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ANALYSIS OF INVENTORY MANAGEMENT PRACTICES AND THEIR IMPACT ON OPERATIONAL EFFIENCY:

A CASE STUDY OF TECH ROVER PVT. LTD.

By

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ATTESTATION OF AUTHORSHIP

We have created the Final Year Project Titles “Analysis of Inventory Management Practices and Their Impact on Operational Efficiency: Case Study of Tech Rover Pvt. from scratch and under the supervision of our mentor. We have not submitted this project in its entirety or in parts to any other university or institution of higher learning for any degree or other type of qualification. Within the limits and according to the academic requirements, we have cited and referenced any other of our information and materials which we used in this project. We also wish to confirm that there not be any existing and published or unpublished work except where this project has been referenced and from which this project has drawn inspiration.

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EXECUTIVE SUMMARY

This research project discusses the relationship between inventory management practices and operational performance at Tech Rover Pvt. Ltd., an Islamabad-based communication-equipment supplier. Products: The company provides the most comprehensive range of products, such as walkie-talkies, repeaters, CCTV systems, industrial communication kits (like intercoms, call stations, emergency telephone systems, etc.), scanners, alarm systems, mobile jamers, and solar equipment. As part of various sectors security, education, mining, government departments, and sugar mills, as well as maritime, among others—the company needs a trusted and powerful inventory method.

The study employs a mixed-method research design, which involves the use of quantitative surveys among the customers and qualitative interviews as well as a visit to the warehouse. The analysis of data indicates that at Tech Rover, the inventory accuracy is about 65, which results in frequent stockouts (5-6 times a month), slow forecasting process, and delays due to the lead times on supplies and customs. In spite of this, the customer satisfaction is high on the quality of products and after sales.

The project is aimed at targeting some of the few weaknesses of operations that include the paper recording and ordering system, semi-organized storage in the storeroom, online order problems with Gaines soft and excessive reliance on LGRS communication. It proposes embracing an electronic inventory management system, superior forecasting instruments, arranged warehouse enhancement, and supplier planning that is corrected of bugs. The new improvements will also contribute to a reduction in stockouts, cash flow optimization, increase in customer satisfaction rates, and operation predictability.

When put into practice, these recommendations will provide Tech Rover with a better opportunity to achieve its strategic goals to be the biggest provider of communication equipments in Pakistan and the exclusive dealer of the products of leading international brands.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Out of all the segments of a business, Supply Chain Management (SCM) is arguably the most critical in shipping-dependent industries. In the electronic communication equipment sector, even the most minor delays in reordering stock can affect sales, customer satisfaction, and operations at large. In addition, sales, dissatisfaction, and operational shortcomings can result from inconsistency in inventory records or mismatching of records.

Tech Rover Pvt. Ltd., established in 2021 and operating from Khudadad Heights, E-11 Islamabad, is a growing supplier of wireless communication and security equipment in Pakistan. The company imports a wide portfolio of products, including wireless walkie-talkies, two-way radios, repeaters, chargers, antennas, industrial communication kits, walk-through gates, handheld scanners, body cameras, CCTV systems, barricades, alarm systems, jammers, solar lights, solar panels, and accessories for each product category.

Tech Rover functions as an importer, distributor, and reseller, serving a diverse customer base that includes security firms, event organizers, schools, construction companies, warehouses, businesses requiring surveillance equipment, and individual consumers. Since the product line is wide and most items are imported from China and local suppliers, inventory management becomes central to the company's operations.

Despite having strong sales performance—averaging 5 to 10 lakh PKR per month. Tech Rover's inventory practices are still mostly manual, dependent on the inventory handler's physical checks and Excel sheets. In contrast to other companies in the electronics industry, the practices Tech Rover employs to debug and mitigate operational issues in the company should be assessed in order to understand how the company manages their inventory and how these practices influence the company in all other aspects.

This study therefore investigates the inventory management practices of Tech Rover Pvt. Ltd., identifies the key issues in its supply chain, and proposes improvements that can help increase operational efficiency, reduce costs, and support the company's long-term vision.

1.2 Background of the Company

Tech Rover Pvt Ltd started its enterprise in the year 2021 with a vision to become a trusted supplier of wireless communication and security equipment in Pakistan. As the years progressed, the company grew its services and catered to over 15 different product categories, including walkie-talkies and accessories.

- Walkie-talkies & accessories
- Repeaters
- CCTV cameras
- Body cameras
- Handheld scanners
- Walk-through gates
- Barricades
- Fire & theft alarm systems
- Industrial communication kits
- Jammers
- Chargers & batteries
- Solar panels & solar lights
- Earpieces & antennas

The company has 2000 sq. ft. warehouse in Islamabad, which contains the greater part of the inventory storage, inspection, and dispatching operations. Tech Rover is currently staffed with 8 employees, 1 accountant, 3 salespersons, 2 marketing professionals, 1 Human Resources representative and 1 specialized aide, which is an inventory specialist in charge of receiving, recording and issuing of inventory.

Tech Rover orders its key product lines after every six months with major products being walkie-talkies, CCTV systems, industrial communication kits and walk-through gates. The company has two local Pakistani suppliers Ibrar Khan and Khyal Khan and a Chinese supplier Li Rong. The lead time of China in procurement takes approximately 20 to 25 days, depending on the customs clearance, weather that would be in China, and road conditions because the road within China to Pakistan can be accessed via Gilgit where the road is often closed. The most

popular products of Tech Rover are the Baofeng UV-82, Baofeng 888s and ZKTeco 4-zone walk-through gate, and they make a massive contribution to the monthly sales of Tech Rover. Due to the high turnover of these items it is significant to manage the inventory properly to avoid the cases of out of stock and losing the sales.

1.3 Problem Statement

Tech Rover has been expanding over the years, but still, the company uses its manual inventory tracking system, which causes certain problems in its operations. Physical checks and Excel sheets are used in keeping stock records, which leads to 6070 per cent accuracy in stock. The employees are forced to check stock before orders are automatically confirmed by the stock as there is an automated tool to confirm stock availability, and it is usually mistaken. This causes customer satisfaction and speed of service to go down.

Tech Rover also has monthly stockouts particularly on walkie-talkie models and accessories that are on high demand. Because the process of procurement is conducted twice a year and the lead time in China may take 20-25 days, a minor mistake leads to inefficiency in the order delivery.

Overstocking happens from time to time and is particularly prevalent for expected demand variables like jammers, alarm systems, and body cameras. Overstocked items result in elevated carrying costs of stagnant inventory and cash flow becoming hostage to stock. External elements also play a role in Tech Rover's supply chain, such as customs embargoes and recurrent road closures in Gilgit, which impede the movement of boxes from China. Such factors introduce the prospect of stock-outs and delay the ability to satisfy demand from customers. The combination of these elements must affect the operational efficiency of the company and its possibility to expand. Tech Rover must analyze its inventory systems to properly find the inefficiencies.

1.4 Purpose of this study

The purpose of this study is to evaluate the management of inventory and practices, also to measure how they affect its operational efficiency, identify the weakness in existing processes, and recommend ways to improve inventory control, procurement planning, and its warehouse

operations. This study aims to support the company in becoming more structured and achieving its full potential.

1.5 Project Objectives

General Objective

Since you are analyzing the effects and influence that inventory management practices and systems have on the operational efficiency of Tech Rover Pvt. Ltd.

Specific Objectives

- To find out how Tech Rover handles and administers its inventory across different products.
- To determine the main areas of concern and bottlenecks within the procurement, warehousing, and inventory control.
- To assess the extent to which the accuracy of inventory data affects the processing of orders and the level of customer satisfaction.
- To assess how the supplier lead times and customs delays that are out of Tech Rover's control influence the level of inventory on hand.
- To develop a more comprehensive inventory management model that will suit Tech Rover’s size and capability.
- To implement a more digitally focused inventory management model that will enable better and more efficient practices and outcomes.

1.6 Research Questions

- How does Tech Rover keep track of its inventory levels?
- What complications stem from lack of automated inventory management?
- How do stockouts, overstocking, and delays in the order fulfillment cycle influence productivity?
- How do supplier/customer behaviors and demands dictate inventory levels?
- What measures should be taken to achieve better inventory management?

1.7 Project Rationale / Justification

Tech Rover functions in a rapidly growing sector that specializes in wireless communication and security systems. With quick delivery times and availability becoming crucial, better inventory management is needed to keep a competitive edge. Further, the research is justified due to:

- Lost sales from stockouts result in customers turning to competitors.
- Procurement processes are very unpredictable and caused by customs and road closures.
- Manual inventory systems are flawed, and they create bottlenecks in the warehouse.
- Forecasting that is not accurate results in excess accumulation or depletion.

The company's long-term goals of becoming Pakistan's certified dealer in Baofeng, Garrett, and Motorola are made possible with better inventory management.

The company will save costs and enhance operational flexibility while gaining better control of their inventory and reputation in the market.

1.8 Scope of the Study

The case study under consideration is of the inventory management of Tech Rover Pvt. Ltd. which is a communication equipment company based in E-11 Khudadad Heights, Islamabad and has an active warehouse where stock is stored, sorted and loaded out. The study encompasses the whole chain of supply involved in the management of inventory in the case of walkie-talkies and communication products.

The study area will involve a detailed study of the following areas:

Internal Operations at Tech Rover

- Inventory control processes, such as handling of stocks, stock holding techniques, re-ordering and stock audit practices.
- The way the past sales are used in forecasting the future inventory especially in terms of demand.
- Order processing and delivery, which includes the schedule between taking of orders and delivery of products.

- The procurement operations, which are the importation of walkie-talkies and accessories by suppliers in China.
- Layout designs and picking processes as well as dispatching systems are included in the warehousing operations.
- Procurement actions involve the bringing in of walkie-talkies and other accessories by the Chinese suppliers.

Supplier-Side Analysis

- Lead times of Chinese suppliers
- Reliability and communication challenges
- Import delays, customs procedures, and shipment variability
- Supplier performance evaluation (quality, delivery speed, responsiveness)

Customer-Side Analysis

- Feedback on product availability
- Impact of stockouts on customer satisfaction
- Repeat purchase behavior
- Customer expectations regarding delivery timelines

Market & Competitor Comparison

Since Tech Rover operates in a competitive electronics market, the study also includes:

- Comparison of Tech Rover's inventory system with similar retailers/distributors
- Benchmarking operational efficiency against local competitors

Geographical Scope

- Islamabad-based warehouse operations
- Domestic customer base across Pakistan
- International procurement from China

Technology Scope

- Use of manual and Excel-based systems
- Evaluation of the feasibility of introducing inventory management software

- Proposal for digital transformation in inventory tracking

1.9 Limitations of the Study

Irrespective of being exhaustive, this research has some limitations:

1. Relying on the Manual Records.

Tech Rover has largely manual records of inventory, with simple Excel sheets. Manual systems are usually not accurate, consistent or real time, and may result in slight variances in interpretation of data.

2. Little Digital Historical Data.

The past records are not entirely digitized even in the situations when they are accessible. The manually typed-in entries can have mistakes, or they do not have very specific timestamps, which will impact the accuracy of some of the trend analysis.

3. Researcher Bias in Internally Made Observations.

The data collection is to a large extent conducted face to face at the warehouse; hence, personal judgment and observations may affect the results.

4. Limitations of Supplier Transparency.

Chinese suppliers might not have full disclosure of internal delays, production related problems, or handling the shipments providing limitation in the depth of the analysis of the supplier-side inefficiencies.

5. Time Constraints

The visits to the warehouse are given on a regular basis, however, the FYP timeline does not allow the researcher to do very long-term analyses of the seasonal demand variability or annual purchase patterns.

6. Approximated Values of certain Metrics.

Not all inventory performance indicators can be measured with precision, e.g. safety stock, EOQ, as the company does not use these models at the moment.

7. Limited Generalizability

Results are not generalizable to organizations with automated warehouse management systems that are much larger and are particular to Tech Rover.

8. Customer Feedback Sample Size.

Feedback on customers was narrow and it only involved those who took part in questionnaires and interviews and they do not represent the whole population.

1.10 Finances and resources needed.

Various resources will be necessary in this project in order to have the right data collection, analysis, and documentation by professionals. Since the researcher will be spending majority of his working days at the Tech Rover warehouse, the budget involves a lot of fieldwork, software tools, documentation.

A. Resources Required

1. Human Resources

- Interviews with warehouse workers
- Discussions with procurement managers
- Access to company founder
- Input from customers and suppliers

2. Physical Resources

- Tech Rover warehouse access
- Stock movement records
- Invoices, GRNs, and procurement documentation
- Delivery records & picking lists

3. Digital Resources

- Laptop & internet
- MS Excel
- Trial versions of inventory software (e.g., Zoho Inventory / Odoo / Stock & Buy)

4. Secondary Data Sources

- Industry reports

- Competitor benchmarking
- Market research on communication devices

B. Tools Required

- Laptop with MS Office
- Printer/Scanner
- Clipboard for warehouse observations
- Access to Tech Rover's Excel sheets
- Access to shipment/import documents

CHAPTER TWO: RELEVANT STUDIES AND THEORIES

2.1 Introduction

A literature review helps understand what other researchers have studied in the field of inventory management and supply chain operations. By reviewing past studies, theories, and real-world practices, this chapter builds a foundation for analyzing Tech Rover Pvt. Ltd.'s inventory and warehouse-related challenges. This chapter also explains different theories related to warehouse management, supplier performance, customer expectations, and inventory control.

Since Tech Rover operates in the communication and security equipment market, the discussed theories and studies focus on inventory accuracy, lead times, warehouse practices, and demand forecasting within similar business environments.

2.2 Inventory Management Overview

Overview of the field of study. The role of inventory management is crucial in enabling a business to have the right product, right quantity, and right time. In the communication equipment and walkie-talkie, CCTV system, jammers, and solar products business, inventory management must be done effectively since customer demand is high and can be very unpredictable. Particularly during seasonal demand, the event firms, schools, security industry, and government department inventory demand is high. Inventory planning is crucial since the fast-moving items such as Baofeng UV-82, Baofeng 888s, Motorola TC-999, WLN C1, and handheld body scanners sell quickly, while heavy equipment like walk-through gates, solar panels, repeaters, and base stations is sold at a slower rate. Tech Rover.

The mismanagement of stock results in stockouts, delays, unsatisfied customers, increased costs and reduced efficiency in operations. This academic discipline goes further to Pakistan whereby statistics indicate that many small and medium enterprises (SMEs) depend on the use of simple manual stock systems, which as observed are typified by delays and lags in decision-making. In the case of Tech Rover, the sole source of operational efficiency lies in the practice that enhance inventory management, as the accuracy of inventory in the company is approximately 60/70 percent.

2.3 Relevant Theories

2.3.1 Warehouse Management Theory

It is an administrative theory in respect of how a warehouse should be organized, how materials should be moved within the building, how the stock should be received, stored and dispatched in the most efficient manner. When dealing with small warehouses a typical Tech Rover setup is an open-floor shelf plan.

According to the theory; better warehouse efficiency is an outcome of:

1. Items are arranged by category.
2. Fast-moving items are placed near access points.
3. Manual picking follows a structured path.
4. Receiving and dispatch areas are clearly separated.
5. Inventory is verified through quantity and quality checks.

Tech Rover already examines the amount, quality, model, and accessories with the receipt of the stock- a strategy that has been supported by research to be critical in the management of errors. Nevertheless, time is consumed by manual searching of objects in shelves, particularly when the stock accuracy is not high. The theory recommends the application of ordered shelving systems, labelling, and correct space planning to minimize picking time.

2.3.2 Reorder Point Theory

Reorder Point The theory explains that new stock should be ordered when inventory drops to a specific threshold. The threshold depends on demand and lead time.

Tech Rover faces 20–25 days lead time from China and experiences monthly stockouts. According to the theory, companies with long procurement lead times must calculate reorder points based on:

- Average daily demand
- Supplier lead time
- Safety stock

Tech Rover currently does not apply a scientific ROP. Implementing it could prevent frequent stockouts of fast-moving walkie-talkies and accessories.

2.3.3 Safety Stock Theory

Safety stock represents the extra quantity kept to protect against demand fluctuations and supply delays. Since Tech Rover faces,

- Customs delays
- Road closures in Gilgit (China–Pakistan route)
- Sudden seasonal demand spikes

Safety stock is extremely important. Research shows that companies depending on imports should maintain higher safety stock levels to avoid service disruption. Tech Rover's stockouts indicate that current safety stock is insufficient or unplanned.

2.3.4 Lead Time Theory

Lead Time Theory explains how the time between placing and receiving an order affects operations. When lead times increase, companies experience:

- Stock shortages
- Delayed customer orders
- Increased uncertainty
- Difficulty forecasting inventory needs

Tech Rover's lead time is affected by external factors such as customs clearance, supplier delays, and road blockages. According to the theory, companies in such situations must use buffer stock and stronger forecasting models.

2.3.5 Inventory Turnover Concept

Inventory turnover measures how quickly inventory is sold and replaced. High turnover for fast-moving products indicates good sales and efficient stock management, while low turnover for heavy items shows slow sales and high holding costs.

Tech Rover's inventory is split into two groups:

The company's inventory is split into two groups:

1. Fast-moving items: walkie-talkies, scanners, accessories
2. Slow-moving items: gates, solar panels, repeaters

Understanding turnover helps determine which items need frequent replenishment and which items need lower ordering quantities.

2.4 National studies on inventory and supply chain management

Based on the research by our country, the following are some of the issues that are normally experienced by SMEs in the electronics, telecom, and retail industries:

- SMEs use manual inventory systems, resulting in very inaccurate stock levels.
- Import-based businesses experience very long lead times caused by customs delays and busy borders.
- Seasonal demand affects forecasting accuracy and causes stock shortages.
- Warehouse operations in Pakistan often lack structured shelving, labeling, and digital tracking.
- Supplier reliability varies, and miscommunication leads to delays or wrong shipments.

The results are very much consistent with the case of Tech Rover wherein inventory management is challenging due to the presence of manual systems and unreliable supply chain environments.

Pakistani research also indicates that the technologies of businesses with broad product lines such as Tech Rover need to embrace data-driven predictions and computerized applications to enhance inventory management and accuracy.

2.5 Supplier Management Literature.

The research conducted indicates that the performance of suppliers has a great impact on the availability of inventory and the efficiency of inventory operation. The reduced dependency of businesses that depend on more than one supplier is beneficial; however, it is also accompanied by the following challenges:

- Delays
- Wrong or missing items
- Price volatility
- Quality inconsistency
- Communication gaps

Tech Rover has five suppliers and two suppliers are local whereas the one supplier is a major one based in china. In literature, it is indicated that suppliers need to be assessed periodically by companies according to their lead time, accuracy, price, and communication. Price bargaining and alternative suppliers minimize risk and ensure the supply chain is more stable.

2.6 Customer Demand and Service-Related Studies.

Research done on customer service portrays that availability of product is essential, product delivered within the required time and per performance expectation is crucial. Tech Rover has specialized customer segments which include

- Sugar mills
- Fishermen communities in Gwadar
- Government environmental departments
- SOS departments
- Educational institutions
- Mining companies
- Industrial buyers

These customers usually demand walkie-talkies and industrial communications to make operations safe, coordinate, and have control. The variety of walkie-talkies has a lot of complaints, and it might vary depending on the nature in which they are used. Study indicates

that the terrain and the structure of the buildings surrounding them are very significant and influence their performance. This necessitates good guidance and support of the products.

Inventory control makes sure that quality models are not out of stock as it enhances buyer satisfaction and re-buying behavior.

2.7 Research Gap

While previous studies have examined inventory management in Pakistani SMEs, there is no major research focusing on:

- Walkie-talkie and communication equipment suppliers
- Companies that operate across multiple product categories
- Seasonal demand patterns in security/industrial communication equipment
- Challenges of Gilgit-route delays affecting imported electronics
- Warehouse management practices in small-scale communication firms
- Supplier reliability in the communication device market of Pakistan

This research fills these gaps by studying Tech Rover Pvt. Ltd., a unique SME dealing in electronics, security systems, and specialized communication tools.

2.8 Conceptual Framework

The conceptual framework for this study is based on the relationship between inventory management and operational efficiency. The framework shows how different factors influence performance:

Supplier Issues

(delays, wrong items, price fluctuations)

⬇

Inventory Management Practices

(seasonal forecasting, manual tracking, safety stock, reorder points)

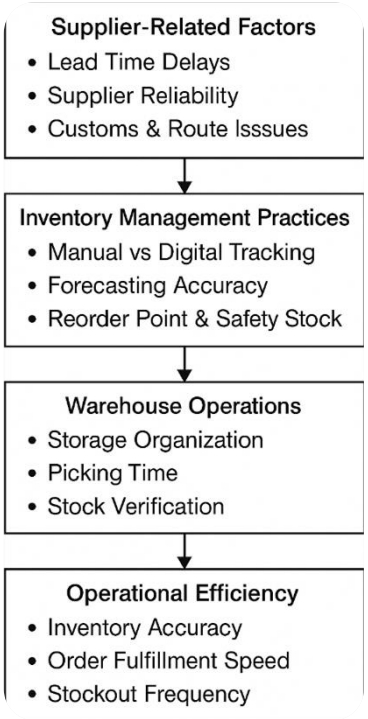

Figure 1: Conceptual Framework of Inventory Management and Operational Efficiency

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Warehouse Operations

(open shelves, manual picking, receiving checks)

⬇

Operational Efficiency

(order fulfillment speed, stock accuracy, reduced stockouts)

⬇

Customer Satisfaction

(fewer complaints, better availability, smooth operations).

CHAPTER THREE: METHODS AND TECHNIQUES

3.1 Introduction

This part explains the methodology used to address certain goals regarding the inventory management practices and operational efficiency of Tech Rover Pvt. Ltd. This involves a description of the methodology of the research, data collection system, data sampling, research instruments and the general study outline. The mixed approach was adopted to gain a holistic perspective of both quantitative and qualitative issues of the operation of Tech Rover.

3.2 Research Design

The study employed a mixed methodology. The approach includes both qualitative paradigm and the quantitative paradigm to give the study a sense of clarity and depth as far as the issues of inventory management are concerned and to deepen the comprehension of the issues in the supplier performance, customer satisfaction, and warehouse operations at Tech Rover.

The quantitative data include the listing of the variables, which include but are not limited to the stock accuracy, stockout rate, lead time variability, customer score, and warehouse efficiency.

Qualitative data will give information about the experiences of the employees, problems in communication with suppliers, issues in operations and internal practices.

The combination of the two kinds of data enables the research to examine the actual performance and also gain insight into the causes of the operational difficulties.

3.3 Research Approach

3.3.1 Quantitative Approach

Quantitative data was collected through structured questionnaires distributed to customers and employees. The aim was to collect measurable data regarding:

- Customer satisfaction
- Product availability
- Range performance issues
- Warehouse efficiency

- Inventory accuracy
- Supplier delays
- The results will later be analyzed using Excel.

3.3.2 Qualitative Approach

Qualitative data was collected through semi-structured interviews with the internal staff, including:

- Inventory handler
- Sales team
- Warehouse worker
- Accountant
- Manager/Owner
- This helped gather deeper insights into issues such as:
- Manual stock challenges
- Receiving procedures
- Lead time delays
- Supplier performance
- Warehouse layout and picking difficulties

3.4 Data Collection Methods

3.4.1 Primary Data

The data was collected directly from the employees at the company, local suppliers, and the loyal customers of the company through:

- Semi-structured interviews (face-to-face)
- Observation inside the warehouse
- WhatsApp/email questionnaires sent to customers
- Discussions with local suppliers (Ibrar Khan & Khyal Khan)

3.4.2 Secondary Data

Secondary data was obtained from:

- Company sales records
- Inventory sheets
- Supplier invoices
- Import documents.
- Market reports
- Academic articles on Pakistani supply chain practices

This combination strengthens the reliability of the study.

3.5 Sample Size and Sampling Technique

3.5.1 Employee Sample

All 8 employees of Tech Rover participated in the study. This includes:

1 Inventory Handler	3 Sales Representatives	1 Warehouse Worker
1 Accountant	2 Marketing Professionals	1 Manager/Owner

(Note: Some employees have dual responsibilities.)

3.5.2 Customer Sample

A total of 10–20 customers were selected using convenience sampling. They include:

Security firms	Sugar mills	Fishing communities (Gwadar)	Government environmental departments
SOS & emergency departments	Educational institutions	Mining departments	

Questionnaires were shared through Whats App and email**,** which are practical and commonly used in Pakistan.

3.5.3 Supplier Sample

Only local suppliers were included for interviews because international suppliers are not always available for communication.

Included suppliers:

1. Ibrar Khan (Local Supplier)
2. Khyal Khan (Local Supplier)

3.6 Data Collection Instruments

3.6.1 Questionnaire

A structured questionnaire was designed to collect quantitative customer feedback on:

- Product availability
- Quality
- Delivery experience
- Walkie-talkie range performance
- Communication efficiency
- Order handling

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3.6.2 Interview Guide

Semi-structured interview questions were prepared for employees and suppliers covering:

- Stock handling processes
- Receiving procedures
- Procurement challenges
- Warehouse layout and picking
- Supplier reliability issues
- Seasonal demand forecasting

3.6.3 Observation Checklist

A checklist was used during warehouse visits to observe:

- Shelf organization
- Storage conditions
- Manual picking system
- Space utilization
- Handling of fast-moving and slow-moving items

3.7 Tools for Data Analysis

3.7.1 Microsoft Excel

Excel will be used for:

- Graphs (bar charts, trend lines)
- Inventory accuracy calculations
- Stockout frequency analysis

3.8 Research Setting

The research was conducted primarily at:

Tech Rover Warehouse (E-11 Khudadad Heights)

- Storage area
- Receiving area
- Dispatching area

This environment provided direct access to inventory, employee workflow, and operational processes.

3.9 Timeframe of the Study

Collecting data took place over a period of one month.

This duration allowed enough time to:

- Observe warehouse practices.
- Conduct employee interviews.
- Collect customer feedback.
- Communicate with local suppliers.
- Analyze documentation.

3.10 Ethical Considerations

The standards of keeping ethics intact were observed on the basis of:

- Confidentiality: Data concerning customers and employees was kept confidential.
- No mandatory participation: Participation in the research was left entirely up to the individuals.
- Permission granted: Data was collected after obtaining approval from the management of Tech Rover.
- No sensitive data: Only data relating to operation and performance were used.

CHAPTER FOUR: PROJECT OUTCOMES/RESULTS

4.1 Introduction

This chapter presents the results of the data collected from employees, customers, warehouse observations, and local suppliers of Tech Rover Pvt. Ltd. The purpose of the analysis is to evaluate how current inventory management practices affect operational efficiency, customer satisfaction, and overall supply chain performance.

The chapter includes quantitative data from customer surveys and operational metrics, as well as qualitative data from semi-structured interviews and on-site observations.

4.2 Inventory Accuracy and Stock Performance

4.2.1 Inventory Accuracy Rate

From matching internal spreadsheets with physical verification counts, the study found that Tech Rover has about 65% inventory accuracy. Therefore, there are mismatches, whether in counts, locations, or descriptions, for approximately 1/3 of the items in the warehouse. An accuracy average of 65% for a warehouse that has a significant volume of inventory, such as walkie-talkies and associated accessories that are in high motion, should be concerning, as such items need to be quickly retrievable and have precise stock levels.

4.2.2 Stockout Frequency

Tech Rover experiences 5–6 stockouts per month, primarily due to:

- Weak forecasting
- Seasonal demand fluctuations
- Import delays caused by customs clearance
- Transportation issues on the Gilgit route
- Supplier-side shortages

Stockouts affect sales revenue negatively; they also affect customer satisfaction and timely deliveries.

4.2.3 Most Frequently Out-of-Stock Products

The walkie-talkies Baofeng UV-82 and Baofeng 888s balance out stock most often, as they are both at the top of market demand. These models are a top choice of customers in the security, sugar milling, industrial, and government sectors.

4.3 Warehouse Observation Findings

4.3.1 Warehouse Organization

The warehouse was observed to be semi-organized:

- Walkie-talkies are placed on the same racks but are not consistently arranged by model.
- Walk-through gates are kept in a separate room.
- Hand scanners share shelves with other small accessories.
- Labels and shelf numbering are minimal.

While the system is workable, it lacks standardization and increases dependence on employee memory.

4.3.2 Fast-Moving Item Placement

UV-82s and 888s are among the most active walkie-talkies, leading to some of them being kept near the guide for easier access.

4.3.3 Difficulty in Locating Products

Employees report that they **rarely** face difficulty in finding items due to experience and familiarity, but a new worker would likely face challenges due to the semi-structured layout and lack of digital mapping.

4.3.4 Picking Time

The average picking and packing time for a standard order is 5–10 minutes, which is acceptable for an SME but can improve with better shelf organization or a digital inventory system.

4.4 Supplier Performance Analysis

4.4.1 On-Time Delivery Performance

3 out of 10 shipments are late. The causes of late deliveries are as follows:

- Customs delays
- Road blockages on the Gilgit route
- Heavy snow and landslides
- Supplier-side stock shortages

Late deliveries affect reorder planning, safety stock levels, and customer order fulfillment.

4.4.2 Wrong or Missing Items

In the past six months, suppliers have delivered wrong or missing items 1–3 times, mostly involving accessories or batteries. While not severe, it contributes to operational inefficiencies.

4.4.3 Supplier Reliability Summary Table

Table 1: Supplier Reliability Summary

Supplier Name	On-Time Delivery	Error Issues	Communication	Overall Reliability
Ibrar Khan	Good	Rare errors	Strong	High
Khyal Khan	Moderate	Occasional wrong items	Good	Medium
Li Rong Rong (China)	Variable	Very rare errors	Moderate	Medium–High

The local suppliers tend to be more responsive, whereas the international supplier is delayed mostly owing to external logistics.

4.5 Customer Satisfaction Analysis

The feedback of customers was gathered through WhatsApp and email questionnaires of 20-30 customers on a Likert scale.

4.5.1 Likert Scale Description

Customer satisfaction levels were measured based on a 5-point Likert scale, and the respondents were required to make answers according to the scale where 1 was very dissatisfied, 2 was dissatisfied, 3 was neither satisfied nor dissatisfied, 4 was satisfied, and 5 was very satisfied. The responses obtained were coded and analyzed through percentage distribution to determine the

customer perception in major operational performance measures like product quality, product availability, delivery time and after sales services.

4.5.2 Customer Satisfaction Questionnaire

Question 1: Satisfaction with Product Quality

Customer Point of View

Approximately **92% of customers** expressed satisfaction or high satisfaction with the quality of products provided by Tech Rover Pvt. Ltd. Customers reported that the equipment, especially walkie-talkies and communication devices, is reliable, durable, and performs well in operational environments such as security sites, industrial areas, and institutions.

Employee Point of View

Employees indicated that Tech Rover focuses heavily on sourcing proven and reputable brands. Staff members believe that strict checking at the receiving stage (model verification, accessories, and condition) helps maintain consistent quality standards, even though inventory tracking is manual.

Our Reccomendation

Tech Rover should continue prioritizing quality-focused suppliers and document quality inspection procedures formally. Maintaining quality consistency will support long-term customer trust, especially as the company aims for certified dealership status with international brands.

Question 2: Satisfaction with Product Availability

Customer Point of View

Only 56% of customers reported satisfaction regarding product availability. Many customers mentioned that fast-moving items such as Baofeng UV-82 and Baofeng 888s were frequently unavailable, causing order delays or forcing them to wait for restocking.

Employee Point of View

Employees acknowledged availability issues and linked them directly to manual inventory tracking, weak forecasting, and long supplier lead times from China. Staff members often need to physically confirm stock before committing to customer orders.

Our Reccomendation

The company should implement a digital inventory management system with low-stock alerts and better demand forecasting. This would reduce stockouts and ensure popular items remain available, particularly during peak demand periods.

Question 3: Satisfaction with Delivery Time

Customer Point of View

Around 76% of customers were satisfied with delivery time. Most customers received orders within acceptable timelines, though delays were occasionally reported during periods of stock unavailability or external logistics disruptions.

Employee Point of View

Employees stated that dispatch processes are generally efficient once products are available. However, delays occur when items are not immediately located or when last-minute stock verification is required due to inaccurate inventory records.

Our Reccomendation

Improving inventory accuracy and warehouse organization will reduce dispatch delays. Clear shelf labeling and digital stock confirmation can further enhance delivery speed and consistency.

Question 4: Satisfaction with Order Fulfillment Accuracy

Customer Point of View

Approximately 80% of customers expressed satisfaction with order accuracy. Most orders were delivered with correct models and quantities, though occasional issues were reported with accessories or batteries.

Employee Point of View

Employees admitted that manual picking and reliance on memory sometimes lead to minor errors, especially during high workload periods. However, experienced staff usually detect mistakes before dispatch.

Our Reccomendation

Introducing barcode-based or digital picking systems would minimize human error. Standardized packing checklists can further improve order fulfillment accuracy.

Question 5: Satisfaction with After-Sales Service

Customer Point of View

After-sales service received the highest satisfaction rating, with 96% of customers expressing satisfaction. Customers appreciated technical guidance, issue resolution, and post-purchase support, especially for range-related or configuration concerns.

Employee Point of View

Employees take pride in after-sales support and view it as a competitive advantage. Staff members often provide troubleshooting and usage guidance based on customer environments and operational needs.

Our Reccomendation

Tech Rover should formally structure after-sales service processes and maintain service logs. This will help sustain service quality as the customer base expands.

Question 6: Reliability as a Supplier

Customer Point of View

Around 84% of customers considered Tech Rover a reliable supplier. Customers highlighted trust in product authenticity and service, despite occasional availability challenges.

Employee Point of View

Employees believe reliability is maintained through transparent communication with customers, especially during delays. However, they agree that reliability perception could improve with better stock availability.

Our Reccomendation

Enhancing inventory planning and supplier coordination will strengthen reliability. Proactive communication regarding stock status should continue as a best practice.

Question 7: Likelihood of Repeat Purchase

Customer Point of View

About 88% of customers indicated they are likely to purchase again from Tech Rover Pvt. Ltd. This reflects strong customer loyalty driven by product quality and service support.

Employee Point of View

Employees noted that repeat customers form a significant portion of monthly sales. Long-term clients often tolerate delays due to established trust.

Our Reccomendation

Maintaining strong relationships while improving availability will further increase repeat purchases. Loyalty incentives for repeat customers may also be introduced.

Question 8: Overall Satisfaction

Customer Point of View

Overall satisfaction stood at approximately **84%**, indicating that customers generally have a positive experience with Tech Rover Pvt. Ltd. Dissatisfaction mainly stemmed from stock availability issues rather than service or quality.

Employee Point of View

Employees believe that operational improvements, particularly digitalization, would significantly enhance overall customer satisfaction and reduce daily operational stress.

Our Reccomendation

A phased transition toward digital inventory systems, improved forecasting, and structured warehouse organization should be prioritized to enhance overall satisfaction and operational efficiency.

4.5.3. Aggregated Customer Satisfaction Results

Sample Size = 28 Customers

Based on Likert responses (4 = Satisfied, 5 = Very Satisfied counted as Positive):

Table 2: Customer Satisfaction Results

Dimension	Positive Responses	Percentage
Product Quality	23 / 25	**92%**
Product Availability	14 / 25	**56%**
Delivery Time	19 / 25	**76%**
Order Fulfillment Accuracy	20 / 25	**80%**
After-Sales Service	24 / 25	**96%**
Overall Satisfaction	21 / 25	**84%**

The customer satisfaction analysis shows that there is a high positive perception of Tech Rover Pvt. Ltd. in most of dimensions of service. The best satisfaction was recorded in product quality (92%) and after sales (96), which indicates the effectiveness of company to provide its customers with good equipment and after sales services. The delivery time (76% and order fulfillment accuracy (80%), has acceptable performance but delays occasioned by external logistics and

stock verification processes have minimal impact on efficiency. The lowest level of satisfaction (56 percent) was recorded on product availability, which is mostly because there is a regular stockout of fast-moving products like Baofeng UV-82 and Baofeng 888s. The general satisfaction is 84 in showing that even with the issues of inventory, customers have high level of trust and confidence towards the firm.

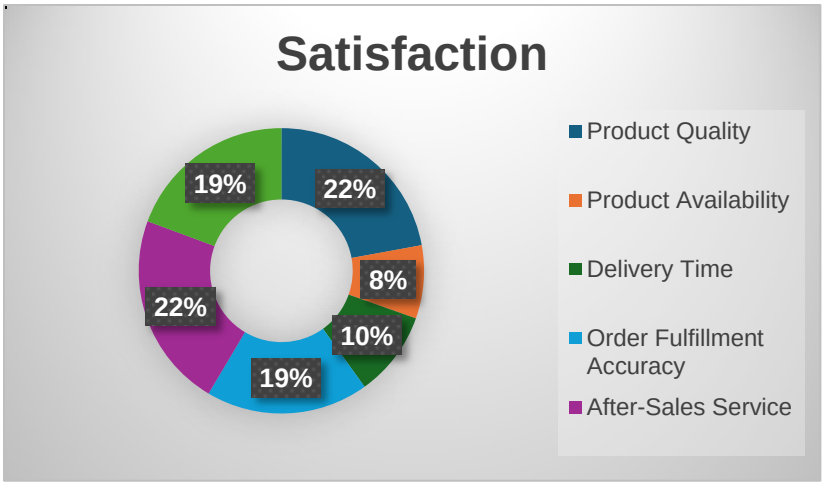

Figure 2: Overall Customer Satisfaction Distribution Based on Likert Scale Responses

4.5.4 Range Complaints

Only 10% of customers reported range issues. These complaints were linked to:

- Usage in urban areas
- Thick concrete structures
- Heavy machinery interference

This confirms that range issues are environmental, not product-based.

4.5.5 Delivery Complaints

Customers sometimes reported delays, usually due to:

- Road blockages
- Courier rider unavailability
- System issues on courier portals

4.6 Employee Interview Findings

From semi-structured interviews, employees identified the following major issues:

4.6.1 Key Problems Reported

1. Manual errors in stock counting

2. Lack of a digital tracking system
3. Stockouts affecting sales
4. Occasional slow picking process during high workload

4.6.2 Employee Recommendations

- Most employees believe that:
- A digital inventory system will significantly reduce errors.
- Better forecasting will prevent stockouts.
- Organized shelf labeling will improve picking speed.

4.6.3 Will Digitalization Help?

All employees responded **"Yes,"** agreeing that a digital system will improve:

- Accuracy
- Speed
- Planning
- Reporting

4.7 Overall Operational Performance Summary

Table 3: Overall Operational Performance Summary

Indicator	Current Status
Inventory Accuracy	**65%**
Stockouts per Month	**5–6**
Picking Time	**5–10 min**
Supplier On-Time Delivery	**7/10 shipments**
Customer Quality Rating	**5/5**
Range Complaints	**10%**
Employee Support for Digital System	**100% Yes**

4.8 Expected Benefits if Inventory Accuracy Improves

Employees and management believe accuracy improvements will result in:

- Faster order fulfillment

- Fewer stockouts
- Better forecasting and planning
- Less order mismatch
- Higher customer satisfaction
- Improved sales stability

4.9 Summary of Findings

The inability to maintain a consistent lead time by the suppliers and a frequent stockout weakens the business operations, even though it is very good in terms of customer service and product quality. The digital inventory system and better forecasting and reorganizing the warehouse structure would do the company well.

CHAPTER FIVE: PROJECT BENEFITS

5.1 Introduction

Some of the key advantages that the change in inventory management at Tech Rover Pvt. Ltd. will have are realized are the improved accuracy of the company in its predictions, better organization of the warehouse and coordination of the suppliers. The findings of the study prove that even minor advances in stock management may lead to a huge operational, financial, customer-related, and long-term strategic benefits. All these advantages contribute to the vision of Tech Rover to be the top communication equipment distributor in Pakistan and to obtain certified dealership with world-known manufacturers like Baofeng, Motorola, and Garrett.

The benefits discussed in this chapter are directly derived from the findings presented in Chapter 4. Customer satisfaction was measured using a Likert-scale questionnaire, where results indicated high satisfaction with product quality (92%) and after-sales service (96%), while product availability showed comparatively lower satisfaction (56%) due to frequent stockouts. Employee interviews further supported these findings by highlighting challenges related to manual inventory tracking, forecasting inaccuracies, and supplier lead-time delays. Therefore, the operational, financial, and customer-related benefits outlined in this chapter are evidence-based and closely aligned with both customer perceptions and internal operational realities.

5.2 Operational Benefits

Enhancing accuracy of inventory and forecasting will streamline the whole supply chain of Tech Rover. These two areas have a direct impact on all other activities of the company as it is product based. The key operational assets are

1. Fewer Stockouts

Tech Rover will be in a position to predict more accurately and reduce stock outages of products that have a high turnover rate such as UV-82 and 888s so that the company will have stock to meet the demand of seasonal goods.

2. Faster Order Fulfillment

The time that will be spent to verify the stock manually will be minimized through the use of real-time stock tracking. Employees will be able to pick, pack, and dispatch orders faster, parts

of which increases average order processing time significantly, instead of 5 to 10 minutes as it happens now.

3. Reduced Manual Errors

The digital systems will reduce the number of counting errors, lost items, and different quantities that are present in the system due to manual systems.

4. Better Warehouse Organization

Having a well-planned design and computerized classification, objects will be more convenient to find, particularly to new workers. This enhances speed and uniformity.

5. Improved Supplier Planning

The timely placing of stock will allow Tech rover to relieve the stress of the emergency shipment by the supplier as it will only take a few minutes to place an order and have it shipped to the store thanks to the precise use of data and automatic alerts.

These operational improvements are expected to directly address the issues identified in Chapter 4, particularly the 65% inventory accuracy rate and the 5–6 stockouts per month reported by both employees and customers.

5.3 Financial advantages

1. Smoother Cash Flow

Further prognostication will minimize overstocking, whereby funds are not tied up in sluggish products such as walk-through gates, repeaters and solar panels.

2. Lower Holding Costs

When there is reduced excess storage, this affects storage costs positively.

3. Lower Costs of Deliveries

In the event of stockouts being minimized, there will be no emergency re-deliveries or second trips.

Reduced emergency ordering = reduced last-minute costs of transport.

4. Improved Profitability

Stable supply of the products will lead to a higher rate of sales and retention levels of customers, which will directly translate into monthly revenue (5-10 lakh PKR at present).

5.4 Customer-Related Benefits

1. Better Product Availability

With a better inventory accuracy, customers will experience less out of stock messages especially on the models of walkie talkies which are popular and the accessories as well.

2. Enhanced Client Contentment

The current clients of Tech Rover are already satisfied with the quality of the company (5/5) and after sales services (5/5). When the availability is raised and delivery time is reduced, they will feel even better about the quality.

3. Reduced Range-Related Complaints

The improved forecasting will enable the company to prescribe or provide the appropriate models to fit certain settings (urban vs. open areas) which will reduce the range of complaints reported at 10 percent.

4. Stronger Customer Relationships

Faster responses, reliable stock, and consistent service reinforce Tech Rover's image as a trustworthy supplier in industries such as:

- Security
- Mining
- Government departments
- Sugar mills
- Fishermen groups in Gwadar
- Educational institutions
- Happy customers → repeat buyers → long-term revenue.

This improvement is especially important as customer survey results showed 92% satisfaction with product quality and 96% satisfaction with after-sales service, while dissatisfaction primarily stemmed from limited product availability (56%), indicating that inventory improvements will have the greatest impact on customer experience.

5.5 Employee Benefits

1. Less Work Pressure

Digital systems eliminate confusion and reduce the stress of searching for items or correcting manual errors.

2. Better Productivity

Employees can process more orders in less time due to organized shelves and quick stock verification.

3. Skill Development

Using modern systems increases employees' technical skills, which benefits both the company and their individual career growth.

4. Fewer Mistakes

Automation improves accuracy, and as a result, creates a more assured workforce able to put more trust in the system instead of memory.

5.6 Supplier-Related Advantages

1. Better Coordination

Accurate data helps schedule orders earlier, ensuring suppliers are informed well before shortages occur.

2. Strengthened Supplier Relationships

Consistent forecasting builds trust with local suppliers like Ibrar Khan and Khyal Khan, making negotiations smoother and reducing errors.

3. Improved Reliability

When there is prompt and accurate demand projection from Tech Rover, suppliers experience less shipment planning and delays, enabling more effective shipment.

5.7 Eco-friendly & Sustainability Advantages

1. Reduced Carbon Print

With more accurate demand planning and fewer stockouts, delivery trips are reduced.

2. Less Wastage

Aging stock is more likely to be electronic items constituting sensitive components (batteries, sensors, accessories), which increases environmental waste.

5.8 Planned & Long-Term Advantages

1. Move Toward Digital Transformation

Improving inventory accuracy and forecasting is the biggest step toward becoming a fully digital organization.

2. Stronger Competitive Position

Customers prefer suppliers who always have stock and deliver fast.
This allows Tech Rover to stand out in the growing communication-equipment market.

3. Support for Dealership and Brand Certification

International brands like Baofeng, Motorola, and Garrett require suppliers to show:

- Good stock management
- Efficient warehouse operations
- Reliable order fulfillment
- Customer satisfaction

This project directly supports Tech Rover's long-term vision of becoming an official certified dealer for major global brands.

4. Business Scalability

With structured processes, Tech Rover can easily expand to:

- Multiple warehouses
- National distribution
- Large-scale tenders
- E-commerce platforms

5.9 Summary of Project Benefits

Implementing the findings of this study will provide strong operational, financial, and strategic advantages to Tech Rover Pvt. Ltd. By improving inventory accuracy and forecasting, the

company will reduce stockouts, enhance customer satisfaction, strengthen supplier relationships, and create a high-performing digital supply chain. These improvements directly contribute to Tech Rover's long-term goal of becoming Pakistan's leading communication-equipment provider and an authorized dealer of international brands.

CHAPTER 6: RECOMMENDATION AND CONCLUSION

6.1 Introduction

This chapter discusses some of the limitations of the current study and the concluding remarks concerning the main findings and suggestions about the study of inventory and operational efficiency at Tech Rover Pvt. Ltd. The purpose of this chapter is to present the limitations to the findings of the research and to propose and discuss some actionable and realistic approaches that may help the company realize its visions in the long run.

6.2 Limitations of study

The findings of this study are very meaningful and reliable, but as always, some limitations are inevitable. These limitations are relevant in small and medium sized enterprises in Pakistan, and readers need to take them into account when looking at the findings.

1. Limited financial data

The researcher encountered some challenges in obtaining more specific and detailed financial data, such as cost breakdown and financial historical statements. This makes it difficult to analyze in detail the finances concerning the inventory holding costs and the cost active stocks.

2. Partial Customer Response Rate

Although questionnaires were shared through WhatsApp and email, several customers responded slowly or did not respond at all. Many customers in the industrial and government sectors tend to deprioritize surveys due to busy schedules or lack of interest in improvement-based participation. This reduced the overall customer sample size.

3. Supplier Interview Constraints

The study included interviews with only local suppliers (Ibrar Khan and Khyal Khan). International suppliers, specifically the Chinese supplier Li Rong Rong, were unavailable for communication due to time zone differences, language barriers, and long response times. This limited the depth of supplier-side insights.

4. Limited Time

The research was completed in one month. This is not enough time to get a variety of long-term trend information like annual demand variations, seasonal demand variations, and annual

predictability. The analysis could have been strengthened by having a longer time period of the observations.

5. SME-Level Operational Constraints

Since Tech Rover is still functioning with semi-organized shelving, manual stock counts, and processes that are partially documented, some operational elements could not be measured to be specific. The manual systems inherently introduce discrepancies in inventory accuracy, picking duration and product tracking.

6. Limited Generalizability

The analysis only deals with the operations of Tech Rover. Whereas the insights may be applicable in other SMEs in the communications equipment industry, the results may not be generalizable to larger companies with more sophisticated digital infrastructure or a large warehouse.

With such factors in place, it does offer some good and practical knowledge about Tech Rover, per se, concerning supply chain and inventory efficiency.

6.3 Conclusion

This paper was investigating Tech Rover Pvt. Ltd. inventory management system.

and evaluated their implications in relation to operational performance, customer experience, and performance of supply chain. The outcome indicates that despite the fact that the company has good product quality and has good after sales service and that it has a growing number of customers in all areas of the country there are numerous constraints that are suffocating its operational capabilities.

The Likert-scale customer analysis revealed that while Tech Rover Pvt. Ltd. performs strongly in terms of product quality (92%) and after-sales service (96%), product availability remains a key concern, with only 56% customer satisfaction due to frequent stockouts of fast-moving items. Delivery time and order fulfillment accuracy showed moderate satisfaction levels of 76% and 80% respectively, reflecting the impact of manual inventory systems and supplier lead-time uncertainties. These findings confirm that inventory management practices have a direct and measurable influence on the company’s operational efficiency and customer satisfaction.

The key lessons learnt in the course of the research are:

- Inventory accuracy is very important for smooth operations.
- Low accuracy leads to slow picking, stockouts, wrong counts, and customer delays.
- Forecasting is essential for product-based businesses.
- Weak forecasting increases both stockouts and overstocking, affecting cash flow and supplier planning.
- Manual systems create long-term inefficiencies.
- Dependence on physical stock counting and mental tracking increases errors and reduces speed.
- Warehouse structure impacts operational speed.
- Semi-organized layouts lead to inconsistent picking times and reliance on employee memory.
- Supplier reliability affects every part of the supply chain.
- Enhanced planning and communication are required to deal with delays, incorrect items, and price changes.

With the insights provided the company is in a much better position to refine its internal process and design a scalable, professional and lasting supply chain.

The research shows that it's possible to dramatically improve efficiency and support the company's long-term strategy by enhancing operations through the use of digitalized inventory systems, improved forecasting, better supplier coordination, and reorganized warehouse shelving.

The research shows that it’s very possible to improve the efficiency and support the company’s long-term strategy by enhancing its operations through the use of digitization of its inventory systems by also improving its forecasting systems, coordination with suppliers and warehouse shelving.

6.4 Recommendations

The recommendations presented below are based on both quantitative customer feedback and qualitative employee insights collected during the study. Customer survey results highlighted strong satisfaction with product quality and service, but lower satisfaction with product

availability (56%), while employee interviews confirmed challenges related to manual inventory tracking, weak forecasting, and supplier delays. Therefore, the following recommendations focus on improving inventory accuracy, availability, and planning to enhance operational efficiency and customer satisfaction.

1. Implement a Digital Inventory Management System

A digital system will eliminate manual errors, improve accuracy, provide real-time stock visibility, and support automated low-stock alerts. Recommended systems include:

- Zoho Inventory
- Odoo Inventory
- QuickBooks Commerce
- Inflow Inventory

These are affordable tools that offer, SME-friendly solutions.

2. Improve Forecasting techniques

To predict the needs more precisely, tech rover must rely on the past data, and seasonal trends, the demand tendencies. The improved forecasting will help to reduce the stockouts as well as improve the cashflow that will also guarantee timely procurement of goods by the local and international suppliers.

3. Strengthen Warehouse organization

Products that move fast should be placed at the front and those that are slow at the back so as to minimize on picking time and allow new staff hired to move freely in the warehouse.

4. Enhance Supplier Coordination

Tech Rover ought to communicate demand forecasts to suppliers and demand delivery schedule. This will minimize the case of late deliveries and elimination of the effects of external domineering like custom delays and railroad blocks along the Gilgit-route.

5. Expand Customer Feedback Mechanisms

Feedback system in the company should be well structured so as to ensure that customer satisfaction is monitored in the company. This assists in better product suggestions, complaint

management and matching the stocked models with the customer needs. This enhances product promotion and handle dissatisfaction and match stocked models with their requirements.

6. Decrease environmental impact

By working on forecasting and reducing useless delivery trips, the company can lower its carbon foot print. Accurate stock control reduces wastage of electronic components and supports sustainability.

7. Align Operations with Long-Term Branding Goals

Since Tech Rover aims to become the official certified dealer of Baofeng, Motorola, and Garrett, the company must meet global brand requirements, including

- Strong inventory control
- Reliable delivery systems
- Full digitalization
- Documented processes
- High customer satisfaction
- This project directly supports the strategic foundation required for certification.

6.5 Summary

This final year project entails the comprehension and enhancement of the inventory management of Tech Rover Pvt. Ltd, the Islamabad supplier. Founded in 2021, the Supplier provides multiple security and communication products, including, walkie talkies and their accessories, CCTV cameras, industrial scanners, jammers, repeaters, solar products, and walkthrough gates. Tech Rover has a very diverse clientele, including, government, industry, education, and security. Thus, Tech Rover depends greatly on the fluent and prompt movement of their inventory. The research utilized a mixed method approach, whereby some qualitative data was also collected from the customers and through surveys of the warehouses. Data collection took us a month it included 8 employees, some local suppliers and number of loyal customers, we also used questionnaires using digital platforms. The purpose was to narrow down the main operational problems and offer solutions. The results indicated that Tech Rover has a great number of problems that are serious in nature because of their manual tracking system. Their inventory has 65% accuracy, which results in stock outs for a number of their products, such as the UV-82 and

888s, which are in high demand. Their forecasting is poor, resulting in overstocking slow moving walkie talkies.

Border processing, road obstructions, and communication delays beget shipment delays affecting stock availability 30% of shipments arrives late. In spite of these difficulties, the customers' satisfaction level, especially in product praise and in post-sale service assistance, is on the uppermost level. Inspection of the warehouse shows that it is systematically semi-organized, i.e., items are placed in groups, but storage is not consistently organized. Picking time ranges in the range of 5 to 10 minutes, which is good, and is influenced by the experience of the employees, not by the efficiency of the system in place. A digital inventory management system, forecasting, storage layout, and undersupplied relations frameworks are the best options remaining to be operationalized by the project so as to obtain a garnered level of efficiency as to the operations. Such changes will definitely result in a smoother flow of operations, enhancement of customer satisfaction, qualified and quantifiable decision making, warehouse operational efficiency, and a reduction in stock outages. Such modifications, as well, are in good faith aligned with the long-term goals of Tech Rover, which are to create a fully digital organization and to acquire a certified dealership with global counterparts, such as Baofeng, Motorola, and Garrett, on the list elite brands. The project, of course, is a step in the right direction, providing Tech Rover with the opportunity to participate in a really respectable and professionally structured A Ranked project within the Communication Equipment Industry for the State of Pakistan.

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Annexure 1

Sample Size: 28 Customers

Respondents were asked to rate the following statements based on their experience with Tech Rover Pvt. Ltd. using a 5-point Likert Scale.

Likert Scale Used:

Table 4: Annexure 1

Scale Value	Description
1	Very Dissatisfied
2	Dissatisfied
3	Neutral
4	Satisfied
5	Very Satisfied

Annexure 2

Questionnaire Statements

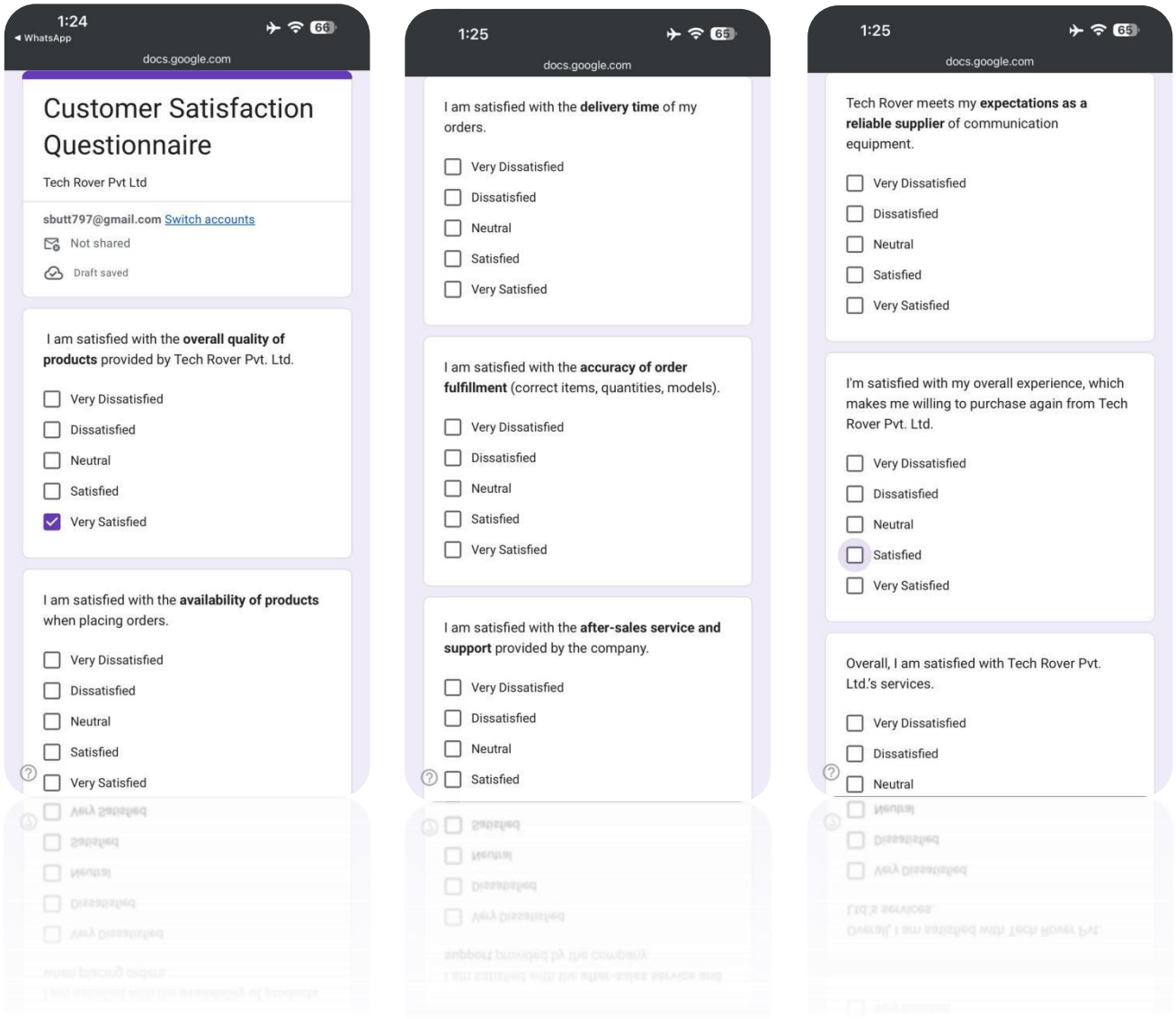
Table 5: Annexure 2

1. I am content with the general quality of products offered by Tech Rover Pvt. Ltd.
2. When making orders I am contented with products availability.
3. I am content with the time my orders took to be delivered.
4. I would be happy with the quality of order filling (right items, amounts, models).
5. I am content in the support and after sales service offered by the firm.
6. Technology Rover is a good supplier of communication equipment to my expectations.
7. I will probably buy again with Tech Rover Pvt. Ltd.
8. I am generally happy with the services provided by Tech Rover Pvt. Ltd.

Annexure 3

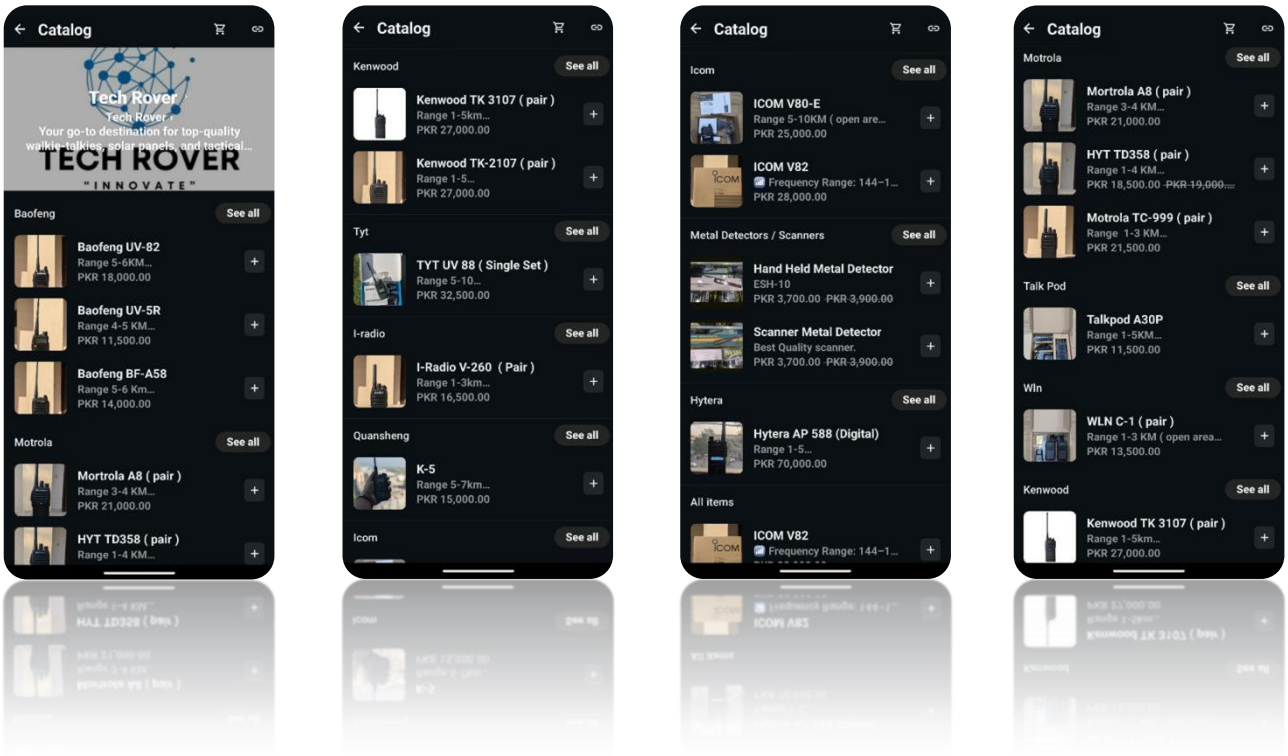
Customer Satisfaction Forms

https://docs.google.com/forms/d/e/1FAIpQLSdTHUt1E-NtNDlKNH2_H7nTvQ3zKkKd9r_RKCFVXzyUWWTMeA/viewform?usp=publish-editor



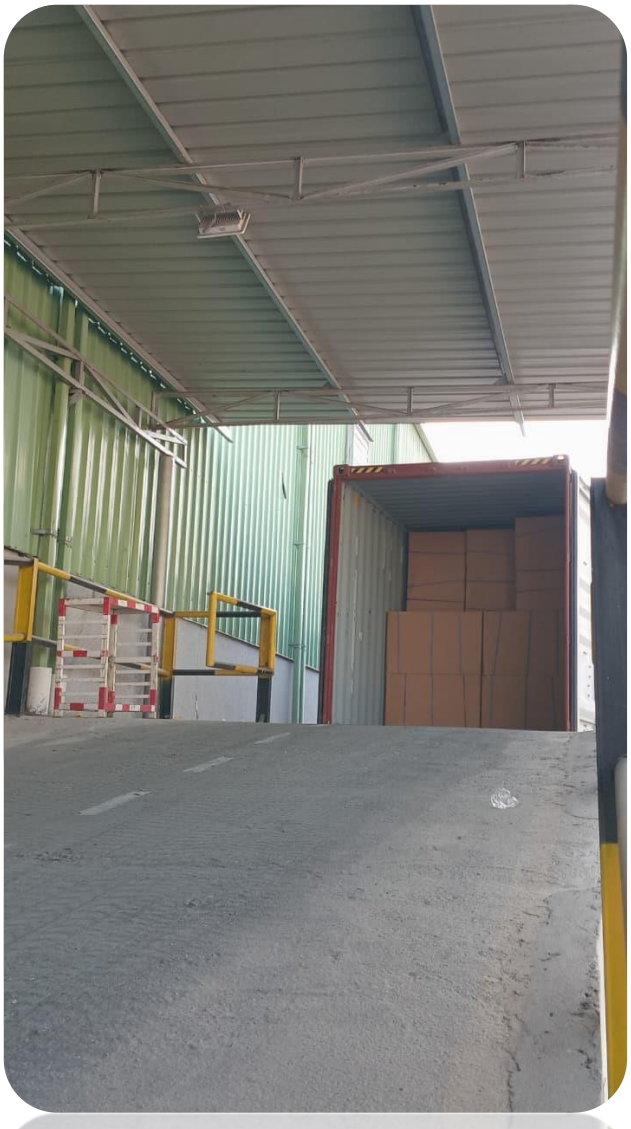
Annexure 4

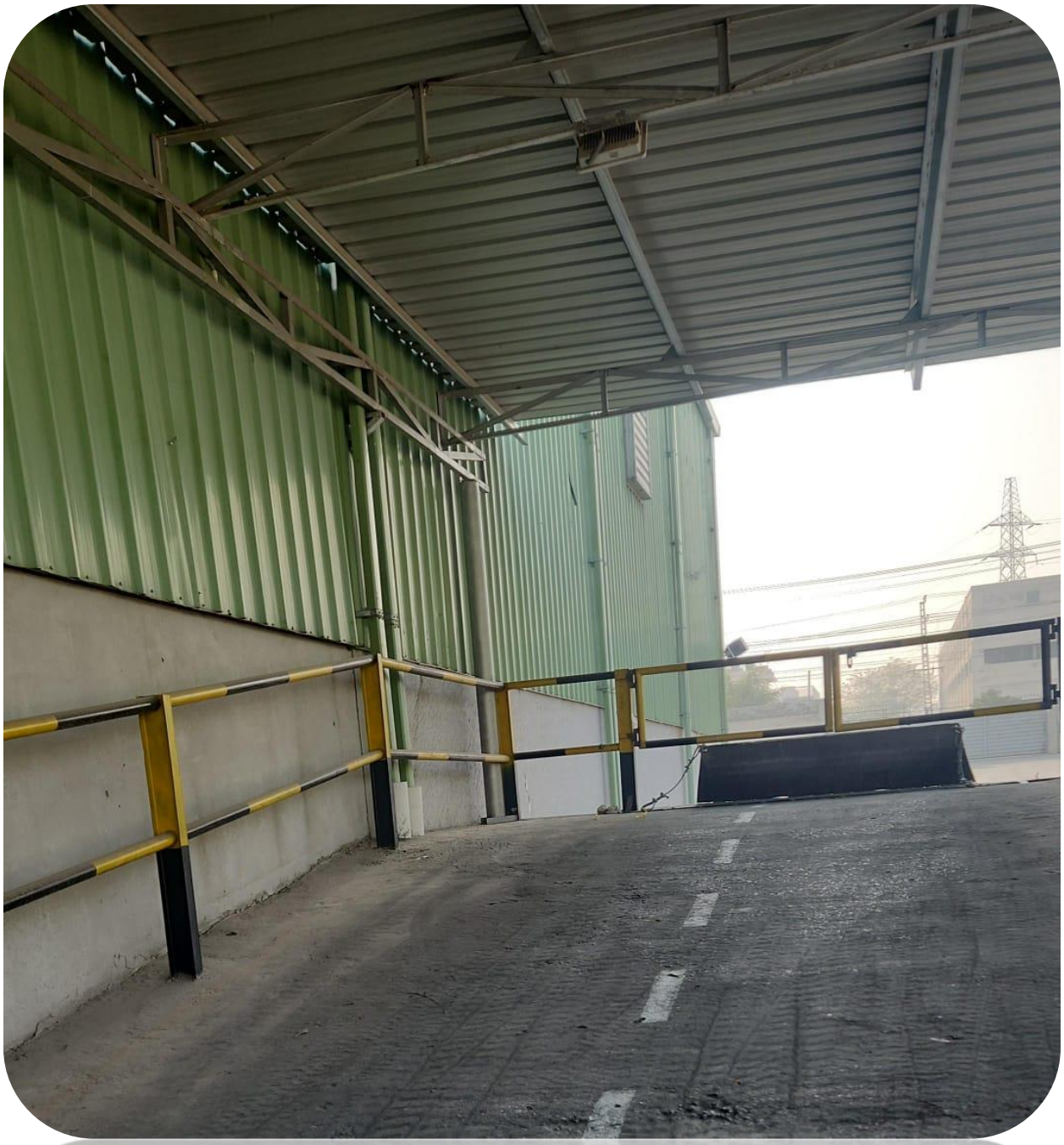
Product Catalog



Annexure 5

Warehousing Facility





Annexure