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## **The Impact of Fleet Management on Logistics Management in the Retail Sector of Zimbabwe**

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### **ABSTRACT**

The study sought to explore the impact of fleet management on logistics management in the retail sector of Zimbabwe. The study was guided by the objectives that included to determine the impact of fleet management on inventory control, to assess the impact of fleet management on material handling and to ascertain the impact of fleet management on distribution communication. The study adopted pragmatism research philosophy and the correlational research design. The study population comprised 40 participants that were drawn from selected retails in Zimbabwe. A total of 30 questionnaires were successfully returned to yield a 75% overall response rate. Findings deduced from the study proved that a positive correlation existed between fleet management and logistics management. Conclusions and recommendations that for the retail sector of Zimbabwe to succeed requires to have constant change and upgrade on their fleet, master distribution routes and adopt innovation in managing the fleet.

**Keywords:** Fleet management and logistics management

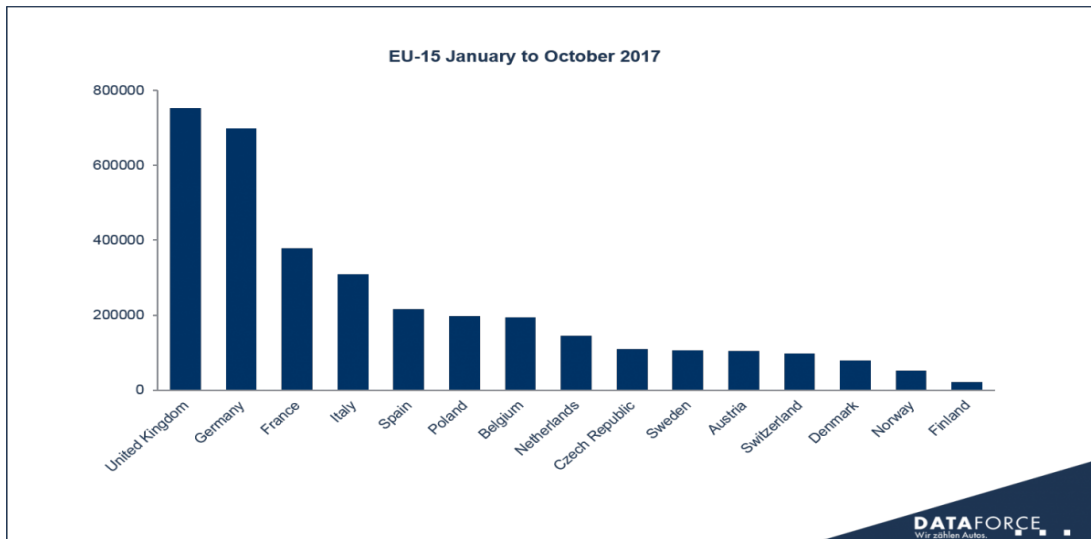
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### **1.0 INTRODUCTION**

Retail organizations from across the global village are operating in a volatile business environment that is characterized by intense levels of competition. To be in a position to gain a competitive advantage in such an environment requires fleet management as a strategy for improving logistics management (Smith and Judith, 2017). Fleet management has been defined as the management of cars, vans, trucks and commercial vehicles. Logistics management is a major aspect of supply chain management that implements effective forwards, reverse flow and storage of goods as well as important related information that is from point of origin and the point of consumption in order to

meet customer's requirements (Lyton, 2018). Fleet management has contributed to improved logistics management through the implementation of different strategies that included replacement schedule, energy efficiency and improved collaboration between departments.

**Figure 1.1: Fleet management in Europe**



**Source:** The True Fleet Management in Europe 2017

Figure 1.1 shows European retail fleet management with the United Kingdom being highest and Finland being the least as of January to October 2017 statistics.

In Africa, fleet management has been also adopted by the retail sector on improving logistics management. Retail outlets such as Choppies, Ok, Spar and Shoprite in Africa have benefited from fleet management software such as vehicle tracking and route management. Improved logistics management of the African retail sector with regards to improved fleet management has been evidenced by a reduction in fleet downtime by 60% and improved delivery schedules by 70%. Fleet management has proven to be effective in managing logistics management (Washington and Keller, 2016).

Past researches on fleet management were mainly done to see its influence on operational efficiency, road accidents, and corporate performance. Few studies with regards to Zimbabwe have attempted in its influence on logistics management leaving a knowledge gap. The current study will focus on the impact of fleet management on logistics management in the retail sector of Zimbabwe

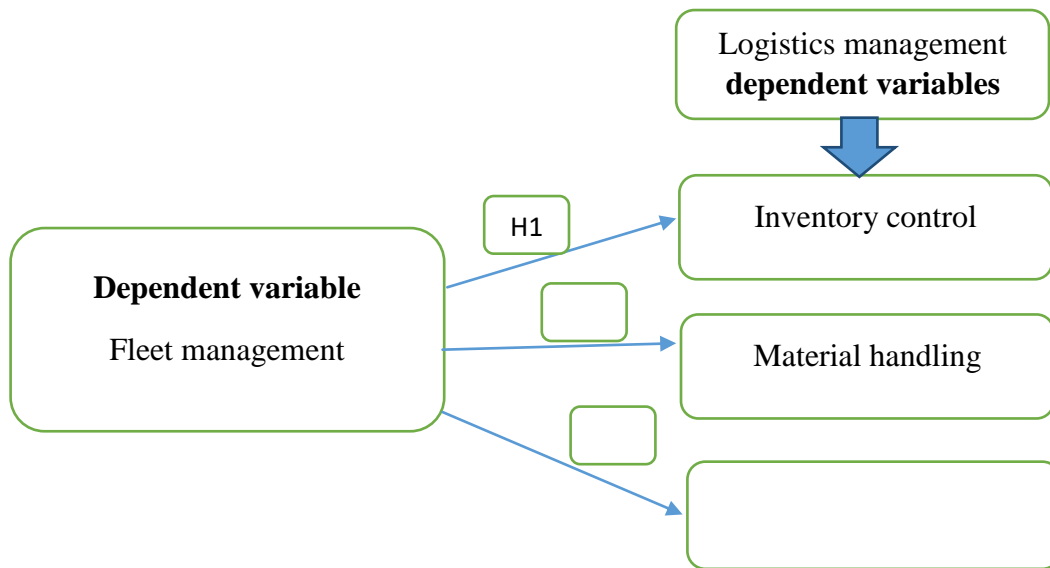
Fleet management has been a major concern with regard to logistics management in the Zimbabwean context. Despite the efforts made by the retail sector of Zimbabwe adopting fleet management to improve logistics management, it seems as if most retail organizations are on the verge of collapse. Several retail firms in Zimbabwe seem to be failing on fleet management as evident by increased accident occurrence, increased fleet downtime by more than 56%, failure to replace fleet on time, use of second-hand parts,

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lack of driver refreshing causes and lack of fleet management software's in place. These challenges seem to have contributed to compromised logistics management as they are evidence of delay in the distribution of products, failure to meet customer needs and wants on the markets.

Fleet management in the Zimbabwean retail sector has become a major concern as many analyses in the transport sector have also pointed to other factors that included fuel crisis, poor road networks and financial crisis to be affecting logistics management. Does a relationship exists between fleet management and logistics management, it is against this background that this study will focus on the relationship between fleet management and logistics management.

### CONCEPTUAL FRAMEWORK FOR FLEET MANAGEMENT



Source:(Lambert, Stock &Ellram 1998)

Figure 1.1 shows the feet management conceptual. Fleet management is the independent variable while logistics management becomes a dependent variable being measured by inventory control, material handling and distribution communications

### THE STUDY OBJECTIVES

- To determine the impact of fleet management on inventory control
- To assess the impact of fleet management on material handling
- To ascertain the impact of fleet management on distribution communication

### HYPOTHESIS TESTING

- H1 There is an impact between fleet management and inventory control
- H2 There is an impact between fleet management and material handling
- H3 There is an impact between fleet management and distribution communication

## **REVIEW OF LITERATURE**

### **Fleet management**

Fleet management is the function that oversees, coordinates and facilitates various transport and transport-related activities. Fleet management underpins and supports transport-related activities through the management of the assets that are used (Bruce, 2014). Effective fleet management aims at reducing and minimizing overall costs through maximum, cost-effective utilization of resources such as vehicles, fuel, spare parts, etc. The administration and financial management of the fleet are very organizational specific. It largely depends on donor requirements and organizational policies. For example, in some organizations vehicles are restricted to specific projects and others utilize vehicle pools to serve multiple projects. Driving policies can vary from a strict reliance on a dedicated driver from the organization to using staff to drive the vehicles (Gregory, 2014). The administrative policies of the individual organization will dictate which approach will be utilized. This results in the custodian of the fleet management function to be very much dependant on organizational policies and structures.

### **Logistics management**

Logistics management is a supply chain management component that is used to meet customer demands through the planning, control, and implementation of the effective movement and storage of related information, goods and services from origin to destination. Logistics management helps companies reduce expenses and enhance customer service (Xavier, 2014). The logistics management process begins with raw material accumulation to the final stage of delivering goods to the destination. By adhering to customer needs and industry standards, logistics management facilitates process strategy, planning, and implementation. Logistics management needs a new pattern of thinking based on entropic thinking and nonlinear thinking which bring together the capacity of developing strategies and approaching complex problems (Bratianu, 2017). Logistics management is the governance of supply chain functions. Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management, supply and demand planning, and management of third-party logistics services providers. To varying degrees, the logistics function also includes customer service, sourcing and procurement, production planning and scheduling, packaging and assembly. Logistics management is part of all levels of planning and execution strategic, operational and tactical. It is an integrating function, which coordinates all logistics activities, as well as integrates logistics activities with other functions including marketing, sales manufacturing, finance, and information technology.

### **The impact of fleet management on inventory control**

Fleet management incorporates many of the vehicle-based APTS (Advanced Public Transportation Systems) technologies and innovations for more effective vehicle and

fleet planning, scheduling, and operations. This management and planning help the organizations in the retail sector to effectively manage and control inventory. Research done by Bilmore (2013) alluded that an organization that specializes in perishables should implement fleet management strategies as it helps to manage stocks. Fleet management focuses on the vehicle by improving the efficiency and effectiveness of the service provided, as well as on best inventory management practices. By making transit more efficient and reliable, it should be more attractive to prospective best inventory management. The need for a detailed and accurate recording of maintenance activities and resources has long been recognized as ways that foster best inventory management. Because of the trend toward more powerful processing technology at continually decreasing costs, there has never been a more exciting opportunity to make significant advances. In addition, research done by Hilton (2013) hypothesized that organizations in the retail sector are using computerized fleet management solutions as best practices to manage inventory.

Fleet management systems allow for planned and scheduled maintenance of vehicles which will help the efficient movement of inventory to and from the wholesaler to the retailer. In addition, research was done by Vilto (2013) highlighted that planned or scheduled maintenance is considerably less expensive than running repairs performed in response to in-service failures that include inventory pilferage. Industry consultants estimate that fleet management can effectively reduce inventory costs by 50%. Research done in Europe by Dalgish (2014) emphasized that there are many computerized fleet maintenance/management solutions available in today's market, providing such services as maintenance programming and scheduling, work order management, fuel management, cost management, inventory management, warranty management, and human resource management. Today's fleet management systems have evolved into powerful, high-tech tools that impact both the day-to-day operation of a maintenance department and the overall performance of a transit agency and also improve fleet management.

### **The impact of fleet management on material handling**

In open-pit operations which account for more than 60% of all surface output (Hartman & Mutmanský, 2002), haulage costs account for as much as 60% of the total operation costs (May 2012). This goes to show how imperative it is to maintain an efficient materials handling system. In fleet management there is no one size fits all concept applicable to solving all fleet problems. The reason is the stochastic nature of fleet optimization problems. They can be statistically modeled but cannot be precisely predicted by statistical means. There are always some on-the-ground realities such as unscheduled downtime for critical equipment; operator error or efficiency; adverse weather; on-site operational deviations from established procedure and equipment purchase budget limitations. Practically, what constitutes an optimized fleet tends to differ from site to site (Russell, 2012).

As a result, there is a need to establish some particular site's needs and priorities then assess how closely a system's capabilities can match site requirements. Another option

will be to design a new algorithm specific to a particular site. Research done by Newman (2013) alludes that effective fleet management has a positive relationship with material handling. The results from his study hypothesized that effective fleet management will result in improved material handling. In contrary research done by Brass (2015) highlighted that fleet management alone cannot improve material handling but good planning and management competence. Furthermore, research done by Valery (2014) alluded that fleet management has a direct relationship with materials handling. The results from the study alluded that if an organization has a proper and planned fleet management will actually have good material handling.

### **The impact of fleet management on distribution communication**

Most companies in Africa have a poor fleet management system. Fleet management system combines vehicle movement operations, maintenance, workshop repairs, spare parts stores inventory of the fleet into a single solution to compete for the B2B enterprise resource platform (Jorges, 2013). In Africa, haulage companies use one-way communication system and faces a challenge of fleet downtime, delay in delivery of goods and to some extent theft. One way distribution communication system has affected the performance of fleet companies in Africa research done by Hoik (2014) in Kenya can review. Vehicles are given to people without technical expertise or inventive techniques. The lack of proper resources such as radio systems promotes the growth of a one-way distribution communication system which affects the overall performance of retail companies in a negative way. The one-way distribution communication promotes incompetent of fleet companies as the solved problems will not last.

The communication is based on practical knowledge and wisdom instead of technical skills. This kind of communication has a negative impact on the retail sector as it hinders the efficient movement of goods from the wholesaler to the retailer performs automotive repairs with minimal equipment and irregular setting supplies, often residential garage or driveways (Dereck, 2014). Without well-developed distribution communication systems, logistics could not bring its advantages into a good transport system in logistics activities could provide better logistics efficiency, reduce operation costs, and promote service quality. The improvement of communication systems needs effort from both the public and private sectors. A well-operated logistics system could increase both the competitiveness of the retail and enterprises

## **METHODOLOGY**

The study adopted a pragmatism research philosophy as there were elements of both qualitative and quantitative approaches. The correlational research design was adopted in this study to deduce the correlation between fleet management and logistics. A target population of 40 was drawn from selected retail outlets in Zimbabwe. Self-administered questionnaires were adopted in this study as they were crafted in the form of 5 points

likert scale. Reliability and validity in this study were achieved by triangulation and Cronbach Alpha test of 70%.

## FINDINGS AND DISCUSSION

A total of 40 questionnaires were distributed a 30 were returned to achieve a 75% response rate. Data was gathered and inputted in Stata version 13 for analysis to deduce the study hypothesis and the following results were achieved.

### H1 THERE IS AN IMPACT BETWEEN FLEET MANAGEMENT AND INVENTORY CONTROL

The findings proved that H1 was accepted while H0 was rejected proving that a relationship existed. The relationship was significant at 0.05

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. reg fleetmanagement inventorycontrol
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Source	SS	df	MS			
Model	1.23658537	1	1.23658537	Number of obs =	30	
Residual	6.1300813	28	.218931475	F( 1, 28) =	5.65	
Total	7.36666667	29	.254022989	Prob > F =	0.0245	
				R-squared =	0.1679	
				Adj R-squared =	0.1381	
				Root MSE =	.4679	

fleetmanag~t	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
inventoryc~1	.3170732	.133414	2.38	0.025	.0437869	.5903594
_cons	2.837398	.3185217	8.91	0.000	2.184936	3.48986

The findings proved that there is a positive correlation between fleet management and inventory control. The findings show a positive correlation as illustrated by a t-test of 2.38 that is being influenced by a p-value of 0.025 significant at 5%. Therefore an increase or improvement by 1-unit on fleet management will contribute to a 32% coefficient increase in inventory control.

### H2 THERE IS AN IMPACT BETWEEN FLEET MANAGEMENT AND MATERIAL HANDLING

The findings proved that H1 was accepted while H0 was rejected proving that a relationship existed. The relationship was significant at 0.05

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. reg fleetmanagement materialhandling
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Source	SS	df	MS			
Model	2.07183384	1	2.07183384	Number of obs =	30	
Residual	5.29483283	28	.189101172	F( 1, 28) =	10.96	
Total	7.36666667	29	.254022989	Prob > F =	0.0026	
				R-squared =	0.2812	
				Adj R-squared =	0.2556	
				Root MSE =	.43486	

fleetmanag~t	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
materialha~g	.4346505	.1313136	3.31	0.003	.1656667	.7036342
_cons	2.537994	.3207567	7.91	0.000	1.880954	3.195034

The findings proved that there is a positive correlation between fleet management and material handling. The findings show a positive correlation as illustrated by a t-test of 3.31 that is being influenced by a p-value of 0.003 significant at 5%. Therefore an increase or improvement by 1-unit on fleet management will contribute to a 43% coefficient increase in material handling.

### H3 THERE IS AN IMPACT BETWEEN FLEET MANAGEMENT AND DISTRIBUTION COMMUNICATION

The findings proved that H1 was accepted while H0 was rejected proving that a relationship existed. The relationship was significant at 0.05

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. reg fleetmanagement distributioncommunication
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Source	SS	df	MS			
Model	2.53395291	1	2.53395291	Number of obs =	30	
Residual	4.83271375	28	.17259692	F( 1, 28) =	14.68	
Total	7.36666667	29	.254022989	Prob > F =	0.0007	
				R-squared =	0.3440	
				Adj R-squared =	0.3205	
				Root MSE =	.41545	

fleetmanag~t	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
distributi~n	.5315985	.1387398	3.83	0.001	.247403	.8157941
_cons	2.30855	.3369978	6.85	0.000	1.618242	2.998859

The findings proved that there is a positive correlation between fleet management and distribution communication. The findings show a positive correlation as illustrated by a t-test of 3.83 that is being influenced by a p-value of 0.001 significant at 5%. Therefore an increase or improvement by 1-unit on fleet management will contribute to a 53% coefficient increase in distribution communication.



## CONCLUSION AND RECOMMENDATION

The study concluded that a positive correlation exists between fleet management and logistics management. Recommendations were made that for the retail sector of Zimbabwe to improve on logistics management there is a need to improve on fleet management.

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