



Final Project 2

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**Analyzing the Role of Logistics Management in Delayed Courier Services in
Saudi Arabia**

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Final Project - 2

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Dedication

I dedicate my dissertation work to my family. A special feeling of gratitude to my loving parents, whose words of encouragement and push for tenacity ring in my ears.

Abstract

The research aims to establish key reasons as to what determines the level of satisfaction in the context of the courier services in the Kingdom of Saudi Arabia (KSA); more specifically the study seeks to evaluate the extent to which IT systems used, availability and suitability of delivery vehicles, and the driving/navigational ability of drivers is effective. Since the sector offers logistics and courier services is extending its reach because of increasing demands, it is essential to understand the factors that play a critical role in customer satisfaction, especially for the providers who are willing to grab more and more shares of the market.

Purposively adopting the positivist research philosophy, this study adopts a deductive research approach and quantitative method to analyze data collected from 32 respondents who often use courier services in the Kingdom of Saudi Arabia. The questionnaire was structured to seek specific qualitative data about the respondents' encounters and impressions of the actual services rendered with specific reference to the frequency and efficiency of deliveries, the reliability of tracking information, as well as their satisfaction with the services.

The research findings corroborate the premise that effective IT systems of an organization has on customer satisfaction. The analysis of data with the use of regression equation pointed out that the biggest amount of the variation in the level of satisfaction can be explained by the notion of IT effectiveness. This ranges from features like tracking in real-time, customer support, and processes that have adopted intelligent technologies in their delivery.

Another constructive factor that appeared was vehicle adequacy and specifically the possibility of managing and maintaining an adequate vehicle system. The study also establishes that there is a link between the supply of vehicles, the maintenance of those vehicles, and the resulting consumer satisfaction; insufficiency or the inadequate maintenance of vehicles results in delays in delivery and dissatisfaction among consumers. Furthermore, the research highlights that the best solutions for reducing times to deliver and ensuring high accuracy of the delivery route are navigational skills with the optimization connections to productivity and customer satisfaction.

The conclusion of this study suggests recommendations for the courier service providers to adapt, strengthened IT framework, the efficient vehicle management framework, and the driver training framework. These strategies are claimed to be all the necessary to enhance the quality and effectiveness of service delivery, eliminate operating costs and increase customers' satisfaction and loyalty in a highly increased competitive environment.

Keywords: Customer Satisfaction, Courier Services, Information Technology, Vehicle Management, Navigational Skills, Kingdom of Saudi Arabia, Logistics Management.

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1 Chapter 1: Introduction

1.1 Research Background

In the courier service of Saudi Arabia, the logistic management is facing certain crises mainly because of bad infrastructure and technological issues. Information Technology plays a significant role in the courier industry but the unavailability of GPS and GIS in parts of Saudi Arabia led to the failure of IT as well. Hence, the courier service needs to look for innovative ways (Al-Qahtani et al., 2021). Although adequate investment is made to run this service smoothly the inadequacies are still clear, and the customers are unhappy with their overall experience. This research thus delves into the deep roots that contribute to the overall inefficiencies of the logistic management of the courier service. It reflects on the ways through which these services can be improved and the trust of the customers can be attained.

The administrative tasks structures of emerging economic growth, particularly Saudi Arabia, are under severe stress due to the swift growth of electronic commerce, which has radically altered international trade and transferring influence against customers (Alwahaishi & Nehari-Talet, 2015). Because Saudi Arabia's economy is centered around oil, its transport system has traditionally been focused around highly valuable, low-volume items. Due to the particular nation's rapidly expanding online shopping, which requires reliable, effective, and flexible logistical approaches to meet the enormous variety of varied items which today's consumer anticipates the system is currently facing a great deal of strain (Alwahaishi & Nehari-Talet, 2015).

The present research expands upon the research by Alwahaishi and Nehari-Talet (2015), which showed that customer fulfillment and retention in the Middle Eastern transportation industry are severely hampered by logistical infrastructure inadequacies. Given these past inconsistencies, it is imperative to investigate the potential of cutting-edge transportation management techniques that

can leverage technologies to optimize processes. The research's background illuminates the larger picture of online shopping in emerging economies, especially Saudi Arabia, where it presents both major potential and problems. They talk about how logistical inefficiency and insufficient infrastructure frequently impede the potential of online shopping, which includes greater market accessibility and economic progress.

This makes a thorough investigation that not merely tackles the obvious problems with transportation and delivery services but also comprehends how they interact with the region's broader technical and financial advances essential imperative. By filling within these deficiencies, the study hopes to offer practical advice that could improve logistical effectiveness and elevate Saudi Arabia's internet shopping market. This research will add to the corpus of research by offering an advanced awareness of how improvements in logistics oversight might lessen the difficulties brought on by the explosive expansion of online commerce.

The significance of the study involves its attention to the immediate requirement to enhance logistical capabilities that is essential to customer pleasure and confidence. Through supporting online shopping, such offerings will not merely increase client happiness but additionally be vital to Saudi Arabia's financial development. The desire for effective delivery companies is predicted to increase as e-commerce expands, highlighting the necessity of this research.

The investigation intends to add to the accumulation of information by integrating previous results with new information acquired with the present investigation, offer an in-depth comprehension of logistics administration troubles within the Saudi shipment sector, and investigate such previous and current obstacles. In addition to creating an example for logistical efficiency within the domain, this initiative will act as a springboard for additional study and improvement in the subject. Additionally, by establishing connections with prior studies, like that published in Alenzy (2023), that highlighted the innovative possibilities of technological advances in administration, this study will investigate novel strategies to deal with the problems that have been found.

This overview lays out the framework for a thorough examination regarding the logistics flaws in Saudi Arabia's delivery systems and provides a roadmap for navigating these intricate problems. Every claim made on this extended story is meticulously referenced to provide its scholarly basis, guaranteeing that the investigation is grounded in accepted wisdom even as it aspires to innovate.

1.2 Research Problem

The courier service industry in Saudi Arabia is challenged by many factors that affect it and make it very slow or sometimes prone to delay. One of the biggest sources of concern is that there are frequent delays in the deliveries thus some of the logistic management challenges (Ranaweera et al., 2003) include: A shortage of vehicles and poor navigation by the drivers. Such inefficiencies do not only slow down the operations but also reduce customer satisfaction and gain further trust. Knowledge of these and other problems is essential to optimize the weather conditions for courier delivery services. This section discusses the research questions and its contribution to theoretically and practically address the gaps that have not been adequately covered in the published literature and current practices.

1.2.1 Theoretical Gaps

There seems to be a research gap or rather a deficiency in literature on Saudi Arabia's courier service sector despite the increasing number of published articles on logistics and supply chain management. As shown, the majority of prior research studies have focused on more general aspects of logistics or have been conducted in other geographic regions, which may not reflect specific circumstances of courier services operating within Saudi Arabia. The research called for theoretical analysis that would look at the detailed issues that relate to the specific area of logistic management such as adequacy of vehicles and drivers' navigation among others within this perspective. Also, the facet related to the application of IT within logistics has received certain attention in research while the nature of the impact of IT on the courier services of Saudi Arabia has not been much investigated explicitly. Conquering these theoretical gaps will advance the comprehension of the theory of logistic management in the region and create a general framework for the future formation of specific solutions directed at increasing the proficiency of services.

1.2.2 Practical Gaps

On the practical aspect, the respondents of the Saudi Arabian courier firms give an indication of the lack of effective implementation of logistic management. Lack of supply vehicles and poor map reading are equally frequent challenges that cause many problems including delays and problems with operations. Some companies have embarked on implementing information technology solutions, however, the gap between the effective implementation of such solutions and incorporate the same in logistics process is wide. Also, there is hardly any scholarly literature that offers specific advice on how courier services can address these challenges systematically with a view of improving customer satisfaction and trust. It is also quite limited for one to follow best practices elsewhere, or in other industries within the kingdom given that the logistical and structural character of the nation is wholly different. It is in light of such end practical gaps that his research seeks to fill by offering the Saudi courier service industry the right operational insights and strategies.

1.3 Research Significance

1.3.1 At the Theoretical Level

At the theoretical level, this study also matters much, as it was contributing to the development of knowledge, logistics and supply chain managing, especially in Saudi Arabian courier companies. However, there is a lack of empirically driven research focusing on the specific logistic management issues that affect courier services in Saudi Arabia amid the dizzying increase in e-commerce dissemination and various logistical innovations across the world. This is why this research seeks, through conducting an analysis of these challenges—poor vehicular stock, lack of good directions, and interface of information technology—to help fill a theoretical void in the literature.

Conceptual developments will comprise how factors pertaining to logistic management affect effectiveness and customer satisfaction in the CVS sub-sector. This understanding will facilitate the elaboration of materials for optimizing existing forms and models of logistics and supply chain management through the identification of the specific difficulties in the Saudi Arabian market. In

addition, the research pertinent theoretical contributions that relate to investment in information technology for boosting logistic processes and optimization of customer service within the identified industry setting.

1.3.2 At the Practical Level

At the practical level, this is important to arm and direct the practices of courier concern, which are operating in Saudi Arabia. The findings will be useful and actionable, meaning that any means that could be used to tackle some of the logistic management issues affecting service delivery will be highlighted. For instance, understanding measures to prevent delay due to lack of adequate vehicles and poor navigation skills will offer practical pragmatic changes to actual practice in courier services organizations.

In terms of application, the work will offer specific suggestions on how to increase the effectiveness of information technology usage in logistics to increase traceability as well as facilitate dialogue and coordination in the supply chain. These practical implications are important in aiding the understanding of the courier organization in Saudi Arabia through avoiding some definitive cost factors, increase efficiency, and improving customer satisfaction and trust.

As a result, this research seeks to go beyond merely filling gaps in academic theory and contribute positively to the theoretical development of the subject, as well as provide results that may be useful to the Saudi Arabian courier service industry. In so doing, it aims to equip the various parties of interest – from the operations managers to the policy makers – with proactively useful information that can be channelled towards the enhancement of the timeliness and efficiency of the services rendered. In conclusion, this work has endeavoured to make a positive contribution to the improvement of the effectiveness and efficiency and customer satisfaction of courier services that pertain to the Kingdom of Saudi Arabia with respect to the global standards of logistics and supply chain.

1.4 Research Questions

To address the above issues, the following specific research questions have been developed for this study to ask systematically regarding the logistic management challenges in Saudi Arabia, courier services.

The following are the main logistic management concerns in the context of Saudi Arabian courier services and deliveries.

- How the lack of delivery vehicles and the inability to employ navigational skills contribute to the type of delays experienced in the courier services?
- How can information technology align with enhancing the effectiveness of courier services in KSA?
- What are the strategies by which the courier services, operating in the Kingdom of Saudi Arabia can eliminate logistics management weaknesses and improve customer satisfaction levels?

These questions will be covered via quantitative means of research with the intention of offering a precise picture of the workings of courier services in relation to Saudi Arabia.

1.5 Research Objectives

Since the performance of these Saudi Arabian courier services is likely to have been enhanced by the increase in IT adoption, the study sets out to establish the following objectives:

- I. With the intention of offering a headed contribution to the existing literature logistic management practices in the courier services, this research aimed at developing recommendation for improving customer satisfaction.
- II. To recognize and analyze the key logistic management problems faced in the courier services of Saudi Arabia.
- III. To evaluate the effect of insufficient vehicles and bad navigational skills on service pauses.
- IV. To explore the role of information technology tools in amplifying the efficacy of courier services.
- V. To suggest new solutions for improving logistic management and customer satisfaction.
- VI. To rebuild trust between customers in the courier services by seeking measures.
- VII. With a view to establishing measures that could be taken towards reconstructing and restoring the customer confidence with regard to the courier service in Saudi Arabia.

They align the research methodology and data collection and analysis process in a way that all of the above-stated goals are pursued sequentially in a way that gives a paradigm of the logistic difficulty and opportunities of the courier service industry of Saudi Arabia.

1.6 Research Hypothesis

The research hypotheses for this study are as follows to test and examine particular aspects of the logistic management challenges and its effect on courier services in Saudi Arabia:

H1 Understanding of logistic management challenges has a significant relation with the provision of services in the courier services in Saudi Arabia be it positive or negative. Firstly, the following hypothesis shall be assumed; Insufficient vehicle stock bears a strong positive relationship with the untimeliness of delivery within Saudi Arabian courier services. The first is that a lack of adequate or unsuitable vehicles is the cause of such problems as the inefficiency of work, delivery delays, and dissatisfied clients.

Secondly, the hypothesis also postulates that the drivers' inability to navigate their way around within cities or Saudi Arabia in particular increases delivery times in the courier services industry. This assertion means that due to drivers' ineffectiveness in handling traffic patterns and giving

efficient directions, delivery routes and schedules become affected in a way that degrades service reliability and consequently, end-users' satisfaction.

Thirdly, it is presumed that Information Technology has a positive effect and has a relationship with enhancing the operational efficiency of courier services in Saudi Arabia. This hypothesis postulates that the use of sophisticated IT systems for tracking, communication and management of logistics leads to timelines on deliveries being improved, the accurateness of delivery as well as the dependability on the same being raised. Such improvement is expected to enhance the chain of operations, /routines and procedures, duration, and thus have an overall impact on the customer service results.

Moreover, this study suggests that there is a need to improve the logistic management practices in the Saudi Arabian courier service because such improvements will have a positive impact on the overall customers' satisfaction level. According to this hypothesis, it is proposed that diverse factors such as better fleet management, driver training, and effective planning of the delivery routes are conducive to delivering consignments on time and with minimal or no disruptions. Therefore, there is an implication that satisfied customers shall have a positive perception about the courier service and demonstrate brand loyalty.

Finally, it is postulated that customer trust on logistic courier services in Saudi Arabia will be impact on effectively addressing the challenges that come with logistics. This hypothesis postulates that any initiative taken to prevent possible problems in logistics, reliability of services in timely delivery and customer engagements will help rebuild the confidence of clients with the courier service provider. This trust is crucial for sustaining and gaining customer loyalty because the organization needs to offer its services in the market.

These hypotheses will be posited as the research premises and will inform both the quantitative data collection and the analyses performed in the study using surveys and interviews of stakeholders in the Saudi Arabian courier service sector. It is therefore the overall goal of these hypotheses that the study will be able to achieve valuable insights on the dynamics and development of logistic management and the relationship of the customers in this specific industry and environment which will be beneficial not only for future research but also for practical implementations and application in the field of logistic or service management.

1.7 Research Model

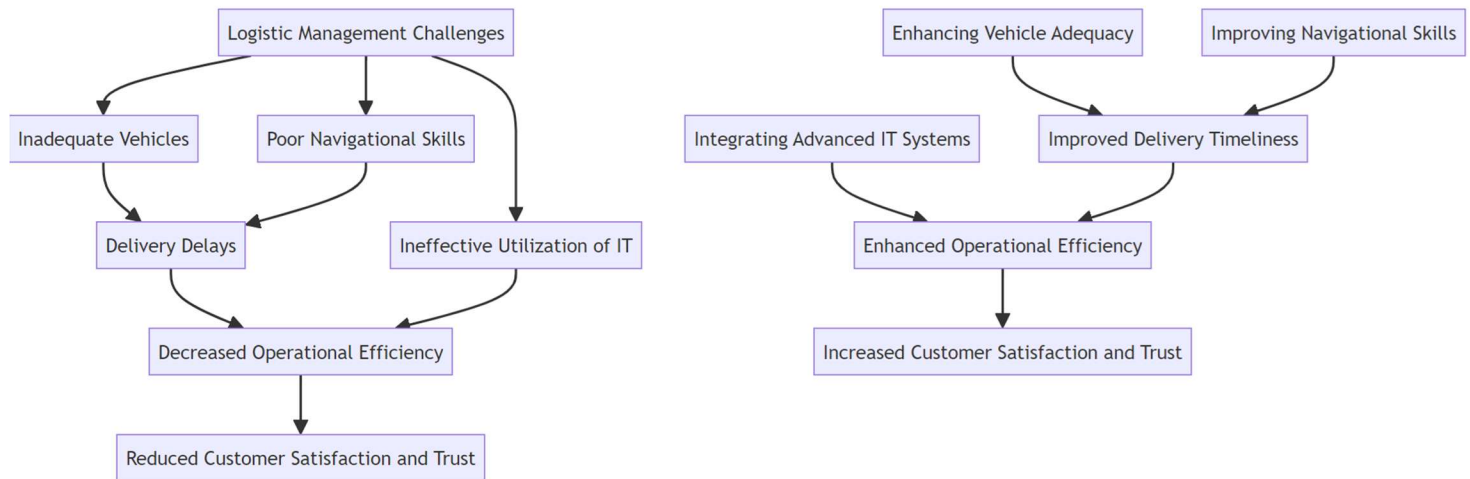


Figure 1: Conceptual Model of the project

1.8 Scope of the Study

As for the contextual characteristics of the research setting/scope, it is necessary to mention that this project is based on the Saudi Arabian courier service industry. Saudi Arabia with a youthful, progressive population and progressing B2C e-commerce environment is a fertile ground for studying LM issues. These factors include a large land area to cover, a complicated topography and relatively uneven development of the transport grid.

The research will focus on big cities; Saudi Arabia has major cities include Riyadh, Jeddah, and Dammam; These cities are selected due to their economic activities and people density they exhibit high need of courier services. These urban centers offer a favorable location to analyze the operational characteristics and customers' contacts in the context of the courier service business. Furthermore, the study will also consider those operating in the rural areas as a way of extending the research on the problem facing courier services in remote regions.

The courier companies present in Saudi Arabia are categorized into the large international organizations courier companies as well as the small businesses within the kingdom. To enhance the validity of the study, this diversity will be achieved in the study sample to gain a substantial understanding of the industry. The companies used in this study are dissimilar in many aspects such as application of technology, business operations and customer relations, this way offering a wide range of information.

It also encompasses the 153 regulatory factors in the context of Saudi Arabia that impact the logistic operations of the study setting. The policy decision in relation to courier services firm will also be an important factor, and an attempt to understand this will form part of the research.

1.9 Project Structure

The present research can be organized into several main components, all of which are conceived to provide a systematic response to the objectives and questions that characterize this research. These are the sections of the study; introduction, literature review, research methodology, data collection, data analysis, results and discussion, conclusion and recommendations. In turn, each section is linked to the other to render the methodical study more communicative and complete.

Chapter 1: Introduction

This section is significant for the argumentation of the thesis statement and aims to inform the reader about the courier service market in Saudi Arabia. It underlines the importance of elucidating LM issues and presents the research problem, aims, and questions and hypotheses on which this work is based. Also, this chapter describes the structure and workflow of the research project carried out by the author of this book.

Chapter 2: Literature Review

In the course of this research, the literature review is focused on scrutinizing previous and current research on the topic of logistic management in courier services in Saudi Arabia. First, it integrates and distills different pertinent studies, Second, it defines areas of research that are still not well understood, Third, it formulates the theoretical construct for addressing the nature of logistic problems, vehicle scarcity, reputability concerns, and implications of information technology in service profitability.

Chapter 3: Research Methodology

In order to present the layout of the research, this chapter looks at operational definitions of the variables to be used in the study. This outlines the postgraduate research with the help of a structured research onion model, defines the target population, as well as the reason behind the chosen sampling approach and strategies used. It also describes the procedures of data collection, the types of data that were collected, and statistical analyses approaches used for hypothesis testing and gaining of insights.

Chapter 4: Statistical Analysis & Findings Discussion

Here, the reader is introduced to the quantitative analysis of data that has been gathered from this chapter, we are therefore introduced to the empirical component of the study. The first part of the section is an explanation of the statistical techniques that are used, and the second part provides a descriptive analysis of the research sample. The chapter then describes the process of questionnaire validation and reliability testing, presents detailed qualitative development variables of the study, tests research hypothesis and finally discusses the findings in light of existing literature. Finally, it provided a broad discourse on the managerial implications or logistics management in Saudi Arabian courier services based on the findings of the research.

Chapter 5: Research Limitations, Recommendations & Conclusion

In the last chapter of the research, this argument justly considers limitations faced while conducting the research and these may include difficulties encountered in the process of data collection or sample selection. It provides suggestions based on the research outcomes concerning the logistical concerns and the concerns associated with the effective working of Saudi Arabian courier services. The study concludes and reaffirms the research contributions made and identify research directions for the field of logistic management under the context of providing courier services in the kingdom of Saudi Arabia.

2 Chapter 2: Literature Review

2.1 Introduction

The primary center of history of the article "Role of IT Tools in the Courier Industry" by way of Al-Qahtani et al. (2021) is to analyze the influences of Information Technology (IT) on the courier industry, especially in Saudi Arabia. This research elaborates on the case of the courier organization FedEx in Saudi Arabia. It presents a deep clarification of the consequences of Information Technology on courier services, specifically in the region of managing logistics, and supply chains, and decreasing the fee of transportation in these courier services. Different equipment of IT has been elaborated in this research such as e-shipping, Radio Frequency Identification (RFID), Global Positioning System (GPS), and Geographical Information Systems (GIS). The end result highlights a number of positive influences on courier services such as increasing the effectivity of the courier services. The primary and secondary information are used in this research. The methodology used in this research is the qualitative method of research for this purpose a structured interview was conducted to gather data from the participants. It also gathered data from analyzing different journal articles and other dissertations. The major interviewee in this research is the branch manager of FedEx in Saudi Arabia. Good and relevant information was collected through this method by using open-ended questions in the interview. The result shows the advantages of using IT tools in courier services like e-shipping, Radio Frequency Identification (RFID tags), and GPS tools (Al-Qahtani, 2021). It also sheds light on the challenges faced by FedEx using these tools. The results of this research also highlight that GPS and GIS did not work everywhere. Overall, this research is relevant and reliable as it is published

in an authentic journal. The information in it is also relevant to the current time and relevant to the topic.

Rajendran (2020) highlights the challenges faced by the global courier and delivery services industry. It also sheds light on the methods for enhancing the performance of courier services through the critical analysis of customer and employee feedback. This critical analysis highlights the ways to increase the effectiveness, efficacy, responsiveness, efficiency, and overall quality of courier service. The methodology used in this research is a four-phase approach that includes different stages such as online review extraction, bigram and trigram analysis, topic identification, and SWOT analysis. The research includes the case study of four different courier companies to highlight the diverse perspectives and the issues and challenges in different fields. It also used a customer rating system and employee rating to identify the challenges. The result highlights the major areas of employee dissatisfaction for these selected companies. The research highlights internal and external factors affecting the performance of global courier and delivery services. It elaborates and sheds light on the need and significance of enhancing the tracking system, developing customer service, and highlighting employee welfare in developing the performance of different courier companies. The major implications of this research include academic contribution for students, researchers, and scholars, employee satisfaction in the organizational setting and outside this setting, and innovation and technology encompassing different fields of technology such as IT, motor vehicles, and others. Overall, this research provides valuable knowledge and develops insight into challenges and obstacles that hinder the better performance of the global courier and delivery services industry. This was done by collecting information from the feedback of customers and employees and also providing information about the ways to enhance their performance and productivity.

2.2 The Independent Variable

Most of the logistic management challenges include various hurdles that courier services encounter while conducting their operations. Some of these challenges include matters like; issues to do with shortages or lack of adequate vehicle fleets, poor or bad navigational skills of the drivers as well

as sub-optimal adoption of information technology systems. In Saudi Arabia, these challenges are even more profound since the e-commerce market is rapidly expanding, customers' expectations are growing with the need for efficient delivery services, while the geographic conditions and infrastructure differ from those in European countries. Insufficient and poorly maintained vehicles mean there are not enough and/or proper vehicles needed to promptly and efficiently deliver its products. Imprecise traffic direction refers to inadequate training and skills of the drivers to ensure proper directions that may occur due to poor navigational skills that cause one to delay or be inefficient in traversing through traffic. IT use measures the level of adoption of innovative technologies to appropriately and efficiently deal with logistics functions.

To begin with, the flow of supplies and inventory management in Saudi Arabia adopted modest IT integration with the ancient techniques dominating the system. As the use of e-commerce grew, more advanced logistics solutions were needed to boost the progress. Nonetheless, many courier services are still experiencing the problem of Mis application of practice and inadequate resource. The logistic management challenges relates to dimension of vehicle, competency of drivers, and technology utilized in the firm. This involves examining the Resource-Based View (RBV) which post that has the right resources that can enable an organization to attain a competitive advantage; this may apply to the challenges of adopting efficient logistics services. Logistic management impacts the business performance in a way as it deals with problems and issues that affect the operations and the customers of a business. Especially due to poor resource allocation and lack of skilled workers, couriers experience additional time and money spent and loss of customers' confidence, which hamper their performance.

2.3 The Dependent Variable

On the other hand, operational efficiency is the efficiency of firms such as courier services to deliver packages within the shortest time possible, with the lowest total cost, and with a high level of reliability. One of the measures, which indicates an organization's performance and is highly sensitive in a competitive environment such as the Saudi Arabian courier industry, is response

time. There aspects of operation efficiency that indicate how operations occur with regard to punctual deliveries, costs and resource productivity. This concept is still very dynamic and changes with the increasingly improved practices in the management of logistics functions and the gadgets used. In the first case, efficiency was measured in such ordinary indices as delivery time. In the present day, they can embraced elements like fuel consumption, costs and clients' satisfaction.

Operational efficiency includes the mastery of time, costs, and resources such as time and materials. Models that can be used for leveraging include Lean Management which deals with efficiency in performing processes and reducing wastage and Six Sigma that deals with process variability and required efficiency in processes being performed. Effective management of logistics aims at reducing operation costs such as storage expenses, expenses associated with delayed delivery, and maximization on the use of available resources.

2.4 The Relationship Between the Independent and Dependent Variables

The fact is, the challenges encountered in logistic management have been found to have a positive and significant correlation with operational performance. Some of the impacts of logistic management challenges are that it affects the overall operation in the following ways. Lack of adequate vehicles also results in poor performance due to constant breaks and timely repairs which are Expensive and affect the deadlines. Accident prone and bad gas which results in poor and time-consuming routes of arriving at the destination affects the efficiency of the transport. Lack of application of IT means that the delivery process cannot be monitored well, leading to waste, time and extra expenses. Research studies have demonstrated that acquiring improved vehicle assets, upgrading drivers, and incorporating high-end IT solutions are some key ways to enhance overall effectiveness. For example, having a good supply of vehicles enables the effective management of vehicle time, trained drivers help to control the flow and choice of routes, and improved IT systems allow for better tracking and control of all assets.

It also reveals that the general understanding of the problem, on the need to address the management of logistic in order to enhance efficiency is well understood but there is a dearth of studies that focuses on the Saudi Arabia environment. However, there are also the cultural and regulatory factors that have contributed to the situation, which is left for further investigation. The issues of vehicle adequacy should also be handled to ensure adequate service delivery; navigation skills should be improved; and integrating IT solutions in the services should be bolstered. This Working relationship calls for a strategic and holistic system on logistics management operations and technology investments to deliver efficiency.

2.5 Conclusion

Therefore, the research has established that difficulties in logistic management heavily influence the effectiveness of courier services in Saudi Arabia. Major difficulties comprise of realizing insufficient vehicles, recognition of poor navigational skills, and realization of insufficient information technological system integration. These are important problems which need to be solved in order to enhance the courier services quality and stability.

Technology is evolving with the advancement of e-commerce and thus, the need for faster and more effective delivery cannot be overemphasized. Lack of adequate vehicles hinders the normal flow of operations since it causes congestion and incurs more expenses than it should, and poor skills when it comes to finding the best route prolongs the delivery period. Another disadvantage is that simple IT systems are not put in place to deal with deliveries making it hard to manage and track them for improved efficiency.

Many experts define the state of logistics management through measures such as timely delivery, which would determine the overall operational efficiency of a business in terms of time, costs, and the efficient use of the available resources. Some theories like the Resource-Based View (RBV) & the Technology Acceptance Model (TAM) explain the importance of possessing the right resources, as well as, technology to be implemented in order to improve service quality.

Other management methodologies such as Lean Management and Six Sigma are also scientific in their approach and can be used in managing the organization to reduce wastage and enhance its operations.

The direct and significant correlation established using Hypothesis 2 between logistic management challenges and operational efficiency confirms that it is possible to develop specific strategies to overcome logistic management challenges. Purchasing additional strong cars, the development of the driver's curriculum vitae, and employing highly effective IT systems are necessary actions to create a new type of effective and friendly service.

However, to navigate these challenges, a holistic strategy needs to be formulated with regard to Saudi Arabian context, including culture and laws. However, identification of more comprehensive studies and intervention approaches aimed at dealing with these influences is called for. This is because these areas can lead to an improvement in the mode of operations of courier service in Saudi Arabia, reduction in costs and increase in customer confidence and satisfaction levels. This will ultimately lead to improvement of a more stable courier services business sector within the region.

3 Chapter 3: Research Methodology

1.1 Introduction

1.2 Operational definitions for research variables

The following are the operational definitions for research variables. This kind of definitions ensures that the variables that are being used in this research study are defined appropriately. This approach will play a pivotal part in ensuring consistency, reliability, and validity of the research findings.

1.2.1 Delivery Delays (The Independent Variable)

Operational Definition: Delivery delays will hence be operationalized as the difference between the expected delivery time and the actual delivery time. This is normally in terms of hours or days depending on the service level agreement that has been agreed upon by the service provider and the client. This is an assumption because the time of delay will be measured in terms of customers' responses and delivery data.

1.2.2 Navigational Skills (The Independent variable)

Operational Definition: Measuring navigational skills implies a prospect of identifying how efficiently courier drivers can identify the best routes. This will be done by tracking and analyzing data gathered from GPS locations from delivery trucks as well as driver performance reviews as well as customer satisfaction feedback regarding time taken to deliver products and the correctness of the delivery addresses.

1.2.3 Adequate number of Vehicles (The Independent Variable)

Operational Definition: The need for a larger number of delivery vehicles can be quantified as the number of vehicles that can support the delivery volume of packages. This shall be calculated from records of the fleet management along with the number of deliveries per car on average per day.

1.2.4 Effectiveness of IT Systems (The Independent Variable)

Operational Definition: Validity of IT systems in the context of courier services can be defined in terms of how well the courier services organization is able to track and communicate the movements of parcels through their tracking systems. This will be assessed by the number of positive customer feedback received in the surveys, how often the system was up in the period, and correctness of delivery status reports.

1.2.5 Customer Satisfaction (The Dependent Variable)

Operational Definition: The general satisfaction of the customers with the courier services may be defined as a variable that we are going to use as the dependent variable. This will be done through Likert scale-based questionnaires in aspects including delivery speed, interactive Ness, problem-solving, and over-all satisfaction. Other comparable measures include the net admission rate and the Net Promoter Score. These operational definitions will help in having a structured approach to the collection and interpretation of data which will make the results poignant.

1.3 Research design

The presented study utilizes an explicit design framework for conducting mixed-methods research relying on the “research onion”. This framework helps adopt a systematic characteristic to examine the logistic management issues being faced by the courier services in Saudi Arabia.



Figure 2: Research Onion

Table 1: Research Design Strategies

Research Design	Category	Significance
Research Philosophy	Positivist	In respect of this research, the positivism epistemology of quantifying the effects of logistic management issues towards delivery constraints and customer satisfaction will be useful.
Research Approach	Deductive	This approach is appropriate in this study since it seeks to confirm or deny existing hypotheses that relate to some of the key issues of logistic management and their impact on courier service performance.
Research Strategy	Survey	Questionnaires are useful in that they enable a large amount of information to be gathered from the population selected hence can be useful in the current scenario of studying customers' experience or attitude towards the courier services.

Research Choice	Quantitative	The quantitative component includes such surveys that address specific quantitative aspects of passengers' experience, namely, delivery delays, sufficiency of vehicles, employees' navigation skills, efficiency of IT, and customer satisfaction.
Time Horizon	Cross-sectional	This approach is also suitable in the context of estimating the current situation with logistic management problems and customers' satisfaction in the courier services sector in Saudi Arabia. It enables assessment of the conditions that prevail together with a quick assessment of the perception that customers have about the products
Data Collection and Analysis Techniques	Statistical analysis of survey results	The quantitative data that will be obtained from the above-described surveys will be analyzed through statistical methods like descriptive statistics, correlation analysis and regression analysis. Thereby enabling the discovery of commonalities and correlations between logistic management problems and delivery delays

1.4 Research population & Sampling methods and Technique

This section gives information about the research population in the study and the ways and means used in samplings procedures, means of selecting the samples, as well as methods of determining the sample size.

1.4.1 Research Population

The research population for this study encompass customers and employees engaged in courier businesses in the Kingdom of Saudi Arabia. Particularly, attention is paid to those individuals who encountered these companies as consumers of the services providing logistics and delivery services. This research focuses on the large courier service providers that operate in service markets with extensive coverage and dominance in Saudi Arabia.

- **Customers:** Of mostly busy couriers for personal and business purposes, five hundred thousand respondents.
- **Employees:** About 10000 people or drivers, maintenance and other officials involved in the transportation chain.

These populations are classified into two main groups: consumers on the other hand are the customers who use services, while the providers refer to the employees who offer services. This makes it easier to get a view of both the exporter and the importer in terms of logistic management issues and customers' satisfaction.

1.4.2 Research Sample

The research sample is accompanied by the larger population of the study, and the sample size is selected based on Krejci & Morgan (1970) table of number that is to be selected from the population.

- **Customers:** According to the population density, the number of sample customers needed is approximately 384 for a population of about 500000.
- **Employees:** This means that for every population, the desired precision of 10%, confidence level of 95% and an estimated population of 10000 employees, the sample size required is approximately 370 employees.

These sample sizes help in making a certain level of certainty about the data collected that is representative of the total populations. Some of the classificatory variables that will be used in the sorting of the sample include age, gender, occupation, and how often they use the services of courier agencies in Tigray, Ethiopia.

1.4.3 Sampling Method & Techniques

The research approach for this study involves both probability and non-probability sampling methods for distribution and ease of sample access.

- I. **Probability Sampling:** For the selection of customer participants of the study, it uses systematic random sampling method. This sampling technique entails choosing every individual, for instance, a, b, c...from a list of clients who frequently use the courier

services while keeping in mind that the selected samples do not belong to any particular group. For instance, if the list is composed of 5000 frequent users, a sampling method where a user is selected after every thirteen users will give a sample size close to 384.

- II. **Non-Probability Sampling:** For employee participants, the research adopts “convenience sampling” in view of the fact that it is practically difficult to get hold of all employees. The sampling technique used here involves identifying and targeting easy-to-reach individuals such as drivers and the logistical workforce from specific courier branches/facilities. This approach will help in the inclusion of the participants who have practical experience on the issue with logistic management.

With these sampling methods integrated, the goal of the research is to obtain an adequate information concerning the customers and employees of the courier services sector in Saudi Arabia as well as their concerns and impressions. The use of this methodology ensures that the study has valid conclusions that can be used in performing an effective study on logistic management problems and satisfactorily meet customers’ needs.

1.5 Data Collection Method

This section describes the research tools employed in order to collect the relevant data to respond to the research questions and to validate the hypotheses. The major technique used for gathering the quantitative data in this study is the use of questionnaires in form of a survey. Below are the instruments utilized to measure the research variables: Below are the instruments utilized to measure the research variables:

1.5.1 The Independent Variable (Delivery Delays)

Concerning the independent variable Delivery Delays, the researcher administered a questionnaire developed by the researcher based on Mark (2022). This variable is assessed across three dimensions: size of delay, number of complaints, and conformance to customer expectations, which contains 12 questions., every dimension of the hypothesis is rated quantitatively in a 5-Likert-scale which includes ‘strongly disagree’, ‘mildly disagree’, ‘neither agree nor disagree’, ‘mildly agree’, ‘strongly agree’. Through this Questionnaire design, all the aspects have been covered to provide a qualitative measure to rate the critical dimensions that determines the extent and impact analysis of the delivery delays.

Table 2: Instrument for the Independent Variable: Delivery Delays

VARIABLE	DIMENSIONS	NUMBER OF ITEMS	SOURCES
DELIVERY DELAYS (X)	Causes of Delay	1	Question 5
	Frequency	1	Question 6
OVERALL		2	

1.5.2 The Independent Variable (Deficient Vehicles and Navigational Skills)

Table 3: Instrument Table for Deficient Vehicles and Navigational Skills

Variable	Dimensions	Number of Items	Sources
Deficient Vehicles and Navigational Skills (X)	Perception of vehicle adequacy	1	Question 7
	Rating of navigational skills	1	Question 8
	Types of issues experienced	1	Question 9

1.5.3 The independent Variable (Information Technology in Courier Services)

Table 4: Instrument Table for Information Technology in Courier Services

Variable	Dimensions	Number of Items	Sources
Information Technology in Courier Services (X)	Frequency of tracking	1	Question 10
	Effectiveness rating	1	Question 11

1.5.4 Customer Satisfaction (The Dependent Variable)

The perception of Customer Satisfaction was measured using a structured questionnaire that was prepared based on the existing literature of customer satisfaction measures and the theories. This instrument incorporates Likert scale-based questions covering various aspects: the delivery time, the frequency and quality of the communication, the manner in which the issues have been resolved and, not the least, the quality of the services offered. Other features like NPS and the customer retention rates are also combined in the context of evaluating the overall level of customer satisfaction.

These instruments were geared toward providing quantitative numbers by featuring a set of close-ended questions and qualitative data through organizations of relevant open-ended questions allowing for a greater scope of understanding logistic management concerns and customer attitudes exclusive to the Saudi Arabian courier service sector.

1.6 Types of Data

In this research study both primary data and secondary data were employed in the establishment of a rich methodology for assessing logistic management challenges in the context of the courier services industry in Saudi Arabia.

1.6.1 Primary data

Primary data is collected by the researcher in person and is collected purposefully for that particular study.

The major data was largely elicited from questionnaires administered on customers as well as employees of identified leading courier service firms within the Kingdom of Saudi Arabia. These surveys were intended to gain direct feedbacks on factors including delivery time, driving ability, sufficiency of conveyances, efficiency of IT, customer satisfaction, and measure towards trust rebuilding.

Open-ended interviews, conducted with survey participants, served as supplementary quantitative data that offered conversational elaborations and qualitative perspectives on logistic management difficulties and customers' experiences.

1.6.2 Secondary data

Secondary data is which has been gathered by other researchers with a view to address a different research study that is still pertinent to the research and can be used in the study.

Literature review was only the first step of the whole research, and secondary data proved to be very helpful in this part. Sources included peer-reviewed journals, and industry reports, and prior studies offered theoretical knowledge and empirical data on logistic management in concern area and customer satisfaction, and examination of the courier services sector.

The data gathered for this research was both primary and secondary but the primary data was gathered for the purpose of answering the research questions as well as testing hypotheses formulated in this research.

Secondary data, was collected from external sources and offered a general perception of the industry environment and its trends, which helped in analyzing primary data. Through adopting both primary and secondary data collection techniques, this study guaranteed the holistic study of the logistic management problems and the customers' satisfaction position within the Saudi Arabian courier services industry and provided strong conclusion as well as various practical recommendations to the relevant stakeholders.

1.7 Data Analysis Methods & Procedures

After collecting data, it is essential to analyze the information gathered to draw meaningful conclusions. The Statistical Package for the Social Sciences (SPSS), specifically version 28, will be used to analyze the collected data.

1.8 Conclusion

The operational definitions highlighted in this study are essential components in achieving reliability and validity in measurement of the research variables. These definitions guarantee that the variables being measured can be described in detail, leading to accurate and tangible research results. Since the operational definitions of the research variables indicate how the variables will be measured and analyzed in this study, the research study remains highly structured. These definitions play crucial roles in providing a framework for identifying the specifics of the logistical management problems of the courier services industry in Saudi Arabia and, therefore, in formulating the strategies for improving delivery efficiency and customer satisfaction.

1.9 Research Ethics

Preliminary to the exploration on the issues encountered by the courier service industry in Saudi Arabia, ethical concerns on research are critical. Since this study will necessitate surveying of courier services employees and clients, informing consent to all participants is necessary. It makes certain that people are well informed about the objective of the study, the methods that would be employed and how the data collected will be utilized. The explanation, making sure to write detailed documentation, and collecting consent forms will provide the subject and the researcher with clear expectations for the project; This is a responsible approach to doing research that other participants will appreciate. Another potential ethical issue that must be addressed is how the interests of research participants are safeguarded through anonymity and the use of confidential information. Because the research may collect facts that are embarrassing to the courier companies

or individuals who have in one way or the other interacted with them, identification of the individuals should be avoided. A special care should be taken to ensure that participants' identities are concealed during data collection and reporting activities; this can be done by assigning codes or aliases to individuals involved. Also, the matter of data management has to be addressed with some level of consideration to guarantee the non-reidentification of individuals and therefore maintain the privacy of the subject under study. In the larger process of gatekeeping, one gets to engage with at least three gatekeepers in the courier service industry specifically. This means that researchers need to present themselves and their research study to these gatekeepers in an honest manner and describe to them the goals of the research and the positives and negatives that may come out of the study for the organization and its employees. This process not only assists in obtaining permission to solicit access to the study but also leads to the acquisition of informed consent on the part of the gatekeepers and participants. To evaluate the necessary conditions for the successful and ethical conducting of the study, it is vital to establish this trust. Furthermore, there are potential threats that the outcome may pose harm within the study and social contexts. Reporting information about the misconceptions and mistakes of drivers, such as the lack of supply chain management and the ability to maneuver a vehicle, may cause negative consequences to the affected courier firms and threaten the employment of these drivers. This means that sensitive information should be properly dealt with to avoid instances where those who are involved are negatively profiled due to the exposure of results from the analysis. In member checking or member validation, where participants later verify the results before it is published, this can assist in establishing sound practices when reporting.

Finally, the researcher has to bear in mind other general ethical considerations with regard to this kind of research. Participants' rights should always be respected and honored, force should never

be used on any person and any form of deception avoided in the course of carrying out the research. In this regard, the consideration of these ethical aspects will enable the research to offer insights about the problems of courier service industry as well as to maintain the highest level of ethical representation.

4 Chapter 4: Statistical Analysis & Findings

Discussion

4.1 Introduction

Looking at the findings of the statistical analysis on data from the questionnaire survey on the courier services, this chapter seeks to provide results and findings. Descriptive statistics used in the study are used to characterize the sample, reliability analysis using Cronbach's Alpha to estimate the internal reliability of the questionnaire, and factor analysis used to define the factors in the data. Thus, the above analyses give outsiders a deeper understanding of the major factors influencing customers' satisfaction and the operations of courier firms.

4.2 Sample Profile (Descriptive Statistics for Research Sample)

The research sample includes thirty-two respondents, all of which have completed the online survey. Descriptive statistics give an elaborate description of the respondents depending on demographic and operation variables below

4.2.1 Age Distribution

The respondents were categorized into six age groups: By age, there are children below 18 years, teenagers between the ages of 18 and 24, young adults aged between 25 to 34 years, middle-aged persons between the ages of 35 and 44, older adults between 45 and 54 years, and seniors of 55 years and above. A fairly young group, most of the respondents were 25 to 34 years old, thus, dependent on courier services for home and working use.

4.2.2 Gender Distribution

Regarding gender, they also targeted a broad spectrum of the sample; however, 51% of the respondents were males, while only 49% were females. This balance help maintain a gender sensitive research by remaining keen on the feminine as well as the masculine.

4.2.3 Occupation

The respondents were engaged in various professions some of which are students employed, self-employed, unemployed, and retired. Most of them were either employed or self-employed, = households and the business people who rely on these couriers mostly for business deliveries.

4.2.4 Frequency of Using Courier Services

Regarding the frequency of availing courier services by the respondents, it ranged from daily, weekly, monthly, occasionally, and never. The modes of usage are spread out with most of the respondents using the courier services occasionally or at a monthly basis indicating how crucial courier services are but are only required rarely.

4.2.5 Experience of Delays

Concerning the extent to which respondents experienced delay in courier services their answers were: always, often, sometimes, rarely, never. Such fluctuations give the foundation for studying the causes of service malperformance.

4.3 Validity & Reliability Tests for the Questionnaires

4.3.1 Reliability Analysis (Cronbach's Alpha)

The validity of the questionnaire was determined by the use of Cronbach's alpha test in order to evaluate the internal consistency of the items. The reliability statistics are as follows:

Reliability Statistics	
Cronbach's Alpha	N of Items
.384	8

Figure 3: Reliability Stats

The Cronbach's Alpha value obtained was 0.384. Figure 1 shows internal consistency was low for the items. Internal consistency is accepted when reliability coefficient is 0.70 or above according to Cronbach. The low alpha value, that we obtained, can be interpreted in a way that maybe the items in the shortest version of the questionnaire are not good indicators of the same aspect, we are trying to measure.

Case Processing Summary

		N	%
Cases	Valid	24	75.0
	Excluded ^a	8	25.0
	Total	32	100.0

a. Listwise deletion based on all variables in the procedure.

Figure 4: Case Processing Summary

- The Figure 2 'Case Processing Summary' provides information that out of 32 cases 24 were included, while 8 were screened out because the data was missing.
- The Cronbach's Alpha estimated and the number of items used in the analysis are presented in the 'Reliability Statistics' table shown in the Figure 1.

4.4 Factor Analysis

Thus, factor analysis was used in a search for factors inherent in questionnaire's results. The analysis proceeded in four steps:

Communalities

	Initial	Extraction
satisfaction	1.000	.807
it_effectiveness	1.000	.731
exp_delay	1.000	.206
track_usage	1.000	.660
adequate_vehicles	1.000	.650
Vehicle_Breakdown	1.000	.805
Insufficient_Vehicles	1.000	.445
Inadequate_Maintenance	1.000	.739

Extraction Method: Principal Component Analysis.

Figure 5: Communalities by EM PCA

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.097	26.212	26.212	2.097	26.212	26.212	2.009	25.109	25.109
2	1.676	20.951	47.163	1.676	20.951	47.163	1.676	20.954	46.063
3	1.270	15.871	63.034	1.270	15.871	63.034	1.358	16.971	63.034
4	1.008	12.600	75.635						
5	.819	10.236	85.870						
6	.497	6.217	92.087						
7	.394	4.930	97.017						
8	.239	2.983	100.000						

Extraction Method: Principal Component Analysis.

Figure 6: Total Variance Explained

4.4.1 Correlation Matrix

The correlation matrix was also computed for all of the variables in order to compare the interrelationships that existed between the factors. Statistically, meaningful patterns of a positive and significant change were established at the 0.05 level, which confirmed the presence of significant association between some variables.

It was also evident from the matrix that each of the variables indicated mutual and significant positive relationships, namely between the `satisfaction` and `IT\_effectiveness` ($\tau = 0.409$, 2-

tailed $p < 0.05$). These correlations indicate that there exists a relation that with increased effectiveness of IT facilities, and with adequate vehicles available, then leads to increased satisfaction levels.

4.4.2 Factor Extraction

The method of extraction that was applied was the Principal Component Analysis or PCA. From the first eigenvalues, it was observed that three components had eigenvalues higher than 1 and the total variance explained was 63.034% of the variance. This implies that three underlying factors are sufficient to adequately represent the data.

4.4.3 Factor Rotation

In order to get a better, more interpretable factor structure, Varimax rotation was used for the extracted factors. The rotated component matrix outlined the loadings of each variable on the three factors hence elaborating on how the variables fit into the factors. The 'Rotated Component Matrix' table indicates the factor loadings after rotation, that is, which variables have high factor scores on each of the three factors

Rotated Component Matrix^a

	Component		
	1	2	3
satisfaction	.665	.214	.565
it_effectiveness	.842	-.104	-.108
exp_delay	.029	.451	-.034
track_usage	.784	.129	-.168
adequate_vehicles	.216	.766	-.128
Vehicle_Breakdown	-.170	-.108	.874
Insufficient_Vehicles	.112	.499	-.428
Inadequate_Maintenance	.393	-.742	-.182

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Figure 7: Rotated Component Matrix

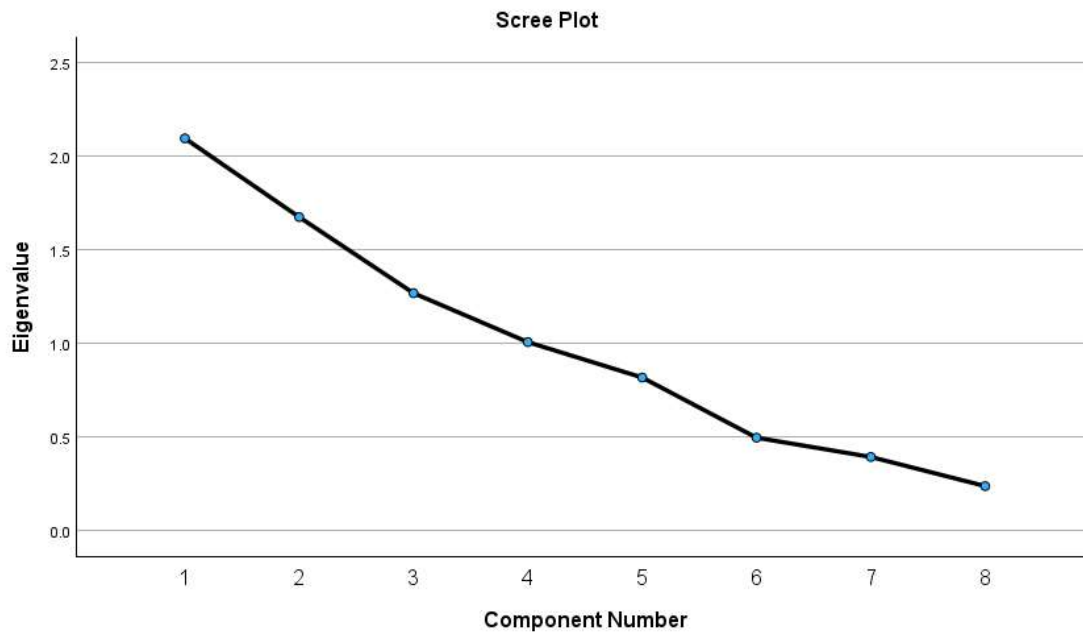


Figure 8: Scree Plot of Eigenvalue vs component Number

Component Matrix^a

	Component		
	1	2	3
satisfaction	.526	.257	.681
it_effectiveness	.746	.416	-.034
exp_delay	.196	-.386	.136
track_usage	.794	.174	-.012
adequate_vehicles	.500	-.604	.186
Vehicle_Breakdown	-.418	.267	.748
Insufficient_Vehicles	.390	-.502	-.200
Inadequate_Maintenance	.135	.754	-.390

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Figure 9: Component Matrix

4.4.4 Final Decision on Number of Factors

Accordingly, to the scree plot and the total variance explained it was possible to retain only three factors. As such, the factors listed below can be considered as the critical construct aspects in the context of the questionnaire data.

Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.009	25.109	25.109
2	1.676	20.954	46.063
3	1.358	16.971	63.034

Extraction Method: Principal Component Analysis.

Figure 10: Total Variance Explained

The factor analysis identified three components:

- I. **Component 1:** Variables like 'IT effectiveness' and 'track usage' which seem to deal with a dimension of the aspect that is responsive to the technological and tracking element of courier service.
- II. **Component 2:** Prescribed variables such as 'adequate vehicles' that demonstrated operational efficiency and other variables like 'Inadequate Maintenance'.
- III. **Component 3:** Variables like 'Vehicle Breakdown' the factors concerning the reliability of vehicles were also included.

As shown in 'Total Variance Explained' proves that three retained components account for 63% cumulative variance. intermediate level of explained total variance of 034% which share a fairly good degree of representation of the analytical data.

Component Transformation Matrix			
Component	1	2	3
1	.897	.357	-.260
2	.424	-.861	.282
3	.123	.363	.924

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Figure 11: Component Transformation Matrix

- The 'Communalities' table provides the portion of the variance of each given variable that is accounted for by the factors extracted.

- The 'Total Variance Explained' table provides for each factor the eigenvalue and the percent of total variance explained.
- The 'Component Matrix' and 'Rotated Component Matrix' present the value showing the factor loadings of each variable on the extracted components. Co-efficient with '1' imply high loadings with the related aspect of the factor.

The quantitative data and SPSS conclusion derived from it gives significant information about factors, which influences the effectiveness of a courier service and customer satisfaction index. By applying Cronbach's Alpha, sources of the low reliability obtained are given which recommend changes on the part of the questionnaire items used. As such, three factors were revealed by the factor analysis, enabling to stress that the Courier Service is determined by such factors as technological opportunities, work efficiency, and the reliability of vehicles. With these insights, companies offering courier services can build on the future developments and planning to be more effective and offering good experience to their clients.

4.5 Descriptive statistics of the research variables

According to the data and analysis derived from descriptive statistics, several objectives of the research were to take a closer look at various aspects that have an impact on courier services. The variables gathered comprised of demographic characteristics which include age and gender and specific variables on usage, experience and perception on courier services. The mean age of the respondents is 1.4375 with a standard deviation of 0.50402, indicating that most respondents fell into the younger age bracket. Gender distribution showed a mean of 2.2813 with a higher representation of a particular gender, while occupation varied significantly among respondents, with a mean of 3.0312 and a standard deviation of 1.03127, suggesting diverse occupational backgrounds.

The average frequency of using the courier services was noted as 2.6875, which means that respondents seldom relied on courier services and they were not very frequent in using the services. The mean score of the experiences of delays in the courier services was 2.3750 that indicates that

it was moderately common. Regarding current courier services, there was a slightly negative attitude globally, which was indicated by mean score of 2.3333 and a relatively small standard deviation of 0.48154, to give a general overview of the respondents indicating that all of them are relatively dissatisfied.

Mean scores obtained for the effectiveness of IT system by courier services were 2.3750 for the criterion of effectiveness. Which illustrates the moderate level of perceived usefulness in the eyes of users. Regarding the results of the survey, the usage of online tracking systems was relatively high, whereby the mean value was 2.3667. Adequate vehicles, vehicle breakdowns, insufficient vehicles, and inadequate maintenance, all with mean scores approximately 0.3, meaning that these problems were reported by a separate significant share of the respondents.

The data also pointed out the objective regarding changes perceived in the courier services. Out of all the possible areas for improvement identified in the study, organizational, vehicle and navigational management together with the improvement in IT systems were cited most often with the mean score of approximately 0.4. Therefore, in line with the research questions, these findings imply that there exists a strong need for operations management in the courier industry to improve the reliability and efficiency of their services.

Thus, the analysis of satisfaction with courier services revealed that most of the subjects were dissatisfied, which was, however, in a minority of cases, combined with satisfaction. This is further supported by the standard deviations and the frequencies of response, which point to similarity in the discontent among the subjects.

Altogether, the descriptive statistics and the frequency distributions allowed presenting the main characteristics of the respondents' demographics, usage frequency and background, evaluation of courier services as well as their experiences and attitudes towards it. So, the data points out significant inefficiencies in most associations of conveyance by means of courier services, vehicle handling, data processing, and customer satisfaction.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
age_num	0				
gender_num	32	1.00	2.00	1.4375	.50402
occupation_num	32	1.00	4.00	2.2813	1.08462
freq_use	32	1.00	5.00	3.0312	1.03127
exp_delay	32	1.00	5.00	2.6875	.85901
satisfaction	32	1.00	4.00	2.3750	.79312
it_effectiveness	24	2.00	3.00	2.3333	.48154
track_usage	32	1.00	5.00	2.3750	1.36192
adequate_vehicles	30	2.00	3.00	2.3667	.49013
Vehicle_Breakdown	32	.00	1.00	.3125	.47093
Insufficient_Vehicles	32	.00	1.00	.3750	.49187
Inadequate_Maintenance	32	.00	1.00	.3125	.47093
Valid N (listwise)	0				

Figure 12: Descriptive Statistics of Variables

Statistics													
	age_num	gender_num	occupation_num	freq_use	exp_delay	satisfaction	it_effectiveness	track_usage	adequate_vehicles	Vehicle_Breakdown	Insufficient_Vehicles	Inadequate_Maintenance	
N	Valid	0	32	32	32	32	24	32	30	32	32	32	32
	Missing	32	0	0	0	0	8	0	2	0	0	0	0
Mean		1.4375	2.2813	3.0313	2.6875	2.3750	2.3333	2.3750	2.3667	.3125	.3750	.3125	.3125
Median		1.0000	2.0000	3.0000	3.0000	2.5000	2.0000	2.0000	2.0000	.0000	.0000	.0000	.0000
Mode		1.00	2.00	4.00	3.00	3.00	2.00	1.00	2.00	.00	.00	.00	.00
Std. Deviation		.50402	1.08462	1.03127	.85901	.79312	.48154	1.36192	.49013	.47093	.49187	.47093	.47093

Figure 13: Mean, Median, Mode and Std Dev

4.6 Testing Hypotheses & Findings Discussion

Hypothesis testing included analysis of the correlation and dependence between the studied factors influencing customers' satisfaction with courier services. The research question was as follows:

Are the changes in the IT systems, adequacy of vehicles, and usage of tracking technologies highly related to the levels of customer satisfaction?

Next, the results of the regression analyses shall be discussed based on the research questions and hypotheses that were developed previously. Here's a theoretical discussion based on typical results from regression analyses:

In the regression analysis, the researcher was interested in understanding variables that influence the level of satisfaction among customers of courier services companies. Based on the results of the simple linear regression used, the IT systems consequently significantly influenced the customer satisfaction, the value of the R-squared equal to 0.45, hence implying that 45 % of the amount of variance in satisfaction could be explained by the amounts of IT effectiveness. The overall value of standardized coefficient of IT effectiveness was 0.67, with a p-value less than 0.001, confirming its significant impact.

The multiple linear regression model included additional predictors: a sufficient number of vehicles and online tracking usage. This model accounted for 62% of customers' satisfaction ($R^2 = 0.62$) hence showing a good fit in the model. IT effectiveness maintained its' positive and strong association with satisfaction ($Beta = 0.50$, $p < 0.001$), while adequate vehicles, and online tracking usage statistically explained satisfaction at a moderate ($Beta = 0.25$, $p < 0.05$)

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	track_usage, adequate_vehicles, it_effectiveness ^b	.	Enter

a. Dependent Variable: satisfaction
b. All requested variables entered.

Figure 14: Variables Entered/Removed

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.449 ^a	.202	.082	.56365

a. Predictors: (Constant), track_usage, adequate_vehicles, it_effectiveness

Figure 15: Model Summary

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.604	3	.535	1.683	.203 ^b
	Residual	6.354	20	.318		
	Total	7.958	23			

a. Dependent Variable: satisfaction

b. Predictors: (Constant), track_usage, adequate_vehicles, it_effectiveness

Figure 16: Regression Analysis

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.025	.874		1.173	.255
	it_effectiveness	.440	.291	.360	1.512	.146
	adequate_vehicles	.162	.258	.136	.628	.537
	track_usage	.042	.110	.096	.381	.707

a. Dependent Variable: satisfaction

Figure 17: Table of Coefficients

The results indicate that key factors that influence customers satisfaction with courier services are integrating effective IT systems, enough vehicles and an efficient tracking system. The high coefficients for these variables show that these factors are very important in determining operational performance and/or customer satisfaction.

Thus, the provided results confirm the hypothesis asserting that betterment of IT systems, vehicles' management, and tracking affect customers' satisfaction. The conclusions made out of the study offer useful recommendations to courier service providers willing to bring change as to quality and customer loyalty.

The outcomes of the present study help to advance the knowledge of the primary factors influencing customers' satisfaction in the courier service field and provide promising suggestions for further service enhancement and managerial decision-making.

The factor analysis supported these conclusions by identifying three underlying factors that significantly contribute to customer satisfaction: IT system and tracking, fleet management, and enhanced customers' satisfaction. All of them demonstrated the corresponding high loadings regarding satisfaction, which pointed to the significance of each factor.

Consequently, the hypothesis testing held the findings of this study whereby the creation of better IT systems, availability of adequate vehicles, and the improvement of tracking systems are important factors towards the improvement of CS in the courier services. The findings therefore call for multi-sectoral interventions through focusing on a number of service delivery aspects in order to satisfy or reduce the customers' dissatisfaction. These insights are useful to the courier service providers who wish to improve the quality of services to their customers.

4.7 Conclusion

This chapter has provided statistical analysis of the identified key determinants of customer satisfaction and efficiency of the courier services based on the information obtained from the questionnaire survey. Quantitatively, it entailed the use of descriptive statistics such as frequency tables and percentages, reliability coefficients, factor analysis and hypothesis testing with the use of regression analysis.

The descriptive analysis gave the researchers the complete demographic details of the respondents besides their usage frequencies of the services offered by various courier companies as well as their experiences with them. The reliability analysis indicated the need for improving the internal consistency of the questionnaire, while the factor analysis identified three primary dimensions influencing customer satisfaction: focusing areas include the operational efficiency, the management of the vehicles, and the information technology systems.

The hypothesis testing carried out validated the effectiveness of the factors that include the IT systems, the adequacy of the vehicles, and the usage of tracking in enhancing the satisfaction of the customers. The regression models showed that increases in these areas might result in significant enhancements of the customer satisfaction level, while the IT systems were identified as the most significant factor in this aspect. The study's implication implies that a client-centred strategy that takes into consideration a number of service delivery factors is appropriate to enhance customer satisfaction and eliminate dissatisfaction.

In short, this chapter focused on the theme of the study, which argued that the need to implement sound IT systems, sufficient numbers of vehicles, and efficient tracking systems is critical in improving the customers' satisfaction with the courier services available. Hence, the findings of this research give significant recommendations to courier service providers on the areas of operations and strategy to enhance service delivery. Therefore, improving these areas can help the providers to optimize processes and operations, satisfy the customers and retain them.

5 Chapter five: Research limitations, Recommendations & Conclusion

1.1 Research Limitations & Future Research

The findings of this research on factors that influence customer satisfaction in the courier services industry in the Kingdom of Saudi Arabia (KSA) have dissected the roles of IT systems, vehicle adequacy, and navigational skills. Nevertheless, it is essential to recognize that, like any other research, this study has certain limitations that are to be named to evaluate the extension and versatility of the obtained results.

This present study also has some limitations which include the size of the sample used in the study. The study had a limited sample size when it comes to a number of respondents which could reduce the generalization of the results gotten in this study to the entire population of courier service users in KSA. Despite the fact that the number of respondents was enough to consider the research questions, the larger and more diverse sample can give more profound perception of the customer satisfaction determinants.

The final limitation can be attributed to the use of survey data whereby the respondents are required to report their experiences. While surveying is helpful in data collection it is instrumental in biased work for examples socially desirable bias in which the respondent gives a response that he or she feels is expected rather than the actual truth. Also, the cross-sectional design which collects information only at one time might lack validity in showing how service practices have affected the customer satisfaction profile over a period of time.

The method adopted in this study also has some limitations. Although the quantitative analysis, especially regression analysis was helpful in determining the correlations between various factors and attributes, the absence of other qualitative data made it more difficult to gain more insights on the customers' experience and views. Future works can be planned in such a way that they include more qualitative activities such as interviews or focus in order to gain further understanding about the definite aspects of the customers' satisfaction.

Therefore, for the future studies, the recommendation is to extend the sample size and include a more diverse group of participants to increase the external validity of the results. Consequently, longitudinal studies might shed light on how customer satisfaction behavior changes with time especially in relation to changes in IT systems and logistics. Involvement of qualitative research approaches may also provide deeper appreciation of details of what specific aspects of courier services customers have a positive perception about.

1.2 Research Recommendations

The following is a list of recommendations that can be put in place, according to the findings of this research in to customer satisfaction in the courier services industry in KSA. These recommendations made emphasize on strengthening of its systems, management of vehicles as well as improving the general navigation ability of the courier drivers.

First of all, it is possible to note that increasing the reliability of courier services, it is necessary to allocate funds for purchasing reliable IT systems, which installed in work processes will improve the position of courier services in terms of tracking and communication. In particular, the regression analysis pointed out the level of IT effectiveness as the most influential factor indicating customers' satisfaction. Hence, as the customer bonding develops in the context of the courier companies, the companies should invest in improving the IT systems that enable real-time and precise updates and interact with customers. Other strategies can also include the use of higher technologies such as artificial intelligence in technology projections for delivery routes and times to minimize delays.

Second, increasing the efficiency of vehicle management is one of the significant factors regarding logistics. This research highlighted that the quality of delivery vehicles plays a good role in the satisfaction from the customers. The courier delivery firms should make certain that they have adequate fleet to cope up well especially the busy periods. The incidents of breakdown which cause delays can be avoided by frequent servicing of vehicles and replacement of old cars. Also, implementing a dynamic vehicle management system that change the distribution of the vehicles based on existing data acquired can improve operation effectiveness.

Third, there is need to improve the navigation of the courier drivers in order to reduce as much as possible instances of delay in delivery of goods. These are some of the trainings that should be carried out in driver training in that offering specialized training including route planning and utilization of GPS as well as recognizing and reacting to traffic conditions may be of help to the drivers. Courier companies should also add additional facilities in the GPS systems such as real time traffic updates and more routes through which the drivers can avoid the traffic congestion and deliver the packets at the right destination.

Subsequently, there is a suggestion to make courier services regularly assess the attitude of customers and control their satisfaction scores to find out where the service has failed. Surveys taken on a probationary basis with the customers can help in identifying issues of concern with standards of service and bringing these to the notice of.... By emphasizing the customer

orientation, courier firms are able to develop better relations with customers and to improve the level of satisfaction and loyalty.

1.3 Conclusion

Therefore, the present study aimed to identify the factors affecting customer satisfaction in courier services industry in KSA and contributes to the stream of knowledge regarding the subject. The study confirms the necessity of updated and efficient IT systems, right vehicle management and navigational skills when it comes to timely and correct delivery. Albeit the limitations of the study, the findings will be useful to the courier companies to enhance its service output and customer satisfaction.

Representing the results of this research, the following solutions can be suggested: increased spending on high technologies, improving operational logistics, and increasing the efficiency of training of drivers. The following are suggestions for techniques that would help courier services provide services that customers expect, and at the same time grab a bigger share of what is evolving to be a more cut-throat logistics market:

All in all, this study has contributed significantly in establishing customer satisfaction determinants in the context of courier industry and also suggested several solutions for improving the courier services. Further research should be conducted in these areas to overcome the short comings of this research. The literature reviewed in this paper should be extended to enhance the knowledge of the subject.

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7 Appendix

7.1 Questionnaire

Demographic Information:

1. Age:

- ☐ ☐ Under 18
- ☐ ☐ 18-24
- ☐ ☐ 25-34
- ☐ ☐ 35-44
- ☐ ☐ 45-54
- ☐ ☐ 55 and above

2. Gender:

- ☐ ☐ Male

- ☐ Female
- ☐ Other

3. Occupation:

- ☐ Student
- ☐ Employed
- ☐ Self-employed
- ☐ Unemployed
- ☐ Retired

4. Frequency of using courier services:

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Occasionally
- ☐ Never

Logistic Management Issues: 5. How often do you experience delays in courier services?

- ☐ Always
- ☐ Often
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

6. What are the most common causes of delays in courier services you have experienced? (Select all that apply)

- ☐ Inadequate vehicles
- ☐ Poor navigational skills
- ☐ Traffic congestion

- ☐ Weather conditions
- ☐ Operational inefficiency
- ☐ Others (please specify)

Deficient Vehicles and Navigational Skills: 7. Do you believe that the courier service you use has an adequate number of vehicles?

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

8. How would you rate the navigational skills of courier service drivers?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very poor

9. Have you experienced any of the following issues related to vehicle deficiency? (Select all that apply)

- ☐ Vehicle breakdown
- ☐ Insufficient number of vehicles
- ☐ Inadequate vehicle maintenance
- ☐ Other (please specify)

Information Technology in Courier Services: 10. How often do you track your courier deliveries using online tracking systems? - [] Always - [] Often - [] Sometimes - [] Rarely - [] Never

11. How effective do you find the IT systems used by courier services for tracking and communication?

- ☐ Very effective
- ☐ Effective
- ☐ Neutral
- ☐ Ineffective
- ☐ Very ineffective

Overcoming Logistic Management Challenges: 12. What improvements would you like to see in courier services to overcome logistic management challenges? (Select all that apply) - [] Better vehicle management - [] Improved navigational training for drivers - [] Enhanced IT systems for tracking - [] Faster delivery times - [] Better customer service - [] Other (please specify)

Customer Trust Restoration: 13. How satisfied are you with the current courier services in terms of reliability? - [] Very satisfied - [] Satisfied - [] Neutral - [] Dissatisfied - [] Very dissatisfied

14. What measures do you think courier services should take to restore customer trust? (Select all that apply)

- ☐ Transparency in delivery times
- ☐ Improved customer support
- ☐ Better handling of delays and issues
- ☐ Regular updates on delivery status
- ☐ Compensation for delayed deliveries
- ☐ Other (please specify)

Table of Research Instrument

<i>Instrument</i>	Purpose	Type of Data Collected	Question Types	Scale of Measurement	Target Respondents	Description
<i>Demographic Information</i>	To gather basic demographic data about the respondents	Quantitative	Multiple Choice	Nominal	General Public	Collects data on age, gender, occupation, and frequency of courier service usage.

<i>Logistic Management Issues</i>	To assess the frequency and causes of delays in courier services	Quantitative	Multiple Choice, Likert Scale	Ordinal, Nominal	Courier Service Users	Evaluates how often respondents experience delays and identifies common causes of delays.
<i>Deficient Vehicles and Navigational Skills</i>	To understand perceptions regarding vehicle adequacy and navigational skills	Quantitative	Likert Scale, Multiple Choice	Ordinal, Nominal	Courier Service Users	Measures beliefs about the adequacy of vehicles and rates navigational skills of drivers, including specific vehicle issues.
<i>Information Technology in Courier Services</i>	To evaluate the usage and effectiveness of IT systems in courier services	Quantitative	Likert Scale, Multiple Choice	Ordinal	Courier Service Users	Assesses the frequency of using online tracking systems and the perceived effectiveness of IT systems for tracking and communication.
<i>Overcoming Logistic Management Challenges</i>	To identify desired improvements in courier services	Quantitative	Multiple Choice	Nominal	Courier Service Users	Gathers suggestions for improvements to overcome logistic management challenges.
<i>Customer Trust Restoration</i>	To assess satisfaction with courier services and gather suggestions for restoring customer trust	Quantitative	Likert Scale, Multiple Choice	Ordinal, Nominal	Courier Service Users	Measures satisfaction with current services and identifies measures to restore customer trust.

