



**THE EFFECT OF FLEET MANAGEMENT ON FLEET EFFICIENCY FROM THE
PERSPECTIVE OF EMPLOYEE**

(THE CASE OF WORLD HEALTH ORGANIZATION ETHIOPIA)

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DECLARATION

This is to certify that Meseker Begashaw has carried out his research work on the topic entitled, the effect of fleet management on fleet efficiency from the perspective of employee (the case of world health organization Ethiopia) the work is original in nature and is suitable for submission for the award of master degree in logistics & supply chain management (M.A in LSCM).

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List of Acronyms or Abbreviation

WHO- World health organization

GPS - Global positioning system

UN – United Nation

IT - Information Technology

ICT – Information Communication Technology

MRO – Maintenance, Repair and Operation

CO₂ – Carbon Dioxide

SPSS-Statistical Package for Social Services

Abstract

Fleet management is the use of a set of vehicles in order to provide a service to a third-party, or to perform an activity internally in an organization, in the most efficient and productive manner with a determined level of service and cost. The main purpose of this study was to investigate the effect of fleet management on fleet efficiency from the perspective of employee the case of world health organization Ethiopia.

The study utilized mainly quantitative data analysis techniques. Descriptive statistics such as mean, percentage and frequency tables were used to describe the data. From the total population of 250 employees 154 sample was used by using availability sampling technics. Inferential statistics such as ordered logit model were employed in order to answers the basic question and test the hypothesis respectively. The study incorporate four independent variables in which all of them was measured on a 5-point Likert-Scale, with “1” stands for “Strongly disagree” and “5” stands for “Strongly Agree”. Apparently, mean was used as a measure of central tendency. Furthermore, the data were encoded, processed and analyzed using SPSS.V23. Moreover the results of the study suggest that, operational efficiency of WHO is weak. The study also found a positive correlation among the three of the variables (repair and maintenance, fuel management, vehicle tracking and drivers management) supply chain dimensions. Regarding the correlation, it is possible to conclude that there is a strong and positive relationship among the four variables which this study was relied

Keywords: *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

CHAPTER ONE

1.1. INTRODUCTION

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

1.2. BACKGROUND OF THE STUDY

Transport and logistics are both key components of a successful economy. Governments worldwide seek to increase their competitiveness through new or replacement of infrastructure. The transport and logistics sector plays a major role in the world economy and is a significant contributor at both the national and local level in any country. This sector underpins the economy, enabling the efficient movement of goods, services and people. The increase in the associated management requirements of vehicle fleet operations has more important than the human mental capacity as advances in the technology of vehicular dynamics and design increase year after year. (Sophia, 2013)

Transportation is at the centre of logistics as it represents the physical movement of materials between points in a supply chain. High customer expectations and little tolerance for inadequate performance create a competitive environment for operating a fleet, which forces fleet managers to achieve high levels of reliability and cost-efficiency. (Edward Chegewaiyaki, 2013)

Nowadays, for governmental and non -governmental organization, it is favourable to have a huge fleet of vehicles, since it improves the efficiency and equal opportunity of support activities. Nevertheless, the activities and management of large fleets cannot be easy for logisticians in the field. (Huang, Smilowitz, and Balcik 2012)

A sustainable fleet management strategy is one that aims to reduce environmental impacts through a combination of cleaner vehicles and fuels, fuel-efficient operation and driving; and by reducing the amount of road traffic it generates (Besiou, Martinez, and van Wassenhove 2012). In doing so the fleet minimizes fuel and vehicle costs and improves the safety and the welfare of employees especially in developing countries while reducing its exposure to the problems of overcrowding.

However, those kinds of activities in Africa often implement relief and development aid in the field, at the same time giving the fleet a dual mission. In accordance with emergency and development operations, the fleet has a different purpose. (Besiou, Martinez, and etal, 2012)

For some organizations, their vehicle fleet management is the main activity in their value chain, and represents its major asset to provide its service. This would be the case for passenger transportation companies, ground shipping, car rentals, renting companies, taxicabs, mail services, or cleaning and trash collection services provided by city councils. For other organizations, it's a support activity to their main one, or a bonus such as a car, given to their executives for their personal use. This would be the case for companies with sales representatives (pharmaceutical industry, IT services, etc), airports, supermarkets, and non-governmental organizations.(José Miguel Fernández Gómez, 2016)

From the well-known and worldwide organization WHO is one of them. The World Health Organization (WHO) is a specialized agency of the United Nations (UN) that is concerned with international public health. WHO has been at the centre of or behind dramatic improvements in public health since it was established in Ethiopia, gathering the world's top health experts, defining solutions, delivering guidelines and mobilizing governments, health workers and partners to positively impact people and health.

The Organization works in close collaboration with Federal Ministry of Health, Other UN agencies, Donors, non-governmental Organizations, WHO collaborating centres and the private sector. It contributes to promoting the general health of people across Ethiopia. Currently the organization is running with 95 vehicles. (WHO.int)

Therefore, to achieve the objective of the organization effectively and efficiently, WHO has to have a well-organized Fleet management and fleet efficiency system in order to enhance the organizational mission.

1.3.STATEMENT OF THE PROBLEM

Fleet management is the use of a set of vehicles in order to provide a service to a third-party, or to perform an activity internally in an organization, in the most efficient and productive manner with a determined level of service and cost. Also, it is a key aspect to develop the general

strategy of the organization, and for this reason it has to be designed and implemented based on its guidelines, characteristics and goals of an organization (Besiou, Martinez, and van Wassenhove, 2012).

In many developed countries, there are several logistics projects taking place, with firms implement new, advanced technologies such as global positioning system (GPS), fleet management system and other wireless technologies. On the other hand, in the developing countries, and especially in the East African community, the use of fleet management system and other wireless technologies is emergent. Yet in our country Ethiopia, the issue of fleet management system is in an infant stage. (Shugan, 2004)

Fleet management can comprise of functions, such as vehicle financing, vehicle maintenance, vehicle telemetric, driver management, speed management, fuel management and health and safety management. Fleet Management is a function which allows companies which rely on transportation in business to remove or minimize the risks associated with vehicle investment, improving efficiency, productivity and reducing their overall transportation and staff costs. (Berg Insight, 2017)

However, as observed by the researcher, in world health organization Ethiopia office, the key components of fleet management are fuel, vehicle maintenance and driver management. There are no updated data/monthly reports for these three major components. Vital reports that are needed in making administrative and financial decisions are not being generated; absence of fleet reports, there is no appointed person on the transport officer and transport Assistant positions. The department is manned by staff on temporary and voluntary basis. One driver for vehicle dispatching and one driver to handle vehicle maintenance are assigned temporarily for the organization. This has resulted in confusion as to the roles of the staff in the department.

Thus, this study intends to investigate this uncharted and overlooked area of the organization. This will be done by investigating the effects of fleet management systems on operational efficiency in world health organization in Ethiopia. Furthermore, the research provides academic knowledge of conducting research and to give solutions for the challenge affecting fleet management of the Organization.

1.4. OBJECTIVE OF THE STUDY

1.4.1. GENERAL OBJECTIVE OF THE STUDY

The general objective of this study is to investigate the effect of fleet management on fleet efficiency from the perspective of employee in World Health Organization, Ethiopia Office.

1.4.2. SPECIFIC OBJECTIVES OF THE STUDY

The specific objectives of the study are:

- To determine vehicles repair and maintenance influences on fleet efficiency in the case of WHO Ethiopia
- To assess the influence of vehicles fuel management on fleet efficiency in the case of WHO Ethiopia
- To appraise vehicles tracking influences on fleet efficiency in the case of WHO Ethiopia
- To find out the difficulties of driver management on fleet efficiency in the case of WHO Ethiopia.

1.5. RESEARCH HYPOTHESIS

This research has the following four research hypotheses:

Vehicles repair and maintenance

H0: vehicles repair and maintenance influences on fleet efficiency

H1 vehicles repair and maintenance does not have influence on fleet efficiency

Fuel management

H0: fuel management has significant stress on fleet efficiency

H1: fuel management does not have significant strain on fleet efficiency

Vehicles tracking

H0: vehicles tracking persuade on fleet efficiency

H1: vehicles tracking does not have persuade fleet efficiency

Driver management

H0: driver management influences on fleet efficiency

H1: driver management does not influence on fleet efficiency

1.6.SCOPE OF THE STUDY

The study delimited on World Health Organization; Ethiopia Office. The studies confine itself only to WHO Ethiopia. The focus of the study is on the effect of fleet management on operational efficiency in the case of WHO Ethiopia only. To carry out a study the target population will be 250 employees of WHO Ethiopia. The study was delimited to single organization and small sample because of time constraints.

1.7.SIGNIFICANCE OF THE STUDY

Assessing the effects of fleet management will has significant importance for an organization particularly for WHO it's significant to operate the service worldwide. The main purpose is to add the already existing knowledge in Addis Ababa University, School of Commerce. The study is also expected to have a contribution for the organization to improve their fleet management system through providing a solution for discovered problems and this study can initiate other researchers to make further study on fleet management. Generally, the finding and the recommendation of the study may help in decision making of World Health Organization by understanding the existing fleet management problems to improve or fill the gap.

1.8.ORGANIZATION OF THE STUDY

This study is prearranged by five chapters. Chapter one comprise the introduction , statement of the problem, research questions, objectives of the study, significance of the study, scope of the study, limitation of the study and definition of key terms.

Chapter two discusses related literature review on effects of fleet management and its efficiency. In this chapter, the researcher will focus on related empirical and theoretical literatures in fleet management. This will enhance and assist to strength statement of the problem as well as the conceptual frame work of the study.

In chapter three the research design and methodologies will be presented. Sample and sampling techniques, source of data, procedures of data collection, methods of data analysis, will be explain.

In chapter four results and discussion will be stated. The findings will be interpreted based on related literature review. Finally, in chapter five summary of the research findings, conclusion and recommendation will be made.

1.9.DEFINITION OF KEY TERMS

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. While most commonly used for vehicle tracking, fleet management includes following and recording mechanical diagnostics and driver behaviour. (Margaret Rouse, 2017)

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.(Defence Logistics Agency,2016)

Fuel management systems– are a system that 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, H.B.1992).

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Introduction

This chapter introduces different concepts that are related to the subject of fleet management practices that can be used for the analysis. The researcher highlighted the operational definitions of the key words which were used in the conceptual framework of the study. In detail, it captures meanings of fleet Management, advantages of fleet management systems, fleet management systems in the transport industry, fleet management tracking, essential operational stages in fleet management, operational efficiency, maintenance, repair and operations, vehicle maintenance, vehicle operations, characteristics of vehicle operations, full management, developing full management, assigning a fuel champion, full selection, driver training and conceptual framework are discussed.

2.2 MEANINGS OF FLEET MANAGEMENT SYSTEM

Fleet Management is a function which allows companies which rely on transportation in business to remove or minimize the risks associated with vehicle investment, improving efficiency, productivity and reducing their overall transportation and staff costs, providing 100% compliance with government legislation (duty of care) and many more. These functions can be dealt with by either an in-house fleet-management department or an outsourced fleet-management provider. (Bekiaris & Nakanishi, 2004)

Vehicle fleet management is the proactive management of an Organization's vehicle assets, which may include light vehicles, heavy vehicles, specialist vehicles and motorcycles. Fleet management covers a range of functions, including vehicle procurement and financing, vehicle maintenance, vehicles telemetric (tracking and diagnostics), driver and personnel management, speed management, fuel management, and health and safety management.

In recent times, to address problems in fleet management and the ever expanding need to monitor usage of vehicles, commercial organizations have designed automated control systems and other

approaches to vehicle management. Simple management systems can be designed in-house for internal use to provide a good analysis of the vehicles and driver performance.

Vehicle management systems are structured in a way that enables the capturing of information on various aspects of fleet usage, maintenance and operations. For example:

- distances travelled;
- destinations reached;
- distance travelled by vehicle showing official and private mileage;
- fuel consumption;
- repair and maintenance per vehicle;
- rate of consumption of spare parts; and
- Servicing planned and completed.

2.3. ADVANTAGES OF FLEET MANAGEMENT SYSTEMS

Nowadays, management and planning as well as control and monitoring of various activities in transportation sectors are considered to be extremely important at a global level and can lead to further developments in economic, social, and even political fields. The fleet management system was developed based on the above approach and made available to applicants and various users so that they could plan the mission, service, and operational vehicle based on actual and exact objective information for the purpose of providing better control and monitoring with due attention to the content of the assigned missions. The following advantages can be enumerated for this system

- Management of vehicles fuel consumption based on daily, monthly, and annual reports provided for a particular vehicle or a group of vehicles.
- Efficient and exact management of the vehicle fleet and increase supervision capabilities and a common web browser such as, Mozilla or Google chrome.

Promotion of system efficiency and considerable reduction of control and monitoring costs compared with traditional operator-based supervisory systems

- Receiving exact performance and operation information from the vehicles
- Increase the fleet management system efficiency

- Considerable reduction of driving violations during in-service periods
- Increase the customer satisfaction and staff transparency
- Possibility of evaluating the performance of the affiliated organizations
- Standardization of the implemented concepts and forms within the executive organizations for the purpose of correcting the existing methods and preventing subjective trends to govern various processes.

2.4. FLEET MANAGEMENT SYSTEMS IN THE TRANSPORT INDUSTRY

In today's competitive marketplace, it is imperative that businesses operate at peak efficiency, provide timely customer service and still make a profit. Thus, in view of these realities, it is often crucial for business owners to discover those areas in terms of which cost effectiveness may be improved.

Azevedo, Ferreira and Leitaco (2007) support the idea that ICT systems affect competition in the logistics sector in three distinct ways. Firstly, ICT systems may change the structure of the logistics industry, and even modify the rules of competition. This is due to the fact that ICT systems offer new value-added services that previous paper-based administration could not. Moreover, the ICT systems lead to higher efficiency and effectiveness, which affect their competitiveness. Secondly, ICT may be used to create sustainable competitive advantage and provide firms with new competitive instruments. Thirdly, ICT systems do not necessarily need to change existing processes, but rather facilitate their execution within the current business model.

Technology is usually the driving force behind such discoveries. Organizations that manage fleets or a mobile sales force as well as field service organizations are facing many challenges. These challenges include improving compliance and organizational communications, reducing costs, and improving customer satisfaction. As a result, fleet management systems are perceived in terms of how they are able to benefit companies by realizing efficiency and profitability.

In the knowledge-based economy of today, the rapidly changing and uncertain environment means that transport firms are facing their biggest challenge in how to address the current situation and capture a competitive advantage. The increasing competence in the market is an important factor that drives the adoption of new technologies and innovation, as companies

search for new opportunities to cut costs by improving process efficiency or by developing new products (Hidalgo & Lopez, 2009).

2.5. FLEET MANAGEMENT TRACKING

Aside from theft-prevention the most common use of vehicle tracking is in logistics and transport. These systems make use of GPS technology to provide precise and constant location telemetric to an individual fleet manager. These systems are typically equipped with features to monitor statistics such as; fuel consumption, average speed, current driver time and location. There has been a recent increase in demand for this technology as regulations place increased restrictions on the hour's driver are allowed to work in a given day. It is currently limited to 9 hours per day. Companies are legally obligated to install a tachograph in any vehicle that is expected to carry goods. This obligated has led many to attempt to cauterize this potentially onerous obligation, instead turning it into a benefit. Fleet management systems utilize GPS technology. Much like other forms of trackers, although due to their nature they are equipped with more thorough diagnostic features. (Dolce, 1998)

2.6. ESSENTIAL OPERATIONAL STAGES IN FLEET MANAGEMENT

As (Scott, 1998) the approach to operating fleets has many similarities with the management process of any operation that in place to meet a specific service need. The essential operational stages are:

- understanding the service level requirement,
- developing a strategic plan to meet that requirement,
- understanding the external pressures that may affect the ability to deliver the service
Selecting, or reviewing, the assets, equipment, buildings and systems used to deliver the service, as well as the staff required to make the operation work
- actively managing the operation to ensure maximum day-to-day efficiency,
- monitoring performance learning from other similar operations reviewing and amending the strategic plan in the light of measured performance, changes in service need, available resources and other factors
- Instigating a process of continuous improvement

A series of high-level strategic decisions needs to be taken at the outset, to set the overall framework for fleet efficiency improvements. These decisions include: Firstly, does the organization really need to run a fleet at all? If so, should the fleet be owned and Managed within the sector or should parts of the service provision be outsourced to a private sector company? Is it possible that operational collaboration with other public sector organizations and joint use of resources could reduce the overall resources required?

2.7. OPERATIONAL EFFICIENCY

In operational fleet management, 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. (Scott, 1998)

Table 2.1 operational efficiency

Responsible body	Tasks
Strategic manager	Reducing fuel consumption will save the organization money and allow delivering services more efficiently. A fuel management program will reduce the environmental impact of fleet and can improve the image of the organization. Better vehicle utilization can reduce the need to purchase new vehicles.
Fleet Manager	A fuel management program can save money, which can be used in other areas to improve operations. Communications and telemetric technology can improve vehicle utilization; reduce the need for new vehicles and lower operating costs.
Operations Manager	Driver training: Driver skills development can reduce accidents and damage and allow delivering services more effectively. As the person with front-line responsibility for drivers, it is up to you to encourage safe and fuel-efficient driving techniques.

(Adopted from freight best practice guide, 2007)

2.8. MAINTENANCE, REPAIR AND OPERATIONS

Maintenance, repair and operations (MRO) 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) Over time, this has come to often include both scheduled and preventive maintenance as cost-effective practices. Scheduled inspections have also come to fall under MRO purview.

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 also concrete and masonry assets in environments subject to attack from erosion, corrosion and environmental pollution.(Garcia, Mari Cruz; Sanz-Bobi, Miguel A.; Del Pico, Javier August 2006)

VEHICLE MAINTENANCE

Although vehicle maintenance policies are predominantly governed by safety, it is important to remember that vehicle performance and fuel consumption are also affected by maintenance standards. Turbochargers, fuel injection systems, tyre, axle alignment and oil and lubricants are just a few of the factors that have an impact on fuel consumption and should always be maintained to high standards.

It is essential to remind drivers of their responsibility to undertake daily walk-around checks of vehicles. This not only helps to ensure that vehicles remain in legal roadworthy condition, but also helps identify common problems such as oil and water leaks and incorrect tyre pressure. There is also scope to make improvements in the way maintenance facilities themselves are operated. (Richardson, N. 2011)

2.9.VEHICLE TRACKING SYSTEM

A vehicle tracking system combines the use of automatic vehicle location in individual vehicles with software that collects these fleet data for a comprehensive picture of vehicle locations. Modern vehicle tracking systems commonly use GPS technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet or specialized software. Urban public transit authorities are an increasingly common user of vehicle tracking systems, particularly in large cities. (Penton. January 6, 2011)

As (Penton, 2011) vehicle tracking systems are commonly used by fleet operators for fleet management functions such as fleet tracking, routing, dispatching, on-board information and security. Some vehicle tracking systems are bundled with or interface with fleet management software. Along with commercial fleet operators, urban transit agencies use the technology for a number of purposes, including monitoring schedule adherence of buses in service, triggering automatic changes of buses' destination sign displays once the vehicle approaches the bus terminus (or other set location along a bus route such as a particular bus stop along the route), and triggering pre-recorded (or even synthetic speech) bus stop, route (and its destination) or service announcements for passengers.

Global Positioning System (GPS) vehicle tracking has rapidly gained popularity among fleet owners as the technology becomes more affordable and easier to access. In general, GPS vehicle tracking utilizes a space-based global navigation satellite system to track time and location information of fleet vehicles. This information is then transmitted to a remote user who can monitor vehicle location, speed, routing, idle time, engine start up and shut down, and much more. This information can be used to improve a host of fleet management operations including the reduction of fuel costs. According to a study by the Aberdeen Groups (a research firm that studies the effects of technology) on business, fleets with GPS tracking installed experience a 13 percent reduction in fuel costs on average.(Udham ,Kumar &Rashid ,2015)

Vehicles maintenance is an important but also challenging task, especially if you do not have a complete maintenance solution. The first step to taking control over your fleet maintenance is to

look at your options. You can choose to go with either a maintenance-focused software or GPS tracking software that includes a maintenance module. GPS tracking is a better option because not only do you get the ability to monitor maintenance, you will also have complete insight to your fleet with location intelligence for all your vehicles and heavy equipment. With custom maintenance platforms, such as the GPS Insight Maintenance Module, you can enter in any type of service based on mileage, run time hours, or dates. Maintenance reminders will be sent straight to your team or can be displayed on the tracking software's dashboard. This can be any preventative maintenance needed. (Udham, Kumar & Rashid, 2015)

2.10. CHARACTERISTICS OF VEHICLE OPERATIONS

The range of goods vehicles operated is extremely broad and comprise activities are diverse. While they may not apply to all organizations, some of the key characteristics of many fleets are that: Vehicles are often driven by staff not specifically employed as drivers Vehicles are often employed on specialized operations with limited opportunities for use on other activities Vehicles tend to have relatively low average annual mileages and are frequently confined to specific geographical areas due to the specialized nature of equipment, vehicles tend to be kept in service for a long time. Additionally, fleets are often operated under a broad range of internal and external constraints, including financial, environmental and social policies. (Udham Singh, Kumar Anubhav, Rashid Chaudhar, 2015)

2.11. FUEL MANAGEMENT SYSTEMS

Fuel management systems are 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. Fuel management systems are designed to effectively measure and manage the use of fuel within the transportation and construction industries. They are typically used for fleets of vehicles, including railway vehicles and aircraft, as well as any vehicle that requires fuel to operate. They employ various methods and technologies to monitor and track fuel inventories, fuel purchases and fuel dispensed. This information can be then stored in computerized systems and reports generated with data to inform management practices. Online fuel management is provided through the use of web portals to provide detailed fuelling data, usually the back end of

an automated fuel management system. This enables consumption control, cost analysis and tax accounting for fuel purchases.(Lange, H.B.1992).

There are several types of fuel management systems. Card-based fuel management systems typically track fuel transactions based on a fuelling credit card and the associated driver PIN. Reports can then be generated based on fuel consumption by driver, and data can be directly downloaded. On-site fuel management systems may employ fleet refuelling services or bulk fuel tanks at the site. Fuel is tracked as it is pumped into vehicles, and on-site storage levels can be managed. Some fuel companies offer total fuel management systems whereby they provide elements of a card-based system along with on-site fuel delivery and refuelling services. Mobile fuel management refers to a fleet of fuel trucks or tankers which provide fuel supply to commercial fleets of trucks or construction equipment. The increasing use of bio-fuel has introduced another challenge in fuel management. With greater water content, there will be a risk of microbial growth – depending on the storage conditions, the fuel quality will deteriorate over time, leading to clogged filters and loss of productivity. (Hohn, Geoffrey M., 2011)

2.11.1. DEVELOPING FUEL MANAGEMENT

It is important to remember that while service delivery and road safety are paramount for fleet operations, fuel is a resource that needs to be well managed. Although fuel use varies considerably across different public and private sector fleets, it nevertheless represents a major cost in most settings. In certain operations, fuel can account for 30% or more of total operating expenses.

Establishing a formal fuel management program is an extremely effective method of making permanent and lasting reductions in the cost of the operations. Considering the size of many sectors fleets, even a minor reduction in fuel use can save thousands of pounds each year and reduce CO2 emissions by several tones. (Lange, H.B.1992).

2.11.2. ASSIGNING A FUEL CHAMPION

It is essential to have an advocate or ‘Champion’ for your fuel management program to ensure that it is accepted throughout the organization and continues to be effective. The Fuel Champion can monitor fuel performance and provide information to the organization about the program.

Their role is to change the organization's attitudes towards the use of fuel and encourage staff to regard fuel as one of the sector's most valuable resources.

The key responsibilities of the Fuel Champion are:

- Understand how to gather fuel consumption information, the potential that exists to improve performance and the various ways this can be achieved
- Develop the strategies required and put them into an action plan

Investigate the factors that influence fuel consumption, such as driver performance, overloading, weather and seasonality. (Hohn, Geoffrey M., 2011)

2.11.3. FUEL SELECTION

Selection of fuel type is a key factor within the fuel management program, but from the outset it is always worth remembering that alternative fuels should only be considered after steps have been taken to optimize fleet performance. In recent years, a large number of public and private sector organizations have introduced alternative fuels into their operations in preference to conventional petrol and diesel, in an attempt to reduce emissions and lower fuel costs. While there are many benefits associated with alternative fuel use, there can also be a number of disadvantages. For example, compared to conventional fuels such as diesel, many alternative fuels may require a greater volume of fuel to be used for the same energy output. The key to effective use of alternative fuel lies in understanding the comparative strengths and weaknesses of different fuel types, some of which are shown in the following table below. It is important to note that the identification and trial of alternative fuels should only ever be one single element of a much more comprehensive fuel management program. When deciding on the most appropriate type of fuel (conventional petrol and diesel, or alternative) for a specific situation, it is worth considering: (Lange, 1992).

- The benefits to the organization
- The outcome of any known evaluations and trials
- The operational, financial and environmental advantages and disadvantages of each fuel type
- Supply availability, distances/tank range, and location of refill points
- Conversion costs

- Running costs
- Availability of funding for conversion or infrastructure
- Resale value

2.12. DRIVER TRAINING

Driver training should be a core component of any fuel management program. If drivers are not motivated to take part it is very difficult to achieve sustained reductions in fuel consumption. This is even more crucial in both private and public sectors where vehicle drivers are not necessarily employed as such, and may feel they have more pressing priorities than fuel consumption in their primary activities. It is vital to involve these drivers from the outset and to treat them as genuine partners in the program.

The figure below shows a range of strategies that can be used to develop and reinforce fuel-efficient driving techniques. (Kirk, 1998)

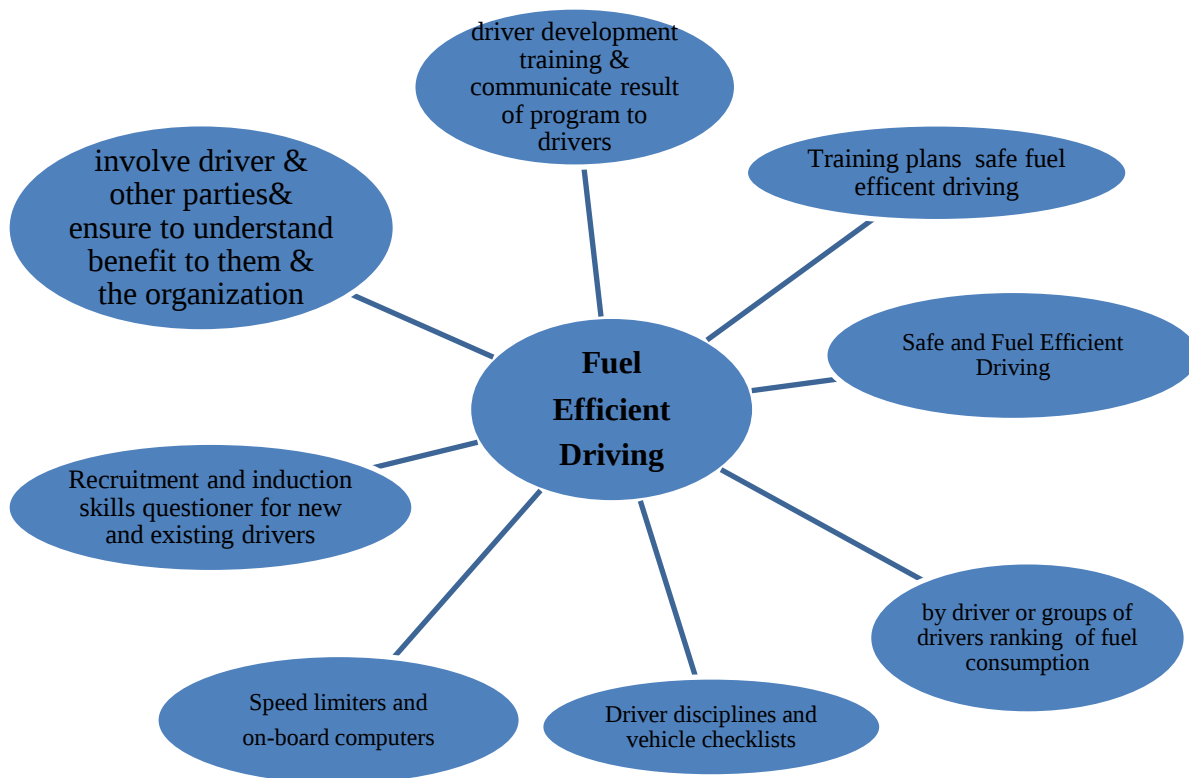


Figure 1- strategies for fuel-efficient driving technique

2.13. CONCEPTUAL FRAMEWORK

Conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study (Mugenda, (2008). According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. In the study, the conceptual framework will look at the influence of fleet management practices on service delivery in world health organization Ethiopian office.

adopted from (Gitahi, M. P. & Ogollah, K 2014)

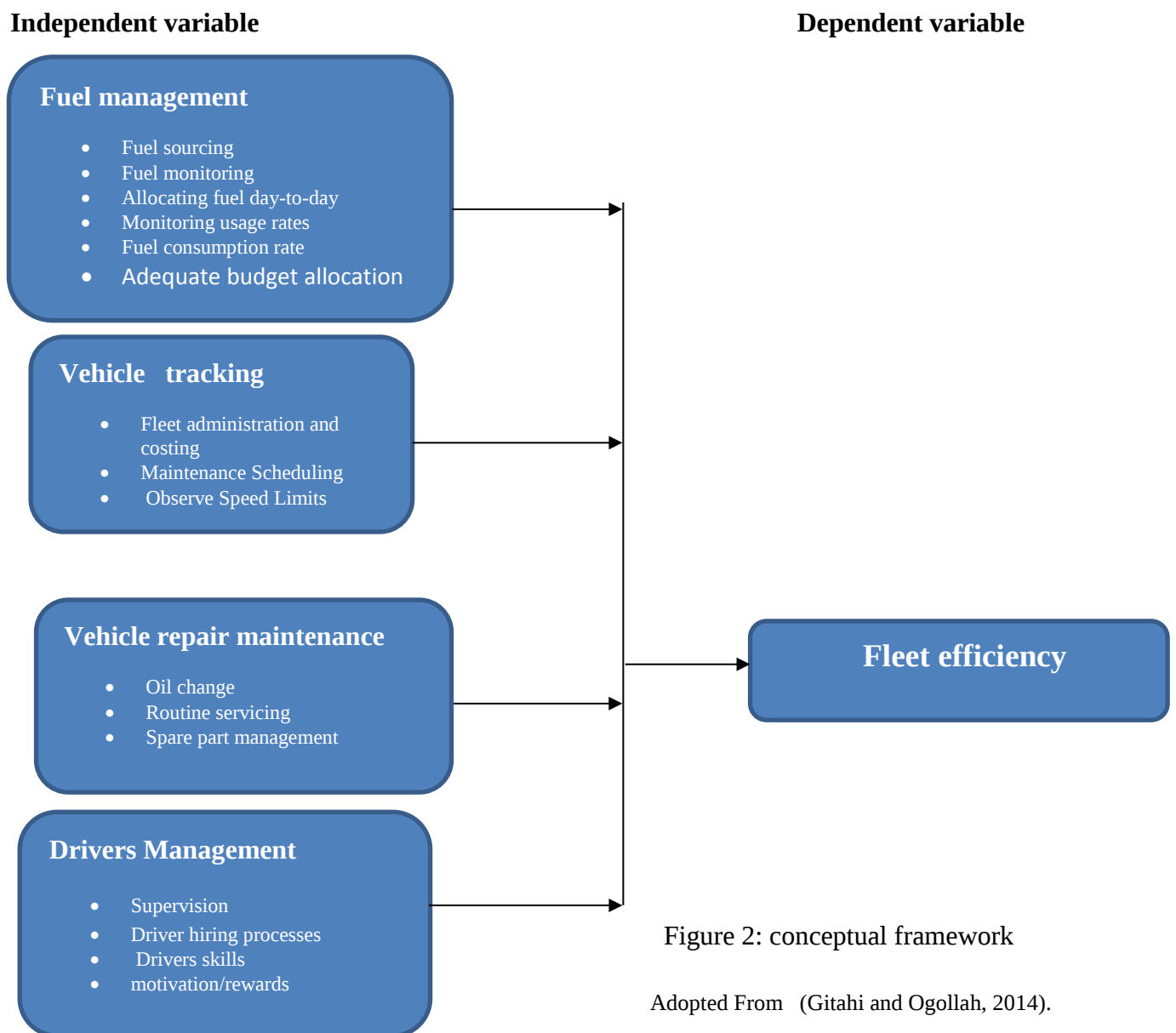


Figure 2: conceptual framework

Adopted From (Gitahi and Ogollah, 2014).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

Kothari (2004) defined research methodology as a science of studying how research is done scientifically. It contains details about the research approach ,research design, sample size and sampling techniques, data source, data collection instruments, data analysis, reliability and validity of the study, model specification and finally ethical considerations

3.2. RESEARCH DESIGN AND APPROACH

Research design provides an overall guide for the collection and analysis of the data of a study (Churchill, 1979). The importance of the research design stems from its role as a critical link between the theory and argument that informed the research and the empirical data collected (Nachmias, 2008:245). A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process (Bryman & Bell, 2007:40), and this, of course, will have considerable influence on lower-level methodological procedures such as sampling and statistical packages. Therefore, it is a blueprint that enables researchers to find answers to the questions being studied for any research project. Together with the clear research plan it provides, constraints and ethical issues that a study will, inevitably, encounter must be taken into account (Saunders et al., 2007:85). Each study follows a unique methodology in order to fulfil the purpose of that study.

The objective of this study was to investigate the effects of fleet management on fleet efficiency. The study employs explanatory research design. This causal/explanatory research design was adopted to identify the variables that influence fleet efficiency. Furthermore, descriptive research was used to describe the characteristics of the population and inferential statistics was employed. Quantitative approach is used as the major method of analysis. Quantitative surveys were designed to fit a questionnaire schedule.

3.3.POPULATION AND SAMPLING DESIGN

The target population of this study was employees in world health organization in Ethiopian office. A non-probability convenience sampling was chosen for the survey; a sample of convenience is the terminology used to describe a sample in which elements have been selected from the target population on the basis of their accessibility or convenience to the researcher. The main assumption associated with convenience sampling is that the members of the target population are homogeneous. That is, there would be no difference in the research results obtained (Ross 2005). Furthermore, if a non-probability sampling was applied, we don't have specific method in determining sample size. But, it is not practical to collect data from the entire target population, so the researcher used a sample instead (Field 2005, p.35). According to Lindeman *et al.*, (1980) and Loo, (1983) cited on Kashan (2012) a minimum sample size of 100 to 200 is often recommended. Accordingly, using convenience sampling a total of 154 respondents from the organization were taken as a sample.

3.4. SOURCES OF DATA

The study used both primary and secondary sources of data. Primary data collected through questioners, from the sample respondents of the organization. The secondary source of data included documents, data and information from previous studies such as existing official reports and documents from the named entities, journals, other empirical researches in the area and any other relevant document from the libraries and internet.

3.5.INSTRUMENT OF DATA COLLECTION

There are primary and secondary methods of collecting data. Primary methods are those that collect data for the first time while secondary methods are those where the researcher uses data collected by other people. Secondary data includes documents, data, and information from previous studies that a researcher might use in a new study (Oates, 2006:234). According to Bryman and Bell (2007:10), secondary data collection methods refer to the ability of the researcher to carry out an analysis of the data that has already been prepared by other researchers.

3.6.DATA ANALYSIS

The study utilized mainly quantitative data analysis techniques. Descriptive statistics such as mean, percentage and frequency tables were used to describe the data. Inferential statistics such as ordered logit model were employed in order to answers the basic question and test the hypothesis respectively. The study incorporate four independent variables in which all of them was measured on a 5-point Likert-Scale, with “1” stands for “Strongly Disagree” and “5” stands for “Strongly Agree”. Apparently, mean was used as a measure of central tendency. Furthermore, the data were encoded, processed and analyzed using SPSS.V23

3.7.MODEL SPECIFICATION: ORDINAL LOGISTIC REGRESSION

If the dependent variable has ordered categories (i.e. the order of ranked variables is meaningful but the distances between them are arbitrary), you can use ordered logit. For some variables, the order is much clearer than for others, but always it is important to take care of whether it is the only possible order or if something else is there which makes sense better (Sarkisian 2004). According to Williams (2015), for ordinal dependent variable there are four different ways of treating the dependent variable. The first option is treating the variable as continuous and running the usual OLS regression or other techniques for continuous variables. The second option was ignoring the ordinality and treating the variable as nominal, i.e. use multinomial logit techniques, the third option was treating the variable as measured on a true ordinal scale like the professorial ranks of Full Professor, Associate Professor and Assistance Professor, they are ordered but it may or may not reflect crude measurement of some underlying continuous variable; the last option was treating the variable as though it were measured on an ordinal scale, however, the ordinal scale represent crude measurement of interval/ratio scale; For example, the categories “High, Medium, Low”. Accordingly, this study considers the dependent variable as true ordinal scale.

In this study, fleet efficiency was measured using a single-item measure. Respondents were asked to rate how much it's efficient with the service of the fleet management on a five-point Likert scale, ‘Strongly Disagree’, ‘Disagree’, ‘Undecided’, ‘Agree’ and ‘Strongly Agree’. Since the outcome variables for respondent response were ordered and categorical, the most appropriate econometric estimation method to apply is ordinal logistic regression (Green 2000). The ordered logit models have come in to wide use as a framework of analyzing ranked

responses (Parasuraman *et al.* 1988). Furthermore, according to Williams (2008) Ordered logit models are among the most popular ordinal regression techniques, however, the assumptions of these models are often violated, the parallel lines/proportional odds assumption often does not hold. Hence, this study employs ordinal logistic regression model and the functional form of ordered logit model for the efficiency of fleet management as follows:

$$Y^* = \sum_{k=1}^k \beta_k X_{ki} + \varepsilon_k \quad (1)$$

Y^* is a continuous, unobserved and unmeasured latent variable whose values determine what the observed ordinal variable Y equals

ε is a random disturbance term with zero mean and a standard normal or logistic distribution: $\varepsilon \sim N(0, 1)$. The continuous latent variable Y^* has various threshold/cut-off points. (κ is the Greek small letter Kappa.). The value on the observed variable Y depends on whether or not you have crossed a particular threshold/cut-off points. Thus, when $M=3$, what we do observed is;

$$\left. \begin{aligned} Y &= 1, \text{ if } Y^* \leq \mu_1 \\ Y &= 2, \text{ if } \mu_1 < Y^* \leq \mu_2 \\ Y &= 3, \text{ if } \mu_2 < Y^* \leq \mu_3 \end{aligned} \right\} \quad (2)$$

Where: Y , is observed in j number of ordered categories, μ s are unknown threshold/cut-off point parameters separating the adjacent categories to be estimated with β s. The continuous latent variable Y^* can be rewritten as;

$$Y^* = \sum_{k=1}^k \beta_k X_{ki} + \varepsilon = Z_i + \varepsilon_i \quad (3)$$

The Ordered Logit Model estimates part of the above:

$$Y^* = \sum_{k=1}^k \beta_k X_{ki} + \varepsilon = E(Y^*) \quad (4)$$

Note that, because of the random disturbance term, the unmeasured latent variable Y^* can be either *higher* or *lower* than Z . Note also that there is no intercept term. You then use the estimated $M-1$ cut off terms to estimate the probability that Y will take on a particular value. In this case since $M=3$, the formulas are:

$$P(Y = 1) = \frac{1}{1 + e^{Zi-k1}}$$

$$P(Y = 2) = \frac{1}{1 + e^{Zi-k2}} - \frac{1}{1 + e^{Zi-k1}}$$

$$P(Y = 3) = 1 - \frac{1}{1 + e^{Zi-k2}}$$

The cumulative probabilities can also be computed using the form:

$$Prob(Y = j) = 1 - L(\mu_{j-1} - \sum_{k=1}^k \beta_k X_k)$$

Where: $L(.)$ represents cumulative logistic distribution

Table 3.1 Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	384.902			
Final	331.745	53.157	11	.000

Link function: Logit.

The above table shows that, the logit model is significantly fit for the study.

3.8.VALIDITY OF THE STUDY

Derived from the Latin term *validitas*, meaning “strength,” validity is a term used in both qualitative and quantitative research. It asserts that a finding can never truly be proven; it can only be argued (Trochim, 1999). In quantitative research, there are several ways in which to establish validity. Here, validity assumes a different meaning to the meaning used in qualitative

studies. Validity refers to how well an instrument measures what the researcher wants to evaluate.

The draft research question had been reviewed by different expertise and practitioners. The research framework also constructed by reviewing different related published literatures.

For this research, the respondents selected from WHO Ethiopian office from target population. Accordingly, reliable response was reacted for the research question stated at the beginning of the study

3.9.RELIABILITY OF THE STUDY

The research instrument concerns the extent to which the instrument yields the same results on repeated trials. The process of pilot testing (testing and retesting) of the questionnaire assisted in ensuring reliability of the questionnaire in soliciting responses (Cook & Campbell, 1979:37)

The most significant tool preferred to the reliability and internal consistency of the findings is Chronbach Alpha Statistics. Chronbach Alpha result should be above 0.70 to obtain a reliable scale and any scale with Chronbach Alpha which is less than 0.70 has to be excluded (Sekaran & Bougie, 2013). The Chronbach alpha result found from the pilot survey made on 20 respondents presented below.

Table3.2 reliablity test

	Reliability Statistics		
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Repair	0.79	0.78	8
Fuel Management	0.71	0.74	7

Vehicle tracking	0.82	0.83	7
Drivers management	0.83	0.83	8
Operational efficiency	0.79	0.79	3

Source: own survey 2018

3.10. ETHICAL CONSIDERATION

First the research respondents were informed about the purpose and intention of the study and verbal consult was obtained for better participation engaged in the study.

Participants were also informed their right not to participate in the study at any time. Participants were informed the benefit of the research and thus research has no risk. Participants had the right to ask the question for clarification and refuse to give information in any time in the research process.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter deals with data presentation, interpretation and analysis of the study. It has two main parts: the first part is demography of the respondents, the second part consist of data collected from the respondents through questionnaires. In order to address the research questions and hypothesis, 154 questionnaires were prepared and distributed to WHO employees, Out of these questionnaires 130 were filled and returned, the rest 24 questionnaires were unreturned and no questionnaires were discarded due to missing data.

4.2. RESPONSE RATE

A total of 130 responses out of the 154 questionnaires sent out were received, achieving an acceptable response rate of 84.4%. All the questionnaires were edited and checked for completeness and used in the data analysis.

Description		Frequency	Percent	Cumulative Percent
GENDER	MALE	102	78.5	78.5
	FEMALE	28	21.5	100.0
	Total	130	100.0	
EDUCATIONAL LEVEL	MSC/MA	24	18.5	18.5
	BSC/BA	35	26.9	45.4
	DEPLOMA	48	36.9	82.3
	CERTIFICATE	23	17.7	100.0
	Total	130	100.0	
WORK EXPERIENCE	<5 YEARS	24	18.5	18.5
	5-10 YEARS	25	19.2	37.7
	10-15 YEARS	44	33.8	71.5
	>15 YEARS	37	28.5	100.0
	Total	130	100.0	

Table 4.1 Educational level, gender and work experience Cross tabulation

Table 4.1 shows that there were 102 (78.5%) male and 28 (21.5%) female respondents. Furthermore, 18.5% of the respondents were masters degree holders, 26.9% of them were degree

holders and the rest 36.9% & 17.7% of them were diploma and certificate holders respectively. In terms of proportion, majority of male respondents were diploma holders followed by certificate, degree and master's degree. Likewise majority of female respondents were diploma holders followed by degree, masters and certificate.

Table.4.1 also shows that, there were four categories of work experience; less than 5, 5 to 10, 10 to 15 and greater than 15 years. Accordingly, the first category accounts 18.5% of the respondents; the second group who had 5 to 10 years of experience was 19.2% of the respondents. The rest 33.8% & 28.5% of the respondents had 10 to 15 and greater than 15 years of work experience.

From the demographic characteristics of respondents, the lion share is taken by (78.5%) was male and the remaining (28.1%) were female respondents. Besides, the large number of respondents who participated in the study was from the department of fleet management.

In relation to their qualification level, the respondents had 18.5% of the respondents were masters degree holders, 26.9% of them were degree holders and the rest 36.9% and 17.7% of them were diploma and certificate holders respectively. Moreover, the work experience of the respondents indicate that, 33.8% of the respondents had 10 to 15 which is they had adequate exposure to the work area and had a potential of bringing change to the organization.

4.3.DESRIPTIVE ANALYSIS

Mesfin (2016) used a kind of rule of thumb to create equal intervals for a range of five points Likert scale (that ranges from strongly disagree to strongly agree in the survey questionnaire). A calculated mean value that ranges from 1 to 1.80 implies strong disagreement, a mean range from 1.81 to 2.6, from 2.61 to 3.4, from 3.41 to 4.2 and from 4.21 to 5.00 represented respondents' perceptions of somewhat disagree, neutral, somewhat agree and strongly agree respectively. The 0.8 served as a boundary for each elements of the measurement in the questionnaire.

Accordingly, the 0.8 was a result found by dividing the difference between the maximum (5) and minimum (1) scores to the maximum score (5) of the questionnaire. In the process of examining of the data, standard deviation was used. Small standard deviations (relative to the value of the mean itself) indicate that data are close to the mean whereas a large standard deviation (relative

to the mean) indicates that the data points are distant from the mean. The mean is a poor fit of the data. Standard deviation is a measure of how well the mean represents the data (Field 2009). All of the variables were measured using a five point likert scale where 1 stands for Strongly Disagree and 5 stands of Strongly Agree. Therefore the interpretation made using the mean of each variable, as a matter of fact the mean falls between the two ranges, hence if the mean approaches to 1 the interpretation would be the respondents didn't agree on the raised issue or variable and if it approaches to 5 the reverse would be true.

4.3.1. ASSESMENT OF EMPLOYEE PERSPECTIVE ON VEHICLES REPAIR AND MAINTANANCE PRACTICE

	N	Mean	Std. Deviation
the organization has successful vehicles repair and maintaining system	130	3.0077	.99997
the organization has regular vehicle servicing time(mileage) schedule	130	3.46	1.162
the organization has well organized control mechanism	130	2.86	1.293
the organization has professional fleet manager & maintenance controller	130	2.58	1.275
the repair & maintenance garage complete the service on time	130	3.0615	1.17304
the vehicles of the organization have frequent technical failure after service & maintenance	130	2.85	1.114
drivers of the organization gives proper feedback for fleet department	130	3.36	.996
the fleet department handles complaint regarding service maintenance	130	3.02	1.089
Repair	130	3.02	.79485
Valid N (list wise)	130		

Table.4.2Vehicles repair and maintaining practice

Table .4.2 showed that, most of the respondents were somewhat signifying vehicles repair and maintaining system disagreement to those challenges that the researcher used to determine the challenges of practices. The first challenge which the respondents gave higher mean score was the question state that, the organization has regular vehicle servicing time (mileage) schedule which is the mean score of 3.46, drivers of the organization gives proper feedback for fleet

department which is the mean score of 3.36 , also the question rose about successful vehicles repair and maintaining system which is the mean score of 3.00, the repair & maintenance garage complete the service on time which is the mean score of 3.06, and the fleet department handles complaint regarding service maintenance which is the mean score of 3.02 and also, respondents disagreed with questions arise about well-organized control mechanism with mean scores of 2.86, has professional fleet manager and maintenance controller with mean of 2.58 and the vehicles of the organization have frequent technical failure after service & maintenance with mean of 2.85 and the average mean for repair and maintenance had a means score of 3.02, which is almost the score of this variable falls between the two extremes at neutral level. Accordingly, the analysis shows that repair and maintenance had a means score of 3.02, which almost the score of this variable falls between the two extremes at neutral level. Therefore, repair and maintenance were one of the anticipated variables that are assume to affect operational efficiency,

4.3.2 ASSESMENT OF EMPLOYEE PERSPECTIVE ON FUEL MANAGEMENT

Descriptive Statistics

	N	Mean	Std. Deviation
the organization is successful in fuel management system	130	3.25	.981
the organization has set a standard on fuel consumption rate per vehicle	130	3.38	.975
the organization allocates enough fuel coupons for field missions	130	3.35	1.085
the organization has an independent fuel controller	130	3.08	1.125
there is a timely follow up for fuel consumption	130	3.28	1.086
the organization has potential fuel sources(suppliers) all over the regions	130	2.98	1.042
the organization allocate sufficient budget for fuel cost	130	3.469	1.0053
Fuel management	130	3.25	.71947

Table 4.3 fuel management system

Table .4.3 showed that, fuel management were one of the predictable variables that are imagine to have an effect on operational efficiency, the first challenge which the respondents gave higher mean score was the question supposed that, the organization allocate sufficient budget for fuel cost which is the mean score of 3.46, the organization has set a standard on fuel consumption rate per vehicle which is the mean score of 3.38 , also the question rose about allocation of enough fuel coupons for field missions which is the mean score of 3.35, there is a timely follow up for fuel consumption which is the mean score of 3.28, and the organization is successful in fuel management system which is the mean score of 3.25, the organization has an independent fuel controller which is the mean score of 3.08 and also, respondents disagreed with questions arise about the organization has potential fuel sources(suppliers) all over the regions with mean scores of 2.98 and the average mean for repair and maintenance had a means score of 3.25, which indicate the score of this variable nearly assign of agree level. As a result, the analysis shows that fuel management had a means score of 3.25 therefore, Fuel management were one of the predictable variables that are imagine having an effect on operational efficiency. As a result, the analysis shows that fuel management had a means score of 3.25, which indicate the score of this variable nearly assign of agree level.

4.3.3. ASSESSMENT OF EMPLOYEE PERSPECTIVE ON VEHICLES TRACKING

	N	Mean	Std. Deviation
the organization is using the vehicle tracking system for fuel management	130	2.48	1.080
the organization has modern technology of GPS for vehicle tracking system	130	2.57	1.276
the organization has installed vehicle tracking system	130	2.48	1.051
the organization assigned a person to monitor & manage the GPS tracking system	130	2.18	1.040
the organization supervises speed limit by GPS tracking system	130	2.27	1.180

the organization provide immediate solution for problems encounter in vehicle tracking	130	2.48	1.129
the organization used the tracking system to manage fuel consumption& maintenance scheduling	130	2.31	1.200
Vehicle Tracking	130	2.39	.87934

Table .4.4 Vehicle tracking system

Table 4.4 indicates, vehicle tracking were one of the feasible variables that are hypothesized to change operational efficiency. The first challenge which the respondents achieve was the organization allocate sufficient budget for fuel cost which is the mean score of 2.48, the second question is about modern technology of GPS for vehicle tracking system which is the mean score of 2.57 ,also the issue state about installed vehicle tracking system which is the mean score of 2.48, the organization assigned a person to monitor & manage the GPS tracking system which is the mean score of 2.18 , the organization supervises speed limit by GPS tracking system which is the mean score of 2.27, the organization provide immediate solution for problems encounter in vehicle tracking which is the mean score of 2.48 and the organization used the tracking system to manage fuel consumption and maintenance scheduling tracking which is the mean score of 2.31 also the average mean for vehicle tracking had a means score of 2.39, Accordingly, the analysis shows that vehicle tracking had a means score of which is the least score of this variable and it indicates disagree level.

4.3.4. ASSESMENT OF EMPLOYEE PERSPECTIVE ON DRIVER MANAGEMENT

	N	Mean	Std. Deviation
the organization has well organized supervision method on drivers	130	2.71	.984
the organization has well-organized drivers mission assignment system	130	3.00	1.027
the organization has assigned a responsible officer for handling drivers' mission assignment	130	2.95	1.183
there is a habit to motivate/reward an exemplary driver	130	2.35	1.193

the organization has successful performance evaluation system for drivers	130	3.32	3.752
there is drivers development and learning program in the organization	130	2.66	.961
drivers are responsible for the safe, neat and lawful operation of the assigned vehicle	130	3.60	.894
drivers always fill & properly maintain vehicle log book for all the distance travelled	130	3.64	.956
Drivers management	130	3.0279	.82963

Table 4.5 driver management

Table 4.5, demonstrate that driver management exist as one of the possible variables that are presume to vary operational efficiency, that most of the respondents were somewhat signifying driver management disagreement to those challenges that the researcher used to determine the challenges of practices. The first challenge which the respondents gave higher mean score was the question supposed that, drivers always fill & properly maintain vehicle log book for all the distance travelled which is the mean score of 3.64, drivers are responsible for the safe, neat and lawful operation of the assigned vehicle which is the mean score of 3.60 , also the question state that the organization has successful performance evaluation system for drivers which is the mean score of 3.32, the organization has well-organized drivers mission assignment system which is the mean score of 3.00, and the fleet department handles complaint regarding service maintenance which is the mean score of 3.02 and also, Respondents disagreed with questions state that the organization has assigned a responsible officer for handling drivers' mission assignment which is the mean score of 2.95, the organization has well organized supervision method on drivers which is the mean score of 2.71 and there is driver's development and learning program in the organization with mean of 2.66, there is a habit to motivate/reward an exemplary driver which is the mean score of 2.35 and the average mean for driver management had a means score of 3.25. Accordingly, the analysis shows that driver management had a means score of 3.02, which almost the score of this variable falls between the two extremes at neutral level.

4.4 CHI - SQUARE TEST

Chi-Square Tests						
	Mean	St. Dev		Value	df	Asymp. Sig. (2-sided)
Repair	3.02	1.1377	Pearson Chi-Square	194.951 ^a	100	.000
Fuel Management	3.25	1.04275	Pearson Chi-Square	171.782 ^a	92	.000
Vehicle tracking	2.39	1.1365	Pearson Chi-Square	169.375 ^a	88	.000
Drivers management	3.02	1.3687	Pearson Chi-Square	180.500 ^a	100	.000
			N of Valid Cases	130		

a. 130 cells (100.0%) have expected count less than 5. The minimum expected count is .04.

Table 4.6 chi - square test

4.5 HYPOTHESES TESTING

The first hypothesis of the study was: From the above chi- square test table 4.6, revealed that, the Ch-square test indicates that, there is the existence of a relationship between employees response on repair and maintenance and Fleet efficiency, $X^2(100, N=130) = 194.95$, $p < .001$. Therefore, the null hypothesis H_0 : vehicles repair and maintenance influences fleet efficiency has been accepted.

The second hypothesis was; about employees perception on effect of fuel management on fleet efficiency. In this regard, since, the Ch-square test indicates that, the relationship between fleet efficiency and fuel management, $X^2(100, N=130) = 171.7$, $p < .001$, as a result, the null hypothesis H_0 : fuel management have significant stress on fleet efficiency has been accepted.

The Third hypothesis was; H_0 : employees response on vehicle tracking has significant effect on fleet efficiency of the organization because the Ch-square test indicates relationship exist between fleet efficiency and vehicle tracking, $X^2(100, N=130) = 169.3$, $p < .001$ imply statistically significant influence on fleet efficiency of the organization. Therefore, the third null

hypothesis was accepted and the study concluded that vehicles tracking persuade fleet efficiency will be conventional.

The fourth hypothesis was; H_0 : employees response on driver management has influence on fleet efficiency of the organization since, the Ch-square test indicates the existence of relationship between fleet efficiency and drivers management, $X^2(100, N=130) = 180.5$, $p < .001$ implies statistically significant influence on fleet efficiency of the organization. The fourth null hypothesis was therefore accepted and the study concluded that driver management influences on fleet efficiency has been acceptable.

4.6 REGRESSION

4.6.1 ECONOMETRICS RESULT

Before running the regression a pre-test of **Multicolliniarity and Hetroscedsticity** were performed. Accordingly, a VIF test suggested that there is no a multicollinearity problem in the data, the maximum VIF was 1.41; in order to have a multicollinearity problem the results VIF should be greater than 10 (Gudjrat, 2003). Likewise, Breusch-Pagan/Cook-Weisberg test was performed in order to test the existence of Hetrosedsticity, fortunately, the data didn't have a problem of error term variance.

4.6.2 ESTIMATION RESULT

	Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[OE1 = 1]	5.16	0.989	27.243	1	0	3.222 7.098
	[OE1 = 2]	6.571	1.039	40.011	1	0	4.535 8.608
	[OE1 = 3]	7.723	1.1	49.291	1	0	5.567 9.879
	[OE1 = 4]	10.295	1.331	59.833	1	0	7.687 12.904
Location	Repair	0.014	0.03	0.23	1	0.631	-0.044 0.073
	FeulMgt	0.117	0.039	8.907	1	0.003	0.04 0.194

VehicleT	0.099	0.031	10.212	1	0.001	0.038	0.159
DriversMgt	0.063	0.03	4.292	1	0.038	0.003	0.122

Link function: Logit.

Table 4.7Parameter Estimates

This study intended to investigate the effects of fleet management on operational efficiency in World Health Organization, Ethiopia Office. Particularly, how driver management, vehicles fuel management, vehicles tracking and repair and maintenance determine the operational efficiency. Furthermore, Ordinal logistic regression (Ologit) model were employed to estimate the operational efficiency.

The results of the econometric model estimation revealed that vehicle tracking, fuel management, and drivers management had significant effect on operational efficiency, whereas, repair and maintenance didn't show significant relationship with operational efficiency.

As (Scott, 1998) in operational fleet management, 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. Also this finding support that as long as the vehicle tracking system become good and sustainable the operational efficiency more likely to be at the highest level of efficiency and the same is true in fuel management the more fuel management becomes good the more will be the operational efficiency

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATION

The final part of this research paper provides summary, conclusions and recommendations drawn from the findings of the data collected by quaternary.

5.1 SUMMARY

The World Health Organization (WHO) is a specialized agency of the United Nations (UN) that is concerned with international public health. WHO has been at the centre of or behind dramatic improvements in public health since it was established in Ethiopia, gathering the world's top health experts, defining solutions, delivering guidelines and mobilizing governments, health workers and partners to positively impact people and health.

However, to achieve the objective of the organization successfully and healthy, WHO has to a well-organized Fleet management and fleet efficiency system in order to enhance the organizational mission (WHO.int)

This study intends to investigate this uncharted and overlooked area of world health organization. The research was anticipated to investigate the effects of fleet management systems on operational efficiency in world health organization in Ethiopia office through four main variables including; fuel management, vehicle tracking, driver's management and repair and maintenance.

In order to achieve these objectives, data were collected from the employees of the organization and processed in both quantitative and qualitative approach of descriptive approach and also used regression analysis.

From the demographic characteristics of respondents, the lion share is taken by (78.5%) was male and the remaining (28.1%) were female respondents. Besides, the large number of respondents who participated in the study was from the department of fleet management.

In relation to their qualification level, the respondents had 18.5% of the respondents were masters degree holders, 26.9% of them were degree holders and the rest 36.9% and 17.7% of

them were diploma and certificate holders respectively. Moreover, the work experience of the respondents indicate that, 33.8% of the respondents had 10 to 15 which is they had adequate exposure to the work area and had a potential of bringing change to the organization.

In ordered to test the hypothesis, the logit model was employed to answers the basic question. The study incorporate four independent variables in which all of them was measured on a 5-point Likert-Scale, with “1” stands for “Strongly Disagree” and “5” stands for “Strongly Agree”. Apparently, mean was used as a measure of central tendency. Furthermore, the data were encoded, processed and analyzed using SPSS.V23

The analysis result show that the mean score values for operational efficiency was to the minimum the average mean value (only between 2.39 and 3.02) which really indicates the operational efficiency of WHO is weak. The study also found a positive correlation among the three of the variables (repair and maintenance, fuel management, vehicle tracking and drivers management) supply chain dimensions

Furthermore, the value of regression analysis shows that the results of the model estimation revealed that, fuel management, and drivers management had significant effect on operational efficiency, whereas, repair and maintenance vehicle tracking didn't show significant relationship with operational efficiency.

5.2 CONCLUSION

Under this study, the major determining factors of fleet efficiency identified were fuel management; vehicle tracking and drivers management had significant effect on fleet efficiency. In this study, four research questions and four hypotheses were developed and addressed fortunately, the three of them were rated above and one of them rated below the average mean value of 2.5. In other words, it shows the average existence of operational efficiency in the organization which indicates that; the study has revealed that the organization fleet efficiency is in a good manner.

Repair and maintenance and fleet efficiency are positively and significantly related. And also, control mechanism on genuine spare parts used, professional fleet manager and maintenance controller, frequent technical failure after service and maintenance are critical issues which are neglected by the organization.

In fuel management, there is inadequate of potential fuel sources or suppliers all over the regions is vital points ignored by the organization similarly, In driver management motivation and reward are overlooked by the organization.

In vehicle tracking, allocate sufficient budget for fuel cost, modern technology of GPS for vehicle tracking system, the issue of installed vehicle tracking system, assigned a person to monitor and manage the GPS tracking, supervises speed limit by GPS tracking system, provide immediate solution for problems encounter in vehicle tracking and the tracking system to manage fuel consumption and maintenance scheduling were another dimension which is deprived by the organization.

The results given on the conclusion entails that the four research questions and hypothesis developed in this study were considerably rated weak by the employees which actually indicates the fleet management system is not at the required level of its employees. Regarding the correlation, it is possible to conclude that there is a strong and positive relationship among the four variables which this study was relied on.

5.3 RECOMMENDATIONS

By relying on the study findings, the researcher suggests the following points as credible recommendations to the problem.

- In order to improve the fleet efficiency there must be serious control mechanism on genuine spare parts used during service and maintenance
- The organization should hire professional fleet manager and maintenance controller to have better fleet efficiency.
- The organization should revise and critically realize their fuel supplier because there are inadequate potential fuel sources all over the region.
- The organization has to motivate drivers because motivation and reward plays a significant role for any organizational culture.
- The organization should have to give a critical emphasis on assigning adequate budget for fuel cost and should manage fuel consumption and maintenance scheduling properly through developed better financial system and by recruited well educated manager by giving training for the employs of the fleet department.
- Technology is vital for the development of one organization; therefore, modern technology of GPS for vehicle tracking system is essential to the improvement fleet efficiency in the organization.
- Fleet department should supervise speed limit by GPS tracking system and there must be someone assigned permanently to monitor the tracking system online.
- The organization should give emphasis for solution for problems encounterd in the tracking system.

5.4 LIMITATION OF THE STUDY

Although this study was subjected to different literatures and data analysis tools, it has its own limitations and should be mentioned in order to provide a path for further studies. The first limitation of this study is generalization of the finding, since the study was limited to single organization and small sample the finding of the study may not be applicable to large population. In carry out this study, considerable constraint was limited literatures or secondary source available on fleet management and fleet efficiency. The other important challenge was unwillingness of the respondent to fill the questioner due to lack of time and most of the respondents were field worker.

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Appendixes
ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE GRADUATE STUDIES
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT
QUESTIONNAIRE TO BE FILLED BY RESPONDENTS

Dear respondents:

I would like to express my deep appreciation for your cooperation and honesty in answering the following research questions. The aim of this questionnaire is gathering data used for a thesis on the title of **THE EFFECTS OF FLEET MANAGEMENT ON OPERATIONAL EFFICIENCY (THE CASE OF WORLD HEALTH ORGANIZATION ETHIOPIA)** for the partial fulfillment of the requirements for the Masters of Logistics and Supply Chain Management. Your genuine reply is significantly appreciated and will contribute a lot to the accuracy of this thesis. The information collected from this questioner will merely be used for academic purpose and will be treated with strict confidentiality.

Thank you in advance.

Instruction: Don't write your name in the answering sheet

Please, put a tick (✓) mark in which you want to select

Part - A

Respondent's profile

The following questions are about the respondent's profile. Kindly indicate the appropriate characteristics of the respondent's profile using (✓).

1. Gender

Male ☐

Female ☐

2. State your highest level of education?

MA/MSc ☐

BA/BSc ☐

Diploma ☐

Certificate ☐

3. How long have you been working in the organization (WHO)?

Less than 5 years ☐

Between 10 and 15 years ☐

Between 5 and 10 years ☐

Over 15 years ☐

Part –B

Questioner for respondents

The following questions are about how your organization has been implementing fleet management on operational fleet efficiency. 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

The effect of fleet management on fleet efficiency from the perspective of employee.						
No	Description	1	2	3	4	5
VRM P	Vehicles Repair and Maintaining Practice					
1.	The organization has successful vehicles repair and maintenance control system.					
2.	The organization has regular Vehicle servicing time (Mileage) schedule.					
3	The organization has well organized control mechanism for genuine spare part used for vehicle service and maintenance.					
4	The organization has professional fleet manager and maintenance controller.					

5	The repair and maintenance garage complete the service and maintenance on time.					
6	The vehicles of the organization don't have frequent technical failure after service and maintenance					
7	Drivers of the organization gives proper feedback for fleet department about service and maintenance of the assigned vehicle					
8	The fleet department of the organization handles complaint regarding service and maintenance appropriately.					
FMS	Fuel Management System					
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	The organization has an independent fuel controller					
5	There is a timely follow up for fuel consumption					
6	The organization has potential fuel sources (Suppliers) all over the regions					
7	The organization allocate sufficient budget for fuel cost					

VT	Vehicles Tracking					
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 WHO 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 provide immediate solution for problems encounter in vehicle tracking					
7	The organization used the Tracking system to manage fuel consumption and maintenance scheduling.					
DM	Driver Management					
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	There is Driver's Development and learning program in the organization					
7	Drivers are responsible for the safe, neat and lawful operation of the assigned vehicle					
8	Drivers always fill and properly maintain vehicle log book for all the distance traveled					
FE	Fleet Efficiency					
1	The organization has successful and competent Fleet efficiency					