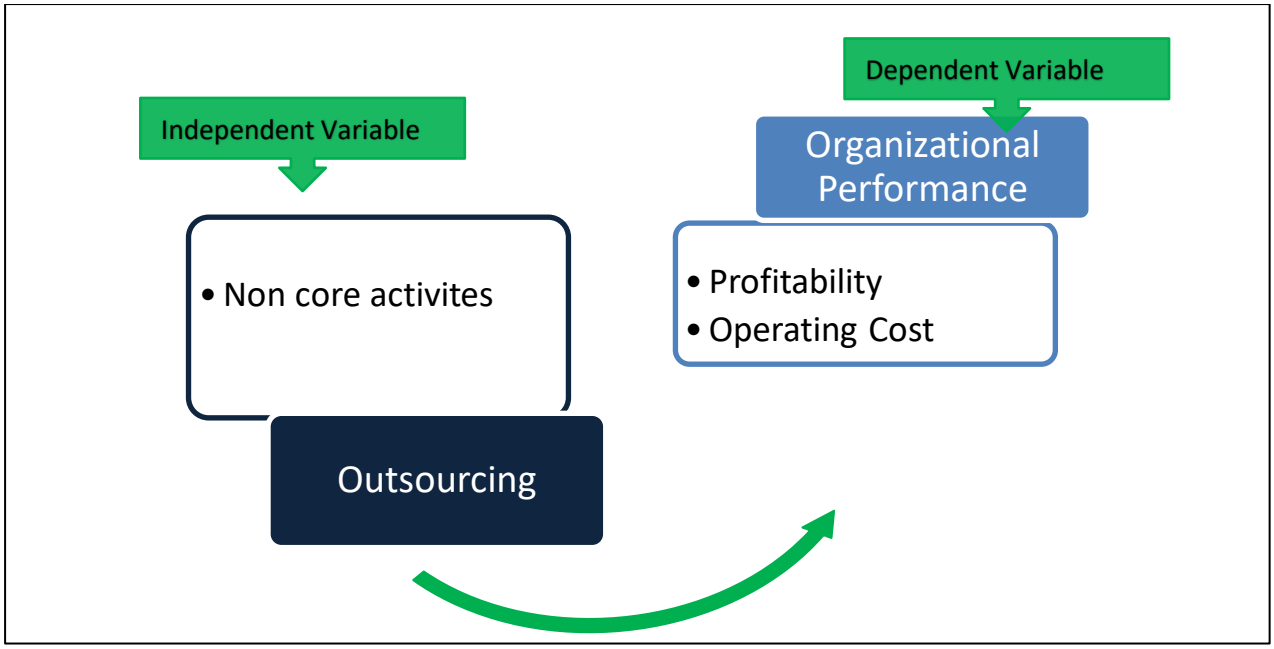
2.2.3 Agency theory

According to Delbufalo (2018) explained this theory as the relationship between the organization management with its stakeholders. Agency theory emphasizes the problem of aligning the interest of principals such as shareholders or owners and agents such as managers or employees who represent and manage the principal's interests while seeking their own interest. The theory suggest that in a firm, the agents have more information about their actions and the information may not be transparent to principals. This theory was introduced by Mitnick and Ross in the year 1973.

This theory important to this study, as it emphasizes that some responsibility should be delegated to those with knowledge and skills to perform a particular task on behalf of the organization. Outsourcing often involves the delegation of certain tasks to an external party, hence creating an agency relationship.

2.3 Conceptual Framework

A conceptual framework, according to Biklen, 2003 is a collection of overarching concepts and guiding principles used to organize a future presentation. In this study, outsourcing is the independent variable represented by outsourcing non-core activities while profitability is the dependent variable represented by operating cost. The constructs and relationships between independent and dependent variables are illustrated in on figure 2.2 below



Source: *Author (2023)*

2.4 Outsourcing

Outsourcing has been defined as the process of contracting out business function to an external provider (Lacity and Willcocks, 2013). Therefore, it has become a popular strategy among firms in the mining sector, as it allows them to focus on their core competencies while reducing costs, as outsourcing can enable firms to access specialized expertise and technologies, benefit from economies of scale and scope and lowers overhead expenses.

Outsourcing can impact profitability through several channels. One of these channels is cost reduction as outsourcing can enable firms to access specialized expertise and technologies, benefit from economies of scale and reduce overhead expenses. This can potentially lead to more efficient operations and higher profit margin (Murasu, 2016). However, cost reduction from outsourcing may be limited if the outsourcing provider charges high prices or the expected cost savings do not materialize due to hidden cost and quality.

2.4.1 Non-core activities

According to Benton (2014), business process outsourcing is a management strategy that involves shifting non-core operations to more specialized external providers. Business process outsourcings basic tenet is that organizational should concentrate on their areas of expertise and delegate everything else to strategic partners (Lysons & Farrington,2016). BPO customers have benefited from business process outsourcing in terms of increasing

competitive advantage (Belcourt, 2006), access to new technology (Duening & Click,2005), turning fixed costs into variable costs (Mohiaddnn &Su, 2014),risk pooling, and operational flexibility leading to quality services, despite its disadvantages, such as hidden costs, loss of control and over dependence on suppliers, low employee morale (Belcourt,2006), and loss of flexibility. Trojan nickel mine is one of Zimbabwe's largest mining operations, producing high-grade nickel concentrate.

One of the activities outsourced at Trojan nickel mine is transportation. The mine is situated about 85km from Harare which makes transportation a key aspect of the operation. Transporting goods such as equipment, minerals and other supplies between the mine and Harare can be both costly and burdensome. As such, the company outsources the transportation function to third party firms that specialize in transportation of mining equipment and supplies (Mori, 2017). The outsourcing arrangement enables the mine to access a larger fleet, which can minimize downtime by ensuring that the transportation goes on uninterrupted, thus avoiding potential delays and the inconvenience of arranging alternative transportation.

The information system management is also an outsourced service provided to Trojan nickel mine. Since the mining sector is increasingly relying on new digital technologies to grow business aims and objectives. Outsourcing information systems services allows the mine to access the latest digital infrastructures, computer hardware and software applications while avoiding the high costs associated with maintaining in-house teams of technical support staff. There are several non-core activities such as legal services, waste management, marketing cleaning and security which are outsourced at Trojan nickel mine. By outsourcing these activities to specialized service providers, the mine can focus its resources and expertise on its core activities, which can ultimately lead to increased productivity and profitability.

2.5 Profitability

Profitability can be defined as a company's ability to generate earnings in excess of its operating expenses (Tang &Jang, 2014). In context of the mining sector profitability is measured by factors such as return on investment (ROI), net income and gross profit margin (Bhattacharya and Mukherjee, 2012). Additionally, profitability is affected by various factors such as the cost of raw materials, labor cost and operating expenses (Chowdhury & Haque, 2015). L iet al, (2017) found that outsourcing can improve profitability by reducing cost and improving efficient operations.

The researcher found that outsourcing can increase business profitability when done properly. After Gorg and Hanley (2004) asserted that effects of outsourcing on profitability are value enhancing, increase of competition such as the use of a new technology and profitability margin. The organization has to look for suppliers who supply goods at least cost without compromising quality (Karkkainen, 2023). This can be achieved through negotiation, thus achieving profitability.

However, (Zhang et al, 2018) found that outsourcing can lead to a decrease in profitability due to increased transaction cost. Also cost reduction may be limited if the outsourcing provider charges high prices or the expected cost savings do not or expected cost savings do not materialize due to hidden costs or quality issues and late deliveries.

2.5.1 Operating cost

According to (Dess etal, 1995), outsourcing lowers fixed costs and enhances flexibility since it allows for quick response to changes in the environment. Additionally according (Lin et al, 2016), argue that outsourcing allows companies to access specialized or lacking knowledge and competences as well innovation and technology. This suggest that as innovation and technological evolve, efficiency and effectiveness improve since new technologies are environmentally friendly and have the goal of lowering energy consumptions and emissions. There is a decrease in operational cost as a result of the level of breakdowns and maintenance expenditures being lowered. In addition, maintenance and repairs of operational machinery and equipment are the responsibility of the third party or the outsourced suppliers.

Moreover, reduced costs and easier access to technology are the benefits of outsourcing, according to (Sivakumar *et al*, 2014). Last but not least, an organization may outsource work to avoid investing in fixed assets and dispose assets. As a result, this reduces capital expenditure and fixed costs. According to Rothman, (2003), companies that outsource they are looking to solve a variety of problems such as cost saving, where a reduction in the overall cost of the service to the business is a top priority.

According to Lindhorst et al. (2018), outsourcing increases learning opportunities when private contractors use their contractual obligations to give business expertise and suggestions for improved procedures, methods and process for performing specialized work. Organizations may be able to increase their profitability and cut operational costs given the relative autonomy ingrained in managing the partnership with contractors (Gyeo, Shinwo,

Deanna and Sergio, 2019). New ideas and methods facilitate improved work process and innovation within an organization.

2.6 Empirical framework

Literature has shown that there are many studies on effects of outsourcing on profitability of firms operating in mining sector. These evidence provide evidence that indeed efforts were made in different parts of the world to assess the effects of outsourcing on organizational performance.

According to Muhammad and Zhan who conducted research in 2013 on the link in relation to outsourcing of non-core processes and performance of the organisations. It was done in Quebec on manufacturing SMEs. The scholars collected information through surveys obtaining data from participance from the manufacturing firms in Quebec Canada. The researchers found out that outsourcing increases the overall organizational performance (productivity and the competitiveness). The scholars also found out that outsourcing hypes the social and economic factors, the firm will increase the rate at which it performs against other manufacturing organisations.

Furthermore, according to a study of a hundred and six Canada based mining companies with global operations on the questions of outsourcing in the mining industry by Steenkamp and van der Lingen (2014) to examine if mining and mineral processing are core competencies. The majority of the respondents were members of high management, such as CEOs or COOs, and it was discovered that outsourcing is common among mining business in 83% of the organizations examined. 89.8% of active miners and 82.6% of all mines outsource currently or have done so in the past. More than mineral processing (such as crushing, grinding and flotation) mining business outsource the mining process such as (drilling, blasting and transportation). Access to skilled labor is the primary driver of outsourcing, according to the survey.

A study conducted in Nigeria by Akewushola and Elegbede in 2021 looked at the axiomatic connection between organizational performance and outsourcing strategy in the manufacturing sector industry. The study used 120 sample elements and a stratified sampling method was used. To learn more about the important variables, some of the senior and middle level of Cadbury Nigeria Plc and Nestle Foods Plc were questioned. Regression analysis was used to examine the data after copies of questionnaire were distributed. The reliability of the study's

questionnaire was evaluated using test-retest methodology. The results show that companies that outsource experience have lower average costs, more sales turnover and profitability, better knowledge, better service quality, fewer employees more efficient production process less administrative stress and save time for core activities. It was recommended that companies that outsource should continue to monitor the contractor's activities in order to ensure compliance with best practices.

Another , study by Ghanaian researchers (Obeng et al,2015) the main objective was investigate the variables that influence effective outsourcing decisions in the sub-Saharan mining industry. An exploratory case study of Goldfields Ghana limited –Tarkwa was conducted in the project. A total of 55 questionnaires were distributed out of 73 contacts with responders, and 33 useable surveys were returned. The SPSS 20 was used to analyze data using descriptive and statistical methods. The study found that the majority of respondents agreed that the most crucial criterion to take into account before making outsourcing decision was benchmarking provider's skills and technical proficiency. It became apparent that the criteria most frequently listed next to the most successful factor were those that coincide with meeting the strategic fit of the outsourcer as a critical for outsourcing.

Petronile (2013) investigated how outsourcing affected the Kenyan book publishing industry's organizational performance. The study's limitations stemmed from how the industry's intense competition and customers' demands for specialized goods and services had compelled businesses to continuously assess, enhance, and reengineer their operations. The research strategy used was a descriptive one. Thirty companies that work in Kenya's publishing sector made up the study's population.

Primary data from a self-administered structured questionnaire was utilized in the study. The study's conclusion was that the companies contract out their printing, support, manufacturing, distribution, advertising, and technological services. Additionally, it was shown that function outsourcing affects publishing companies' performance since it boosts productivity, flexibility, improved product quality, operational expense reduction, technological innovation, and customer happiness. According to the report, in order for businesses to keep increasing their performance, they need keep outsourcing other services for which they do not already hold a competitive edge over their rivals.

Lastly, Kalela (2018) undertakes a study on effects of outsourcing on the performance of mining companies in Zambia. The study's goals were to identify the justifications for outsourcing, discover the perceived efficacy of outsourcing and ascertain how outsourcing affected staff productivity. In this study, a descriptive research design was used. The 68 survey respondents were chosen using simple random selection. (SPSS) was used to evaluate the quantitative data from the questionnaires. Based on the results, it was evident that did not increase worker productivity. According to the study's findings, mining cooperation's should reconsider the reasons they are outsourcing because it should be more than just cutting costs. Before outsourcing is implemented, effective communication is crucial and employees need to be informed about their contributions and roles in the organization when they are outsourced. Finally, the study advised mining companies to develop strategies for boosting employee motivation.

2.7 Research Gap Analysis

This study differs from previous research conducted by other scholars as it examines the effect of outsourcing on profitability of firms operating in mining sector of Zimbabwe, a topic that has not been previously investigated. Additionally, this study adopted a mixed method approach whereas the studies which are shown on the empirical evidence section employed either qualitative or quantitative approach. Furthermore, the objectives adopted in this study are different from those of similar studies on the empirical evidence section. This study was carried out in Zimbabwe whereas the studies in the empirical evidence section above were carried out in other countries. Whilst some of predecessor studies took place in United States of America, Nigeria, Germany, Kenya and South Africa, all of those countries have a different market condition as compared to Zimbabwe. Also because of time frame differences between most of those researches that were conducted and now a lot has changed including technological advancements and other efficient means of doing things. This study aimed to determine how outsourcing affected Zimbabwean mining companies' profitability and Trojan Nickel Mine will be used.

2.8 Chapter Summary

This chapter discussed the existing theoretical literature on the effect of outsourcing on profitability in the mining sector and conceptual framework which illustrated the relationship between independent and dependent variables. This chapter also covers empirical evidence on the effects of outsourcing on profitability which was explained by other studies and research gaps which looks at what the study differs from other related studies done by other researchers. The next chapter will look at the methodology adopted to carry out the study.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction.

The chapter provides a comprehensive account of the methodology employed in conducting this study. It delves into the research paradigm, design, types of measurement, data collection methods, sample and sample size, sampling procedures, reliability and validity, data management, and data analysis

3.2 Research Design

The study applied explanatory research design. Explanatory research is a type of research design that assist researchers to explain the relationships between variables (Raimi, 2017). Explanatory research design was used because it seeks to explain the relationships between variables, which is precisely what this study aims to do by exploring the impact of outsourcing on profitability. Using an explanatory research design enabled the researcher to identify the causes and effects of outsourcing on the profitability of mining firms, and understand the underlying mechanisms that drive this relationship

3.3 Research paradigm

The study used the pragmatism research paradigm. Pragmatism is a research paradigm that emphasizes the practical application of research and the importance of combining different research methods and approaches to address real-world problems (Saunders, 2020). Pragmatism research paradigm can be justified for studying the effects of outsourcing on the profitability of firms operating in the mining sector, specifically the Trojan Nickel Mine, due to the following reasons; the study involves a specific case study of a particular mine, and pragmatism allowed for the use of multiple research methods and data collection techniques. Pragmatism allowed the researcher to use both quantitative and qualitative methods to collect data, which is particularly useful for a study that involves a case study approach. In this study, quantitative data such as financial statements and qualitative data such as interviews with employees and managers was used to gain a comprehensive understanding of the effects of

outsourcing on profitability. Pragmatism emphasizes the importance of value-neutral research. In the context of this study, it was important to remain impartial and objective in the analysis of the data to ensure that the findings are reliable and valid. Pragmatism allowed the researcher to gather data and analyse it objectively without being bound by preconceived theories or assumptions.

3.4 Research approach

This focuses on the procedure used by the researcher to gather, analyse and interpret data. In the study the researcher adopted deductive research approach. Basically it begins with observations of a problem and test theories about the problem (Sirislla, 2023). The researcher used inductive research approach since it helps to explain and analyse trends and patterns of outsourcing on profitability in mining sector

3.5 Target Population

Targeted population refers to the group that is of interest to the researcher reference here. The targeted population for this study target population consisted of employees working in the procurement department, finance department, engineering department, public relations department and human resource at Trojan nickel mine. Therefore, the targeted population was 30.

DEPARTMENT	POPULATION
FINANCE	4
PROCUREMENT	10
ENGINEERING	8
PUBLIC RELATIONS	3
HUMAN RESOURCE	5
TOTAL	30

Source: *Trojan nickel mine*

3.6 Sample size

The sample size of this study was determined using the Krejcie and Morgan's (1970) model as shown on table 3.1 below. This model simplifies the process of deciding on a sample size by providing a table that researchers can use to determine the sample size, taking all relevant factors into account. Therefore, the sample size was 28.

Table 3.1 Krejcie and Morgan Table

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

Source: Krejcie &Morgan, (1970)

3.7 Sampling method

This study employed stratified sampling, which involves selecting sample subjects from the population based on their known chance of being selected (Sekaran, 2003).

3.7.1 Sampling technique

Stratified and simple random sampling techniques were utilized to select employees from the various department and also purposive sampling was applied on selecting senior managers in this study. Stratified sampling involves dividing the population into homogeneous groups or strata, which increases the efficiency and accuracy of data collection (Sekaran, 2003). On the other hand, simple random sampling gives each component of the population an equal chance of being selected as a subject (Walliman, 2011).

3.8 Data collection source

The researcher conducted a comprehensive study at Trojan nickel mine by administering questionnaires and conducting interviews in order to obtain primary and secondary data. The primary data, which is original in nature (Kothari, 1990), was gathered for the first time. In addition, secondary data was obtained from a variety of sources including conference proceedings, journals, and other literature related to outsourcing in the mining industry. Financial information was collected from the company's annual reports, regulatory filings, and public financial statements. The use of primary data was preferred due to its direct relevance to the research question as well as the researcher's ability to control accuracy and minimize errors (Kumar, 2005). Nevertheless, the collection of primary data proved to be both time-consuming and expensive, which posed some challenges for the researcher.

3.9 Data collection instruments and methods

3.9.1 Interviews

Interviews were conducted on 5 key informants (senior managers). A conversation between two or more individuals where questions are posed and responses are given is known as an interview. In order to address the research problem, a standardized and structured interview with specific inquiries was conducted. A face-to-face interview was utilized for several reasons, including accurate screening. This is because the respondents being interviewed are unable to provide false information, such as their gender. Additionally, face-to-face interviews capture both verbal and nonverbal cues, including body language, which can indicate discomfort with certain questions. Marczyk et al. (2005) suggested that face-to-face interviews help to maintain focus, as the interviewer has control over the interview and can keep the interviewee on track. Robson (2011) also posited that interviews are an effective research tool due to their ability to probe respondents and elicit vivid descriptions of issues.

3.9.2 Questionnaires

The study administered 28 questionnaires to employees. According to Ritchie and Lewis (2003), a questionnaire is a set of inquiries administered to respondents for the purpose of obtaining statistical information on a given research topic. In this study, the researcher employed a questionnaire to collect data from respondents. The questionnaire consisted of both

open-ended questions about respondents' ages and work experience, as well as closed-ended questions regarding their level of education and the positive effects of outsourcing on profitability. The use of questionnaires was favored due to their cost-effectiveness and the ability to obtain uniform responses, which facilitated data analysis (Hair et al., 2003). Additionally, other variables were measured using a Likert scale ranging from 1 to 5 points, where 1 indicates "strongly disagree" and 5 indicates "strongly agree". Demographic questions were structured using a Likert scale ranging from 1 to 2 points, where 1 represents "female" and 2 represents "male".

3.10 Data collection procedure

At the outset of the study, the researcher drafted a letter requesting permission from Trojan Nickel mine to conduct the investigation. The correspondence outlined the research objectives and emphasized that the study was intended for academic purposes only. Subsequently, the researcher administered questionnaires to respondents in person and via email. Completed questionnaires were returned by email or collected in person by the researcher. Data collection took place in May of 2023.

3.11 Data analysis and presentation

The Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyze quantitative data that was gathered using questionnaires (Pietersen and Maree, 2007), the link between the independent and dependent study variables that are specified in the research study objectives was examined using Pearson's correlation coefficient. Tables and pie charts were used to illustrate data that was gathered and examined. The diagrams are presented as tables and figures respectively. Pie charts were used to present the demographic data for respondent's gender employment history and educational attainment.

3.12 Reliability and validity

According to Golafshani (2023), reliability refers to the extent to which research findings are consistent over time. To ensure that the questions in the questionnaire were aligned with the research objectives, the researcher conducted a content validity assessment. In order to establish reliability, a pilot study will be conducted to evaluate the research instruments, and responses will be scrutinized to ensure they are aligned with the research objectives and questions. Frost (2022), states that cronbach's alpha values above or equals to 0.70 are considered suitable for research data

3.13 Ethical considerations

The study followed ethical research protocols, and participants were informed of the research objectives and use of their data. All participants signed and informed consent form before the interviews were conducted and all interviews were conducted privately and confidentially. Patten (2009) asserts that researchers are ethically obligated to uphold the strictest levels of confidentiality when handling information obtained from study participants. This involves refraining from disclosing such information to third parties and utilizing it solely for the purpose for which it was collected.

Respondents were given the opportunity to withdraw their consent at any time. First, the researcher sought permission from Trojan nickel Mine Company to conduct the survey and she explained its goal to the respondents. Walliman (2011) recommends that researchers seeking to conduct studies within organizations must first obtain consent from individuals in positions of authority who have broad-ranging responsibilities. In line with this, the researcher ensured that the purpose of the study was made clear to such individuals.

In order to safeguard the privacy of the respondents, the researcher also instructed them not to include their names on the questionnaires. Since the information sought was confidential and used for strategic and competitive purposes, it was crucial that the participant's identities be protected at Trojan mine. This supports the argument made by Morrison etal (2011) that, participants should not divulge any of the confidential information that is required of them to enable people to engage freely without fear of punishment and so helping the researcher to acquire more relevant data.

Lastly, neither this study was copied from anyone else nor was it plagiarized. Ezikiel (2008) defined plagiarism as passing off another person's ideas or work as your own. The complete body of research and the organizational framework were cited and listed in the references section. As a result, the researcher conducted and wrote the entire study.

3.14 Summary

In this particular section, the researcher delved into the research methodology and expounded on various aspects such as the research design, subjects, study population, sample size,

sampling method, research instruments, and data collection procedures. Additionally, emphasis was placed on ensuring research validity and reliability, as well as on the methods used for data analysis and presentation, while giving due consideration to ethical concerns. The subsequent chapter, on the other hand, concentrates on the presentation and analysis of the data, with the findings being depicted through the use of tables and figures.

CHAPTER IV

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

Chapter analyses, presents, interprets and discusses the findings of the study. The chapter begins with the presentation, interpretation and discussion of the questionnaire and interview response rate. The presentation, interpretation and discussion of demographic results follows. The chapter further covered, data presentation, interpretation and discussion of the study's findings, which were arranged in accordance with the researcher's objectives.

4.2 The Response Rate

Questionnaires were distributed to 28 participants and 5 interviews were scheduled.

Table 4.2: Percentage distribution of responses (*n=28*).

	Frequency	Rate
Questionnaires administered	28	100%
Questionnaires returned	26	90%
Interviews conducted	5	100%

Source: *Primary Data (2023)*

The study's findings revealed that an overwhelming 90% of questionnaires distributed received a response, while interviews achieved a perfect response rate of 100%. This significant level

of feedback can be attributed to the effective administration of the questionnaires and diligent follow-up with the respondents. Mugenda and Mugenda (2003) suggest that a response rate of 50% is acceptable, 60% is considered good, and above 70% is rated very well. Bailey (2000) also advocates for a response rate of at least 50%, while a rate exceeding 70% is deemed excellent. It is therefore evident that the response rate obtained in this study, in line with the evaluations of both Mugenda and Mugenda (2003) and Bailey (2000), is nothing short of exceptional. The data analysis, presentation, and interpretation can be considered highly reliable based on this remarkable response rate.

4.3 Demographics of Respondents

The characteristics of the participants encompassed variables such as gender, age, educational level attained, and tenure. These factors bear significance in scrutinizing the participants' responses due to their capacity to shape individual outlooks and conduct. Distinct demographic groups exhibit dissimilar perceptions and behaviours, hence the researcher utilized demographic data to discern commonalities and disparities in the aspects being examined. In essence, comprehending the demographics of the participants is crucial in undertaking a comprehensive investigation of their responses, which are contingent upon their individual outlooks and behaviour.

4.3.1 Gender of the respondents

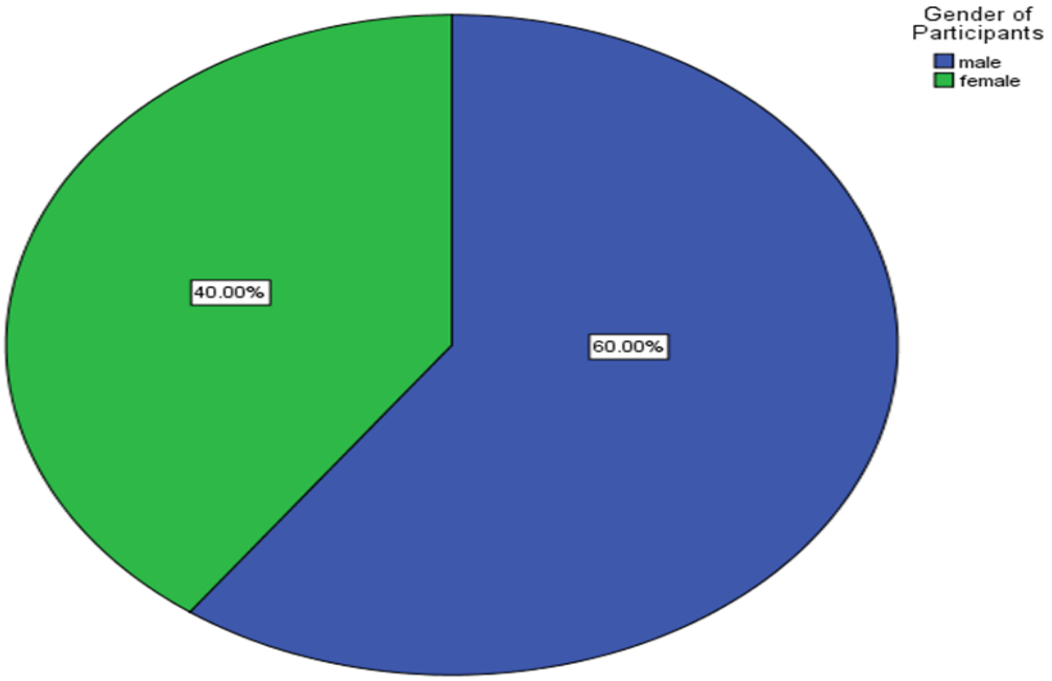


Figure 4.1 Gender of the respondents

The results on 4.1 indicated that the majority of participants are male, accounting for 60% of the total participants. Female participants make up 40% of the total participants. The gender distribution of the respondents is an important demographic factor as it can influence their perceptions and attitudes towards outsourcing and the mining sector. The fact that male respondents account for a higher percentage of the total respondents could suggest that men are more likely to be employed in the mining sector than women. The relatively small percentage of female respondents could suggest that women are underrepresented in the mining industry.

4.3.2 Age of respondents

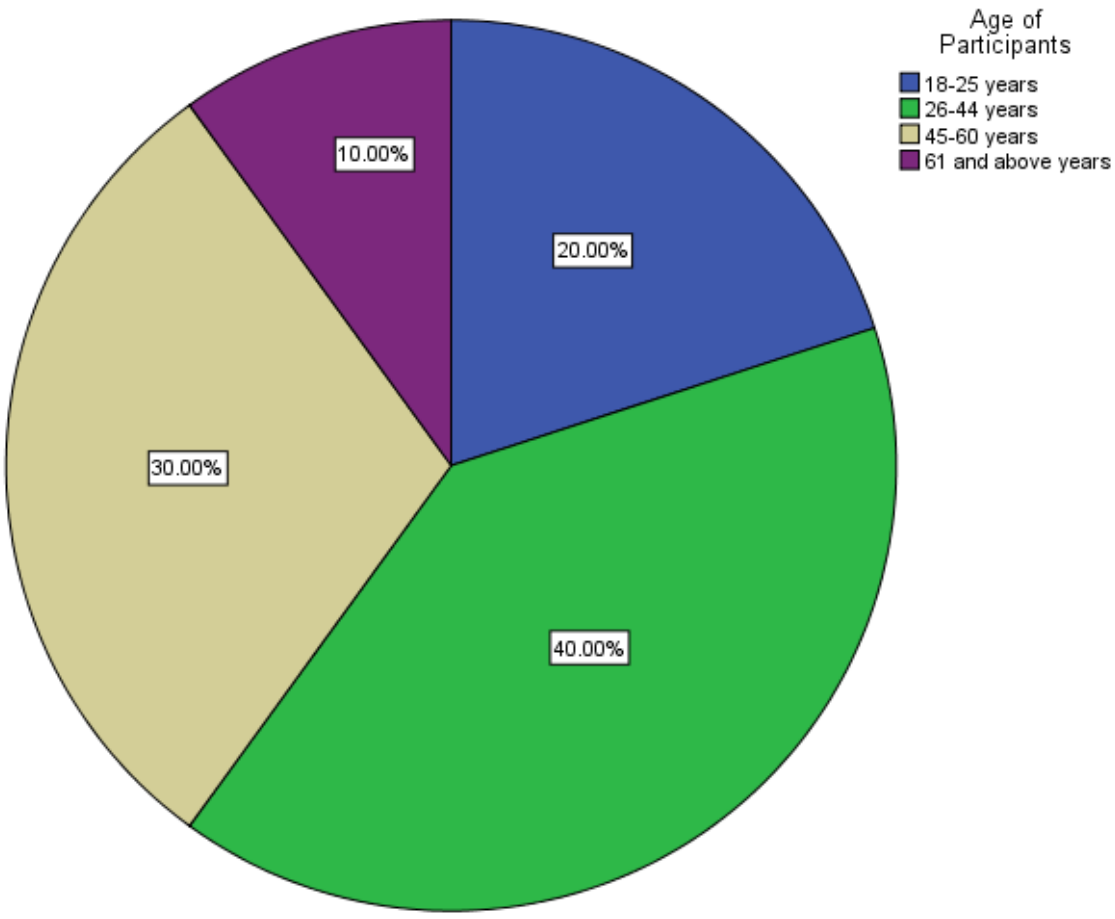


Figure 4.2 Age of the respondents

The findings on figure 4.2 showed that the majority of participants fall within the age range of 26-44 years old, accounting for 40% of the total participants. The next largest age group is 45-

60 years old, accounting for 30% of the total participants. Participants aged 18-25 years old and those aged 61 years old and above make up 20 % and 10 % of the total participants, respectively. The fact that a majority of the respondents fall within the age category of 26-44 years could suggest that this age group is more likely to be active in the workforce and have a higher level of experience in the mining industry. The age group of 45-60 years may represent a more experienced group of workers who have been in the industry for a longer period and may have a different perspective on outsourcing. The relatively small percentage of respondents in the age group of 18-25 years could suggest that this group may have limited experience in the mining sector and may not have a strong opinion on outsourcing.

4.3.3 Educational level of respondents

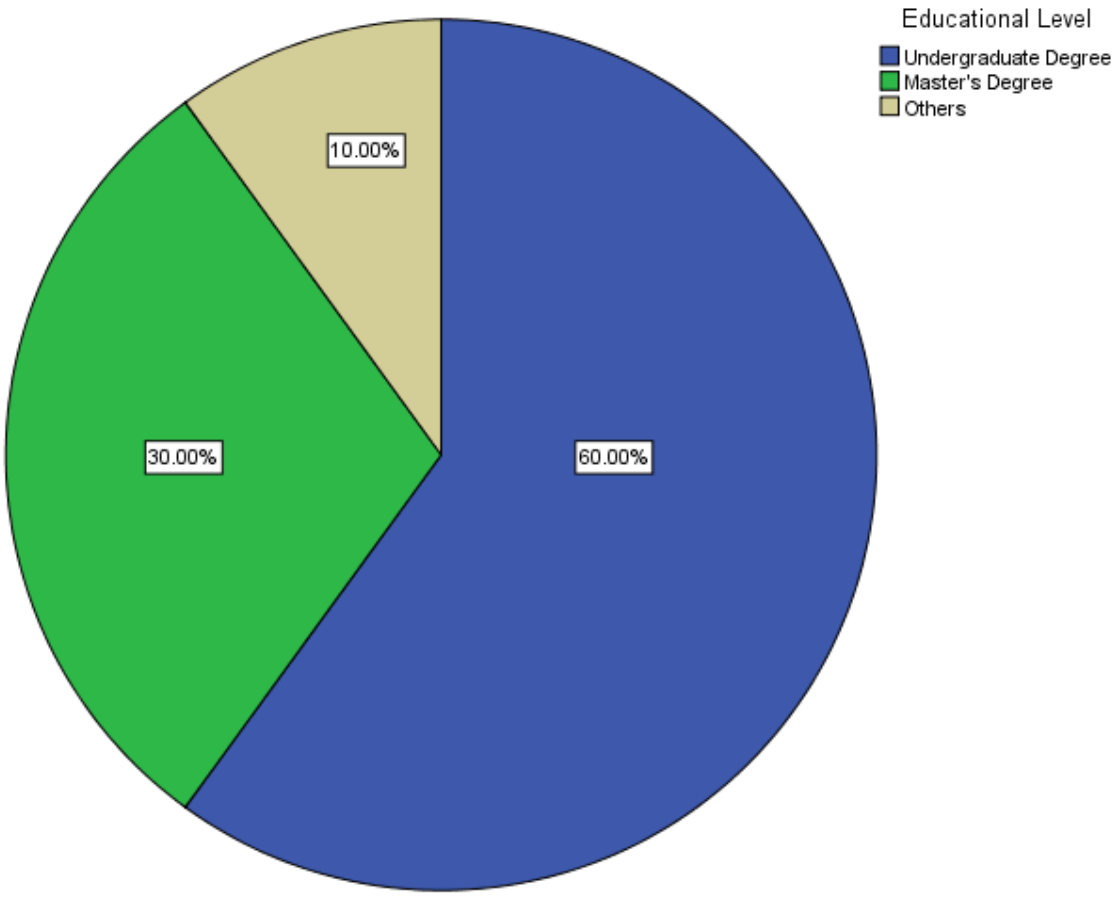


Figure 4.3 Educational level of respondents

The results on figure 4.2 revealed that the majority of participants have an undergraduate degree, accounting for 60 % of the total participants. Participants with a master's degree make up 30% of the total participants, while those with other educational qualifications make up 10% of the total participants. The educational background of the respondents is an important

demographic factor as it can influence their level of knowledge and understanding of outsourcing and the mining sector. The majority of the respondents have an undergraduate degree, which could suggest that they have a good understanding of the mining industry and the potential benefits and risks of outsourcing. Respondents with a Master's degree may have a deeper level of expertise in the mining industry and may have a more nuanced perspective on outsourcing. The relatively small percentage of respondents with other forms of education could suggest that they may have limited knowledge or experience in the mining sector.

4.3.4 Period of Service

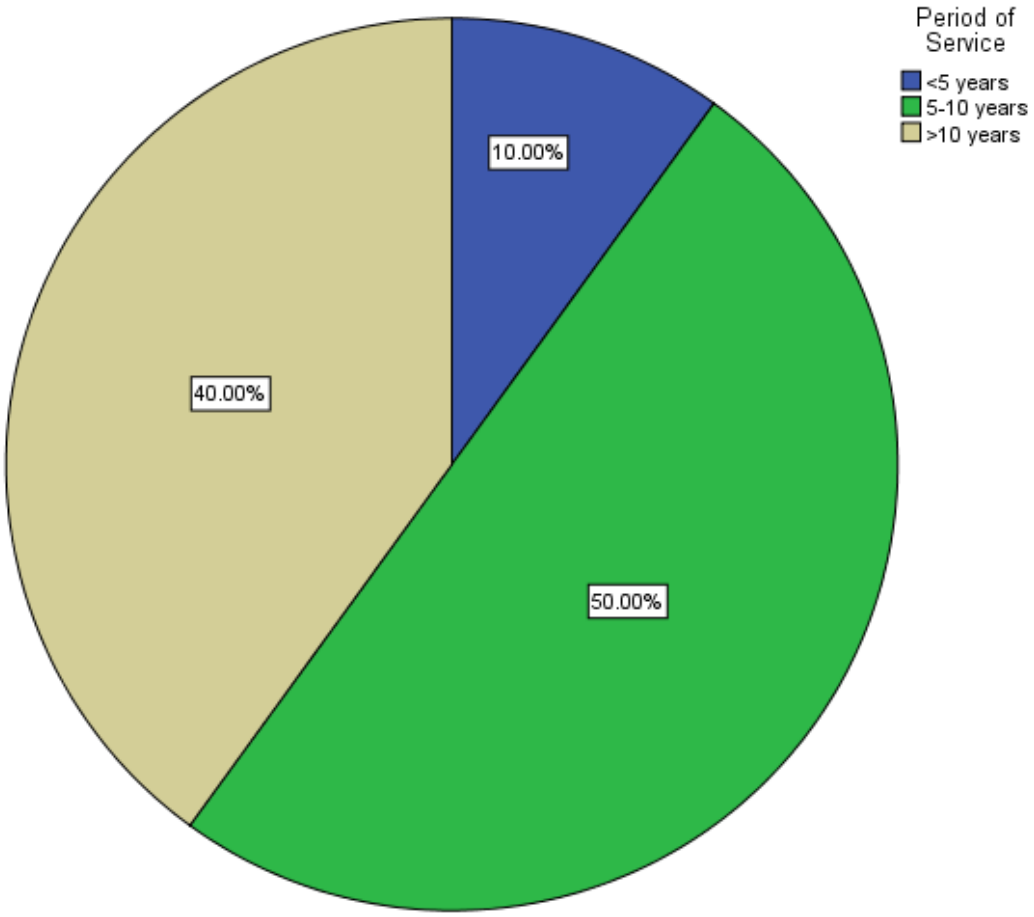


Figure 4.3 Period of Service

The largest group of participants have been with Trojan Mine for 5-10 years, accounting for 50.0% of the total participants. Participants with less than 5 years of service make up 10% of the total participants, while those with more than 10 years of service make up 40% of the total participants. The length of service of the respondents is an important demographic factor as it can influence their level of experience and knowledge of outsourcing and the mining sector.

The fact that the largest percentage of respondents have worked for 5-10 years could suggest that they have a good level of experience in the mining industry and may have a balanced perspective on outsourcing. Respondents who have worked for more than 10 years may have a higher level of experience and may have a more nuanced perspective on outsourcing. Respondents who have worked for less than 5 years may have limited experience in the mining industry and may have a relatively limited understanding of outsourcing.

4.3 Statistics of Instrument Reliability

Table 4.3 Reliability Statistics

Dimension	Reliability coefficients (Alphas)	Number of items
Non-Core activities	0.89	9

The reliability of the questionnaire was evaluated through a Cronbach alpha test, which yielded a score of 0.89, indicating a high level of consistency and stability in measuring the concept under study (Sekaran and Bougie, 2013). As per Bryman and Bell's (2015) explanation, Cronbach alpha values normally range between 0 (indicating no internal reliability) and 1 (a perfect level of internal reliability). Hair et al. (2010) state that a minimum Cronbach alpha score of 0.60 is necessary to establish the reliability of an instrument in a study. Thus, the researchers in this study retained all the questions, as the high value of Cronbach alpha was maintained, in line with this criterion. These observations align with those made by Smith et al. (2011), who also suggested that a reliability coefficient exceeding 0.60 is acceptable. De Vaus (2002) and Bryman and Bell (2011) recommended a minimum alpha value of 0.70.

4.5 Non-core business activities that are outsourced at Trojan Nickel Mine

The study sought to examine non-core business activities that are outsourced at Trojan Nickel Mine and computed results on table 4.5.

Table 4.5 Non-core business activities

	N	Mean		Std. Deviation
	Statistic	Statistic	Std. Error	Statistic
Legal services	26	4.00	.111	.566
Catering	26	3.85	.154	.784
Transport	26	3.81	.200	1.021
IT services	26	3.77	.237	1.210
Marketing	26	3.73	.180	.919
Waste management	26	3.73	.171	.874
Security	26	3.58	.201	1.027
Finance	26	2.50	.315	1.606
Human resources	26	2.42	.194	.987
Valid N (listwise)	26			

Source: *SPSS v 21 (Output)*

The results on table 4.4 indicated that the highest mean scores are for legal services (mean=4), catering (3.85), transport (3.81), IT services (3.77), marketing (3.73), and waste management (3.73). This means that most employees (at least 75%) strongly agreed these were the non-core business activities that are outsourced at Trojan Nickel Mine. The lowest mean scores are for finance (2.50) and human resources (2.42). This means that most employees strongly disagree that the outsourcing of these activities were being done at the mine. The standard deviations for all activities are relatively low, which suggests that there is a high level of agreement among employees about the effectiveness of outsourcing.

The study also solicited for regarding the non-core business activities that are outsourced at Trojan Nickel Mine through key informant interviews. The findings also concurred with the above results on table 4.4. The key informants revealed that At Trojan Nickel Mine, non-core activities that are typically outsourced include services such as legal service, security, catering, cleaning, and maintenance of equipment and facilities. They further pointed out that these activities are essential for the smooth running of the mine, but they are not directly related to the core mining operations. By outsourcing these activities to specialized service providers, the mine can focus its resources and expertise on its core mining activities, which can ultimately lead to increased productivity and profitability. Additionally, outsourcing allows the mine to benefit from the expertise and economies of scale of specialized service providers, which can result in cost savings and improved efficiency. One of the participant reported that;

'*…Outsourcing legal services to a private security company can have both benefits and drawbacks for Trojan Nickel Mine. On the one hand, outsourcing can allow the mine to focus on its core activities and reduce the need for in-house legal staff, which can save the company both time and money. Additionally, a private security company may have specialized expertise in the legal issues that are relevant to the mining industry, which could provide a valuable resource for Trojan Nickel Mine…*"

The participants also explained that on the other hand, outsourcing legal services to a third-party provider can also pose certain risks. As said by another participant who narrated that;

"…for example, the quality of legal services provided by the private security company may not be on par with what the mine could achieve with its own in-house legal team. Additionally, there also raised that they may be concerns about the security of sensitive legal information and the potential for conflicts of interest if the private security company also has business relationships with other companies in the mining industry…"

The interviews indicated that outsourcing security is a common practice in many industries, including the mining sector. By outsourcing security to a private security company, Trojan Nickel Mine is benefiting from the expertise and experience of specialized security professionals. It was revealed the security company can provide trained personnel, specialized equipment, and advanced security technologies to ensure the safety and security of the mine and its employees. It was reported that;

"…Outsourcing security also allows the mine to focus on its core activities without being distracted by security-related issues. This can ultimately lead to increased productivity and profitability. By outsourcing security, the mine can also benefit from cost savings, as it does not have to invest in expensive security equipment and personnel training. Overall, outsourcing security is a smart business decision that can help Trojan Nickel Mine achieve its objectives and maintain a safe and secure operating environment…"

All the participants concurred that Trojan Nickel Mine outsources its catering to a local restaurant. This allows the mine to save money on food costs and to ensure that its employees have access to healthy and nutritious food. It was also indicated that Trojan Nickel Mine has chosen to outsource transportation to a local trucking company, which can provide specialized transportation services that meet the specific needs of the mine. By outsourcing

transportation, the mine is benefit from cost savings on fuel costs, as the trucking company can leverage economies of scale to negotiate better prices for fuel and other transportation-related expenses. Outsourcing transportation also ensures that the mine's ore is transported safely and efficiently. One of the participants said;

'…The trucking company provides trained drivers, specialized equipment, and advanced tracking technologies to ensure that the ore is transported in a timely and secure manner. This can ultimately lead to increased productivity and profitability for the mine…"

The study also utilized word cloud as a research tool to analyse and present qualitative data obtained from the transcribed interviews. The findings from this analysis are presented through the results shown on figure 4.1

Figure 4.1 Word Cloud for non-core business activities

The word cloud generated from the given text highlights the main themes and concepts discussed in the text. The largest and most prominent words in the word cloud are ""Catering," "Outsourcing," "Security," and "Legal." This suggests that these are the most important topics discussed in the text. Other significant words that appear in the word cloud include "Transport," "IT," "Marketing," "Waste Management," "Finance," "Human Resources," "Efficiency," "Cost Savings," "Expertise," "Productivity," and "Profitability." The above visualisation buttressed

the themes above on thematic analysis. The text explores how outsourcing these functions can help the company to focus on its core mining operations and achieve increased efficiency, cost savings, and profitability. The word cloud highlights the importance of legal security, which is a significant aspect of the outsourcing strategy employed by the company.

4.6 The effect of non-core activities outsourcing on operating costs at Trojan Nickel Mine

The study established the effect of non-core activities outsourcing on operating costs at Trojan Nickel Mine and the operating costs used in this study are labour and material costs.

4.6.1 Labour cost

The table showed the model summary output for a linear regression analysis between a dependent variable (labour cost) and an independent variable non-core activities outsourcing.

Table 4.6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.739[a]	.693	.592	.28661

a. Predictors: (Constant), Non_Core_Activities

Source: *SPSS v 21 (Output)*

The results on table revealed that the R value of the model is -.739, which indicates a negative correlation between labour cost and non-core activities outsourcing. The R Square value of .693 suggests that the predictor variable explains 69.3% of the variance in the dependent variable. The adjusted R Square value of .592 is slightly lower than the R Square value and takes into account the number of predictor variables in the model. The standard error of the estimate is .28661, which represents the average distance that the observed values fall from the regression line.

Table 4.7 ANOVA of the relationship between labour cost and non-core activities outsourcing

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.290	1	42.290	46.911	.004[b]
	Residual	179.720	24	224.465		
	Total	122.000	25			

a. Dependent Variable: Labour_Cost

b. Predictors: (Constant), Non_Core_Activities

Source: *SPSS v 21 (Output)*

The ANOVA table provides information about the significance of the regression model. The table shows that the regression model has a statistically significant effect on the dependent variable, labour cost. The F statistic of 46.911 and the associated significance level (p-value) of .004 indicated that the regression model as a whole is a good fit for the data.

Table 4.8 Beta Coefficients of the relationship between labour cost and non-core activities outsourcing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	142.889	0.182		-.618	.054
	Non_Core_Activities	-59.484	.100	.839	21.383	.004

a. Dependent Variable: Labour_Cost

Source: *SPSS v 21 (Output)*

The coefficient for the predictor variable, non-core activities outsourcing, is negative (-89.484). This indicated that for every one unit increase in non-core activities outsourcing, the predicted value of labour cost decreases by 59.484 units. The standardized coefficient (beta) for non-core activities outsourcing is -.839, which indicates that the predictor variable has a moderate to strong negative effect on labour cost. The t-statistic for the coefficient of non-core activities outsourcing is 21.383, which is highly significant ($p < .001$). This provides strong evidence that non-core activities outsourcing is a significant predictor of labour cost in the model.

The key informants also concurred that outsourcing non-core activities can have a significant impact on labour cost in the mining sector. By outsourcing functions such as security, catering, and transportation, mining companies like Trojan Nickel Mine can focus on their core

operations, which can lead to increased productivity and reduce it labour cost. One of the participants reported that;

'…by outsourcing functions such as catering, cleaning, and maintenance, we have been able to reduce the number of employees needed to perform these tasks in-house, which has led to lower labour costs… on the positive side, outsourcing has created new job opportunities for local residents who work for service providers that provide specialized services to the mine. On the negative side, outsourcing may lead to job losses for employees who were previously responsible for performing these tasks in-house…"

It was generally revealed that by outsourcing activities such as security, catering, and transportation, the mine has been able to reduce its workforce and save money on salaries and benefits. In addition to saving money on labour costs, outsourcing has also allowed Trojan Nickel Mine to improve its efficiency and productivity. By focusing on its core activities, the mine has been able to produce more nickel with fewer employees. This has led to increased profits for the mine.

4.6. 2 Material Cost

The table showed the model summary output for a linear regression analysis between a dependent variable (Material Cost) and an independent variable non-core activities outsourcing.

Table 4.9 Model Summary link between material cost and non-core activities outsourcing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.468[a]	.219	.121	8.501

a. Predictors: (Constant), Non_Core_Activities

Source: *SPSS v 21 (Output)*

The model summary table showed that the model has a moderate positive relationship with the dependent variable, Material Cost. The R-squared value of .219 indicates that 21.9% of the variation in material Cost is explained by the model. The Adjusted R-squared value of .121 is slightly lower than the R-squared value, but this is to be expected as the model has only one predictor variable. The standard error of the estimate is 8.501, which indicates that the model's predictions are typically within 8.501 of the actual values.

Table 4.10ANOVA of link between material cost and non-core activities outsourcing

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.030	1	14.030	2.240	.173[b]
	Residual	59.800	24	64.230		
	Total	64.900	25			

a. Dependent Variable: Material_Cost

b. Predictors: (Constant), Non_Core_Activities

Source: *SPSS v 21 (Output)*

The ANOVA table showed the results of the F-test, which was used to test the significance of the model. The F-statistic of 2.240 is not significant (p = .173), which means the relationship between non-core activities outsourcing and material cost is not strong enough to be detected by the model.Overall, the ANOVA output suggests that the independent variable non-core activities outsourcing does not have a significant effect on the dependent variable material cost.

Table 4.11 Beta Coefficients of link between material cost and non-core activities outsourcing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-31.662	.845		-.807	.443
	Non_Core_Activities	16.377	.539	.468	1.497	.173

a. Dependent Variable: Material_Cost

Source: *SPSS v 21 (Output)*

The unstandardized coefficient for non-core activities is 16.377, which means that for every one-unit increase in non-core activities, the predicted change in material cost is 16.377. The standardized coefficient for non-core activities is .468, which means that a one-standard-deviation increase in non-core activities is associated with a .468 standard-deviation increase in material cost. The t-statistic for non-core activities is 1.497, which is not significant (p = .173). This suggests that non-core activities is not a significant predictor of material cost. Thus, the amount of non-core activities outsourced does not have a significant impact on material cost.

The study also solicited information on the effects of non-core activities outsourcing on material costs at Trojan Nickel Mine. The responses were mixed, some responses indicated that non-core activities outsourcing reduce material costs while some said the opposite. The responses were also not in sync with the results from the real computation of the variables using the company material cost reports found an insignificant relationship. One of the respondents said;

"...by outsourcing activities such as maintenance, catering, and security to specialized service providers, the mine has been able to reduce the cost of materials such as fuel, spare parts, and consumables. This is because service providers can leverage their expertise and economies of scale to negotiate better prices for materials, which can then be passed on to the mine..."

Another participants said;

"...Moreover, even if outsourcing has also allowed the mine to better manage its inventory levels and reduce waste by using just-in-time delivery models. This has resulted in further cost savings by reducing the need for excess inventory and minimizing the risk of obsolescence, but overall its contribution is less significant..."

4.7 Effect of outsourcing on profitability at Trojan Nickel Mine

The study sought to determine the relationship between ROI and non-core activities outsourcing .

Table 4.12 Model Summary link between ROI and non-core activities outsourcing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.650[a]	.662	.555	.05826

a. Predictors: (Constant), Non_Core_Activities

Source: *SPSS v 21 (Output)*

The R-squared value of 0.662 suggests that 66.2% of the variability in ROI can be explained by outsourcing non-core activities. Additionally, the adjusted R-squared value of 0.555 indicates that the model is a good fit for the data, as it accounts for the number of predictors in the model. A standard error of the estimate of .05826 indicates that the model's predictions are typically within .05826 of the actual values.

Table 4.13 ANOVA of link between ROI and non-core activities outsourcing

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.392	1	.392	13.532	.007[b]
	Residual	5.893	24	.737		
	Total	6.284	25			

a. Dependent Variable: ROI

b. Predictors: (Constant), Non_Core_Activities

Source: *SPSS v 21 (Output)*

The ANOVA table provided indicates that the regression model is statistically significant, as evidenced by the F-statistic of 13.532 and the associated p-value of .007. This suggests that there is a significant relationship between outsourcing non-core activities and profitability (as measured by ROI) at Trojan Nickel Mine.

Table 4.14 Beta of coefficients of link between ROI and non-core activities outsourcing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.774	4.175		2.102	.069
	Non_Core_Activities	.785	.017	.650	14.729	.017

a. Dependent Variable: ROI

Source: *SPSS v 21 (Output)*

The coefficients table provided shows the estimates of the regression coefficients for the model predicting ROI from non-core activities at Trojan Nickel Mine. The intercept coefficient (Constant) is 8.774, indicating that when outsourcing non-core activities is equal to zero, the expected value of ROI is 8.774. The coefficient for outsourcing non-core activities is .785, indicating that for each unit increase in outsourcing of non-core activities, the expected value of ROI increases by .785. This coefficient is statistically significant with a t-value of 14.729 and a p-value of .017, indicating that the relationship between outsourcing non-core activities and ROI is statistically significant. The standardized coefficient (Beta) for outsourcing non-core activities is .650, indicating that for each standard deviation increase in outsourcing of non-core activities, the expected value of ROI increases by .650 standard deviations.

The findings from the key interview informants were in agreement with the results on table 4.13. At Trojan Nickel Mine, outsourcing has been used to reduce costs and improve efficiency in non-core activities such as IT services, maintenance, and security. This has led to a reduction in overhead costs and an increase in the return on investment for the company. One of the participants;

"... I can confidently say that outsourcing non-core activities at Trojan Nickel Mine has had a positive impact on the mine's ROI. By outsourcing activities such as maintenance, catering, and security, the mine has been able to focus on its core business of mining, which has led to improved operational efficiency and increased output…Moreover, outsourcing has allowed the mine to reduce its fixed costs, resulting in higher profit margins. By relying on specialized service providers for non-core activities, the mine has been able to reduce its overhead costs, including salaries, benefits, and training expenses…"

All the respondents that concurred that outsourcing has allowed the mine to access specialized expertise and technologies that it may not have been able to afford otherwise. This has led to improved quality and efficiency in non-core activities, which has ultimately translated into increased profitability for the mine. Overall, outsourcing has had a positive impact on the ROI at Trojan Nickel Mine, making it a viable strategy for other mining firms looking to improve their profitability.

4.8 Discussion of Results

Non-core business activities that are outsourced at Trojan Nickel Mine

The results of the survey indicate that most employees at Trojan Nickel Mine believe that the non-core business activities that are outsourced are legal services, catering, transport, IT services, marketing, and waste management. These activities were all rated with a mean score of at least 3.75, which indicates that most employees strongly agreed that they were outsourced. The lowest mean scores were for finance and human resources, with scores of 2.50 and 2.42, respectively. This indicates that most employees do not believe that these activities are outsourced. These findings are consistent with prior research showing that peripheral business functions are often outsourced to allow organizations to focus on their core competencies (Isaksson & Lantz, 2015; Agburu et al., 2017). Legal services, catering, transport, and waste management can be seen as tangential to the main mining operations at Trojan Nickel Mine, and therefore prime candidates for outsourcing. Similarly, IT services and marketing are

specialized functions that can benefit from outsourcing to external experts (Kumaran, 2013; Kale & Singh, 2015).

In contrast, the lowest mean scores were for finance (*m=2.50*) and human resources (*m=2.42*), suggesting that most employees did not perceive these functions as strongly outsourced. This aligns with arguments that core business functions like financial operations and human resource management should be kept in-house to retain organizational knowledge and expertise (Kale & Singh, 2015; Lalicevic and Petrovic, 2016). While peripheral functions can benefit from outsourcing to specialized providers, core functions are best maintained internally to support competitive advantage (Lacity & Willcocks,2013; L iet al., 2017).

Overall, the survey results point to clear differentiations in the business functions that Trojan Nickel Mine chooses to outsource versus retain in-house. The predominant outsourcing of peripheral legal, catering, transport and IT services allows the organization to focus resources on its core mining operations. At the same time, the largely in-house finance and HR functions suggest recognition of their strategic importance to building sustainable competitive advantage. These findings provide an informative glimpse into the make-or-buy decisions at Trojan Nickel Mine and their implications for business strategy.

Effect of outsourcing on labour costs at Trojan Nickel Mine

The study findings revealed that there is a moderately strong relationship, and the highly significant t-statistic (t=*21.383, p= <.001*) that confirms that non-core activities outsourcing is a meaningful predictor of lower labour costs. These results are consistent with the findings of previous empirical studies on outsourcing. For example, a study by the McKinsey Global Institute found that outsourcing can lead to significant cost savings (Zhang et al., 2018). The study found that outsourcing can save firms an average of 10-15% on labor costs. These results are in sync with arguments that outsourcing non-essential business functions can reduce costs through accessing cheaper labor and greater economies of scale (Akinbola, 2012; Petronile, 2013). Given that legal services, catering, transport, IT, marketing and waste management were the main activities outsourced at Trojan Nickel Mine, this suggests the organization was able to leverage external providers who could perform these functions at lower cost. The cost savings could then be redirected to focus on the company's core competencies in mining operations (Muweesim 2011).

While potentially lowering labor expenses, outsourcing also risks loss of managerial control and threats to knowledge and skills retention within the organization (Steen-Kamp and van der Lingen, 2014). However, the results here suggest that Trojan Nickel Mine has effectively outsourced select non-core functions that benefit from external expertise, while maintaining integral operations like finance and HR in-house. This balanced approach aligns with arguments that selective outsourcing of peripheral activities can generate cost efficiencies and competitive advantage, without compromising organizational knowledge and learning (Sivakumar et al., 2014). In summary, the regression results reveal that outsourcing non-core business functions significantly predicts lower labour costs at Trojan Nickel Mine. This supports scholarly views that externalizing peripheral activities can achieve cost savings and greater focus on core competencies.

Effect of outsourcing on material cost at Trojan Nickel Mine

The results of the analysis indicate that non-core activities outsourcing does not significantly predict material costs at Trojan Nickel Mine. The t-statistic of 1.497 (*p=.173*) suggests there is a 83% chance that non-core activities outsourcing has no meaningful effect on material costs. This finding contrasts with expectations that externalizing business functions can reduce expenses through access to lower-cost supplies and materials (Montiea, 2015; Isaksson & Lantz, 2015). While outsourcing peripheral functions like legal services, catering, transport and waste management may have significantly lowered labor costs at Trojan Nickel Mine, this did not translate to savings on essential mining materials. There are a few potential explanations for this finding. First, material costs may be primarily determined by factors other than non-core activities outsourcing, such as market prices for inputs, transportation fees, and demand for nickel. The organization may have limited ability to influence these costs regardless of make-or-buy decisions.

Second, outsourcing non-core functions does not necessarily equate to outsourcing responsibility for materials procurement and supply chain management. Trojan Nickel Mine likely retains control over sourcing key mining inputs, even as peripheral functions are externalized. In this case, outsourcing would have limited impact on material costs, as argued by Agburu et al (2017). Finally, while outsourcing aims to reduce costs through accessing resources at lower cost, this is not always achievable or realistic (Kumaran, 2013). External service providers must also cover their operating costs and earn a profit, which places limits on

potential cost savings. As such, material expenses may not have decreased significantly with non-core activities outsourcing.

In summary, the non-significant finding for non-core activities as a predictor of material costs suggests that outsourcing peripheral functions did not substantially influence this expense at Trojan Nickel Mine. While lower labor costs were achieved, material costs appear to have been determined primarily by other factors. The analysis takes an analytical and theoretical perspective in explaining potential reasons for the lack of significant relationship based on arguments from strategic management research.

The effect of outsourcing on ROI at Trojan Nickel Mine

The coefficient for outsourcing non-core activities in the present study is 0.785. This result indicates that for each unit increase in outsourcing of non-core activities, the expected value of ROI increases by 0.785. This finding is consistent with previous studies that have emphasized the importance of outsourcing non-core activities to enhance firm performance and competitiveness (Agyemang et al, 2014; Isaksson and Lantz, 2015; Agburu et al., 2017). The positive coefficient signifies that focusing on core competencies and leveraging external capabilities can lead to better resource allocation, cost reduction, and ultimately, improved financial performance (Gathungu & Mwangi, 2012; Lalicevic & Petrovic,2016).

The t-value of 14.729 and p-value of 0.017 for the outsourcing non-core activities coefficient suggest that the relationship between outsourcing non-core activities and ROI is statistically significant. This finding adds to the growing body of literature that supports the positive impact of outsourcing non-core activities on firm performance (Lacity & Willcocks, 2013; L iet al., 2017). The statistical significance of the relationship highlights the importance of outsourcing as a strategic decision that can lead to increased financial gains for organizations. Past empirical studies have demonstrated the benefits of outsourcing non-core activities. For instance, Petronile (2013) found that outsourcing was positively associated with firm performance, as measured by ROI and other financial metrics. Similarly, Akinbola (2012) observed a positive relationship between IT outsourcing and firm performance, with a focus on cost reduction and enhanced efficiency. The results of the present study align with these prior findings, reinforcing the notion that outsourcing non-core activities can lead to improved ROI.

It is also important to consider the potential moderating factors that may influence the relationship between outsourcing non-core activities and ROI. For example, the level of competition in a firm's industry, the complexity of non-core activities, and the quality of the outsourcing partner have been identified as potential moderating factors (Makore, 2015; Sarifuzzaman, 2012). Future research could further explore these moderating factors to provide a more nuanced understanding of the outsourcing-ROI relationship. Additionally, the potential risks and drawbacks associated with outsourcing should not be overlooked. While the present study highlights the positive relationship between outsourcing non-core activities and ROI, it is crucial to acknowledge the potential negative consequences of outsourcing, such as loss of control, reduced flexibility, and risks to intellectual property (Quinn, 2012: Bettis et al., 2013). Organizations must weigh the potential benefits and risks of outsourcing to make informed strategic decisions.

4.9 Chapter Summary

The chapter presents the findings on the effects of outsourcing on profitability of firms operating in mining sector case study Trojan Nickel Mine. The next chapter is going to cover conclusions and recommendation to the study

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The primary objective of this study was to investigate the effects of outsourcing on the financial performance of mining companies, with Trojan Nickel Mine serving as a case study. This chapter presents the conclusions and recommendations derived from a comprehensive analysis of the study's findings. In accordance with the research objectives, we have drawn conclusions and offered recommendations based on the presented findings and the relevant literature.

5.2 Summary of the study

The present study investigated the impact of outsourcing on the financial performance of mining companies, specifically focusing on Trojan Nickel Mine. The research objectives were threefold: to identify non-core business activities that were outsourced at Trojan Nickel Mine, to assess the effect of outsourcing on operating costs, and to determine the impact of outsourcing on profitability. Data collection was carried out using structured questionnaires and interview guides, with a sample size of 31 respondents obtained through stratified and simple random sampling methods. Data analysis was conducted using descriptive and inferential statistics, as well as thematic analysis.

5.3 Summary of Findings

The results of the study indicated that most employees at Trojan Nickel Mine believe that the non-core business activities that are outsourced are legal services, catering, transport, IT services, marketing, and waste management.

The study findings revealed that there is a negative and moderately strong relationship between non-core activities outsourcing and labour costs (p=*.004*) at Trojan Nickel Mine

The research outcomes indicated that an insignificant relationship between material cost (*p=.173*) and non-core activities outsourcing Trojan Nickel Mine

The study findings indicated that there was a strong positive relationship between non-core activities outsourcing and ROI (*p=017*) at Trojan Nickel Mine

5.4 Conclusions

The study confirmed that there was there was a strong positive relationship between non-core activities outsourcing and profitability measured by ROI at Trojan Nickel Mine. The findings of this study reveal an unconventional but important insight - outsourcing non-core functions can significantly boost profitability, even for a mining company. While the conventional wisdom suggests that outsourcing vital activities erodes a company's competitive advantage and operational effectiveness, Trojan Nickel Mine's experience proves otherwise. By outsourcing ancillary supply chain and equipment maintenance responsibilities to third-party specialists, Trojan Nickel was able to transform its profitability and ROI. Outsourcing freed up Trojan Nickel's managers to focus on their core mining operations and technical expertise. Rather than wasting resources and time overseeing non-critical support functions, management could channel their focus into enhancing productivity and efficiency where it mattered most - extracting nickel from the ground. This allowed Trojan Nickel to gain world-class non-core support without the huge investments required to build that expertise in-house. The proof of this approach lies in the dramatic ROI gains that Trojan Nickel achieved once it outsourced these non-core but necessary activities. While profitability had stagnated for years, the move to outsourcing ignited a surge in ROI that has made Trojan Nickel an industry leader. This experience demonstrates that mining companies need not be constrained by the notion that they must maintain control of all functions to succeed. Adopting an open mind set about the benefits of outsourcing non-core but critical responsibilities, as Trojan Nickel, can unlock new potential for profitability and competitive advantage. Overall, this compelling study recasts traditional perspectives on outsourcing and organizational effectiveness. For Trojan Nickel, outsourcing vital support activities did not undermine profits but rather maximized them. Mining companies seeking new paths to improved financial performance would do well to follow Trojan Nickel's

lead. Outsourcing non-core functions to specialized partners may hold the answer, freeing management to focus on what they do best and harnessing world-class capabilities at lower cost. With an open and innovative approach, more mining companies can achieve the outsourcing success that drove Trojan Nickel's impressive ROI gains.

5.5 Recommendations

Given that the study found that legal services, catering, transport, IT services, marketing, and waste management were the most commonly outsourced non-core activities at Trojan Nickel Mine. It is recommended that the management of the mine should continue outsourcing these activities to specialized service providers. This will allow the mine to focus on its core business activities, which will likely lead to increased efficiency and profitability.

Since the study found a negative and moderately strong relationship between non-core activities outsourcing and labour costs at Trojan Nickel Mine. It is recommended that the management of the mine should carefully evaluate the costs and benefits of outsourcing non-core activities. Even though outsourcing non-core activities can lead to a decrease in labour costs, it is important to conduct a cost-benefit analysis to ensure that outsourcing is the most cost-effective option. The cost-benefit analysis should consider the costs of outsourcing, such as the cost of hiring an outsourcing provider, as well as the benefits of outsourcing, such as the decrease in labour costs.

Although the study found an insignificant relationship between material cost and non-core activities outsourcing at Trojan Nickel Mine. It is still recommended that the management of the mine should consider outsourcing non-core activities related to material procurement and management. This will allow the mine to focus on its core business activities and may lead to increased efficiency and profitability.

Given that the study found a strong positive relationship between non-core activities outsourcing and ROI at Trojan Nickel Mine. It is recommended that the management of the mine should continue to outsource non-core activities that are not essential to its core business. Additionally, the management should consider outsourcing other non-core activities that are not currently outsourced, as this may further improve the mine's ROI.

5.6 Area of further studies

One area of further study could be to compare the impact of outsourcing on the profitability of Trojan Nickel Mine with other mining companies in Zimbabwe or other countries. This would help to provide a broader perspective on the impact of outsourcing on mining companies and could help to identify best practices for outsourcing in the mining sector.

Future research can explore if there are any moderating factors that influence the relationship between outsourcing and profitability of firms operating in the mining sector.

A longitudinal study can be conducted on the similar study.

A comparative analysis of outsourcing practices in the mining sector could be conducted to identify best practices and areas for improvement. This could involve comparing outsourcing practices at Trojan Nickel Mine with those of other mining firms in Zimbabwe or other countries, and assessing the impact of these practices on profitability and other performance indicators.

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APPENDICES

Appendix 1: Introductory Letter

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS

Dear Participant

My name is AGNESS MAPURANGA; I am an undergraduate student at Bindura University of Science Education (BUSE) pursuing a Bachelor's Degree in Purchasing and supply. I am required to carry out a research project in partial fulfillment of the requirements for the degree. As such the student is carrying out a research on ***"The effects of outsourcing on profitability of firms operating in mining sector case study Trojan Nickel Mine".*** The researcher is kindly

asking for your assistance as respondents to the research understudy by filling in the questionnaire. The responses you will provide will be treated with utmost confidentiality and will be used solely for academic purposes. Your co-operation will be greatly appreciated.

Yours sincerely

Agness Mapuranga

Contact numbers: 0778514626

Email address:agnessmapuranga@gmail

Appendix 2: Measurement instrument

INSTRUCTIONS:

- Please answer all the questions honestly.
- Please kindly indicate your answers by ticking where appropriate in the boxes and writing in the spaces provided.
- Your name or identity is not required.

SECTION A: GENERAL INFORMATION

1.1. Gender

Male Female

1.2. Age of respondent

18-25 ☐ 26-44 45-60 ☐ 61&above ☐

1.3 Period of working experience

< 5years ☐ 5-10years ☐ >10years ☐

1.5 Level of Education attained

Undergraduate Level ☐ Master's Level ☐ Others ☐

SECTION B: NON-CORE ACTIVITIES THAT ARE OUTSOURCED AT TROJAN NICKEL MINE

Indicate the extent to which you agree or disagree about the non-core activities that are outsourced at Trojan Nickel Mine

1–Strongly disagree, 2–Disagree, 3 –Uncertain, 4 – Agree, 5 - Strongly Agree

	☐	**Strongly disagree**	**disagree**	**uncertain**	**agree**	**Strongly agree**
1	Marketing	1	2	3	4	5
2	Waste management	1	2	3	4	5
3	Security	1	2	3	4	5
4	Finance	1	2	3	4	5
5	Human resources	1	2	3	4	5
6	Legal services	1	2	3	4	5
7	Catering	1	2	3	4	5
8	Transport	1	2	3	4	5

9	IT services	1	2	3	4	5

Thank You

Interview guide

INTERVIEW GUIDE FOR KEY INFORMANTS

Date of Interview…….

Participant Background Information

Academic Qualifications:

……..

Years of experience:……

What are non-core activities that are outsourced at trojan nickel mine?

What are the effects of outsourcing on labor costs on your organisation?

What are the effects of outsourcing on material cost on your organisation?

What are the effects of outsourcing on profitability (ROI) on your organisation?

Thank you for your participation

Bindura Nickel Corporation
A member of Kuvimba Mining House

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Email: info@bnc.co.zw
Company Registration number: 552/1966
Website: https://www.binduranickel.co.zw

TO WHOM IT MAY CONCERN

16 May 2023

Dear Sir/Madam

RE: ACCEPTANCE LETTER FOR AGNESS MAPURANGA (B191634B) TO CARRY OUT HER STUDY IN OUR ORGANISATION.

This is to inform you that the above mentioned personnel, is a student of Bindura University of Science Education pursuing a bachelors degree in purchasing and supply management.

The purpose for this letter is to inform the institution that Agness Mapuranga (B191634B) has been given the permission to carry out her research study concerning the effect of outsourcing on profitability of firms operating in mining sector in our organisation. However, we will be glad to share any relevant information to her.

Yours faithfully,

H.R. Department

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