



THE EFFECT OF FLEET MANAGEMENT PRACTICES ON OPERATIONAL  
PERFORMANCE, IN THE CASE OF DANGOTE CEMENT ETHIOPIA PLC

BY

GETINET ABEBE (GSE/2934/13)

A THESIS SUBMITTED TO THE ADDIS ABABA UNIVERSITY, SCHOOL OF  
COMMERCE IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE  
OF MASTER OF ARTS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

ADVISOR: BUSHA TEMESGEN (Ph.D.)

JUNE, 2023

ADDIS ABABA, ETHIOPIA



THE EFFECT OF FLEET MANAGEMENT PRACTICES ON OPERATIONAL PERFORMANCE, IN THE CASE OF DANGOTE CEMENT ETHIOPIA PLC

BY

GETINET ABEBE HABTESILASSIE

APPROVED BY A BOARD OF EXAMINERS AND ADVISOR:

DR. BUSHA TEMESGEN

SIGNATURE [Signature] DATE 07/12/2023

(ADVISOR)

DR. TARIKU JEBENA

SIGNATURE [Signature] DATE 11/12/2023

(INTERNAL EXAMINER)

DR. ADEM IBRAHIM

SIGNATURE [Signature] DATE 11/12/2023

(EXTERNAL EXAMINER)

## DECLARATION

I, Getinet Abebe Habtesilassie, declare that this thesis titled “ The effect of Fleet Management Practices on Operational Performance , In the case of Dangote Cement Ethiopia Plc.” was conducted by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and this work has not been submitted for any other degree or professional qualification except as specified for the partial fulfillment of the requirements for the Degree of Masters of Art in Logistics and Supply Chain Management at Addis Ababa University, School of commerce. I have fully acknowledged the sources and references from which the ideas and extracts have been taken.

Getinet Abebe Habtesilassie

Signature:

Date:

## **ACKNOWLEDGMENT**

First and for most I would like to honor Almighty God for giving me the health and strength that is necessary to complete this thesis. Also, I would like to thank my advisor Dr. Busha Temesgen for his guidance and constructive comments from the beginning of the research proposal to the completion of the thesis paper. I wish to acknowledge all staff of Dangote cement Ethiopia Plc particularly fleet management team members, drivers, and maintenance staff, who help everything run smoothly. Finally, I would also like to thank and acknowledge all my colleagues who have been extremely helpful during my academic path.

Thank you all!

Getinet Abebe - June- 2023

## TABLE OF CONTENTS

DECLARATION .....	iii
ACKNOWLEDGMENT .....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES AND FIGURES.....	ix
<i>ABSTRACT</i> .....	x
CHAPTER ONE .....	1
INTRODUCTION .....	1
1.1 Background of Study .....	1
1.2. Statement of the Problem.....	3
1.3. Research Questions.....	5
1.4 Objectives of Study.....	5
1.4.1 General Objective .....	5
1.4.2 Specific Objectives .....	5
1.5. Significance of study.....	6
1.6. Scope of Study .....	6
1.7. Definition of Terms.....	7
1.8. Organization of the study.....	7
CHAPTER TWO .....	8
LITERATURE REVIEW .....	8
2.1 Concept of Fleet Management.....	8
2.2 Theoretical review .....	9
2.2.1 Theory Resource Based View.....	10
2.2.3 Theory of Replacement.....	11
2.3 Practice of fleet management.....	12
2.3.1 Vehicle repair and maintenance.....	13
2.3.2 Fuel management.....	14
2.3.3 Driver training and management.....	15
2.3.4 Vehicle replacement and disposal management .....	16
2.4 Operational performance.....	17
2.4.1 Quality.....	18
2.4.2 Cost .....	18
2.4.3 Delivery reliability.....	18
2.4.4 Flexibility.....	19

2.5 Empirical evidence.....	19
2.6 Fleet management practice in Africa and Ethiopia .....	20
2.7 Conceptual framework.....	21
CHAPTER THREE .....	23
RESEARCH METHODOLOGY .....	23
3.1. Description of the Study area.....	23
3.2 Research Approach. ....	23
3.3 Research design .....	23
3.4 Population of the study .....	24
3.5 Data source and type .....	24
3.6 Data collection procedure .....	24
3.7 Sampling Size and Technique.....	25
3.8 Tools of Data Collection .....	25
3.9 Data Analysis .....	26
3.10 Validity and Reliability.....	26
3.11 Pre-testing .....	27
3.12 Ethical Consideration.....	27
CHAPTER FOUR.....	28
DATA PRESENTATION, ANALYSIS, AND INTERPRETATION .....	28
4.1 Response rate .....	28
4.2 Reliability test .....	28
Operational performance.....	28
Vehicles Repair and Maintaining.....	28
Fuel Management System.....	28
Vehicle replacement and Disposal Management .....	29
Driver training and Management .....	29
4.3 Respondents profile .....	29
4.3.1 Respondents gender .....	29
4.3.2 Respondents' Educational status.....	30
4.3.3 Age of respondents .....	30
4.4 Descriptive Statistics.....	31
4.4.1 Descriptive statistics for operation performance.....	31
4.4.2 Descriptive statistics for Fleet management .....	36
4.5 Pearson Correlation Analysis.....	41
4.7. Regression Analysis.....	42
4.7.1. Assumptions of Regressions Analysis .....	42
4.7.2 Relation between fleet management and operational performance.....	45

CHAPTER FIVE .....	48
SUMMERY, CONCLUSION AND RECOMMENDATION.....	48
5.1 SUMMARY.....	48
5.2 CONCLUSION.....	50
5.3 RECOMMENDATIONS .....	51
Reference .....	52
Annex 1 Questionnaire .....	58
Annex 2 Similarity Report.....	63

## LIST OF TABLES AND FIGURES

### List of Tables

Table 1 Reliability Test .....	28
Table 2 Rating of Cost .....	32
Table 3 Rating of Flexibility .....	33
Table 4 Rating of Service Quality.....	34
Table 5 Rating of Speed Delivery.....	35
Table 6 Rating of Vehicles Repair and Maintenance.....	36
Table 7 Rating of Fuel Management System.....	37
Table 8 Rating of Vehicle Replacement and Disposal Management.....	38
Table 9 Rating of Driver Training and Management.....	40
Table 10 Correlation Matrix between Operational Performance and Fleet Management Dimension (N=98) .....	41
Table 11 Table Showing Multi collinearity Test .....	43
Table 12 Model Summary for Effect of Monitoring and Evaluation on Project Performance.....	45
Table 13 Coefficient of Effect of Fleet Management Dimensions on Operational Performance.....	45

### List of Figures

Figure 1 Conceptual Framework .....	22
Figure 2 Respondents' Gender .....	29
Figure 3 Education Status of the Respondents.....	30
Figure 4 Respondents Age .....	31
Figure 5 Independent Grouped Frequency Distribution for Project Performance .....	44
Figure 6 Scatter Plot Showing Homoscedastic .....	45

## **ABSTRACT**

*The main purpose of this study was to investigate the effect of fleet management practices on operational performance, In the case of Dangote cement Ethiopia Plc. The study employed an explanatory research design and a quantitative approach. From the total population of 145 employees, 107 samples were used by using the sampling random sampling method. Questionnaires were used to collect data which was hand-delivered to the respondents. The study utilized SPSS V-26 to analysis the data by using descriptive statistics such as mean; percentage and frequency tables were used to describe the data. Inferential statistics such as regression and correlation matrix models were employed to answer the basic question. The study's finding shows that fleet management and operational performance were practiced at a moderate level. Driver training and management (39.7%), vehicle replacement and disposal management (33.2%), and vehicle repair and maintaining (27.3%) were significant predictors of Dangote cement's logistic operational performance. Furthermore, the fuel management System was insignificant to predict operational performance. The study concluded that managing the GPS tracking system, installing vehicle tracking system on all organization vehicles, the latest technology of GPS for the vehicle tracking system, handling drivers' mission assignment, repairing, and maintenance garage complete the service and maintenance on time, properly maintaining a vehicle log book for all the distance traveled, regular vehicle servicing time schedule handles complaint regarding service had positive and have a significant effect on operational performance. The study recommends that the organization's fleet management practices on department should prepare training programs for all individuals of fleet management division and vehicle client representatives which help upgrade the information of the professionals and drivers to enable them to preserve and utilize vehicle security legitimately.*

**Key word:** *Fleet management, operational performance*

# CHAPTER ONE

## INTRODUCTION

This chapter discusses the Background of the Study, Statement of the problem, Research Questions, Research Objectives, and Significance of the Study, Scope of the Study, Definition of Terms and Organization of the Study.

### 1.1 Background of the Study

Any nation's transportation industry contributes significantly to the national and local economies and has a key influence in the global economy (Remy et al., 2012). It is significant to highlight that logistics and transportation services in developing nations have seen modifications to several service opportunities (Bask, Tinnila, & Rajahonka, 2010). However, disaster-related vehicle dispatching necessitates lengthy trips in poor driving conditions (Pedraza-Martinez et al. 2011). Hard missions are then in charge of determining damages and organizing the early reaction in relief efforts (Pedraza-Martinez and Van Wassenhove 2010). However, disaster-related vehicle dispatching necessitates lengthy trips in poor driving conditions (Pedraza-Martinez et al. 2011). Hard missions are then in charge of determining damages and organizing the early reaction in relief efforts (Pedraza-Martinez and Van Wassenhove 2010). As a result, businesses who are dedicated to maintaining an effective fleet pay close attention to the cost of truck maintenance. They consider the cost of upkeep and the price of acquisition. As a result, many businesses have realized that planning is essential to effective fleet management rather than waiting until a vehicle has reached the end of its useful life (Bruce, 2014). By managing the assets that are employed, fleet management supports numerous transport-related operations by supervising, coordinating, and facilitating those actions (Ibid).

The word "fleet management" refers to the management of all facets involving a company's vehicle. This might involve a variety of tasks, such as managing drivers, speeds, fuel consumption, and health and safety (Global Fleet Management, 2021). It can also involve managing vehicle finance, vehicle maintenance, and vehicle telematics (tracking and diagnostics

of cars). Additionally, Ratcliffe (2007) listed key fleet management techniques that firms adopt to provide clients with successful services as routing and scheduling, fuel management, vehicle purchase, vehicle maintenance, as well as driver briefing.

Vehicle finance, maintenance, telematics, driving and speed monitoring, fuel control, and health and safety management are among aspects that fleet management might include. Fleet management is a feature that enables businesses that rely on transportation to postpone or restrict the risks associated with vehicle investment, improving efficiency and productivity while decreasing staffing and general transportation expenses (Berg, 2017). Additionally, fleet management control refers to the techniques used to manage a fleet of vehicles and related assets, as well as to maximize performance while lowering costs and risk. Therefore, fleet managers are responsible for limiting fleet car hazards, increasing profitability, and managing costs.

A dynamic business climate with significant levels of competition is the setting in which businesses from all over the world village operate. Fleet management is a necessary tactic for enhancing logistics management to acquire a competitive edge in such a setting (Smith and Judith, 2017). Additionally, Global Fleet Management (2021) stated that the expansion of the industry is reflected in an increase in fleet management issues, such as the upkeep of the vehicles to avoid accidents. To support market expansion, there has also been an increase in the need for vehicle operating proficiency. For instance, enhanced fleet management in Africa's manufacturing, service, and retail sectors has resulted in a 60% decrease in fleet downtime and a 70% improvement in delivery schedules (Washington and Keller, 2016).

The study by Orr and Kamter (2009) on enhancing operational performance through automatic vehicle management demonstrates that automatic management has improved cost and dependability. Systematic fleet management is now required for the supply of transportation services in both the public and commercial sectors. The private and public sectors are always in rivalry with one another when it comes to the kind of transportation services they provide and how customers express their satisfaction with both sectors' offerings (Gitahi & Ogollah, 2014).

Therefore, the study seeks to analyze the impact of fleet management on the operational performance of Dangote Cement firm and evaluate the fleet management implementation in the study firm.

## 1.2. Statement of the Problem

Transportation is crucial for enhancing accessibility, boosting employment, lowering travel times, and increasing productivity (Yeser, 1990). Additionally, everyone uses different forms of transportation to get from one location to another, whether it be for, pleasure, business, education, or other reasons. The most crucial element in determining regional, economic, and social growth is transportation (Ibid). Similar to air transportation, road transportation is crucial for growth and development, but it's also dangerous, especially in poorer nations (WHO, 2015). Businesses must overcome several obstacles to supply their goods and services at a reasonable cost. According to Gitahi and Ogollah (2014), the increased consumer expectations and their intolerance for subpar services have created a competitive environment for fleet management operations to deliver dependable and economical services. As a result, fleet management is now required for all public and private sector transportation service delivery systems. In terms of the types of transportation services they provide and how clients express their pleasure with services from sectors, the private and public sectors are always in rivalry with one another (Gitahi & Ogollah, 2014). Therefore, to improve service delivery, it is important to manage fleets properly to satisfy consumer expectations (ibid). The employees' wellbeing is improved, and gasoline and car costs are reduced thanks to FM. The major goal of FM is to assure the operational success of transportation firms by lowering transportation costs, improving business processes, and enhancing customer service (Said, Nicoletti, & Perez-Hernandez, 2004). For better performance and effective distribution of items delivered at the right place, at the right time, with the correct amount, and to the right recipient, logistics and delivery management are critical components, according to Borirug et al. (2009).

According to Bask et al. (2010), it has been difficult for businesses to operate in the logistics and transportation sectors in developing nations, and the organization's biggest annual expense is related to transportation (Ibid). Even when compared to other emerging nations, Ethiopia's road infrastructure network is subpar.

The issue of road safety is especially challenging in Africa (WHO, 2013). Road transportation so significantly harms the national economy by destroying priceless assets. One of the key engines behind the economic growth of any nation, especially one that is landlocked like Ethiopia, has always been and will continue to be transportation (UN,

2020). As a result, businesses work to identify ways to lower operating expenses over the course of the vehicle. Fleet Forum (2012) said that well-managed and maintained equipment may result in savings of 20-30% on vehicle disposal, supporting FM as the best method to lower operational expenses.

In developing economies, it might be difficult to determine how fleet management affects overall performance (Gitahi & Ogollah, 2014; Pedraza-Martinez & Van Wassenhove, 2012). The fleet management system is still in its infancy, particularly in East Africa, where Ethiopia is located (Shugan, 2004). Additionally, the cost of corporate product delivery in Ethiopia accounts for 35–55% of the product price (Sofia & Ciku, 2022), which is highly expensive when compared to the global average cost of delivery, which is less than 30% of the product price. The performance of Dangote's cement output during the years of 2015 and 2020 lagged, according to a study released by the company in 2021. According to researcher information, Selamawit (2022) did a research study named "Analysis of Fleet Management Practices and its Effect on Operational Performance of Hagbes Plc." She refers to a few aspects of fleet management, including fleet utilization, vehicle availability, and fleet replacement. This research also looked at the impact of fleet management practices analysis and how it affected Dangote Cement Ethiopia plc's operational performance. The research attempts to analyze fleet management practices such as managing driver training and development, fuel management, vehicle replacement and disposal, and repair and maintenance of vehicles. The study aims to examine several aspects of fleet management, including fuel management, driver development, and management. As a result, the study aims to close this knowledge gap as well as the literature deficit for academic research on the same subject in the nation. To determine how fleet management techniques affect operational performance at Dangote Cement Plc in Ethiopia, research was conducted. Additionally, the research evaluated Dangote Cement Plc's current fleet management procedures in Ethiopia.

### **1.3. Research Questions**

Based on the objectives of the study, the following are the research questions:

- i. To what extent does fleet management implement in Dangote Cement Plc?
- ii. What is the effect vehicles repair and maintenance influence of operational performance at Dangote Plc?
- iii. What is the effect of vehicles fuel management on operational performance at Dangote Cement Plc?
- iv. What is the effect of vehicle replacement and disposal management influences operational performance at Dangote Cement Plc?
- v. What is the effect of vehicle replacement and disposal management on operational performance at Dangote Cement Plc?

### **1.4 Objectives of the Study**

#### **1.4.1 General Objective**

The main objective of this study is to investigate the influence fleet management practices on operational performance in Dangote Cement Ethiopia Plc.

#### **1.4.2 Specific Objectives**

The specific objectives of the study are to:

- i. To identify the implementation level of fleet in Dangote Cement Plc.
- ii. To determine how vehicles repair and maintenance influence of operational performance at Dangote Cement Plc.
- iii. To identify the influence of vehicles fuel management on operational performance at Dangote Cement Plc.
- iv. To determine how vehicle replacement and disposal management influences operational performance at Dangote Cement Plc.
- v. To assess the influence of driver training and management on operational performance

### **1.5. Significance of the study**

The process of creating this thesis will enable me to get in-depth understanding of the key fleet management practice and its impact on operational performance, which a corporation should consider while conducting fleet management operations. What the researcher hopes to learn through doing his study is known as the research question (Foss and Waters, 2007).

The study is anticipated to help the organization enhance its fleet management system by addressing issues that were found, and it may inspire other researchers to do more fleet management research. The study is frequently cited in scholarly work on related subjects. Fleet management practices are one of several elements that have an impact on Dangote Cement Ethiopia Plc. Since the firm uses a variety of vehicles to carry out its operations, managing their fleets in a way to improve cement distribution is undeniable. The study provides a thorough foundation for future research on firm fleet management practices even though there aren't many studies in the field. Additionally, organizations receive suggestions on how to enhance current procedures and fill in any holes for their business. Dangote Cement Ethiopia Plc decision-making may benefit from the study's findings, which provide important recommendations on how to address fleet management issues that currently exist.

### **1.6. Scope of the Study**

The study's investigation of fleet management practices for Dangote Cement Ethiopia Plc. focused on vehicle maintenance and replacement, fuel management, driver development and management, and vehicle replacement and disposal management. The study concentrated on the large vehicles that are used to deliver cement to merchants, agents, and depo (A.A). The company's managers, maintenance personnel, and drivers were collected for the study. The survey did not, however, involve customers or their fleet or other corporate department workers.

## **1.7. Limitation of the study**

The research was restricted on company fleet only by analyzing the practice and its effect, Identifying the key problems, and measuring the results because it was difficult, expensive, and inaccessible to include the whole fleet management, which includes customers or their fleet or other company department workers. The study's other shortcoming was that, owing to time limits, it was unable to consider additional factors or dimensions that may have an impact on company fleet management performance.

## 1.8. Definition of Terms

**Transportation:** is represents the physical movement of materials between points in a supply chain (business dictionary).

**Fleet management** is an administrative approach that allows companies to organize and coordinate. Work vehicles with the aim to improve efficiency, reduce costs, and provide compliance with government regulations (Borirug et.al, 2009).

**Operational performance:** is defined as Firm's performance measured against standard or prescribed indicators of speed & service, Delivery service quality, flexibility, and cost.

**Vehicle tracking system** combines the use of automatic vehicle location in individual vehicles with software to collect fleet data for a comprehensive picture of vehicle locations. (Penton. 2011)

**Vehicle repair and maintenance** involves maintaining, repairing, and replacing, if necessary, devices, equipment, machinery, building infrastructure, and supporting utilities in industrial, business, governmental, and residential installations. (Defense Logistics Agency, 2016)

**Fuel management systems** are a system that is used to maintain, control and monitor fuel consumption and stock in any type of industry that uses transport, including rail, road, water, and air, as a means of business. (Lange, 1992)

## **1.9. Organization of the study**

The three chapters that make up the thesis proposal are organized methodically, and the following material is presented coherently: -

The introduction, or Chapter 1, covers the background of the study, the explanation of the problem, the research questions, the aims of the investigation, its importance, its scope and limitations, the definition of terminology, and how the study was organized.

The second chapter is a review of related literature that covers introduction, theoretical review, and practice of fleet management, fuel management, driver training and management, management of vehicle replacement and disposal, operational performance, and an empirical literature review of fleet management practice across the globe, including Ethiopia.

The third chapter, which deals with methodology, includes information on the description of the study area, the research approach, the research design, the choice of the target population, the sampling technique and sample size, the different types of data and their sources, the data collection process, the research strategy, the research framework used in this study, and the method for data analysis.

The fourth chapter, which deals with data analysis and interpretation, examines, discusses, and interprets the research's findings in line with the methods set out.

The fifth chapter, researcher's conclusions and suggestions were included in the fifth chapter of this thesis.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Concept of Fleet Management

The term "fleet management" refers to a set of tasks that include budgeting, planning, purchasing vehicles, and finally disposing of such vehicles. Operational duties are present in between. The most significant of them that immediately spring to mind are administration of maintenance and repairs, Tire replacements, renewal, and storage, taxes, inspections, fuel management, driver-related activities such as license checks, insurance and accident management, and reporting. Fleet management tasks can be delegated to an external fleet management company that offers solutions over the course of a vehicle's entire life cycle under the terms of a per-established contract or carried out internally, typically by a dedicated person known as the fleet manager/executive/responsible (Akkarta & Aras, 2021).

According to Lyton (2018), fleet management refers to the operation of automobiles, vans, trucks, and commercial vehicles. To cut costs and increase efficiency, a company should perform a set of specific vehicle-related activities for a predetermined period, such as purchasing, financing, managing taxes, maintaining, replacing tires, and disposing of vehicles. These activities can be performed internally by a dedicated fleet manager who coordinates them centrally, or they can be outsourced to a fleet management company.

According to Gitahi and Ogollah (2014), fleet management may be thought of as monitoring and improving how efficiently one can perceive a transportation fleet. It covers the operation of automobiles, ships, vans, and trucks. When it comes to fleet management, several different tasks are considered, such as vehicle finance, vehicle maintenance, vehicle telemetry, driver shifting and roistering, asset monitoring, speed management, fuel management, and health and safety management. The main goal of fleet management is to completely reduce the costs connected with staffing and transportation while also reducing the hazards related to vehicle operation.

Accordingly, Besiou et al. (2012) assert that a fleet management strategy that ensures sustainability aims to reduce environmental impact through the integration of cleaner vehicles.

and fuels, fuel efficient operation and driving, and by minimizing the amount of traffic it creates on the road.

## **2.2 Theoretical review**

There are several theories that have been developed to anticipate, explain, and understand FM concepts. However, resource-based theory and replacement theory are the foundations of the subject. These ideas shed more light on how to comprehend FM and operational effectiveness.

### **2.2.1 Theory Resource Based View**

The theory was initially developed by Wernerfelt (1984) and later advanced by Rumelt (1984).

The emphasis is on the fact that organizations must compare their skills with those of the market, position themselves and their resources, and use their strategies to position their resources in the market.

The resource-based viewpoint places an intra-organizational emphasis and contends that firm-specific resources and capabilities influence performance (Wernerfelt, 2008). The resource-based perspective is founded on the idea that competitiveness in the future will be determined by the development of distinctive and unique talents, which are frequently implicit or intangible in nature. The distinctive resources and competencies of the company should be used to develop the core of strategy (Rumelt, 2008). According to the RBV of the company, a firm's operational performance may be attributed to the resources, capabilities, and distinctive operating style that it has access to and control over (Barney, 2001). According to Crook, Ketchen, and Combs (2008), organizations may develop and sustain operational success by identifying and controlling internal strategic resources. However, the RBV is critiqued in several ways. According to the argument (Priem & Butler, 2001), the theory can only be used if the amount of demand has been adequately studied.

Barney (2010) stated that if all businesses had the same resources, there would be no profitability disparities since any firm operating in the same industry could employ any strategy. According to the underlying rationale, the cost of resources and capabilities used to implement the chosen strategy will largely determine how long a competitive advantage will last.

Strategic factor markets, which Barney (2010) said are marketplaces where critical resources are purchased, may be used to examine this cost. Due to varying assumptions about the potential

value of a strategic resource, information asymmetries, and sometimes even chance, it is claimed that strategic factor markets are not totally competitive. The absence of a thorough framework that demonstrates how diverse organizational components interact with one another over time to produce something fresh and original, however, is a significant resource-based approach omission (Nonaka & Takeuchi, 2011). According to the resource-based view (RBV), a firm's competitive advantage and performance outcomes are due to its unique resources and skills, which are expensive for rivals to imitate (Barney, 2010). If they have specific unique qualities, these resources and competencies may be significant contributors to long-term competitive advantage and improved business performance.

The capacity of the company to implement a plan that better meets market demand and increases consumer utility is improved by having more resources. The resource-based perspective may be crucial for fleet management to direct a better, more efficient flow of service delivery. A business should make sure that their fleet is enough and well-maintained so that they can always provide the best service (Spanos & Lioukas, 2001).

### **2.2.3 Theory of Replacement**

The ideal life of capital equipment is a topic covered by the Theory of Replacement. The time between when an asset starts to be used and when it must be restored for productive purposes is known as the asset's optimal life (Van Hilten, 1991). Replacement theory often addresses the issue of replacing equipment, lights, and people because of declining performance, failure, or breakdown. Replacement is typically done under the following circumstances: When current objects have reached the end of their useful life and it may not be financially feasible to use them any longer; and when the items may have been damaged, whether intentionally or accidentally. Fleets may be replaced in fleet management if: The fleet's performance has declined over time; replacement of a fleet that, after a given use, entirely failed without degrading; The steady reduction of the current working crew in a company owing to retirement, accidents, and other reasons is among them (Bagui, Chakraborti, and Bhadra, 2012). Replacement of fleet that got out of date due to new developments. The development of average long-run costs for both models makes use of replacement theory. These expenses cover both the price of a new machine and the cost of machine upkeep (Ibid).

The replacement examination most of the time analysis both trends in running costs and the final

of replacement, which is the discrepancy betwixt the cost of advance equipment and the residual (Rust, 1987). In some instances, replacement evaluation also put into consideration the value it will fetch if equipment at different phases of its useful life (Reid & Bradford, 1983). Critics of the theory of replacement are of the view that vehicle replacement models need several forecasted and historical data describing fleets operation and elements. This is always a challenge to most companies especially in developing countries (Nakagawa, 1984). This data should therefore be collected, updated, and processed with the application of a modern database. Most organizations also have difficulty dealing with fluctuations in fleet replacement spending needs because the amount of funds they can devote to the purchase of vehicles each year generally does not fluctuate.

Decisions about replacements are influenced by several circumstances. A new technology may reduce costs or increase productivity. Accordingly, the theory suggests that an administrator has to take alterations in equipment design, efficiency, and capital and labor requirements into account in order to create accurate projections of future capital and running costs (Jin & Kite-Powell, 2000). The idea aids in defining the best replacement plans for company cars when it comes to fleet management. Based on this, the economic theory of fleet replacement posits that cars should be replaced when the total cost of ownership and operating expenses is historically at its lowest level. According to the theory, an effective fleet replacement technique enables the management of freight transportation businesses to specify the ideal replacement policies for old fleet, which minimizes costs and enhances the economic and technical conditions of the fleet.

### **2.3 Practice of fleet management**

Vehicle maintenance, vehicle tracking, driver, and fuel management are just a few of the jobs that are covered by fleet management. According to Martinez, Stapleton, and Wassenhove (2011), effective fleet management enables businesses that rely on large fleets to organize and coordinate their construction equipment, trucks, and light vehicles to improve performance and save operating costs. To enhance the environmental performance of their operations, businesses collaborate with their suppliers and/or customers using a variety of fleet management strategies. According to (Lu et al., 2008), there are two main objectives of fleet management that include promoting responsible corporate environmental behavior among all players in the chain of products and

services, consistently meeting specified environmental performance criteria among supply chain participants and supporting suppliers in implementing their own improvement initiatives.

From the initial phases of equipment procurement to the last stages of asset disposal, fleet management includes all operations required to maintain and operate pieces of equipment over the course of their lifetime. These include training, safety concerns, inventory control, maintenance and repair, and repairs (Rachida et al., 2013). The issues with fleet management are moving away from cost-effectiveness and toward greater customer happiness, adaptability, and sensitivity to requirements that change at a rate that was unthinkable even ten years ago. Over the past 40 years, traditional fleet management systems have suffered greatly with cost efficiency issues by developing routing plans in a range of real-world issues (Minis & Zeimpekis, 2007).

Businesses may encounter internal and external factors that have an impact on their operations, and fleet management in a company may face dynamic challenges due to unanticipated occurrences happening during operations, according to (Queree C. 1993).

As a result, the study claims that companies need to be ready to react when faced with competition in the market (Borirug et al, 2009). Fleet management includes all activities necessary to maintain and operate pieces of equipment, from the early phases of equipment purchase through the last steps of asset disposal. A few examples include maintenance and repair, inventory management, training, and safety concerns (Hamzi et al., 2013).

### **2.3.1 Vehicle repair and maintenance**

Vehicle maintenance and repair must be given top priority by any fleet management organization. The notion of repair and maintenance includes things like doing routine maintenance, storing spare parts, and changing the oil. According to past study, there are a few very inexpensive techniques that can lower fuel consumption for fleet operations by 10% or more, including driver education, vehicle maintenance, and vehicle design (Baas & Latto, 2005). However, according to Baas and Latto (2005), by using gasoline additives to keep the engine injectors clean, routine oil changes can help extend the engine's lifespan. Acidic chemicals, grime, and other impurities can destroy engine parts if appropriate oil changes are not performed. Oil changes can reduce fuel efficiency and are largely related to gas mileage, claim Baas and Latto (2005). Changing the oil and filter is one of the most regular maintenance procedures for your car's performance. Regular oil changes may be among the most vital maintenance.

procedures given how important they are to an engine's performance.

High performance criteria are continually being placed on production and equipment maintenance because of needs for heavy-duty construction, logistics, and transportation in the global fleet business industry. The power, pressure, and tolerance requirements for trucks, buses, and other large machinery have increased, requiring nearly flawless synchronization between all the parts. Nevertheless, continuous use of moving components can cause severe failures and part losses, which not only lower productivity but also raise the possibility of accidents (Begashaw, 2016).

After reviewing the facility's requirements, the fleet manager acquired a fundamental knowledge of the actions and functional flow necessary for fleet management. Examples of these tasks include placing orders for supplies and components, setting up preventative maintenance appointments, etc.

Maintenance refers to preventive maintenance, the most widely used maintenance policy (Ozekici, 1995). Wang (2003) classifies replacement policies in age or mileage based, repair limit based or up to failure.

More recently, 'predictive maintenance' is being employed, which uses sensor data to monitor a system, then continuously evaluates it against historical trends to predict failure before it occurs. In aircraft maintenance, maintenance, repair, and overhaul services also include inspection, rebuilding, alteration and the supply of spare parts, accessories, raw materials, adhesives, sealants, coatings and consumables for aircraft manufacturing and maintenance, repair and overhaul services. The marine transportation, offshore structures, industrial plant/equipment, and commercial facilities market sectors depend on scheduled or preventive paint maintenance programmers to maintain and restore coatings applied to steel, and concrete and masonry assets in environments subject to attack from erosion, corrosion, and environmental pollution.

The basic categories of maintenance (regular inspections, corrective maintenance, or preventive maintenance), as well as the basic repair functions (from non-repair to complete repair of the vehicle), are also taken into consideration when analyzing each function (Freire & Matos, 2000). Any form of company enterprise needs the tools or resources to produce the outcomes that are crucial in the dynamic global economy (Murphy, D. 2002). The fleet's equipment will age with time, lengthening the downtime. As a result, the planned maintenance must be carried out correctly to prolong its useful life.

### **2.3.2 Fuel management**

An essential component of fleet operating is fuel management. Fuel is compared to the blood that flows throughout the human body. It makes moving the car easier at any given time. It is important to remember that while fleet management and traffic safety are essential to providing services, gasoline is a resource that requires careful management. Fuel management is a significant cost issue in most settings, notwithstanding variations throughout the company (Gitahi and Ogollah, 2014). However, creating a structured fuel management program is a useful tactic for achieving long-lasting fuel cost savings for fleet operations. To monitor, cut back on, and maximize gasoline-related costs, businesses implement fuel control and management designs for vehicles. The most common ways to learn about fuel level and usage are to place a gasoline level sensor directly in the fuel tank or attach a GPS tracker to the vehicle's on-board computer. This operation produces thorough records that show which drivers squander the company's fuel and whose cars consume excessive amounts of it. Therefore, since effective fuel management has a significant impact on the competitive advantage of the company, operators must put in place the proper measures to encourage it (Ibid).

Fuel usage in heavy construction operations is one of the critical problems in considering the cost. Construction trucks and machinery overall has more fuel usage because of its huge mass and its full loads of construction raw materials. Additionally, the driving situation on construction sites frequently has uneven geography settings and the driving routes regularly face recurrent steep gradients, which lead to high fuel usage and at the same time the trucks, must travel at low speed. Machinery manufacturer effort continually on upgrading the fuel efficiency of the construction equipment parallel from the vehicle design point of view and expectation of the road condition, subsequently a decline of a little portion points in fuel usage can affect considerable cost savings (Jiali, 2017).

After outlining a wide range of factors that have an impact on fuel, Latto, and Baas et al. (2005) specify that driver education, speed management, better fleet management procedures, improved in-cab temperature control, matching vehicles to the transport task, better maintenance management, and better Tire management are possible measures to increase fuel efficiency.

The study by Alfonso P. Orla. S & Luk N. (2009) explores the use of data collection and analysis in monitoring and evaluating Field VFM, particularly in the context of international humanitarian organizations. It discusses various fuel management systems, including card-based

systems, on-site systems, total fuel management systems, and mobile fuel management. The study also highlights the challenges posed by the increasing use of biofuel, such as the risk of microbial growth and deteriorating fuel quality over time.

According to the findings of their study, they identified fleet fuel management as one of the nine tools of real-time FM that are now available and observed that fuel management in dynamic fleet management systems has been a key instrument in the operation of vehicles. The use of personalized cards for all fuel-related transactions helps to prevent irregular or unauthorized activity and enables the gathering of all pertinent data, including date, time, location, odometer reading, driver name, product type, unit and cost per unit, and total cost (Borirug, Fung, & Philuek, 2009).

### **2.3.3 Driver training and management**

The maintenance of cars in excellent condition is a major driving duty. Drivers must have the necessary training to maintain cars and should be able to fix issues that develop while operating the vehicle. The effectiveness of fleet management also depends heavily on vehicle inspection. Fleet cars must undergo thorough inspections on a regular basis to determine if they are fit for use on the road or whether they comply with local requirements. When a breakdown happens While driving, the driver should be able to give first aid to the vehicle while also being able to swiftly recognize and address issues. Particularly proved to be a successful way to proactively enhance workplace health, resilience training may be given priority in any intervention approach to treat workplace stress (Hesketh et al., 2015). In many businesses, it is not feasible to teach staff members on a large-scale program about the usage of new technology. Organizations do this, though, by giving user departments the right information in the right manner. Employees are also provided training documents to promote rapid and simple adoption of new equipment inside the company. Other techniques, such as brief presentations, posters, and announcements with advice on how to make changes, are crucial for improving drivers' abilities and knowledge in providing high-quality service. Therefore, we propose that driver management and training have a greater impact on service delivery and overall competitive advantage (Ibid).

The steps included creating a thorough persistent checklist, making sure drivers are aware of their accountability for their actions, enhancing the hiring process for drivers, teaching, and coaching them about vehicle standards and visual inspections, holding regular monthly driver forums, cultivating a culture where drivers can step in and stop any unsafe or non-compliant behavior, and creating monthly feedback reports on individual driver performance.

The best approach is to properly manage your drivers and operators. To guarantee that both workers and the public are not put at danger, it is crucial to approach driver selection and management in a knowledgeable manner. Driving affects a person's physical and emotional well-being. Mejza et al. (2003) identified careful hiring processes and formal reward systems as best practices for driver management in US motor carriers, enhancing performance. They are expected to work long hours and have limited access to nourishing meals and roadside assistance, which might have an adverse effect on their health. Additionally, drivers are required to focus for lengthy workdays. They typically don't communicate much with other people and are impacted by things they can't control, including weather and traffic. To ensure that they and

other road users are not put in danger, drivers require the help of their companies. Because of the existing shortage of qualified drivers and candidates wishing to pursue professional driver training, concerned company owners are increasingly realizing their moral responsibilities to manage their workforce effectively (London, 2006).

### **2.3.4 Vehicle replacement and disposal management**

The ability to anticipate resource life cycles based on costing data, utilization, and resource age is a requirement for the advantageous replacement of vehicles and equipment. Subsidizing needs is also a problem because many organizations, especially the government, spend money on purchasing automobiles. Numerous operations have been confined to an outdated fleet due to the unpreparedness and typical low financial funding levels. Because of the outdated vehicles, this lack of sufficient funding for replacement may also result in greater support expenses (Begashaw, 2016). For a single machine problem, the quantity-based replacement policy and the time-based replacement policy are presented. Problems with inventory management have been addressed using these two types of policies. When an accumulation of products of a certain magnitude is generated, a machine is replaced under a quantity-based replacement strategy. One can choose the ideal production size in this model. Before taking a fleet for maintenance and repair or replacement later, a company should ascertain the predicted ideal workload that specific fleet can handle based on usage. This needs to be done while considering things like the cost of operating the fleet and the cost of repairs and maintenance, among other things (City of Seattle, 2014).

The general condition of the car and the total cost of repairs and maintenance will also be taken into consideration when deciding how to dispose of it. Therefore, it is crucial to dispose of cars while considering their mileage, working hours, and history of repair and maintenance expenditures. Running outdated vehicles increases operational expenses, prolonged downtime, and lowers service quality by interfering with operations during frequent breakdowns (A1593, 2017).

## **2.4 Operational performance**

The physical values that are used to assess, compare, and manage an organization's overall performance are referred to as performance indicators (Gosselin, 2005). A few examples of

performance indicators include quality, price, time, flexibility, and delivery. These performance indicators are used by most companies to assess and manage their performance. According to performance indicators, the measurements are the elements that are used to assess.

an organization's performance (Heckl & Moormann 2010).

Indicators of operational success should be part of a more comprehensive conceptualization and effective company performance. This study focuses on fleet operating performance to assess the advantages of fleet management practices. According to Stank et al. (1999), operational effectiveness significantly influences customer loyalty and satisfaction, which in turn affects market performance (Stank et al. 2003).

According to Venkatraman and Ramanujam (1986), operational performance indicators include market share, new concept introduction, product quality, product marketing, efficiency, creation of value addition, and other business-related factors. Additionally, according to Zhu, Sarkis, and Lai (2008), operational performance indicators included flake rate, capacity utilization, product quality, amount of inventory, and product line. On the other side, operational performance is a problem for Russell and Taylor (2008) while managing the cost budgeting. Regarding low-cost production, it means maximizing output with the fewest inputs possible while minimizing waste so that the firm can provide value to its customers. Cost management measurement may be compared to quality management, according to Prajogo and Goh (2007). Speed and product service are improving in operational performance. Shortening the time between delivery and service request is achieved by encouraging an organization to offer on time service to its consumers.

Quality, pricing, delivery, and flexibility are described as the characteristics that serve as competitive priorities by Phusavat and Kanchana (2007). These criteria were specified as follows:

### **2.4.1 Quality**

Low quality defect rates, product performance, dependability, certification, and environmental concerns are all examples of quality. The success of every firm depends on quality. Customers today want high-quality items, and businesses who can provide these things at a lesser cost succeed. Three primary levels—input, output, and throughput or process quality—are where the quality is assessed. Most businesses prioritize quality because they have promised to provide

high-quality services and goods to their clients (Heckl & Moormann 2010).

### **2.4.2 Cost**

It is the capacity to control production costs, together with its linked components like overhead and inventory, as well as value-added. According to (White, 1996), cost-based performance measures are of greater concern to external stakeholders, which is why organizations use cost accounting systems that include efficiency and effectiveness measures to link internal performance measures to external ones (Razaq, 2013).

### **2.4.3 Delivery reliability**

It is seen as a temporal problem. Delivery refers to how soon a good or a service is given to clients. It also takes a new product's time-to-market into account. According to White (1996), perceived relative dependability, reliability in comparison to rivals, percentage of on-time delivery, adherence to due dates, and percentage rise in the share of delivery promises met are all important factors. As indicators of the delivery reliability, consider the percentage of orders with incorrect quantities, schedule attainment, average delay, and percentage reduction in lead time per product line, percentage increases in output, percentage reduction in purchasing lead time, and percentage reduction in average turnaround time per warranty claim. The indicators of delivery dependability are generally agreed upon by scholars (Razaq, 2013).

### **2.4.4 Flexibility**

Flexibility is the capacity to deploy and/or re-deploy resources in response to modifications in contractual agreements that are largely brought about by clients. This word encompasses several elements, including modifications to design and planning, volume adjustments, and product diversity. According to Zhang et al. (2003), flexibility is the capacity of organizations to carry out a variety of activities with a given amount of manpower, machinery, etc. The most reliable indicators of flexibility, according to Neely and Platts (2005), are material quality, output quality, new and updated products, deliverability, volume mix, and resource mix. With a clear capacity for adaptability to new difficulties, flexibility is a technique to clearly convey the competitive advantage in an unpredictable market and to avoid instability. The levels and the type of required flexibility, in real time are influenced by the competitors of this market (Todorut, 2008).

## **2.5 Empirical Literature Review**

Orr and Kempter (2009) conducted a study on improving operational performance through automatic vehicle management. The study found out that automatic vehicle management system has proved to be rewarding in where it has been positioned. It has created an allowance for better administration of important capital investments of the company, not limited to fleet and human resources. The overall operational efficiency has improved while miles driven have been reduced. Teams are most probable to drive less risky and are following the accepted standards of driving. An evaluation of the effects of logistics management apps on the effectiveness of operations at MSC, Kenya, was done in Mukolwe and Wanyoike. His study's objective was to assess the effects of logistics management software on MSC, Kenya's operational effectiveness.

The study found that improving the organization's internal and external operations through effective information outflow management. Task automation greatly improves accuracy, operational efficiency, and scrap reduction. Practices for managing transportation and distribution allow for the quicker and more economical outflow of resources, which boosts operational effectiveness. The study recommends a tactical plan for managing logistics applications by implementing cutting-edge technology and personnel training.

Fleet management systems are very important, the successful introduction of these systems has become a key issue (Yi-Chung Hu et al, 2015). Concerning on operational fleet management, Scott (1998), the two tools that can be used to improve operational efficiency are the minimization of fuel consumption and the maximization of vehicle utilization while still meeting required service levels. Kersten (2017) study result pointed out that weak logistics practices particularly vehicle fleet management have caused delays in the implementation of government services and projects, thereby derailing service. Similarly, Aflabo (2020) finding shows that if the other variables are held constant (repair and maintenance, fuel management, vehicle tracking) competitive advantage will increase at an increase practices of driver management and training.

A sizeable number of scholars have applauded fuel management as a key transport management component that facilitates the movement of vehicles at any point in time (Kamalanathsharma & Rakha, 2016). Fuel management aspects such as monitoring fuel consumption rates, fuel procurement, allocations of fuel, and monitoring fuel usage rates influence the ability of an organization to respond to its customers (Gitahi & Ogollah, 2014). Similarly, research by Aflabo et al. (2020) highlighted that proper fuel management can reduce vehicle fuel consumption, which in turn saves an organization's financial resources. In addition, Chiparo et al. (2022) found

that fuel management aspects, such as fuel-efficient driving techniques and route optimization, can significantly reduce an organization's carbon footprint. An organization to monitor fuel quality, test fuel samples, and implement quality control measures to ensure that the fuel meets established standards. Effective fuel management requires continuous monitoring and reporting of fuel consumption, inventory levels, and other key metrics (Gitahi & Ogollah, 2014). This information can be used to identify trends, track performance, and make informed decisions about fuel management strategies. There is a general agreement in the literature that fuel management significantly influences organizational performance (Chiparo et al., 2022; Gitahi & Ogollah, 2014).

According to Sgarbossa and Russo, (2017), older vehicles constitute a small proportion of the entire vehicle fleet and yet they contribute to a disproportionate amount of both economic and social motor vehicle costs. Driver training, vehicle maintenance and vehicle design are range of relative low-cost measures that can save 10% or more fuel for fleet operation (Baas & Latta 2005). However, Bell (2013) noted that properly changing of oil can help increase the lifespan of the vehicle engine by using fuel additives to ensure that the engine injectors are always clean. When vehicle oil is not change adequately it will permit dirt, particles, and acidic substances to degrade the engine parts. Chevrolet (2015) states that oil change is related primarily to gas mileage and can result to a decrease in fuel economy.

Vehicle parts are replaced as a function of the odometer except for batteries. Maintenance costs according to the New Zealand Agency (2005) makes up between 5% and 10% of a vehicle's operating cost in developed countries, which help to maintenance costs increase with vehicle age and operation intensity. Research has indicated that the maintenance percentage rate will increase as the delivery distances and weights increases as is the case in Zimbabwe where maintenance costs are much higher than in developed countries reaching between 25% and 35% of operating costs.

The maintenance system plays a very important role, as does many other systems within an organization. The maintenance system must be considered carefully because this system can have great influence on the overall performance of the organization. Maintenance expenditures in the UK's manufacturing industry (as an example) range from 12 to 23% of the total operation costs (Cross, 1988; Dekker, 1996) reported that, in refineries, maintenance spending is about 30% of the total staffing costs. The mining industry spends between 40 to 50% of operating costs on maintenance (Campbell, 1995) showed that, in a case study of data presented on a six- year-

old, 75,000-ton bulk carrier, maintenance costs account for the largest proportion of operation costs (40%) based on the sample surveyed. Therefore, the issue of how to conduct maintenance optimally must be given careful consideration to reduce the great costs of such maintenance. The importance of maintenance has generated an increasing interest in the development and implementation of optimal maintenance strategies for improving system reliability, preventing the occurrence of system failures, and reducing maintenance costs of deteriorating systems. Similarly, Maintenance spare parts planning and control also has a significant financial impact. A study conducted by Aberdeen Group (2003). In 2003, spare parts sales and services (mostly maintenance) accounted for 8% of the gross domestic product in the United States and a study by Deloitte (2006), among 120 large manufacturing companies in North America, Asia Pacific and Europe shows that service revenues represent more than 25% of total business (Arts, 2013). Baas (2012) come with finding the case studies results related to barriers to adopting fuel saving measures that are fleet managers often do not have any formal training in financial management and therefore do not have a good handle on what each truck costs to run over its lifetime rather, fleet managers and owners largely base their decisions on the experience of previous generations of fleet managers. As a result, very few fleets are putting effort into saving fuel despite the financial benefits (Baas, 2012). Beside of this, Central to a fleet management program is fleet driver training. The idea behind this training is to reduce or even eliminate the risks encountered by fleet drivers. It has several additional benefits including reducing fuel costs, gaining a discount on insurance premiums and most importantly, lowering the risk of crashes (Baker, 2016). Similarly, Lynne and Lockwood (1998) study show that providing training for drivers are important to people with involvement and relations as being integral to organizational success.

## **2.6 Fleet management practice in Africa and Ethiopia**

To enhance the performance of the entire supply chain system, the administration of textile companies in the Nairobi Region has taken measures to put in place satisfactory mechanisms to address the transportation of supplies and goods. And, to attain improved performance textile firms adopted vehicle scheduling, route planning, fleet management, and vehicle tracking (Musau et al. 2017). Another study forwarded in transportation and Sugar companies of Kenya assures that, there exists a straight association between vehicle finance and maintenance and operational performance of companies, this suggests that better vehicle finance and maintenance practice would lead to a high level of performance. Moreover, it also emphasizes that the management of fleets and training of employees should be top importance on best operations to avoid excessive expenditure and adverse damage with the system (Mohamed,2018). Workforce must participate and regularly educated on how to handle recent tools and machinery, to increase the timeliness and reliability of operations. Satisfactory fleet and contemporary tracking systems must be applied to support the planning of fleet management operations. Most industrialized countries, according to the literature, are adopting global positioning system (GPS) and wireless technology to undertake various logistical projects. In developing nations, the use of wireless technology is growing. Kenyan businesses, for instance, have changed their business processes by implementing GPS monitoring systems.

A study carried out in Ethiopia in WHO Ethiopia 2018 revealed that the absence of inspecting ways on original spare parts used, certified fleet manager and maintenance supervisors, frequent breakdown post service, and preventive maintenance are serious problems that are ignored by the WHO (Abebe, 2018). Furthermore, searching potential fuel suppliers, driver training, and management including motivation and reward are overlooked by the organization (Begashaw, 2016). Furthermore, a study conducted in Ethiopian Ministry of National Defense Logistics Main Department exposed that, vehicles in the transport department, unsatisfactory achieved and less efficiency in this respect, lack of adequate knowledge on how to implement the principal ways of

good capacity building in improving the effectiveness of the transport services, the control mechanism of truck transport management system in National Defense is very traditional, and lack of availability of timely spare parts are among the major findings (Kidane, 2016).

## 2.7 Conceptual framework

As part of the development of this conceptual framework, many types of literature were reviewed. According to (Young, 2009) a conceptual framework is a diagrammatically representation that depicts how dependent and independent variables are related.

The study's conceptual framework, which was adapted from Gitahi and Ogollah (2014), will examine the examination of Fleet management practices and their impact on the operational performance of Dangote Cement Ethiopia Plc. The factors are organized into four themes: driver education and management, fuel management, vehicle replacement and disposal management, and vehicle repair and maintenance.

The variables are shown together with any potential relationships between them and the result variable. The presence of potential connections between the elements is also there.

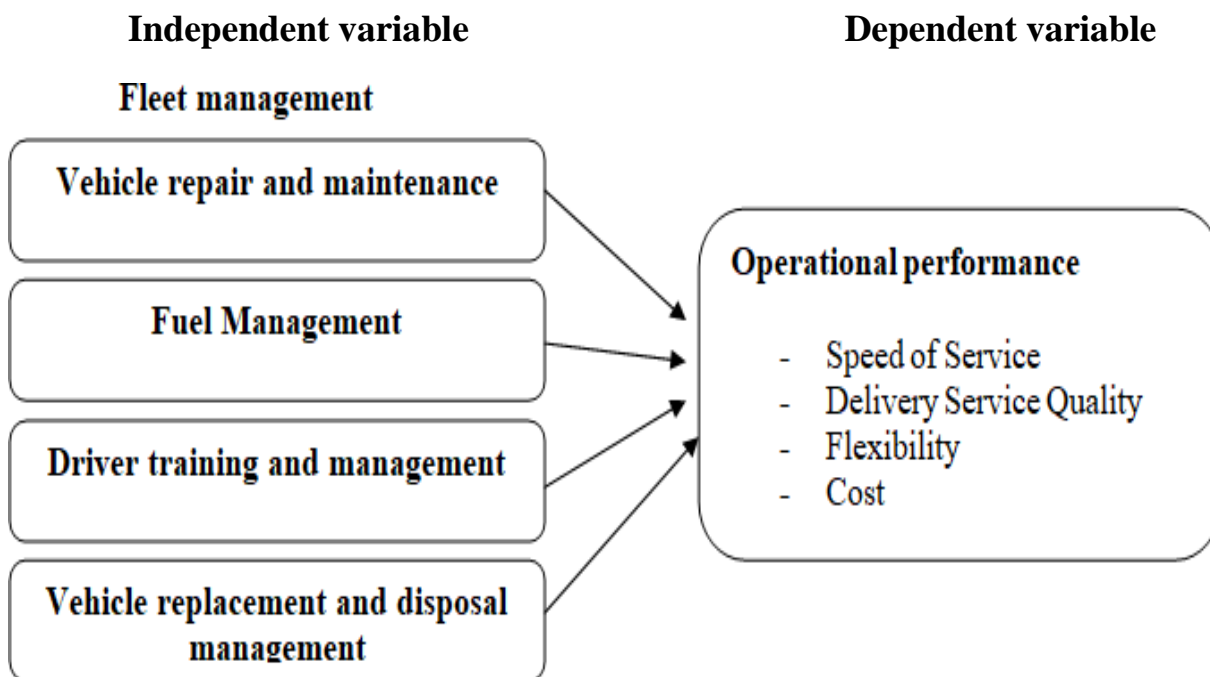


Figure 1 Conceptual Framework

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Description of the Study area**

The study was conducted at Dangote Cement Ethiopia Plc. Located on 135 hectares in the town of Mugar, 83 kilometers west of Addis Ababa, it began operations in May 2015. It contains about 223 million tons of abundant limestone reserves. Ethiopia's largest cement plant can produce high quality grades 32.5 and 42.5 cement at competitive cost according to market demand.

The company embraced the challenge and opportunity to make a significant contribution to Ethiopia's sustainable growth and development by committing US\$650 million to the construction of its flagship cement production facility.

More than 3,000 people have direct and indirect employment prospects through the plant in permanent, contract and agency positions. In addition, the company provides employment opportunities to 20 small and medium-sized enterprises, with a total of over 900 members, and 50 to 100 daily labors receive employment opportunities.

The Transport staff manages the company's fleet of 420 vehicles, which is essential to supporting our inbound and outward supply chain and ensuring the efficient, streamlined, and dependable manufacturing and distribution of cement products.

#### **3.2. Research approach**

Enough qualitative data (a survey questionnaire) was employed, evaluated, and the total result was interpreted to address the broad aim and close the knowledge gap. The study employed a qualitative research technique as a result.

#### **3.3 Research design**

The study used both descriptive and explanatory research designs. This approach has been used in the study because it is consistent with the nature of the research, which examined how the

Company implements fleet management and operational performance to examine how these variables are related to one another.

The data was gathered using a questionnaire. Close-ended inquiries make up the interrogation. The indicated regions of data sources were used to gather the qualitative data, which was then edited, arranged, and analyzed using SPSS version 26 based on the proper statistical techniques and tools. As a result, get a more comprehensive picture of what the current procedure and how they affect fleet management at Dangote cement Ethiopia Plc.

### **3.4 Population of the study**

The transport division of Dangote Cement Ethiopia Plc is the study's target population. Fleet officers/managers and vehicle technicians of Dangote cement Ethiopia Plc are specifically included in the study. transportation, logistics and supply chain management section, there are 145 workers working according to Dangote Cement Ethiopia Plc's human resources.

### **3.5. Data source and type**

The research consisted of primary data and questionnaires were designed in such a way to give a comprehensive overview of fleet management practices and its effect on the operational performance of Dangote cement Ethiopia Plc

### **3.6. Data collection procedures**

Before beginning data collection, the researcher tried to get the necessary approval and authorization from the concerned Dangote Cement Ethiopia Plc. authorities. Each questionnaire included a cover letter assuring the respondents that their replies would be kept confidential and anonymous. The researcher made appointments with the respondents and visited them to go through the study's goals and data collection techniques before delivering the questionnaire. On the day of the visit, the researcher presented the questionnaire in person and waited while the respondent filled it out. This gave the researcher the opportunity to give the respondent further information as needed. The questionnaire was completed and collected by the researcher at the time of data collection, who also reviewed the completed questionnaires.

### 3.7 Sampling Size and Technique

The study target population sample size is 145 employees in Dangote Cement Ethiopia Plc. The study determined sample size based on the Yamane, (1967) Recommended formula for determining the sample size of study participants. Therefore, this study applies a formula to determine the sample size of study participants.

Were,

$$n = \frac{N}{1 \pm N(0.05)^2}$$

n= sample size,

N = population size (1500)

e = level of precision given that 95% confidence level and p = ±5% are assumed.

$$n = \frac{145}{1 + 145(e^2)}$$

$$n = 106.62 = 107$$

The sample size was 107 employees. Then, those participants of the study were selected by using simple random sampling in Dangote Cement Ethiopia Plc.

### 3.8 Tools of Data Collection

Data for this study was acquired via a questionnaire. The primary data gathering tools used in the study were questionnaires. In this study, the researcher created the questions and used them to accomplish the study's goal.

The study questionnaires include two fundamental questions, including a fleet management implementation questionnaire and an operational performance. Fleet management includes vehicle repair and maintenance, fuel management, driver training and management, and vehicle replacement and disposal management.

### **3.9 Data Analysis**

This section outlines how each study variable was measured before outlining the data analysis strategies used to accomplish the study's goals. The data analysis method was used in this study to address the research issue. To examine the quantitative data, SPSS version 26 was used. The study used statistical data analysis software, especially SPSS version-26, to examine the data to be collected using a variety of statistical approaches. It made use of descriptive statistics like percentage, mean, median, and standard deviation as well as graphs and tables. To establish a functional relationship between the dependent variables and the independent variable, an inferential statistics multiple regression model and Pearson correlation were used.

### **3.10 Validity and Reliability**

According to Creswell (2014), a trait that enables a data collecting instrument to measure the items that it is designed to assess is called validity.

The questioner asked a wide range of questions on the respondents' knowledge to attain validity. The questionnaires were prepared following a thorough examination of relevant fleet management literature to guarantee content validity. The questionnaires included a variety of questions on the knowledge of the fleet managers and their staff about fleet management practice and its effect on the operational performance of Dangote cement Ethiopia Plc. The instrument was examined by the researcher advisor to make sure the content validity. The questionnaire had adequate sample size to make inference about the population as a result, it fulfilled external validity, or the study can generalize about the population based on the sample.

### **3.11 Pre-testing**

The goal of the pretest is to determine the respondent's understanding of any ambiguous terms and the instrument's comprehensiveness. Pre-testing was carried out using a 10-person convenience sample drawn at random from employees who were excluded from the final sample. After they had finished, a discussion was held with the respondents to highlight the need to clarify any unclear questions and eliminate any that were unnecessary to ensure accurate study variability measurement. Participants in the pilot research were questioned about the applicability and clarity of the questions as well as any other feedback or issues they had with the survey instrument. Therefore, all test items were made obvious to the test takers.

### **3.12 Ethical Consideration**

The researcher fully informs the participants of the study's purpose prior to data collection. The researcher made sure that participants' concerns regarding confidentiality were taken into consideration following data collection and acquired their informed consent before collecting the data. The sole purpose for which the data are used is disclosed verbally at the time of data collection and is made clear in writing as part of the questionnaire's instructions. The researcher also instructed participants not to write their names on the questionnaires to preserve their level of confidence and trust and to safeguard correct data.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

The study's findings are presented in this chapter along with data analysis and interpretation. The process of data analysis and interpretation used to evaluate information derived from primary data sources and given to Dangote Cement Ethiopia Plc employees via printed questionnaires. In this chapter, the information gathered from the respondents is shown and examined. Using SPSS version 26, this study's statistical analysis and result interpretation are covered.

#### 4.1 Response rate

Employees at Dangote Cement Ethiopia Plc were given 107 questionnaires, and 102 of them were returned. However, the researcher eliminated 4 of the 102 surveys because they were not complete. As a result, the overall response rate utilized to analyze participant responses was 98 (91.56%).

#### 4.2 Reliability test

The fleet management and transport operational performance of Dangote Cement Ethiopia Plc in Ethiopia were investigated by the researcher using a questionnaire. The researcher next evaluates the questionnaire's mod fit reliability and validity to gain confidence in comparing the sample with the aid of SPSS V-22, the most widely used Cronbach's alpha. Table 1 presents the items' dependability information.

Table 1 Reliability Test

No	Types of questionnaires	Cronbach's Alpha	No of Items
1	Operational performance	8.22	17
2	Vehicles Repair and Maintaining	.702	6
3	Fuel Management System	.765	6
4	Vehicle replacement and Disposal	.700	6

	Management		
5	Driver training and Management	.759	7

The reliability indicated that all question items were  $> 0.70$  and it is acceptable.

### 4.3 Respondents profile

Profile of respondents of the study consists of gender; age, work experience, and education level are described as follow:

#### 4.3.1 Respondents gender

Figure 1 shows the respondents gender that participated in the study thus in terms of gender were 84(85.7%) male and 14(14.3%) female.

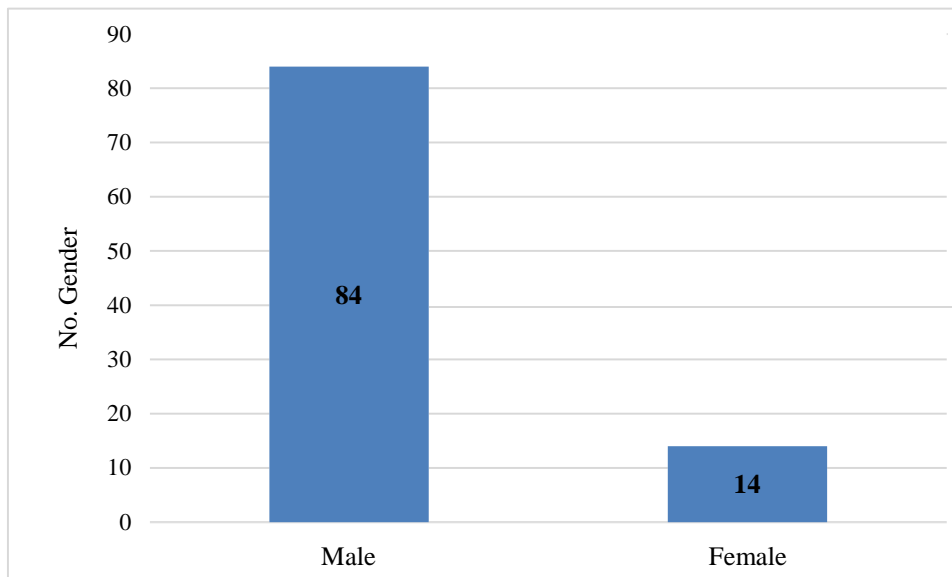


Figure 2 Respondents' Gender

### 4.3.2 Respondents' Educational status

The majority of 73(74.5%) of the respondents were degree holder, and 13 (13.3%) of respondents weremaster's degree holder, and lastly 12(12.2%) of participants were diploma educational level.

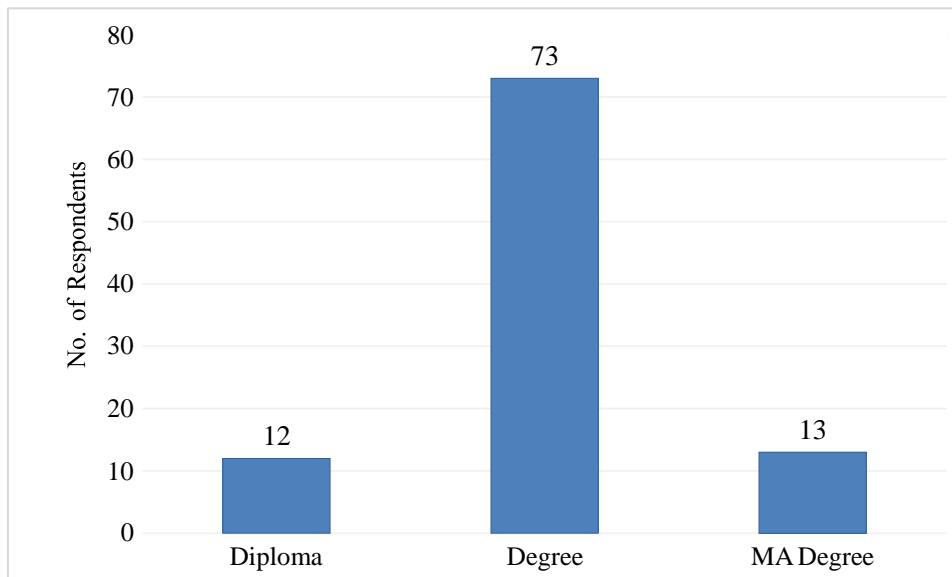


Figure 3 Education Status of the Respondents

### 4.3.3 Age of respondents

As shown in the above figure most of the respondents 53(54.1%) were age of 31-40, 17(17.3%) of respondents were the age of 18-30. Similarly, 20(20.4%) and 8(8.2%) were age of 41-50 and over 51 years respectively.

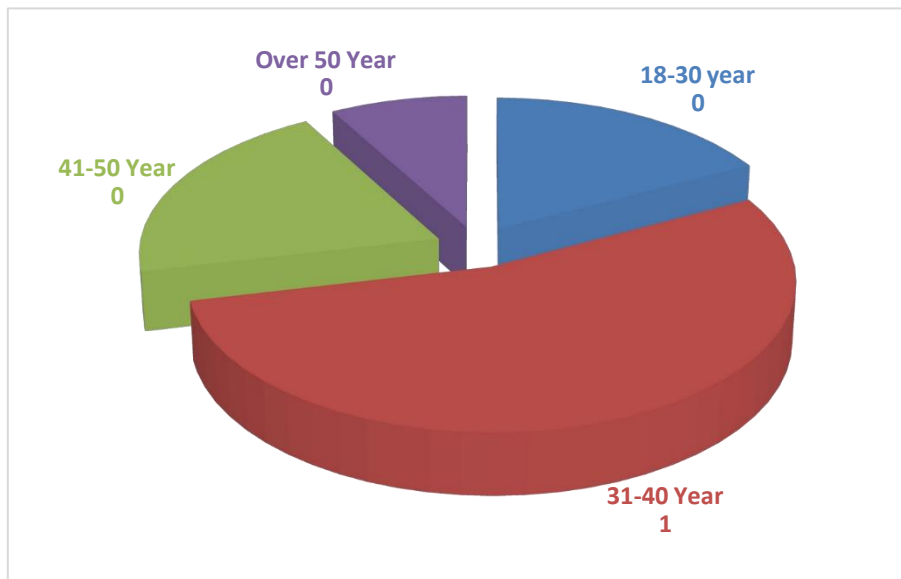


Figure 4 Respondents Age

## **4.4 Descriptive Statistics**

In this section, the acquired data were analyzed using a variety of statistical data analysis techniques, including mean, standard deviation, frequency, and percentage. A 5-point Likert scale is used to evaluate all variables, with 1 denoting "strongly disagreed" and 5 denoting "strongly agreed." The descriptive statistics of all variables are summarized. The overall mean (M) score between 4.21 and 5.00 is regarded as the respondents strongly agreed (SA), while the score between 3.41 and 4.2 indicates that the respondents agreed (A), the score between 2.61-3.40 indicates that the respondents are neutral (N), the score between 1.81-2.60 indicates that the respondents disagreed, and the score between 1-1.80 indicates that the respondents strongly disagreed. As a result, the analysis's details are given as follows. Statistical procedures were carried out using SPSS version 26 software to evaluate the acquired data in accordance with the general goal of the research activity. The study breaks down the findings into two sections: fleet management inside the study organization and transport operational performance practice level.

### **4.4.1 Descriptive statistics for operation performance**

In the following part of the study respondents were asked to separately evaluate each four dimensions of operational performance using a five-point Likert scale: 'strongly disagree', 'Disagree', 'neutral', 'agree', and 'strongly agree'.

## Descriptive statistics for Cost

Table 2 Rating of Cost

No	Description	Mean	Sta.Dev
1	The company focuses on decreasing transportation cost	3.09	.761
2	The Company aims at decreasing warehousing cost	3.27	.880
3	The company focuses on reducing labour cost	3.31	.680
4	The company seeks to reduce operating expenses	3.50	.815
5	The company focus to increase fuel saving	3.12	.722
6	The company seeks to lower insurance premiums	3.07	.803
	<b>Aggregate average of cost of transport</b>	<b>3.3197</b>	<b>.34235</b>

According to the table, the respondents had a moderate level of agreement with the first sub-construct, which is that the organization focuses on reducing transportation costs, with a mean score of 3.09 and a standard deviation of .761. The respondents' agreement with Dangote Cement Ethiopia Plc's policy of reducing transportation costs received a modest level of support from the respondents in this respect. The second sub-construct's mean score for i. The results showed that respondents had a reasonable level of agreement on the topic, with a mean that ranged between 2.61 and 3.40. The company's goal of reducing warehousing costs was indicated by a mean value of 3.27 and a standard deviation of .880. The third sub-construct's scored mean value, "Company Focuses on Reducing Labor Cost," was 3.31 with a standard deviation of .680. This result showed that respondents were moderately in agreement with the issue as the mean value reflected, which means there is moderate level practice on Dangote Cement Ethiopia Plc's practice of reducing labor costs.

With a mean value of 3.50 and a standard deviation of .815, the results of the survey suggest that respondents agreed that Dangote Cement Ethiopia Plc should try to cut operational costs.

The respondents' agreements confirmed a moderate level of practice on the two issues in Dangote Cement Ethiopia Plc based on the two statements of the fourth and fifth sub-construct's mean scores for the items "The company focus to increase fuel saving" (mean value of 3.12 and standard deviation of .722) and "The company seeks to lower insurance premiums" (mean value of 3.07 and standard deviation of .803). The average response cost mean values for Dangote Cement Ethiopia Plc were generally in reasonable agreement with the agreement confirmed with a mean value of 3.32 and a standard deviation of .342. The replies from the respondents reveal that they agreed that Dangote Cement Ethiopia Plc's operational performance of cost was practiced at a moderate level (2.62–3.40).

### **Descriptive statistics for Flexibility**

Table 3 Rating of Flexibility

No	Description	Mean	Sta. Dev
1	The company looks at provision of a variety of services	3.36	.722
2	Company seeks to offer readily available services	3.37	.724
3	The company aims at volume flexibility	3.49	.613
4	Company looks at mix flexibility	2.97	.633
	<b>Aggregate average of Flexibility</b>	<b>3.3495</b>	<b>.37434</b>

As shown in the above table and the second dimension of Dangote cement Plc operational performance which is flexibility. The respondents were moderate level of agreement with the first sub constructs i.e., Dangote cement Plc looks at provision of a variety of services, with the scored mean value points 3.36 and the standard deviation was .722. The result indicated that respondents were confirming their response moderate level practice Dangote cement Plc has provision of a variety of services. Respondents' agreements were agreed with mean level of 3.49 and standard deviation was .613 on the issue of Dangote cement Plc seeks to offer readily available services.

The scored mean value for the second sub-construct i.e., Dangote cement Plc seeks to offer readily available services was moderate level of practice and respondent agreement confirms

with a mean value of 3.37 and standard deviation was .721. Similarly, the fourth sub construct statement i.e., Company looks at mix flexibility was mean score 2.97 and standard deviation of .633, thus respondents' agreement was confirmed moderate level practice on Dangote cement Plc looks at mix flexibility.

The average response cost mean values for Dangote Cement Plc were generally in reasonable agreement with the agreement confirmed with a mean value of 3.32 and a standard deviation of .342. The replies from the respondents reveal that they agreed that Dangote Cement Plc's operational performance of cost was practiced at a moderate level (2.62–3.40).

## Descriptive statistics for Service Quality

Table 4 Rating of Service Quality

No	Description	Mean	Sta. Dev
1	The company looks to achieve high customer loyalty	3.59	.972
2	Company looks at increasing the number of customers	3.50	.977
3	The company focuses on reducing emissions	3.51	1.105
	<b>Aggregate average of Service Quality</b>	<b>3.6902</b>	<b>.50168</b>

To assess the operational success of Dangote Cement Ethiopia Plc's service quality practices, the respondents were given three questions. The first sub-construct, Dangote Cement Ethiopia Plc, which is depicted in the above table and achieved a mean value point of 3.59 and a standard deviation of .972, aims to establish great customer loyalty. The outcome demonstrates that respondents agreed on the subject, and Dangote Cement Ethiopia Plc is highly motivated to increase customer loyalty. Like the first sub-construct, "Dangote cement Ethiopia Plc looks at increasing the number of customers," the second sub-construct, "Dangote cement Ethiopia Plc focuses on reducing emissions," had a mean level of 3.50 and a mean value of 3.51 respectively. Accordingly, respondents' agreement indicated that Dangote cement Ethiopia had a high level of practice on the two issues mentioned above. Respondents' aggregate response on Dangote cement Ethiopia plc operational

Performance of service quality were agreed high level of practice with mean score of 3.69 and standard deviation .502. The result shows high level practice of service quality operational performance in the study organization.

## **Descriptive statistics for Speed of Service Delivery**

Table 5 Rating of Speed Delivery

<b>No</b>	<b>Description</b>	<b>Mean</b>	<b>Sta.Dev</b>
1	The company seeks to improve communication	3.49	.876
2	The company aims at high service rates	3.33	.685
3	The company keeps up to date procurement information	3.31	.680
4	The company looks at reducing lead time	3.47	.815
	<b>Aggregate average of Speed of Service Delivery</b>	<b>3.4974</b>	<b>.27455</b>
	<b>Total Aggregate average of operational performance</b>	<b>3.4648</b>	<b>.31460</b>

The scored mean value for the first sub-construct i.e., company seeks to improve communication mean value of 3.49, with standard deviation of .876. The second sub constructs i.e., the company aims at high service rates was scored mean value of 3.33 and the standard deviation was .685. Similarly, third sub constructs i.e., the company keeps up to date procurement information was mean value of 3.31 and standard deviation was .680. Lastly, the fourth subconstruct i.e., the company looks at reducing lead time was mean score of 3.47 with standard deviation of .815. All the above sub construct results indicated that respondents' response confirmed moderate level practice of all the above issues. The result indicated that there is moderate level operational performance of service delivery practice in the study area. Lastly, the aggregate level of Dangote cement Plc operational performance of service delivery was 3.49 and standard deviation was .680. The result indicated that there is high level operational performance of service delivery practice in the study area.

Generally, the aggregate response of respondents was score between 3.41- 4.2 means they agreed on Dangote operational performance was high at mean value of 3.46 and standard

Deviation of .314.

#### 4.4.2 Descriptive statistics for Fleet management

In the next part of the survey, respondents were asked to rate four aspects of fleet management separately using a 5-point Likert scale.

"Strongly disagree", "disagree", "neutral", "agree", "strongly agree".

#### Descriptive statistics for Vehicles Repair and Maintaining

Table 6 Rating of Vehicles Repair and Maintenance

No	Description	Mean	Sta. Dev
1	This organization has an adequate management system for vehicle repair and maintenance	3.45	.921
2	The organization has regular vehicle servicing time schedule	2.85	.632
3	This organization has an adequate management system for vehicle repair and maintenance	3.08	.447
4	The repair and maintenance garage complete the service and maintenance on time	2.99	.419
5	The organization's drivers provide appropriate feedback to the fleet department regarding the service and maintenance of their assigned Vehicles.	2.91	.644
6	The organization's fleet department handles service and maintenance Complaints appropriately.	2.97	.546
	Aggregate average of Vehicles Repair and Maintaining	<b>3.0701</b>	<b>.28337</b>

The respondents were asked six questions to measure the level of vehicles repair and maintenance in Dangote cement Plc. As shown in the above table the first sub constructs i.e., the organization has successful vehicles repair and maintenance control system was the scored mean value of 3.45 and the standard deviation was .921. The result proves that there is high agreement on the practice of vehicles repair and maintenance control in the study organization.

Concerning on second sub constructs i.e., organization has regular vehicle servicing time schedule was mean level of 2.85 and standard deviation was .632 on the above issue. This means there is moderate practice of regular vehicle servicing time schedule at Dangote cement plc.

The two statement of third and fourth sub-construct mean score the item of “organization has well organized control mechanism for genuine spare part used for vehicle service and maintenance” (mean value of 3.08 and standard deviation of .447) and “the repair and maintenance garage complete the service and maintenance on time” (mean value of 2.99 and standard deviation of .419), thus respondents agreement were confirm moderate level of practice on the two above issue in Dangote cement Plc. Fifth sub construct i.e. drivers of the organization gives proper feedback for fleet department about service and maintenance of the assigned vehicle was mean score of 2.91 with standard deviation of .644. Respondents’ response on the above issue was agreed at moderate level of practice in Dangote cement Plc.

The six-sub construct i.e., the fleet department of the organization handles complaint regarding service and maintenance appropriately was mean score of 2.97 with standard deviation of .546; the result shows that respondents’ response was moderate level of practice fleet department handles complaint regarding service and maintenance appropriately in the study area.

Respondents’ aggregate response on vehicles repair and maintaining was agreed at moderate level of practice in Dangote cement Plc with mean score of 3.07 and standard deviation .283.

## **Descriptive statistics for Fuel Management System**

Table 7 Rating of Fuel Management System

No	Description	Mean	Sta. Dev
1	The organization is successful in overall fuel management system	3.12	.630
2	The organization has set a standard on fuel consumption rate per vehicle	2.84	.669
3	The organization allocates enough fuel coupons for field missions	3.19	.637
4	There is a timely follow up for fuel consumption	3.02	.537

5	The organization has potential fuel Suppliers all over the regions	3.03	.818
6	The organization allocate sufficient budget for fuel cost	2.93	.613
	<b>Aggregate average of Fuel Management System</b>	<b>3.0623</b>	<b>.33773</b>

As shown in the above table the respondents were moderate level of agreement with the first sub constructs i.e., organization is successful in overall fuel management system was scored mean value points 3.12 and the standard deviation was .630. The result indicated that respondents were confirming their response moderate level of practice the above issue in the study project. The second sun constructs, i.e. organization has set a standard on fuel consumption rate per vehicle was mean level of 2.84 and standard deviation was .669 on the issue. The result proves that there is moderate level practice of organization has set a standard on fuel consumption rate per vehicle.

The scored mean value for the third sub-construct i.e., organization allocates enough fuel coupons for field missions was mean value of 3.19 with standard deviation was .637. The two statements (fourth and fifth sub-construct) mean score the item of “There is a timely follow up for fuel consumption” (mean value of 3.02 and standard deviation of .537) and “organization has potential fuel Suppliers all over the regions” (mean value of 3.03 and standard deviation of .818), thus respondents’ agreement was confirming moderate level of practice on the two-above issue in Dangote cement Plc. Lastly, the six sun constructs i.e., the organization allocate sufficient budget for fuel cost was mean level of 2.93 and standard deviation was .613 on the issue. The result proves that the moderate level practice of the organization allocates sufficient budget for fuel cost.

Generally, the respondents’ aggregate response of fuel management system was mean value. 3.06 With standard deviation of .338. According to respondents’ agreement mean score between 2.60 – 3.40 shows that respondents agreed that a moderate level of practice fuel management system.

## Descriptive statistics of Vehicle replacement and Disposal Management

Table 8 Rating of Vehicle Replacement and Disposal Management

No	Description	Mean	Sta.Dev
1	The organization is using the vehicle tracking system for fleet management	3.67	1.258
2	This organization has the latest GPS technology for its vehicle tracking system	3.33	.871
3	This organization has a vehicle tracking system installed on all of the organization's vehicles	3.06	.494
4	The organization assigned a person to monitor and manage the GPS tracking system	3.08	.511
5	The organization supervises speed limit by GPS tracking system	3.16	.669
6	The organization used the tracking system to manage fuel consumption and maintenance scheduling	3.14	.746
	<b>Aggregate average of Vehicle replacement and Disposal Management</b>	<b>3.3097</b>	<b>.31573</b>

The scored mean value for the first sub-construct i.e the organization is using the vehicle tracking system for fleet management was mean value 3.67, with standard deviation of .258, with this result we can understand that respondent's agreement was conform high level of organization is using the vehicle tracking system for fleet management. Similarly, the scored mean value for the second sub-construct i.e., the organization has modern technology of GPS for vehicle tracking system indicated mean value 3.33, with standard deviation of .871.

The two statements of third and fourth sub-construct mean score the item of "The organization has installed vehicle tracking system on all organization vehicles" (mean value of 3.06) and "the organization assigned a person to monitor and manage the GPS tracking system" (mean value of 3.08), thus respondents' agreement was confirming moderate level of practice on the two-above issue in Dangote cement Plc.

Concerning on "the organization supervises speed limit by GPS tracking system" was mean value of 3.16 and standard deviation of .669. Similarly, respondents were moderate agreement on the issue of organization used the tracking system to manage fuel consumption and maintenance.

Scheduling with mean value of 3.14 and standard deviation of .746. Those two-issue results indicated that respondents' response confirmed moderate level of practice in Dangote cement Plc.

Generally, the total aggregate mean values of respondents' response on vehicle replacement and disposal management were moderate level of mean score between 2.60 – 3.40, which was mean score 3.31 and standard deviation of .315.

### **Descriptive statistics of Driver training and Management**

Table 9 Rating of Driver Training and Management

<b>No</b>	<b>Description</b>	<b>Mean</b>	<b>Sta.Dev</b>
1	The organization has well-organized supervision method on drivers	3.14	.837
2	The organization has well-organized drivers' mission assignment system	3.03	.843
3	The organization has appointed a person responsible for handling the duties of the driver	3.06	.784
4	There is a habit to motivate/reward an exemplary driver	2.23	.514
5	The organization has implemented a driver performance rating system. And has been successful.	3.07	.561
6	Drivers are responsible for the safe, neat, and lawful operation of the assigned vehicle	3.15	.791
7	Drivers always fill and properly maintain vehicle logbook for all the distance traveled	2.89	.535
	<b>Aggregate average of Driver training and Management</b>	<b>3.0231</b>	<b>.21528</b>

The scored mean value for the first sub-construct i.e., the organization has well-organized supervision method on drivers was mean value 3.14, with standard deviation of .837, with this result we can understand that respondent's agreement was conform moderate level of practice on the above issue. Similarly, the scored mean value for the second sub-construct i.e., the organization has well-organized drivers mission assignment system indicated mean value 3.03, with standard deviation of .843.

The two statements of third and fifth sub-construct mean score the item of “the “Organization has appointed a person responsible for handling driver duties” (average 3.06) and “Organization has established a performance evaluation system for drivers” (mean value of 3.07), thus respondents’ agreement was confirmed moderate level of practice in Dangote cement plc on the above issue.

The scored mean value for the fourth sub-construct i.e., there is a habit to motivate/reward an exemplary driver was mean value of 2.23 with standard deviation was .514. The two statements (sixth and seventh sub-construct) mean score the item of “Drivers are responsible for the safe, neat and lawful operation of the assigned vehicle” (mean value of 3.15 and standard deviation of .791) and “drivers always fill and properly maintain vehicle log book for all the distance traveled” (mean value of 2.89 and standard deviation of .535), thus respondents agreement were confirm moderate level of practice on the two above issue in Dangote cement Plc.

Generally, the total aggregate mean values of respondents’ response on driver training and management were moderate level of mean score between 2.60 – 3.40, which was mean score. 3.02 And standard deviation of .215.

#### **4.5 Pearson Correlation Analysis**

Relationship between two variables is referred to as correlation. It gauges how closely two sets of information are connected. Stronger association between the two sets of data is indicated by a higher correlation value. The purpose of correlation analysis is to demonstrate the degree of relationship between the relevant variables. The Pearson's Product Moment was used to obtain the inter-correlation coefficients ( $r$ ) (Gaur & Gaur, 2009). A correlation coefficient of +1 indicates a perfect positive relationship, a correlation coefficient of -1 indicates a perfect negative relationship, and a coefficient of 0 indicates no linear relationship. They also state that the output of the correlation matrix can be the correlation coefficient that lies between -1 and +1 within these 98 frameworks. According to Gaur and Gaur value of coefficient link between variables, there is an association between 0.70 and 1.00 that is very high, 0.50 to 0.69 that is moderate, 0.30 to 0.49 that is low, 0.10 to 0.29 that is extremely low, and 0.01 to 0.09 that is

Inconsequential.

Table 10 Correlation Matrix between Operational Performance and Fleet Management Dimension (N=98)

**Correlations**

		1	2	3	4	5
1. Operational performance	Pearson Correlation	1				
	Sig. (2-tailed)					
2. Vehicles Repair and Maintaining	Pearson Correlation	.633**	1			
	Sig. (2-tailed)	.000				
3. Fuel Management System	Pearson Correlation	.279**	.105	1		
	Sig. (2-tailed)	.005	.302			
4. Vehicle replacement and Disposal Management	Pearson Correlation	.636**	.326**	.180	1	
	Sig. (2-tailed)	.000	.001	.076		
5. Driver training and Management	Pearson Correlation	.752**	.607**	.242*	.498**	1
	Sig. (2-tailed)	.000	.000	.016	.000	

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

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

According to the above table, all independent factors were positively correlated with the dependent variable in the range of 0.571 to 0.928, and all these relationships are significant at the p0.01 level. At  $r = .752$  and  $p = .00$  levels, there was a clear positive correlation between driver management and operational performance.

Vehicles repair and maintaining and vehicle replacement and disposal management were very moderate level and positive significant relationship to and operational performance at  $r = .633^{**}$ ,  $r = .636^{**}$  at  $p = .00$  respectively. Additionally, fuel management system was low and significant association to operational performance at  $r = .279^{**}$  at  $p = .00$ .

## 4.7. Regression Analysis

### 4.7.1. Assumptions of Regressions Analysis

A statistical method called multiple regressions enables us to forecast a person's performance on

One variable based on their results on several other factors. The next step is to conduct the following assumptions test (Pallant, 2005).

**Multidisciplinary test**

Given that two or more predictor variables in multiple regressions are highly correlated, meaning that one can be linearly predicted from the other, the Multi collinearity test result showed that all dimensions of Variance Inflation Factor (VIF) are 10, indicating that the multiple regression model is highly linearly related. In general, the Multi collinearity test supports and validates Pearson correlation and multiple regressions.

Table 11 Table Showing Multi collinearity Test.

	Collinearity Statistics	
	Tolerance	VIF
Vehicles Repair and Maintaining	.629	1.591
Fuel Management System	.934	1.071
Vehicle replacement and Disposal management	.747	1.338
Driver training and Management	.513	1.948

**i. Normality test**

It was intended that points would lay in a somewhat straight diagonal line from bottom left to top right for the Normal Probability Plot, Skewness, and Kurtosis test. This would imply that there are no notable departures from normalcy. The scores in Figure 1 are regularly distributed. In terms of numbers, investigating the skewness and kurtosis values of the elements monitoring, assessment, and project performance was the first step in evaluating normalcy in the data analysis. According to Gamst, Meyers, and Guarino (2008), skewness and kurtosis values more than 1 and less than -1 are indicative of an atypical distribution.

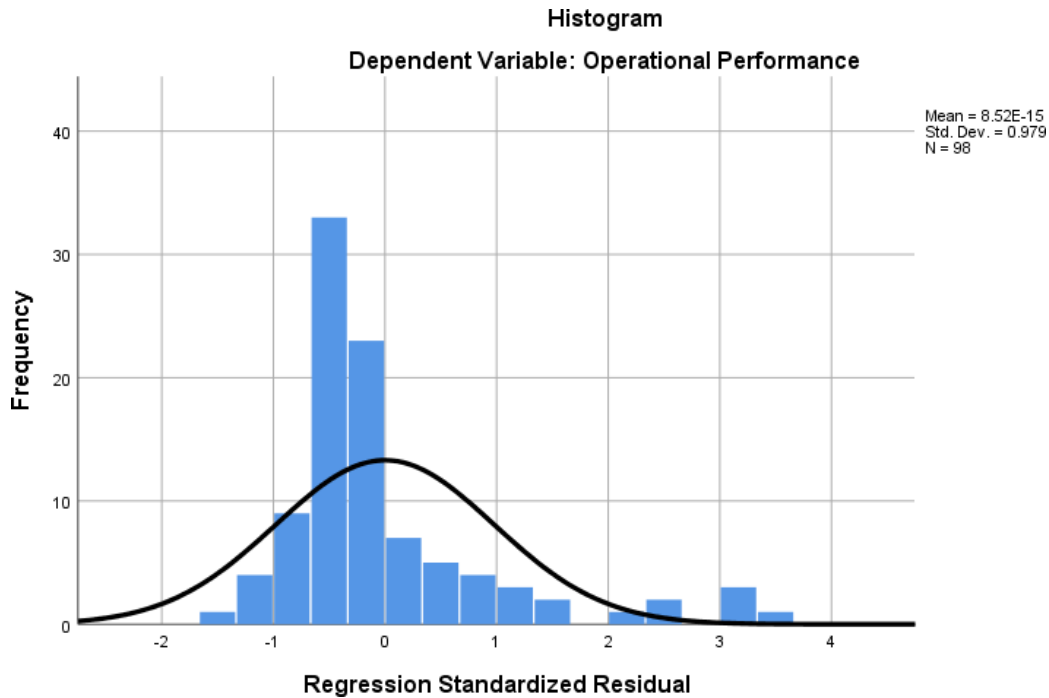


Figure 5 Independent Grouped Frequency Distribution for Project Performance

The above graph indicated that the frequency distribution of respondents respond on independent variables were almost normal distribution that influence operational performance. Data meet the assumption of error being normally distributed and the variance of the residual being constant.

- ii. **Auto correlation:** - According to Kothari (2004), regression analysis is based on uncorrelated error/residual terms for any two or more data. The Durbin-Watson test, which checks for residual correlation between variables, is used to evaluate this assumption for each regression technique. According to Field (2009), the test statistic ranges from 0 to 4, with a value of 2 indicating that the residuals are uncorrelated. A number under 2 denotes a positive correlation, whereas a value above 2 denotes a negative correlation between neighboring residuals. In general, if the Durbin-Watson statistic is close to 2 (see table below), the residuals are independent (not correlated), and a valid range is 1.50–2.50 (Muluadam, 2015). In this study the Durbin-Watson value was 2.094, which is very close to 2, therefore it can be confirmed that the assumption of independent error has almost certainly been met.

**Model Summary**

Model	R	R	Adjusted R	Std. Error of	Change Statistics	Durbin-
-------	---	---	------------	---------------	-------------------	---------

		Square	Square	the Estimate	R Square Change	F Change	df1	df2	Sig. Change	F	Watson
1	.842 <sup>a</sup>	.710	.697	.17316	.710	56.801	4	93	.000		<b>2.465</b>

**iii. Homoscedasticity:** When a dependent variable has all possible values, there should be little variation in the scores for the independent variables. The variance of the dependent variable's values must be equal at each value of the independent variables in order to guarantee that the relationship between the independent and dependent variables is fulfilled (Hair, 2010). Plotting ZRESID (Y axis) versus ZPRED (X axis) is worthwhile for a basic study since it helps assess if the assumptions of random errors and homoscedasticity have been satisfied. Decision rule: Homoscedasticity did not occur if a certain variety, such as an organized shaped dot (waves, fuse, and narrow), existed. If there were not certain variant, and dots spreads above and below 0 numbers in axis Y, then homoscedasticity did happen (Pallant, 2005). The scatter plots show that there is homoscedasticity. Thus, the assumption is reasonably supported in this study.

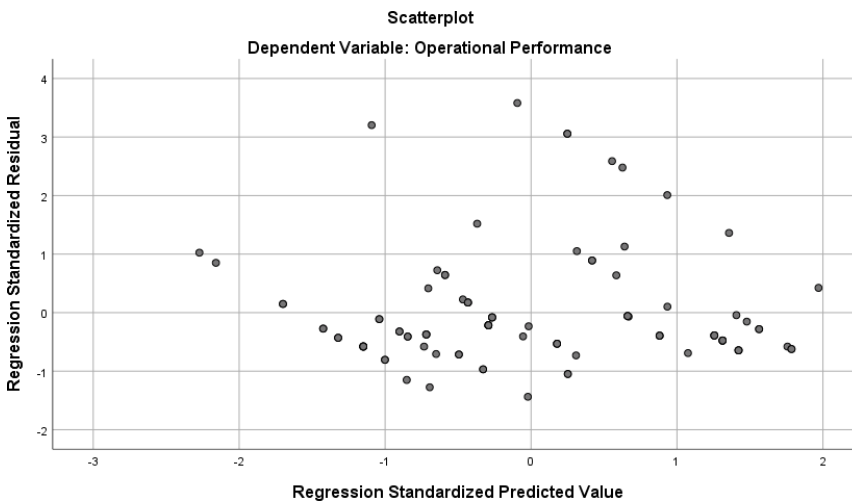


Figure 6 Scatter Plot Showing Homoscedastic

#### 4.7.2 Relation between fleet management and operational performance

The study was examined the effect fleet management on operational performance in Dangote cement Plc. Regression analysis was employed after the study met the regression assumptions. The significance level of 0.05 with 95% confidence interval was used.

Table 12 Model Summary for Effect of Monitoring and Evaluation on Project Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.842 <sup>a</sup>	.710	.697	.17316	.710	56.801	4	93	.000

According to the summary table for the model, R Square was determined to be .710 (71.0%). The conclusion that the four fleet management predictors (driver training and management, fuel management system, vehicle replacement and disposal management, and repair and maintenance of vehicles) together explained 71.0% of the variance in the dependent variable of operational performance at the significant level of  $p = .00$  was also F-statistic  $(5, 93) = 56.801$ , so the hypothesis was accepted. In general, the study discovered a considerable link between operational success and fleet management aspects. The table below reports the adjustments made to the relative standardized beta weight ( $\beta$ ) values of the four predictor variables on the dependent variable.

Table 13 shows the effectiveness of many aspects of fleet management on operational performance.

Model	Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error				Lower Bound	Upper Bound
(Constant)	-.587	.281		-2.093	.039	-1.145	-.030
Vehicles Repair and Maintaining	.304	.078	.273	3.879	.000	.148	.459
Fuel Management System	.088	.054	.094	1.632	.106	-.019	.195
Vehicle replacement and Disposal Management	.331	.064	.332	5.142	.000	.203	.459
Driver training and Management	.580	.114	.397	5.092	.000	.354	.807

As shown in Table 13 above, the results of multiple regressions showed that vehicle repair and maintenance had a favorable and substantial impact on the operational performance of Dangote Cement Plc ( $\beta = 0.273$ ,  $t = 3.87$ ,  $p = .00$ ). The result is noteworthy at a level of 27.3%, and according to this figure, project performance for Dangote Cement Plc would rise by 27.3% if.

Practice vehicle maintenance and repair improved by 1%. The results from the table also showed that, with values of ( $\beta = 0.332$ ,  $t = 5.14$ ,  $p = 0.00$ ), vehicle replacement and disposal management had a favorable and substantial impact on Dangote Cement Plc's operational performance. Additionally, driver management and training had values ( $\beta = 0.379$ ,  $t = 5.09$ ,  $p = 0.00$ ) that had a favorable and substantial impact on Dangote Cement Plc's operational performance. According to this, a 1% improvement in Dangote Cement Plc's driver management and training will boost the operation performance by 37.9%, keeping all other factors unchanged. The operational performance of Dangote cement Ethiopia was, nevertheless, positively, and insignificantly predicted by the fuel management system.

The three dimensions of fleet management were generally confirmed by the findings of multiple regression analysis. All the significant effects that each independent variable has on the dependent variable, except for fuel management system, were expected operational performance.

#### **4.8. Discussion of the study finding**

The research findings confirmed that vehicle scheduling positively influences the operational performance of Dangote Cement Ethiopia Plc. According to the study research question the discussion held as follow.

The study finding revealed that the practice of logistic management in Dangote Cement Ethiopia Plc. was mean value 3.46 which was high practice of operational logistic. On the other hands, the study was assessing the dimension of fleet management effect on Dangote cement Ethiopia Plc operational performance. With according to this, the study finding vehicle repair and maintenance had a favorable and substantial impact on the operational performance of Dangote Cement Ethiopia Plc. The study finding is supported by New Zealand Agency (2005) makes up between 5% and 10% of a vehicle's operating cost in developed countries, which help to maintenance costs increase with vehicle age and operation intensity and between 25% and 35% of operating costs. Similarly, the study has consistent finding with Kanyepe (2023), the importance of maintenance has generated an increasing interest in the development and implementation of optimal maintenance strategies for improving system reliability, preventing the occurrence of system failures, and reducing maintenance costs of deteriorating systems. Similarly, maintenance spare parts planning and control also has a significant operational impact.

The study finding shows that driver training and Management was positive and significant predictor of operational performance of Dangote Cement Ethiopia Plc. The study finding is similar finding to Baker (2016) result indicated that driver training and management is to reduce or even eliminate the risks encountered by fleet drivers. It has several additional benefits including reducing fuel costs, gaining a discount on insurance premiums and most importantly, lowering the risk of crashes (Baker, 2016). Similarly, Lynne and Lockwood (1998) study show that providing training for drivers are important to people with involvement and relations as being integral to organizational success.

The study finding shows that vehicle replacement and disposal management had favorable and substantial impact on Dangote Cement Ethiopia Plc's operational performance. The study result was consistent finding to Kanyepe (2023) finding that vehicle replacing, and disposal contributes significantly to the performance of Zimbabwe diamond mining companies. This suggests that the ability of diamond mining companies to monitor vehicle location and driver behavior reduces fuel costs, reduces repair and maintenance costs, and increases driver productivity (Ibid).

Generally, the study result illustrated that the practice of driver management and training, repair and maintenance, and vehicle replacement and disposal management were positive and significant effect of Dangote cement Ethiopia Plc operational performance. This result supported by Aflabo (2020) finding shows that if the other variables are driver management and training, repair and maintenance, and vehicle replacement and disposal management competitive advantage will increase at an increase practices of driver management and training. Also, this study finding if driver management and training, repair and maintenance, and vehicle replacement and disposal management become good and sustainable the operational efficiency more likely to be at the highest level of operational efficiency.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter gives a summary of key findings of the study presented according to the objectives of the study. Conclusions are drawn from the findings and recommendation is improve the practice of fleet management and transport logistic operational performance in Dangote cement Ethiopia Plc.

#### 5.1 SUMMARY

The purpose of the study was to examine the effect of fleet management on operational performance in Dangote cement Ethiopia Plc in Ethiopia.

The study's goal was to investigate the impact of fleet management on Dangote cement Ethiopia Plc's operational performance. Vehicles repair and maintaining, fuel management system, vehicle replacement and disposal management, driver training and management were the four keyvariables evaluated to assess the influence on operational performance.

To achieve these goals, data were collected from company staff and processed quantitatively and descriptively. Furthermore, an exploratory technique and a quantitative research approach were used in this study. The study was used simple random sampling techniques to select the study respondents. As well, the study used questionnaire to collect information on the topic. Finally, the study analyses the data by using SPSS V-26 with descriptive statistic and inferential statistic. The regression analysis's findings show that the independent variable accounts for 71.0% of success ( $R^2$ ). The model's F statistics (ANOVA) were 56.801 and were significant at the 5% level of significance ( $P = 0.000$ , less than 0.05). The following details are provided by the coefficients, descriptive statistics, and correlation matrix table:

#### **The effect of vehicles repair and maintaining on Dangote cement plc operational performance**

The study revealed that the practice of vehicles repair and maintaining in Dangote cement Ethiopia Plc was mean value of 3.07: result indicted that the practice was moderate level in the study area.

There was positive and moderate level of association between vehicles repair and maintaining and operational performance. While vehicles repair and maintaining was the third highest factor that affecting (27.3%) of operational performance.

#### **The effect of fuel management system on Dangote cement plc operational performance**

In the study organization, fuel management shows that moderate level (mean value of 3.06) implementation in Dangote cement Ethiopia Plc and it is insignificant to predict Dangote cement Ethiopia operational performance. And there was positive and weak correlation between fuel management and operational performance.

#### **The effect of vehicle replacement and disposal management on Dangote cement plc operational performance**

Vehicle replacement and disposal management was predicted Dangote cement Ethiopia Plc operational performance in 33.2% and it practiced at moderate level of mean score 3.31. In addition, there was positive and moderate level of association between vehicle replacement and disposal management and operational performance.

#### **The effect of driver training and management on Dangote cement plc operational performance**

Concerning on the implementation of driver training and management in Dangote cement Ethiopia Plc was mean score 3.02 and driver training and management increased by 1%, then predicted operational performance would increase by 39.7%. From fleet management dimensions, driver training and management was the highest predictor of operational performance. Moreover, driver training and management was positive and very strong association with operational performance.

## 5.2 CONCLUSION

The purpose of this study was to determine the impact of fleet management on Dangote cement Ethiopia Plc. operational performance. According to the findings, fleet management plays a critical role in the operational performance.

Operational performance is directly correlated with repair and maintenance. The organization has the finest fleet management methods, according to the mean score of this variable, which is 3.07 and falls on a moderately agreed level. Regular vehicle servicing time schedules, organized control mechanisms for genuine spare parts used in vehicle service and maintenance, repair and maintenance garages finish the service and maintenance on time, regular vehicle servicing time schedules handle complaint regarding service and maintenance appropriately, and this is moderately practiced by the organization, are all part of the process of repairing and maintaining vehicles. While the operational performance of the company is dependent on this variable and the result shows that a unit change on maintenance and repair has 0.273 increasing effect on operational performance of the company keeping other variables constant.

One of fleet management dimension fuel management system: descriptive analysis shows that the mean score of the fleet utilization is 3.06 lies on moderate agree level. From the regression analysis the operational performance of the company is dependent on this variable since it has insignificant effect on the operational performance.

Replacement of vehicles and disposal management: According to respondents' opinions, the total mean score is 3.31, indicating that they are somewhat in agreement with replacing the fleet. According to the regression analysis, this variable, with a value of 0.332, has an increasing impact on the company's operational success. Regression analysis often demonstrates that the independent variables have a positive and significant impact on operational performance based on the model estimate findings.

In replacement and disposal management, organization using the vehicle tracking system for fleet management was strong practiced in the Dangote cement Ethiopia Plc. Organization used the tracking system to manage fuel consumption and maintenance scheduling, assigned a person to

Monitor and manage the GPS tracking system, installed vehicle tracking system on all organization vehicles, modern technology of GPS for vehicle tracking system were moderate practice by the study organization.

Driver management and training: descriptive analysis reveals that the mean score was 3.02, which is on a moderately high level of agreement. The consequence was that the corporation closely connected improved operational performance to driver management and training. According to the regression analysis, this variable has a considerable impact on the company's operational success, which makes it a dependent variable. Keeping all factors unchanged, a unit change in service quality has 0.397 incremental effects on operational performance. Driver training and management: respondents were confirming moderate practiced of well-organized supervision method on drivers, handling drivers' mission assignment, successful performance evaluation system for drivers, neat and lawful operation of the assigned vehicle, properly maintain vehicle logbook for all the distance traveled by Dangote cement Ethiopia Plc.

### **5.3 RECOMMENDATIONS**

Based on the study findings, the researcher suggests the following points as credible recommendations to enhance operational performance.

- Dangote Cement Ethiopia Fleet Management prepares a training program for all members of the fleet department and vehicle user staff to improve their knowledge and awareness of the effective use of fleet management and to improve fleet performance. It is necessary to prepare motivated staff to work hard.
- The organization's fleet manager should monitor speed limits through the GPS tracking. System and permanently assign a person to monitor the tracking system online.
- The Dangote cement Ethiopia plc logistic and supply chain management should give emphasis for solution for problems encounter in the tracking system.
- Fleet management department should be preparing the training manual to update the knowledge of the technicians and drivers to enable them to maintain and use vehicle safety properly.

## Reference

- Aadal. (2014). *Impact of Plants and equipment management in construction industry of Iran*
- Ali, Abdallah Mohamed. (2018). intelligent fleet management system, information communication technology, and operational performance of transport companies in Mombasa County, Kenya
- Baas, P & D Latto. (2005). Heavy vehicle efficiency. *Transport Engineering Research New Zealand* 56 (6), pp. 66-91
- Barney, J. B. (2001). Is the resource-based view a useful perspective for strategic management research? Yes. *Academy of Management Review*, 26: 41-54
- Barney, J. B. (2010). *Gaining and sustaining competitive advantage*. New Jersey: Prentice Hall.
- Bask, A.H., Tinnilä, M. & Rajahonka, M. (2010). Matching service strategies, business models & modular business processes. *Business Process Management Journal*, Vol. 16 (1), 153-180.
- Begashaw. (2016). the effect of fleet management on fleet efficiency from the perspective of the employe
- Besiou, M., Martinez, A. J.P. & Van Wassenhove, L. N. (2012). The effect of earmarked funding on fleet management for relief & development. INSEAD, Working Paper.
- Besiou, M., Martinez, A. J.P. & Van Wassenhove, L. N. (2012). The effect of earmarked funding on fleet management for relief & development. INSEAD, Working Paper.
- Borirug, S., Fung, C. & Philuek, W. (2009). A Study On The Requirements And Tools For Real Time Fleet Management E-Business Systems In Thailand. *The 8th International Conference on e-Business (iNCEB2009); October*
- Caterpillar Performance Handbook, (1998), Edition 29
- City of Seattle. (2014). A clean and green fleet' Transportation Research Part E: Logistics and Transportation Review. Volume 45, Issue 6, 978–987
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods*

- approach*. 3rd edition, published by SAGE Publications, Inc., USA
- Crook, T. R., Ketchen, D. J., Combs, J. G., & Todd, S. (2008). Strategic resources and performance: A meta-analysis. *Strategic Management Journal*, 29: 1141-1154.
- Cynthia MupfigaTagwireyi. (2019). The Impact of Fleet Management on Logistics Management in the Retail Sector of Zimbabwe. *SCHOLEEDGE International Journal of Management & Development* ISSN 2394-3378, Vol.06, Issue 10 (2019) Pg 157-165.
- Enock Gideon Musau, Professor. Gregory Namusonge, Dr. Elizabeth Nambuswa Makokha, and Field, A. (2009). *Discovering Statistics Using SPSS*. 3rd Edition, Sage Publications Ltd., London.
- Frederico Freire de Carvalho Matos, (2000). Methodology for planning fleet maintenance systems, University of Missouri Saint Louis
- Gamst, G., Meyers, L. S., & Guarino, A. J. (2008). *Analysis of variance designs: A conceptual and computational approach with SPSS and SAS*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511801648>
- Gaur, A., & Gaur, S. (2009). *Statistical Methods for Practice and Research*. (2<sup>nd</sup> ed.). New Delhi, India: Response Books
- Giaglis, G. M., Minis, I., Tarantilis, C. D., & Zeimpekis, V. (2007). *Dynamic Fleet Management: Concepts, Systems, Algorithms & Case Studies*. New York: Springer
- Gitahi and Ogollah. (2014). Influence of Fleet Management Practices on Service Delivery to Refugees in United Nations High Commissioner for Refugees Kenya Programme. *European Journal of Business Management*, 2 (1), 336-341.
- Gitahi, M. P. & Ogollah, K (2014). Influence of Fleet Management Practices on Service Delivery to Refugees in United Nations High Commissioner for Refugees Kenya Programme. *European Journal of Business Management*, 2 (1), 336-341.
- Gitahi, M. P. & Ogollah, K (2014). Influence of Fleet Management Practices on Service Delivery to Refugees in United Nations High Commissioner for Refugees Kenya Programme. *European Journal of Business Management*, 2 (1), 336-341.
- Gitahi, M. P. & Ogollah. (2014). Influence of Fleet Management Practices on Service Delivery to Refugees in United Nations High Commissioner for Refugees Kenya Programme. *European Journal of Business Management*, 2 (1), 336-341.

- Global fleet management (2021). Fleet management analysis (Cloud, on-premise) by Deployment by types (Vehicle Management, Driver management, operational management) global forecast 2022-2032
- Hesketh, I., Cooper, C. & Ivy, J. (2015). Well-being, austerity & policing: is it worth investing in resilience training? *The Police Journal: Theory, Practice & Principles*, Personal communications, Vol. 88 No. 3, pp. 220-230.
- Israel, G.D., (1992). Determining sample size.
- Jiali fu (2017), evaluating and improving the transport efficiency of logistics operations.
- Jin, D., & Kite-Powell, L.H. (2000). Optimal fleet utilization and replacement. *Transportation Research Part E*, 36, 3-20
- John Ngeno (2017), the Effect of Transport Management on Organizational Performance among Textile Manufacturing Firms in Kenya, *International Journal of Academic Research in Business and Social Sciences*
- Jonsson, N. et al. (2008), Humanitarian fleet management: impact on humanitarian logistics by outsourcing. BI University of Science and Technology, Germany
- Khyomesh V. Patel and Prof. Chetna M. Vyas (2011), Construction Materials Management on Projects Sites, National Conference on Recent Trends in Engineering & Technology
- Kidane (2016), Assessment on Truck Transport Management practices in Ethiopian Ministry of National Defense Logistics Main Department
- Kothari, C.R. (2004). *Research Methodology: Methods and Techniques*. 2nd Edition, New Age International Publishers, New Delhi.
- Lu HH, Wu HW, Lee CY, Wang HW, Hu HW, Hsu SS, Tzeng SJ. Full-duplex radio-over-fiber transport systems based on two modes injection-locked FP LD. *Optical Fiber Technology*. 2008; 4(14):317-22.
- Maria (2016), organizational performance, a concept that self seeks to find itself
- Martinez, A. J. P., Stapleton, O. & Van Wassenhove, L.N. (2011). Field Vehicle Fleet Management in Humanitarian Operations: A case-based approach. *Journal of Operations Management* 29, 404-421
- Muluadam, A. (2015). Introduction to SPSS for windows, Version 20. Training *Manual (PPT)*. *Public Policy & Management FBE, AAU, Ethiopia*.

- Nakagawa, T. (1984). A summary of discrete replacement policies. *European Journal of Operational Research*, 17: 382-392, 1984.
- Otto Ampia (2018), challenges of vehicle fleet management and control in the University of Education, Winneba, Ghana
- Pallant, J. (2005). *SPSS Survival Guide: A Step-by-Step Guide to Data Analysis Using SPSS for Windows*. 3rd Edition, Open University Press, New York.
- Pedraza-Martinez, and Wassenhove. (2012) Transportation and vehicle fleet management in humanitarian logistics: challenges for future research. INSEAD Faculty & Research Working Paper, Springer-Verlag + EURO - The Association of European Operational Research Societies
- Priem R. L. & Butler J. E. (2001). Is the resource-based 'view' a useful perspective for strategic management research? *Academy of Management Review*, 26(1): 22– 40.
- Rachida HAMZI, Noureddine BOURMADA, Mohamed BOUDA. Fleet management: Assessment of the best practices. QUALITA2013, Mar 2013, Compi`egne, France.
- Ratcliffe, D. (2007). Influence of fleet management practices on service delivery to refugees in United Nations High Commissioner for Refugees Kenya Programme. *European Journal of Business Management*, 2 (1), 336-341.
- Razaq, Z., Bhatti, M. I., & Awan, H. M. (2014). The key performance indicators (KPIs) and their impact on overall organizational performance. *Quality & Quantity*, 48(6), 3127-3143.
- Reid, D. W., & Bradford, G. L. (1983). On optimal replacement of farm tractors. *Am. J. Agric. Econom.*, 65, 5, 326–31.
- Rumelt, R. P. (1984). *Towards a Strategic Theory of the Firm*. Englewood Cliffs, NJ: Prentice Hall.
- Saurabh Rajendra Kadam, Dhananjay S Patil, "CONSTRUCTION EQUIPMENT FLEET MANAGEMENT - A CASE STUDY" *International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438*.
- Selamawit Belachew. (2022). Analysis of Fleet Management Practices and Its Effect on Operational Performance of Hagbes PLC
- Slack, N... (2005). the flexibility of manufacturing systems. *International Journal of Operations & Production Management*; Vol.25, no.12; pg. 1190-1200

- Solomon Abebe (2018), assessment of fleet management practices in the case of United Nations selected agencies
- Spanos, Y., & Lioukas, S. (2001). An Examination into the Causal Logic of Rent Generation: Contrasting Porter's Competitive Strategy Framework and the Resource-Based Perspective. *Strategic Management Journal*, 22, 907-934.  
<https://doi.org/10.1002/smj.174>
- Sujay Dandwate, Construction Equipment Fleet Management (Civil Engineering Department, D.Y.Patil College of Engineering, Akurdi, Pune-44, India *International Journal of Modern Engineering Research (IJMER)*).
- Todorut, A. V., 2008, Innovation, Flexibility, Change-Premises of Organizational Development. MPRA Paper No. 7968, posted 12.
- Transport for London (2006), Fuel and fleet management guide
- UN. (2020). Road Safety Performance Review Ethiopia UNECA | UNECE Road Safety Performance Review – Ethiopia. United Nations Economic Commission for Africa and Europe
- UNHCR (2016), Fleet management technology report
- Van Hilten, O. (1991). The optimal lifetime of capital equipment. *Journal of Economic Theory*, 55, 449-454.
- Wanyoike (2015), an assessment of the effect of logistics management Practices on operational efficiency at Mumias sugar company limited, Kenya
- Wernerfelt B. (1984). A resource-based view of the firm. *Strategic Management Journal* 5 (2): 171-180.
- WHO. (2013). Global status report on road safety 2013: supporting a decade of action. Retrieved from [http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2013/en/](http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/).
- WHO. (2015). Communicating Risk in Public Health Emergencies: A WHO Guideline for Emergency Risk Communication (ERC) policy and practice.
- Yeser. (1990). Transport and Development in the Yemen Arab Republic, Ph.D thesis, University of Wales.
- Zaidatol, A. L., & Bagheri, A. (2009). Entrepreneurship as a center choice: An analysis of entrepreneurial self-efficiency and intention of university student. *European Journal of*

*Social science*, 9(2): 338-346.

Zhang, T. (2017). The Responsibilities and Attributes of Managers Today.

## **ANNEX I: Questionnaire**

**Addis Ababa University**

**School of Commerce**

**Department of Logistic and Supply Chain Management**

**Research Title:** Analysis of fleet management practices and its effect on operational performance of Dangote Cement Ethiopia Plc.

**Dear Respondents!**

First of all, I would like to express my appreciation for your kind cooperation in providing me with relevant information. The hereby attached questionnaire is dedicated to the Scientific Research aimed to analysis of fleet management practices and its effect on operational performance of Dangote cement Ethiopia plc. I am post graduate students of logistic and supply chain management. The purpose of this study investigates and examines the effect of fleet management practices and its effect on operational performance of Dangote cement Ethiopia.

The information gathered through this questionnaire will be used strictly for academic purposes. Your careful and honest response determines the success of the study. Thus, you are kindly requested to complete the questionnaire carefully and honestly. Your response will be kept confidential.

The questionnaire has been designed to utilize a maximum of 20 minutes to complete. No names required to be appeared and anonymity is guaranteed. Please read the instructions and each item in the questionnaire carefully before you give a response.

I thank you so much for your willingness, cooperation, and support.

Please put “√” on your best alternative’s box and fill the blank spaces provided in some questions.

**Part I: Demographic Characteristics**

- 1. Gender: Male  Female
- 2. Age: 18-25  25-35  35-45  Over 45
- 3. Educational qualification: Certificate  Diploma  Degree  Master and above
- 4. Years of employment < 5 year  5 -10  10 -20  20 <

**Part II: Operational Performance Measurement**

To what extent have the following operational performance dimensions been practiced in your organization? Operational performance dimension measure ranging from:

1 = Very Low Extent, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent, 5 = Very High Extent (5)

		1	2	3	4	5
	<b>Cost</b>					
1	The company focuses on decreasing transportation cost					
2	The Company aims at decreasing warehousing cost					
3	The company focuses on reducing labor cost					
4	The company seeks to reduce operating expenses					
5	The company focus to increase fuel saving					
6	The company seeks to lower insurance premiums					
	<b>Flexibility</b>					
1	The company looks at provision of a variety of services					
2	Company seeks to offer readily available services					
3	The company aims at volume flexibility					
4	Company looks at mix flexibility					
	<b>Service Quality</b>					
1	The company looks to achieve high customer loyalty					

2	Company looks at increasing the number of customers					
3	The company focuses on reducing emissions					
	<b>Speed of Service Delivery</b>					
1	The company seeks to improve communication					
2	The company aims at high service rates					
3	The company keeps up to date procurement information					
4	The company looks at reducing lead time					

## Part II: Fleet Management Measurement

The following questions are about how your organization has been implementing fleet management on operational performance. Please indicate the level of your agreement or disagreement using (✓) on the following statements based on your experience in your company on fleet management practices.

The rating is from 1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree as shown below.

No	Items	1	2	3	4	5
	<b>Vehicles Repair and Maintaining Practice</b>					
1	The organization has successful vehicles repair and maintenance control system					
2	The organization has regular Vehicle servicing time schedule					
3	The organization has well organized control mechanism for genuine spare part used for vehicle service and maintenance					
4	The repair and maintenance garage complete the service and maintenance on time					
5	Drivers of the organization gives proper feedback for fleet department about service and maintenance of the assigned vehicle					
6	The fleet department of the organization handles complaint regarding service and maintenance appropriately					

<b>Fuel Management System</b>						
1	The organization is successful in overall fuel management system					
2	The organization has set a standard on fuel consumption rate per vehicle					
3	The organization allocates enough fuel coupons for field missions					
4	There is a timely follow up for fuel consumption					
5	The organization has potential fuel Suppliers all over the regions					
6	The organization allocate sufficient budget for fuel cost					
<b>Vehicle replacement and Disposal Management</b>						
1	The organization is using the vehicle tracking system for fleet management					
2	The organization has modern technology of GPS for vehicle tracking system					
3	The organization has installed vehicle tracking system on all organization vehicles					
4	The organization assigned a person to monitor and manage the GPS tracking system					
5	The organization supervises speed limit by GPS tracking system					
6	The organization used the Tracking system to manage fuel consumption and maintenance scheduling					
<b>Driver training and Management</b>						
1	The organization has well-organized supervision method on drivers					
2	The organization has well-organized drivers mission assignment system					
3	The organization has assigned a responsible officer for handling drivers' mission assignment					
4	There is a habit to motivate/reward an exemplary driver					

5	The organization has successful performance evaluation system for drivers					
6	Drivers are responsible for the safe, neat, and lawful operation of the assigned vehicle					
7	Drivers always fill and properly maintain vehicle logbook for all the distance traveled					

**Thank you for your time & all your answers are important and supportive for my research!**

**ANNEX II: Similarity Report**

---



**Busha Kitessa**

to me ▼

Dear GETINET  
The similarity report for the current version is 20%  
Regards,