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**Topic of Research: Digital Transformation of Supply Chain: Enhancing Supply Chain
Visibility at Rahat Distribution**

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ABSTRACT

The project “Digital Transformation of Supply Chain: Enhancing Supply Chain Visibility at Rahat Distribution” highlights the operational challenges faced by a Rawalpindi-based distributor of Rahat hygiene products. Key issues include manual stock counting without barcodes or tagging, handwritten diaries and Excel-based inventory and order management, no digital order placement, lack of delivery tracking, and absence of GPS for route optimization—resulting in delayed responses, information leakage, poor delivery planning in congested Rawalpindi-Islamabad zones, and limited visibility into stock expiry risks and operational failures. These outdated processes severely hinder real-time decision-making and overall supply chain visibility for management. The paper proposes affordable, scalable solutions: an integrated Warehouse Management System (e.g., Zoho Inventory) for barcode-based real-time tracking, mobile digital ordering with EasyPaisa/JazzCash integration, GPS fleet tracking via TPL Trakker for route optimization, and centralized databases to improve inventory accuracy, forecasting, and cross-functional visibility. While no implementations have occurred yet, the study provides a clear roadmap to bridge these digital gaps and enhance competitiveness in Pakistan’s growing hygiene products market.

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CHAPTER 1: INTRODUCTION

Waseem and Brothers started as distributors for Rahat Company, a considerable risk in the hygiene product sales scene in Pakistan. It was established in December 2023 by Waseem Dar, who had more than a quarter of century background in the selling of 'impulse purchase' household consumer goods. He and his brothers started to enter on their own to take advantage of trends. Before this he had worked in similar jobs, learning how to manage stocks, learnt is desired by customers, and how the market operated in each area. No small skills managing stock flow as well as predicting what the market required, and dealing with suppliers, led to the emergence of their company. Somehow chosen them after consideration of its huge potential, Rahat is an established brand making tissue and personal care products, and is having blooming space in an industry that has caught the interest of consumers in a fresh way.

Waseem and Brothers started operations in Rawalpindi because it was a strategic location to connect the north of Pakistan with the capital city, Islamabad. The company initially invested in a warehouse, employed a handful of employees and established a relationship with a number of stores in the area. Waseem and Brothers' rapid growth stemmed from their ability to be flexible by stocking a limited number of Rahat's best-selling products and expanding based on current sales data. By mid-2024, the company expanded to other areas of Islamabad and experienced an increase in sales of 20-30 percent each quarter; these increases mirrored larger consumer spending trends for personal care in Pakistan (approximately 4% of household budgets). These increased sales were primarily due to post-pandemic increased emphasis on cleanliness with consumers opting for branded tissue products, wipes, and sanitary pads over generic products.

Rahat's product line-up of necessary everyday hygienic products, were one of the major reasons why we chose Rahat. Products included Rahat Premium Pampers in a variety of sizes (such as newborn, small, medium, large and extra-large for a proper fit and to prevent leakages), Royal Pampers with added leakage protection, Rahat Water Silk Tissue that is gentle on the skin, Rahat Premium Tissue Rolls for home use, Rahat Pop-Pop Tissue Boxes that can be easily pulled from, Kitchen Tissues for cleaning spills, Rahat Silky Soft Box Tissues for facial use, Baby Wipes with aloe for gentle cleaning, Rahat Pads (similar to high-end sanitary napkins with wings for enhanced absorption and comfort), Rahat Soap that kills germs, Rahat Sponge for bathing, Hygiene Razors for personal grooming, and Rahat Elfy Glue for minor home repairs. Each of these products are produced with the utmost care, utilizing soft cotton

and natural materials, which appeals to families who prioritize their health. Additionally, the company has a focus on being environmentally friendly through the use of green packaging on some of their products, which aligns with the growing trend in Pakistan towards adopting natural and organic hygiene options.

1) Departments

The organization of Waseem and Brothers has a number of departments with specific responsibilities. Many of the consumer goods distributors in Pakistan have a similar organizational design (Shan Marketing Services, Burque Corp.) and they define the roles of the members of the organization so that there can be a greater sense of accountability and opportunities for growth of employees. Each department represents a component of the distribution process; for instance, customer service and warehouse operations. The departments will communicate regularly with one another and will follow formal procedures for collaborating.

Below is a listing of each department, a brief description of the key responsibilities of each department, and job descriptions.

1.1) Sales Department

The Sales Department generates revenue for the company by building a relationship with retail outlets and identifying customer needs. The Sales Department obtains orders from the customers and ensures that the merchandise is shipped to the retailers in a timely fashion. In a highly competitive business environment like Pakistan's, the Sales Department plays a key role in establishing connections with different kinds of retail outlets; from small independent stores to large supermarket chains.

1.1.1) Booker:

Bookers are employed full-time by Rahat and are responsible for traveling to retail outlets every day to assess inventory levels and obtain orders from the retail owners on behalf of the owners of Rahat. Bookers are the first contact point between Rahat and the retail owner and will demonstrate the products to the retail owner and gather product feedback from the retail owner. Additionally, Bookers will gather information about industry trends; for example, increases in the purchase of baby wipes during the warmer months.

1.1.2) Salesman:

Working under the direction of the Booker, the Salesman is responsible for transporting the merchandise obtained from the retailer to the retailer using a small truck the next day after the Booker obtains the order. At the time of delivery, the Salesman collects payment for the

merchandise and confirms that the merchandise delivered is in accordance with the terms of the original order. In order to perform their duties effectively, Salesmen must possess excellent interpersonal communication skills and knowledge of the roads in both Rawalpindi and Islamabad. Furthermore, Salesmen may suggest additional purchases to the retail owner; i.e., recommending a set of soap and razors from Rahat. The Sales Team is responsible for supplying the management team with weekly sales data to allow the management team to evaluate the performance of the organization.

1.2) Finance and Accounting Department

The Finance and Accounting Department manages all of the financial transactions and accounting functions of the organization, including maintaining records of transactions and compliance with laws and regulations, which is especially true in Pakistan where many businesses exist and operate in a cash-based economy.

1.2.1) Cashier:

At the time of delivery of merchandise, the Salesman gives the Cashier cash collected from the sale of the merchandise, and the Cashier will count the money and confirm it to the amount of merchandise sold. If any discrepancies exist, the Cashier will resolve the discrepancy immediately and prepare the cash for deposit to the bank. The Cashier will also perform basic bookkeeping functions; i.e., document expenses related to fuel and/or repairs and create preliminary reports to identify the remaining cash balance in the bank account.

Although larger companies may utilize computerized software to provide automated tracking and reporting capabilities, Waseem and Brothers utilizes manual methods to reduce errors.

1.3) Operations and Warehouse Department

The Operations and Warehouse Department is the backbone of the organization that supports the flow of merchandise, tracking of inventory, supply chain planning, and logistics for the distribution process. Like the other local distributors in Rawalpindi area (Pentagon Food Group) that utilize efficient warehouse operation for products in Rawalpindi area (Rawat and Gujar Khan), the Operations and Warehouse Department is critical to providing operational support to the distribution process.

1.3.1) Warehouse Manager:

The Warehouse Manager is the person who is responsible for tracking the inventory levels, forecasting the needed merchandise levels from sales data, and verifying the receipt of incoming truck shipments from Rahat. The Warehouse Manager works closely with the Sales Department to prioritize the need for essential items; for example, the most popular tissue rolls,

and verifies that the Salesmen are adhering to the agreed-upon delivery schedule. The Warehouse Manager is also responsible for reducing the risks associated with perishable products; for example, ensuring that wipes do not become damaged when sensitive.

1.3.2) Labor:

Labor consists of personnel performing manual labor functions, such as removing merchandise from large trucks, loading merchandise on to smaller vehicles for delivery, and arranging merchandise on shop shelves. Labor personnel follow workplace safety guidelines, including proper lifting techniques and safe stacking procedures to meet quality standards.

Labor personnel work closely with IT to provide immediate updates on inventory availability to avoid disruptions to the operation.

1.4) Department of Information Technology (IT)

This new IT Department has become essential as every business now uses technology for their day-to-day activities, including Pakistan based distributors such as Pak International that utilizes technology to track their products from one part of the country to another.

The IT Manager will receive information from the Warehouse concerning the product being received into stock or removed from stock; from Bookers regarding orders received by various shops. The IT Manager will then convert this data into a spreadsheet or file format. This person will also be responsible for ordering additional products through Rahat on an as needed basis, review of daily sales activity to determine profit/loss as per sales volume less operating expenses such as travel, salary etc., and provide reports to aid in future planning.

In summary, the above departments work together effectively to provide the best possible service for the customer. Waseem Dar, the owner of Pak International leads the way. As Pak International grows, we may consider adding other departments, i.e. a Human Resources Department or Marketing Department, etc.

2) Stakeholders

There are several individuals and companies associated with Waseem and Brothers that are very important to them. These include the traders, suppliers, and partners that aid in the movement of products and in the growth of the company. Some of the initial stakeholders of the company included some solid names such as Hadi Traders, Kusar Traders, New Pak Traders, and Pak Phool Traders who served as the primary retail locations and wholesale sources of Rawalpindi. When they needed to expand further, they began to reach out to additional wholesalers in Rawalpindi (Pindi), and eventually in Islamabad, as the city had a larger presence in the sales of consumer goods.

Below is a complete listing:

Hadi Traders: A long-standing friend who specializes in the sales of hygiene products, taking substantial orders for Rahat pads and tissues in neighboring markets.

Kusar Traders: They specialize in supplying small shops, good at promoting Rahat baby wipes and pampers in residential neighborhoods.

New Pak Traders: Assists in distributing products and sells Rahat soap and razors, contributing to the acceleration of sales in busy areas.

Pak Phool Traders: Responsible for selling the high-end items such as Rahat silky tissues to upscale stores in Pindi markets.

Al-Noor Traders: New partner with connections in Saddar, assisting in the promotion of Rahat kitchen tissues and sponges.

Faisal Wholesale Traders: Operates in Raja Bazaar and focuses on major sales of Rahat premium pampers and pads.

3) Company Hierarchy

CEO (Chief Executive Officer) – Waseem Dar: As the head of the company, he makes decisions that affect the entire company and is responsible for guiding all employees.

CFO (Chief Financial Officer) – Asad Waseem Dar: He is responsible for managing all financial aspects of the company such as creating budgets, managing expenses, and determining whether the company is profitable.

Sales Head – Zeeshan Haider: He supervises the sales staff, creates strategies for sales of products, and ensures timely completion of orders and delivery.

Warehouse Manager & Labor Incharge – Mazhar Iqbal: He is responsible for the management of inventory of goods stored within the facility, the inventory levels, and directing the labor force that loads/unloads the products.

IT Manager – Maqbool Ahmad: He manages the company's computer systems and databases, including placing orders for stock electronically, tracking sales, and resolving technical problems.

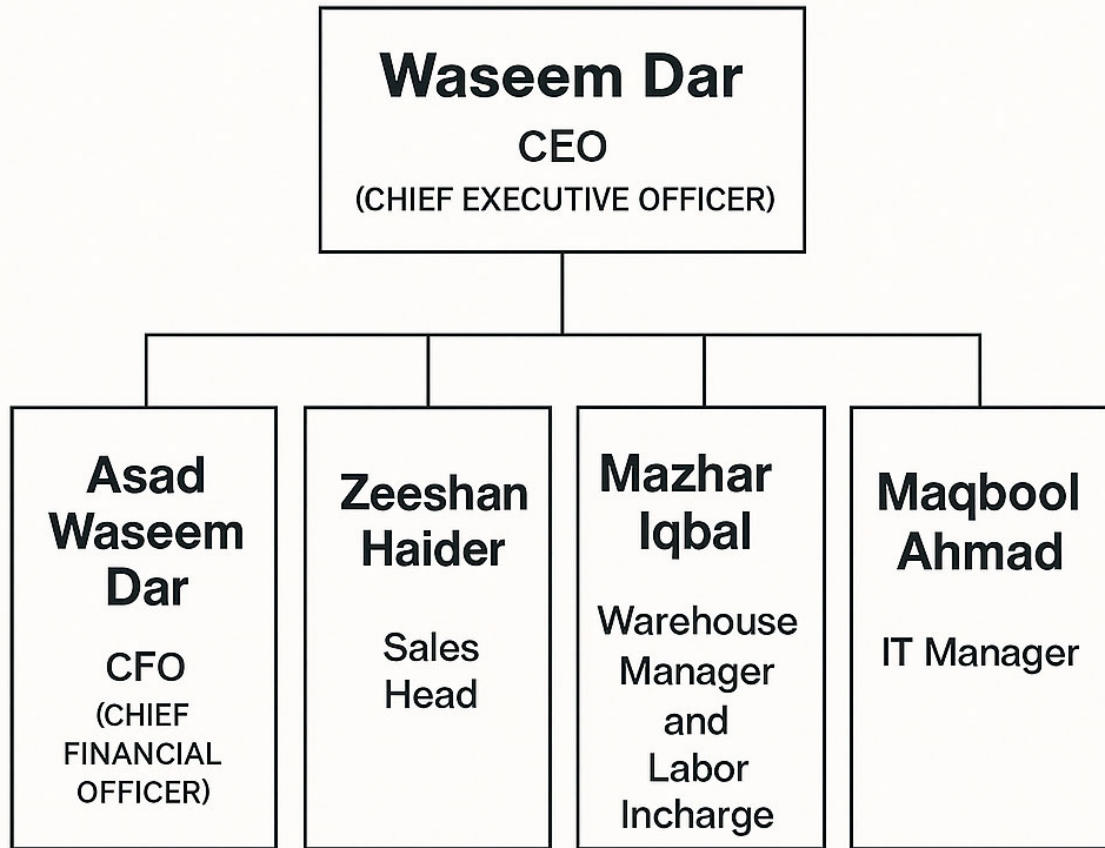


Figure 1: Hierarchy of Rahat Distributors

Source: Author

CHAPTER 2: LITERATURE REVIEW

Retail Distribution typically faces many inefficient, manual and non-digitalized aspects of their Processes. Because of this many retailers do not have an automated or digital version of the following systems; Digital Order Management System (Digital OMS), Digital Warehouse Management Systems (Digital WMS) and Digital Vehicle Tracking Systems for Salesman, this results in Inefficiencies throughout the Entire Retail Distribution Process, which affects both Customer Satisfaction and Operational Efficiency. Vierci-Codas et al.,(2025) completed a Case Study of a manual retail distribution of fresh and frozen products, they discovered several areas of inefficiency, including; Long Lead Times, Traceability Gaps, Generation of Order Errors, Reprocessing Errors due to Manual Discrepancy Issues. They also used lean tools to identify 23 problems and develop 23 solutions that reduced Non-Value Added Time by 96% through the use of these lean tools. Rafalski (2025) has stated there are 13 Order Management Challenges, including; Higher costs resulting from manual processing (30%), Higher error rates (3%) caused by data entry, Poor shipping visibility and recommendations to implement automated OMS systems to increase speed of order processing by 50% and improve integration with supply chain and better visibility of shipments.

Vehicle Tracking Systems in Logistics Operations result in numerous inefficiencies in managing and controlling logistics operations. Without GPS tracking systems, salesmen are unable to monitor their routes in real-time, cannot manage potential delays or changes in traffic flow, have limited ability to manage their routes, use more fuel in congested urban areas such as Rawalpindi and Islamabad and ultimately lose control over the reliability of their delivery process. Wang and Li (2024) studied Last Mile Logistics Problems in Rural China and found that: High Costs, Slow Delivery Times, and Lack of Tracking where the primary reasons why logistics operations are inefficient in rural china, with proposed solutions such as the implementation of tracking software being used to increase agility and reduce customer complaints. Raj et al. (2024) ranked Hidden Risks in E-Commerce Last-Mile Logistics as the number one risk to operational efficiency and customer satisfaction, citing a lack of visibility into the location of goods and a lack of GPS tracking as the number one reason why e-commerce companies experience inefficiencies and unmet demand for updates and information regarding the status of their orders. They recommend implementing tracking and monitoring technology to mitigate these inefficiencies and provide customers with greater visibility into their orders.

Without a WMS, manual processes for receiving, sending, and tracking stock using Excel sheets lead to errors, extended retrieval times, inaccurate profit assessments, and impediments to a responsive supply chain. Adeodu et al. (2023) developed a Lean Six Sigma framework through a case study in a third-party logistics warehouse, illustrating that manual operations cause high non-value-added activities and a low process cycle efficiency of 40%, while the implementation improved efficiency to 70% and established a framework for waste minimization and productivity enhancement. Similarly, Fakhrai Rad et al., (2025) evaluated AI-based order picking adoption in a Turkish warehouse, revealing that manual picking results in prolonged travel distances and times with inefficiencies in routing, whereas the system reduced travel distance by 27.25% and time by 22.82%, offering benefits in cost reduction and employee well-being despite challenges in integration.

The lack of GPS tools available for salesmen results in less-than-optimal route mapping, inaccurate delivery times, and increased fuel consumption in congested urban areas such as Rawalpindi and Islamabad; all negatively impacting the service reliability. Veres (2025), studied machine learning and statistical approaches to routing without using GIS/GPS technology and found that statistical models resulted in 10-30% redundant travel distances due to distance overestimation primarily in longer routes. However, machine learning reduced this by less than 10%, as seen in a number of case studies concerning localized inner-city deliveries in Budapest, inter county routes and national level transportation throughout Hungary. Singh et al., (2025) analyzed the logistics of delivery route optimization for an organization involved in logistics and determined that without the use of real-time GPS data, pre-set routes resulted in delays from unexpected traffic jams, road closures, and weather conditions; ultimately increasing fuel consumption and lost time. In a case study concerning a manual method of delivery route optimization in Jaipur, the authors found that optimized systems utilizing real-time monitoring achieved 20-25% improvements in delivery time and 12-15% improvements in fuel consumption.

Manual stock management without the utilization of bar code/ tagging systems has been widely documented as a major source of inefficiencies in health care settings. Logrono et al. (2025), analyzed hospital storage rooms in a tertiary health care center that utilized manual counting and visual estimation to manage their inventory levels, which resulted in high incidence rates of stock outages, excessive ordering, delayed restocking, and high operating costs as a result of inaccurate inventory levels. Similar to the findings of Logrono et al. (2025), Adhikari et al. (2024) analyzed the inventory management practices of public health care centers in relation to the stocking and dispensing of essential medications, which included paper-based records

for inventory purposes, and found that these practices led to procurement delays, poor forecasting accuracy, and recurring shortages that caused disruptions to the delivery of health care services. As demonstrated in both case studies, the reliance on manual stock counting methods in health care environments results in errors, delays and decreased efficiency in the operation of the supply chain due to the absence of real-time inventory tracking systems.

CHAPTER 3: MAJOR OPERATIONAL CHALLENGES AND IMPACTS

4) Challenges

4.1) Reliance on Manual Order Processing and Cash Transactions

The Company Currently Uses a Hand-Recorded System of Taking Orders from Customers and Processing Payments Using Only Cash. The Company Has No Digital System in Place to Capture Orders from Customers, Such As an App That Could Be Used on Smartphones by Sales Representatives (Order Bookers), Therefore, All Orders Are Recorded by Hand on Paper or In Notebooks by Sales Representatives, Which Is Time Consuming and Prone to Human Errors.

The transition from cash to digital payments remains a critical topic in modern finance. Many companies advance their infrastructure and regulatory efforts to reduce cash reliance in favor of more efficient and secure digital solutions. This transition supports not only payment modernization but also financial inclusion and economic dynamism.

There are Several Problems Created for the Business Due to Its Use of a Hand-Recorded System,

4.1.1) Slow and Unreliable Order Data Entry:

Recording Customer Orders Manually by Hand Is a Time-Consuming Process That Creates Opportunities for Human Errors, Examples of Which Include Illegible Handwriting, Misheard Product Names, Incorrect Quantities, etc. The Resulting Errors May Cause Wrong Products to be Delivered to Customers, or Orders to be Lost, and Thus Damage the Satisfaction of the Customer.

4.1.2) Delayed Stock Level Reporting:

Since Customer Orders Are Not Captured in Real-Time on a Digital Platform, the Stock Levels Are Updated Only After Someone Manually Inputs the Data (Often At the End of the Day or Week). This Delay Means the Inventory Records Are Frequently Out-of-Date. In a Fast-Moving Market Like Rawalpindi, Such Lags Can Result in Selling Products That Are Actually Out of Stock or Overstocking Items Due to Lack of Timely Information.

4.1.3) Increased Employee Workloads and Excessive Paperwork:

The Administrative Effort Is Duplicate - Sales Staff Write Orders on Paper, and Later the Data Must Be Entered into Spreadsheets or Another System. This Extra Step Not Only Wastes Employee Time but Also Increases the Chance of Transcription Errors When Transferring Data from Paper to Computer.

4.1.4) High Risk of Cash Loss:

Relying Solely on Cash for Payments Carries Significant Risks. Cash Can Be Misplaced, Stolen, or Mishandled, Especially When Salesmen Carry the Day's Collections on Busy Routes. There Is Little Transparency or Real-Time Tracking of Cash Flow; Management Must Wait for Sales Staff to Return and Manually Reconcile Cash Against Orders. In an Urban Pakistani Setting, Transporting Cash Raises Security Concerns.

4.1.5) Poor Accounting and Dispute Resolution Systems:

Manual Cash Processes Make It Difficult to Maintain Accurate Financial Records. A Salesperson Might Forget to Note a Transaction or Record It Incorrectly in a Ledger. Without Digital Receipts or a Transaction Log, Disputes With Customers (For Example, About Whether an Invoice Was Paid) Are Harder to Resolve. Furthermore, Management Has Limited Visibility into Daily Sales Revenue until Cash is Counted and Verified, Which Could be at the End of the Day or Later.

4.1.6) Cash Does Not Get Deposited Immediately in the Bank:

Depending Upon Where the Salesman Needs to Take the Cash to Deposit It, There May Be Delays in Depositing Cash Due to the Need for Physical Transport to a Bank Branch. This Delay Reduces the Liquidity Available for the Company's Operations. Over Time, Slow Deposits and Potential Cash Leakages Can Impact the Company's Ability to Pay Expenses or Invest in New Stock Promptly.

4.2) No Delivery Vehicle Tracking or Real-Time Route Guidance

The company's fleet of delivery and sales vans does not contain tracking devices; neither the company's drivers utilize GPS navigation systems that enable them to receive real-time traffic information and make adjustments to their routes in real-time. As a result, management lacks the ability to track the location and/or status of deliveries as they occur.

As a direct consequence of the absence of real-time tracking and GPS navigation systems, the company experiences inefficiencies and uncertainty regarding the distribution process,

4.2.1) Limited Oversight of Fleet Activities:

By using tracking systems to monitor the location of all of the company's delivery/sales vehicles, management is able to assure itself that each salesman/delivery driver is following his assigned route and schedule. When drivers unexpectedly stop or deviate from their assigned routes, managers are informed immediately of such occurrences, providing an opportunity for them to hold employees accountable.

4.2.2) Ideal routes are not being taken:

Since drivers are not using GPS navigation systems, they often follow the same routes they have been following for years even though those routes are not necessarily the most efficient. In a city like Rawalpindi, which has heavy traffic congestion, drivers who do not have access to real-time traffic information will be likely to become stuck in severe traffic jams and/or road construction areas that could have been avoided had they received such information. Therefore, deliveries will take longer than they need to.

4.2.3) Delivery times are unpredictable:

Because the company does not have a method to track the location of its vehicles, the company cannot accurately predict when deliveries will arrive at customer locations, nor can they notify customers of estimated delivery times. When a customer contacts the company to inquire as to where their shipment is located, the company cannot respond quickly (i.e., beyond contacting the driver) as to where the shipment is.

4.2.4) Causes of delays are not addressed promptly:

When a vehicle breaks down, becomes lost, or encounters significant delays, the company learns of the problems through a reactive reporting mechanism i.e., the driver reports the problem by telephone. Through this reactive approach, the company cannot proactively redirect another vehicle to meet the needs of the customers affected by the original vehicle's problem, nor can the company notify customers of expected delays in a timely manner. Such delays impede the speed of response to emergency situations (e.g., the speed at which a backup vehicle can be dispatched to replace a disabled vehicle).

4.2.5) Fuel and operational expenses are increased:

The inefficiency of the delivery operation caused by the lack of route optimization and tracking results in drivers traveling further distances and/or sitting in traffic longer than needed. These inefficiencies contribute to increased fuel consumption and greater vehicle maintenance costs over time. Additionally, the lack of optimized routing reduces the number of deliveries that a driver can perform in a single day, potentially reducing revenue opportunities.

4.2.6) Evaluation of performance is difficult:

With little data available, the company's management lacks the basis upon which to evaluate either driver performance or route efficiency. For example, if certain deliveries regularly take a long time to complete, it is difficult for management to determine whether the causes are the behavior of the drivers making the deliveries, the regularity of traffic patterns, or the distance of the routes, without having data related to the tracking of deliveries. The lack of data makes

it difficult for management to improve the delivery process and/or provide positive feedback to the drivers.

4.3) Absence of an Integrated Warehouse Management System, Lack of Barcoding and Tagging in Warehouse Inventory

Warehouse operations are run with the aid of manual logs, spreadsheets, and memory to maintain and manage inventory. There is no tracking or database used to document receipt and shipment, storage and retrieval, or sales and delivery. In addition, warehouse operations do not utilize a barcode/tagging system, making inventory management entirely manual. Warehouse personnel use written documents and memory to locate inventory, count inventory, and determine the quantity of each product in stock. No machine-readable tags/barcodes exist on inventory or shelving to allow for quick scanning to identify inventory or update quantities.

There are several negative consequences associated with the use of manual procedures in managing the warehouse: Manual Procedures Lead to Disjointed Processes and Information Silos,

4.3.1) Inefficient Warehouse Operations:

Receipt of new inventory, placement of products in warehouse, picking for customer orders, and shipping of products to customers are not streamlined. Employees are required to use their memories or manual notes to complete these processes. For example, when new inventory arrives, the employee has no way of knowing where to store the inventory for maximum utilization of space or how to enter this information into a log/sheet. Therefore, employees will typically put the inventory wherever there is space available and make a notation in a log/sheet. This results in inefficient completion of the task, and it increases the chance of errors occurring, such as lost inventory, improper rotation of inventory, etc.

4.3.2) Poor Inventory Visibility:

Due to the lack of automation, obtaining a real-time view of inventory levels is nearly impossible. When the sales staff want to know how many units of a particular product are available for sale, they may have to contact the Warehouse, or review a spreadsheet that may not be up-to-date. Lack of visibility of inventory levels can cause the sales staff to tell customers that a product is available when, in fact, the product is out of stock. Conversely, the Warehouse staff may hold too much of a particular product, as management does not have a current inventory level report to base purchasing/Warehouse decisions upon.

4.3.3) Expiry and Quality Risks:

The company sells products that are sensitive to expiration (hygiene products). A specialized system is needed to track expiration dates and batch numbers. Therefore, products approaching expiration date may not be identified, or removed in a timely manner. As a result, expired products may remain in inventory and be inadvertently shipped to customers, which would be a significant quality control problem for the company and potentially damage the company's reputation. Additionally, the company will incur financial losses when expired products are discarded due to the lack of a system to alert employees to remove or sell the products prior to expiration date.

4.3.4) Fragmented Data and Inconsistencies:

Since each department maintains separate spreadsheets/logs, data becomes duplicated and fragmented. For example, the sales staff may indicate that they sold X number of units of a product during a given period of time; however, the warehouse inventory spreadsheet may indicate that the amount of stock reduced for that same period of time is Y; and the accounting records may reflect a third value for revenue for the same time period. Reconciling these discrepancies takes time and effort and is subject to error. Moreover, data entry is not concurrent across all systems. Therefore, if a return or a write off of damaged goods occurs, and the warehouse staff indicates this through a log, if the sales staff does not update the sales spreadsheet, a discrepancy will occur.

4.3.5) Slow Decision Making:

Management lacks access to current, accurate data, therefore, any type of analysis (such as forecasting next quarter's demand, determining whether to reorder stock) requires collecting data from multiple manual sources and reconciling those sources. For example, to forecast demand, one would need to collect historical sales data from sales logs, inventory turnover from warehouse records, etc. and then merge them. This process is time-consuming and hinders decision-making. In rapidly changing markets (such as the consumer goods market in Pakistan), delayed decision making based on inaccurate data can mean missing a market opportunity or responding slowly to a market shift (for example, running out of a high-demand product in a peak season because the data to support restocking the product was not available in a timely manner).

4.3.6) Higher Error-Rates:

Since manual input of the same type of transaction (e.g., sales, purchases, stock changes) into the same Excel sheet is subject to potential human error (i.e., misspelling or omitting an entry), this could create significant inconsistencies in the accuracy of the historical records of the

company. Moreover, whenever data is transferred between departments (for instance, the accounting department manually transfers all sales data from a sales sheet to their own spreadsheets), each transfer presents additional opportunities for human error. These errors can remain undetected for extended periods since there is no centralized data tracking system with automatic error checking processes, and therefore the potential exists for either financial discrepancies or operational confusion.

4.3.7) Lack of Responsibility and Traceability:

In an automated system, all stock movements or transactions will have a date/time stamp and identify the person performing the transaction. Therefore, it would be relatively easy to track back who made a particular entry or who moved a specific piece of inventory. In contrast, if an employee were to incorrectly enter an entry or move a piece of inventory incorrectly, there would be a lot of difficulty in finding out who did what since entries are located in many different places and are rarely audited. This lack of accountability and traceability could also hinder the ability to hold employees accountable for their actions since it could be unclear where the failure occurred or how an employee acted improperly.

4.3.8) Frequent Stock Count Mistakes:

Human error occurs when counting stock physically. When people count a high volume of items, they can miscount them, especially when counting similar items. As an example, when you are counting hundreds of identical boxes at the close of business, it is common to lose count or make mistakes. The net effect is that the stock records will show incorrect numbers of items than the number of items that are actually in stock.

4.3.9) Difficulty Finding Items in Warehouse:

When using a non-standardized method of labeling stock, it may take warehouse personnel longer to find a particular product, especially in a large or cluttered warehouse. Warehouse personnel rely upon memory or small labels on the shelves to locate stock. Labels can be confusing to read or hard to understand. It may take warehouse personnel a long period of time to search for the correct item, thereby delaying the fulfillment of customer orders.

4.3.10) Inaccurate Inventory Record:

Because there is no barcode scanner to automatically update inventory movements, there is usually some delay in updating records. Stock can be moved into or out of the warehouse without immediate update of the inventory records. The delays in recording the inventory updates creates discrepancies - the quantity of stock indicated on the inventory report may indicate a different quantity than the actual amount of stock that is on the shelves. Stockout conditions occur when there is an indication that a product is in stock but has been depleted.

CHAPTER 4: STRATEGIES FOR IMPROVEMENT

5) SWOT Analysis of Waseem and Brothers

A SWOT analysis is a framework used to identify the strengths, weaknesses, opportunities, and threats surrounding your company which is where the term “SWOT” comes from.

Identifying your strengths and weaknesses helps you determine what your company does well and where it has room for improvement. You can use your strengths to your advantage when planning projects or assembling a new team. On the other hand, identifying your weaknesses helps you determine what you need to address and improve.

Opportunities and threats are the external factors that can affect your business. While you can't control these factors, you can reduce risks and take advantage of opportunities presented to your company. Capitalizing on external factors is one of the key benefits of SWOT analysis.

5.1) Strengths

The vast experience of Waseem and Brothers' leadership has contributed significantly to its success. Waseem Dar, founder of the company, has over 25 years of experience in the distribution of consumer goods; he understands the consumer goods market, can successfully negotiate contracts, and has a wide array of contacts in the industry. The experience of working with consumers and understanding the fluidity of the market as well as the operational elements of the supply chain have given Dar an abundance of insight on how to operate a successful business. The strategic selection of products by partnering with Rahat Company, a relatively young but rapidly developing Pakistani hygiene brand, will place Waseem and Brothers in an advantageous position in the FMCG hygiene market. The variety of hygiene products offered (diapers, wipes, tissues, soap, razors, pads, and kitchen cleaning products) are in very high demand and provide a broad appeal to the consumer. In addition to providing a product line that appeals to a large segment of the population, the company's location in Rawalpindi, Pakistan, which is one of the country's largest logistics centers, is also geographically close to Islamabad, and thus, will enable the distribution of products to be completed efficiently and at a faster rate than if they were located in a different area of the country. Since the start of the year, Waseem and Brothers has experienced a significant amount of growth. Sales figures indicate that the company has realized a 20-30% increase in sales for each of the three quarters of 2024, and has begun marketing products in the city of Islamabad, demonstrating the company's ability to compete and adjust to changes in the market. A departmental structure, with clearly defined roles in the areas of sales, finance, IT, and warehouse operations similar

to those used by the larger distributors in Pakistan, provides an organizational structure that enables teams to work together to allow for rapid responses to the needs of consumers and trends in the market. Further, the establishment of a diverse and expanding network of stakeholders, including wholesalers who have developed a relationship with retailers such as Hadi Traders, New Pak Traders, Pak Phool, Al-Noor Traders, and Faisal Wholesale, ensures that the company maintains a steady level of demand, and expands its reach into the market.

5.2) Weaknesses

Although Waseem & Brothers has many positive aspects, there are still many operational limitations that make it challenging to be successful. These include; a lack of a digital ordering process, where all orders are received and processed manually via booker's, without a mobile application or digital order form, creating lengthy delays in processing orders, numerous processing errors due to lack of central control of the order process, and numerous delays in processing updates to inventory levels. Furthermore, there is currently no tracking system for Waseem & Brothers delivery trucks, which limits the ability to track individual salesmen, evaluate route efficiencies, provide timely delivery estimates, and respond to delays caused by traffic or road conditions. The current method of tracking inventory is by use of manual barcodes or tags, requiring manual counts of all items in the warehouse, increasing the risk of human error when inventory levels are being recorded, incorrect inventory levels, difficulty finding specific products in the warehouse, and excessive time required to audit inventory. Furthermore, Waseem & Brothers currently does not utilize a Warehouse Management System (WMS), which would allow for the automation of the receiving of goods, the shipping of goods from the warehouse, and the tracking of movement of inventory throughout the warehouse, along with tracking of perishable inventory items, such as hygiene sensitive products. As a result, all of these tasks are performed manually using non-centralized and inconsistent Excel spreadsheets. Waseem & Brothers also does not offer salesmen any real-time communication devices, limiting their ability to utilize paid GPS applications or live traffic navigation, resulting in less-than-optimal routes, longer delivery times, and additional fuel consumption. The lack of a single centralized database causes different departments to work individually on their own spreadsheet models, resulting in disparate data, slower decision-making, and inaccurate forecasts of inventory needs. Lastly, Waseem & Brothers' use of cash-based transactions creates numerous manual processing steps, increasing the risk of processing errors, delayed deposits, and misrecorded transactions.

5.3) Opportunities

The most significant way Waseem & Brothers could be transformed digitally is by using technology to enable their business to scale such as a mobile application for orders, GPS tracking on delivery vehicles, inventory management systems and a warehouse management system (WMS) to provide automated inventory control. All of these technologies will provide Waseem & Brothers with improved efficiency and productivity, faster and more accurate processing of orders and product deliveries, a competitive edge in their market and will allow Waseem & Brothers to compete against traditional players who still use manual processes for all their operations. There is a large opportunity for Waseem & Brothers to expand its distribution network into urban and semi-urban markets in Islamabad, northern Punjab and ultimately in Azad Kashmir. As well, the rapid growth of hygiene and personal care products in Pakistan due to increased public awareness, urbanization, and changing consumer behaviors resulting from the COVID-19 pandemic make Rahat an excellent option for middle income consumers looking for value-priced alternatives to higher priced items. Along with expanding the distribution network and increasing the demand for existing products, there are also cross-selling and bundling opportunities between the products offered by Waseem & Brothers, i.e., selling diapers with wipes, razors with soap, kitchen paper with tissues etc., that will encourage salesmen to sell complementary products and drive up total revenue. Building long term relationships with stake holders such as wholesalers, small retailers and traders will create a loyal customer base for Waseem & Brothers and will assist in maintaining a continuous flow of product. Additionally, Waseem & Brothers can create a new supply channel for e-commerce platforms by becoming an approved supplier of online grocery and hygiene platforms in Pakistan as the popularity of online shopping continues to grow.

5.4) Threats

Waseem & Brothers faces competition from similar local distributors who sell the same type of hygiene products as Rahat, which could reduce market share. Large Fast Moving Consumer Goods (FMCG) companies, such as Procter & Gamble (P&G), Unilever, or foreign branded hygiene products could decrease demand for Rahat products in the premium segment. Rising inflation and price pressures on Waseem & Brothers, caused by increasing fuel costs, declining currency value, and unstable economy, may force Waseem & Brothers to raise prices for its products, but may also limit the ability of retailers to pass these increases on to consumers. Disruptions to Waseem & Brothers' supply chain, whether caused by disruptions in deliveries from Rahat Company or transportation issues, could impact Waseem & Brothers' ability to

politics, the economy, social climate, and technology significantly impact your business. These factors play a key role in decision-making by helping you identify threats and weaknesses.

A PEST analysis is a type of analysis that looks at political, economic, social, and technological factors that impact your business. When a significant change in the economy or new technology emerges, it can lead to new opportunities and threats for your business. A PEST analysis helps you identify those potential opportunities and threats so you can take advantage of them during the project planning stage.

Without a PEST analysis, you simply hope the world changes in a way that favors your business. However, with a PEST analysis, you can better understand how the world might change and how that could impact your business so you can create an action plan to prepare for the future.

6.1) Political Factors:

The political focus of PEST analysis focuses on the areas in which governments, their policies, and changes in legislation or regulations affect the economy, industry or organization. Tax regulations and labor or employment laws are two of the most common areas of policy affected. Political instability in Pakistan has caused many political transitions in recent years including caretaker governments and demonstrations. which created an unstable environment in which Waseem and Brothers operate. Additionally, Rawalpindi is a hub for politics and many demonstrations take place near Murree Road and other locations around Rawalpindi, therefore this often results in the closure of roads during demonstrations causing delays in deliveries. In addition to demonstrations, the constant change in governments has complicated long-term planning for Waseem and Brothers' distributors because of the changing nature of taxes, import regulations, and policies governing businesses in Pakistan. Furthermore, the push for a documented economy will require distributors to document all of their transactions digitally, and to issue invoices properly, collect Goods and Service Tax (GST), and deduct withholding taxes from customers although many of the small retailers in Rawalpindi do not want to document their purchases and sales and thus hinder Waseem and Brothers' ability to provide the best service to its customers. Restrictions imposed by the trade and imports department in Pakistan influence the availability of hygienic products supplied by Rahat Company to Waseem and Brothers. These restrictions include import duty rates and currency exchange rates that affect the availability of raw materials used to produce hygienic products, which may result in stock shortages. Lastly, there are differences in regulations enforced by local government authorities in both Rawalpindi and Islamabad. For example, Islamabad enforces more stringent

regulations on the safety of warehouses, the weight of materials that can be transported by trucks, and commercial zoning. While Rawalpindi does enforce some regulations, they are less strict and inconsistent and may negatively affect the overall operation of Waseem and Brothers.

6.2) Economic Factors:

Economic factors typically affect a business or industry directly, impacting its operations and profitability. For example, a drastic decrease in the cost of raw materials might give a business a chance to increase its manufacturing production, allowing it to hire more employees, sell more products and enlarge its revenue stream. Conversely, a drastic increase in the price of raw materials could lead to a workforce reduction, higher consumer prices and reduced revenue and profit. Often, economic and political factors overlap because governments can impose economic reform and restrictions, or influence its growth, stability or vitality.

Since 2018, Pakistan has been experiencing record levels of inflation that have reached the 25-30 percent level. This high level of inflation has increased costs for many inputs including transportation, packaging materials, and wages of employees which have squeezed the profit margins of distributors and limited their ability to pass on higher prices to retailers. The highly volatile nature of Pakistan's currency has affected the prices of hygienic goods manufactured by Rahat and sold to Waseem and Brothers. Although Rahat is a domestic manufacturer, the imported raw materials used to manufacture these goods cause the prices of goods manufactured by Rahat to fluctuate rapidly. As a result, the prices charged to distributors and ultimately to retailers cannot keep pace with the cost of production. A second major challenge facing Waseem and Brothers' distributors is the fact that a significant portion of small retailers in Rawalpindi and Islamabad still conduct business in cash and that a high level of inflation reduces the purchasing power of these retailers. Therefore, many of these retailers reduce the amount of product purchased from distributors and delay payment to distributors, creating cash flow problems for Waseem and Brothers. Conversely, the rapidly growing urban economies of Islamabad and Rawalpindi have resulted in a large and growing population and an emerging middle-class that is driving demand for branded hygienic products particularly since the COVID pandemic raised consumer awareness of the importance of personal hygiene. However, Waseem and Brothers' distributors face intense price competition from large Fast-Moving Consumer Goods (FMCG) companies such as Procter & Gamble (P&G) and Unilever and also from imported brands. At the same time, many local low-cost brands operating in areas such as Raja Bazaar, Saddar, Khanna, and Chaklala are competing aggressively by offering very low-priced alternatives to Waseem and Brothers' branded products.

6.3) Social Factors:

The social factors that may be included in a PEST analysis are demographics and age distribution, cultural attitudes, and workplace and lifestyle trends.

The heightened awareness of hygiene and cleanliness resulting from the COVID-19 pandemic has created a new demographic trend among consumers who now prioritize their own health and that of their families. Consequently, consumers are increasingly seeking hygienic baby products, branded tissues, and quality wipes and pads that meet their standards of hygiene and cleanliness which bodes well for Rahat and for Waseem and Brothers' sales. In addition, the changing urban lifestyles in Islamabad and Rawalpindi have caused an increase in the number of families choosing packaged hygienic products for their families. Increased migration from rural areas to cities in Pakistan has also created an increased demand for affordable and reliable hygiene brands. The prevalence of the karyana and small retail culture in Pakistan, particularly in Rawalpindi, ensures that the door-to-door booker system remains relevant for Waseem and Brothers' sales strategy. Furthermore, the inflationary pressures being felt by Pakistani consumers make them sensitive to price when making consumer decisions. Many consumers opt for mid-range priced alternatives that offer value without sacrificing quality. Rahat meets this demand perfectly, as it is neither a low-priced nor a high-end product. Lastly, Pakistan's youthful population and relatively high birth rate ensure a continuous demand for diapers and baby wipes, and awareness campaigns promoting female hygiene have also contributed to an increased demand for sanitary napkins.

6.4) Technological Factors:

The technological component of PEST analysis focuses on the specific role of technological advances within the industry. How a company uses its own technology in operations, like automating certain duties or responsibilities, can help businesses create, shift or prioritize strategies, finances and processes. Sometimes government research and spending is part of the technological portion of PEST analysis, too.

The Rawalpindi area Waseem & Bros. distributors do not use many digital tools when they take orders (e.g., creating digital receipt), and receive money electronically from the small stores. Also, Waseem & Bros. does not have a robust IT infrastructure; it does not have the capability to track its own inventory levels and sales data on a single platform that will allow it to analyze this data, nor does it have GPS-enabled delivery trucks to locate their delivery drivers; barcodes or QR tags to identify and track inventory items; an automated warehouse management system to organize and keep track of inventory in its warehouses; and a mobile

ordering system for bookers and sales representatives so they can order products for customers using their smartphones. If Waseem & Bros. had these digital capabilities, they could be able to better control their supply chain, improve their customer service, and reduce the errors associated with the manual processes that they currently use. Although the rapid growth of mobile technology in Pakistan offers Waseem & Bros.' bookers and sales representatives' opportunities to begin using digital tools like WhatsApp based ordering systems, cloud-based data entry systems, and GPS-based delivery management applications. Additionally, Waseem & Bros. can also use the increasingly popular e-commerce platforms in Pakistan (Pandamart, Daraz, Naheed.pk, and Metro Online) to sell Rahat products online and provide themselves with the opportunity to fill orders from customers in other regions through Waseem & Bros. Finally, there are many affordable vehicle tracking and real-time logistics technologies available in Pakistan that are being used by a number of FMCG companies. Therefore, Waseem & Bros.' failure to develop and use similar digital capabilities is a major competitive disadvantage.

7) Solutions

7.1) Digitize Order Processing with Cashless Payments

An order management system (OMS) is software that automates the entire order lifecycle, providing complete visibility from inventory availability and order receiving to tracking and shipping notifications. The retail channels that can benefit from an OMS include bricks-and-mortar locations, websites, call centers, mobile orders and kiosks. For customers, an OMS simplifies the buying process. For businesses, it makes it easier to manage orders, inventory, fulfillment and product returns.

To remain competitive, companies need to provide real-time customer, product, pricing and inventory data across all channels. Order management software provides inventory visibility across the enterprise, regardless of sales channel, helping to provide a buy, fulfill, track and return anywhere experience.

A digital Order Management System, will enable the company to automate managing orders and collections in a much more efficient manner, eliminating inefficient manual processes. The Digital Order Management System will use a mobile application (for example, like Zoho CRM) to allow Sales Representatives (or bookers), or shop owners to place orders, and online payment platforms (such as Easy Paisa, Jazz Cash or bank transfers) to collect payments. This process will transform the current paper-based process of delivering orders and collecting

7.1.2) Reduce unnecessary field trips and wasted fuel:

Because the digital order management system enables remote order placement, sales representatives do not need to visit each store for every order. This greatly reduces the amount of unnecessary field trips that occur, saves time and fuel, and allows employees to focus on value-added work. Each shop owner can create their orders electronically, and warehouse personnel can prepare those orders right away, instead of waiting for a physical pick-up of the order list.

7.1.3) Easy and safe digital payment processing:

Rather than collecting cash, the Company can collect digital wallet payments or bank transfers. If the Company uses a service like Easy Paisa or JazzCash, the funds will automatically go into the Company's account. As a result, the Company avoids losing money to theft or miscounted funds from handling cash. It has been documented that digital payment methods help reduce theft and fraud because there are fewer opportunities for someone to take money or falsify funds. All payments are entered digitally, therefore creating a paper trail of all transactions.

7.1.4) Accurate tracking of orders and verification of payments:

Every order and payment is tracked in real-time in the system (Zoho CRM). This creates a well-organized and clear digital record of everything that was ordered and paid for by each shop. Management can quickly view orders, check stock levels and verify payments without reviewing paper receipts. By doing so, it decreases the possibility of confusion and ensures that no orders are lost, increasing efficiency and customer satisfaction.

By putting a Digital Order Management System into operation, the company can make the process of performing business simple – just a few clicks on a computer screen. Orders will be processed and paid for more quickly and correctly, and payments will be made safely. Put simply, this modern approach will convert a previous frustrating and error-prone process into a smooth automated workflow, benefiting both the sales team and customers.

7.2) Implement GPS Trackers for Delivery Trucks

The GPS tracking devices, such as those provided by TPL Trakker, will provide the company with the ability to keep tabs on and direct its fleet of delivery trucks in real-time. As a simple explanation, the GPS tracking systems enable the delivery trucks to "talk" to the company as to where they are and what their status is at any given time. Using a mapping system, managers will be able to see exactly where each vehicle is located, at what speed they are traveling, and along which route they are traveling. Additionally, the GPS tracking system will provide the drivers with a navigational aid to assist them in finding the best route to each destination.

method for preventing theft and/or misuse; i.e., if a vehicle strays away from the designated route or remains stationary for an excessive period of time, the company can contact the driver or remotely disable the vehicle (if necessary, via providers such as TPL Trakker). Overall, the products contained within the vehicle will be safer as the company will be virtually monitoring each vehicle's travel route.

7.2.3) GPS Navigation Tools Assist Drivers:

The GPS navigation tool (a component of the TPL Trakker system) will help assist drivers in locating their precise delivery destination and avoid traffic congestion, accidents and other road hazards. The GPS navigation tool provides an optimal route to the stores, and the optimal route can be updated in real-time, based upon the current traffic conditions, accidents, etc. The GPS navigation tool helps reduce time and fuel spent by drivers during delivery trips, eliminating the problem of drivers getting lost or spending too much time in congested areas and providing the store owner with the product they ordered sooner.

7.2.4) Helps Improve Driver Habits and Vehicle Maintenance:

The GPS tracking system also acts as a recorder of how the vehicle is being used and operated by the driver. For example, it records instances where the driver is traveling at excessive speed, or has left the vehicle idle for extended periods of time, etc. By correcting the drivers' habits related to driving and using the vehicle, the drivers are more likely to use the vehicle in a safe and efficient manner. Additionally, the GPS tracking system tracks mileage and engine hours, and may send reminders to the team regarding when routine vehicle maintenance (i.e. oil changes, tire rotation) is required. The proactive maintenance of the vehicles minimizes the possibility of unforeseen vehicle breakdowns. As such, the company will be able to address small issues before they develop into larger problems; maintain the delivery schedule intact; and extend the life span of the vehicles.

Through the implementation of GPS tracking systems (similar to those offered by TPL Trakker), the organization converts each delivery vehicle into a connected, intelligent vehicle. Management is assured of knowing where each vehicle is and that products are being delivered safely to the correct destination. The drivers receive assistance from a co-pilot through GPS navigation tools to improve the route efficiency and reduce stress associated with navigating. Ultimately, the organization achieves a more efficient and dependable delivery process: products arrive at the shop owners in a more timely manner, the cost of fuel and maintenance decreases, and the risks of product loss or delay significantly decrease. Simply stated, the company will be able to "track smarter and deliver faster," resulting in both the satisfaction of the organization and its customers.

7.3) Lack of a Barcode Tagging System and an Integrated Warehouse Management System

A WMS is software designed to help businesses control and optimize warehouse operations. At its core, a WMS helps you track where goods are, how they move through the facility and what needs to happen next to fulfill demand efficiently. Whether you're operating a small e-commerce warehouse or managing multiple distribution centers across the country, a WMS can streamline your logistics and ensure customers receive what they ordered on time and with fewer errors. A WMS is essential because it not only tracks every item in your warehouse but helps optimize storage, manage inventory levels and reduce costly errors. It monitors inventory as it arrives, gets stored on shelves and eventually leaves the warehouse to fulfill orders. With real-time data, the WMS can instantly verify whether an item is in stock the moment a customer places an order without manual checks. The system flags the order as ready for packing. When implemented effectively, the WMS platforms can save enough time and labor to pay for themselves.

Zoho is a cloud-based business software suite designed to help companies streamline operations, improve customer relationships, and automate essential processes. Whether you're a freelancer, small business owner, or a manager in a growing enterprise, Zoho provides an all-in-one platform to manage everything from sales and marketing to accounting and collaboration. With a diverse range of applications, Zoho is widely recognized for its flagship product, Zoho CRM, which empowers businesses to track leads, automate workflows, and enhance customer engagement. Additionally, tools like Zoho Books simplify accounting, while other solutions support project management, HR, and communication — all within a unified ecosystem. Zoho's flexibility makes it an excellent choice for businesses of all sizes. In the next sections, we'll break down Zoho's key products, pricing plans, and benefits to help you determine if it's the right fit for your business in 2025.

Description:

The current method of inventory management for the company's warehouse includes no RFID tagging or bar coding of products, and does not include any centralized Warehouse Management Systems (WMS). All of the company's inventory related functions (i.e., receiving shipments, counting products, reporting inventory levels, finding inventory) are performed manually, either through employee memory, or through the use of written/Excel logs. Because different departments (sales, warehouse, and accounting) are responsible for maintaining their own inventory records, data is never consolidated or centralized. Due to this manual, non-centralized method of performing inventory tasks, the company experiences high rates of errors

combining bar code scanning with the functionality provided by Zoho Inventory, the company is able to eliminate data silos, reduce inventory miscounts, and accelerate the entire process of processing orders to delivery. Additionally, the use of automated scanning to conduct cycle counts or audits reduces the amount of time and labor required to conduct them compared to conducting them manually (by pen and paper).

7.3.3) Easy Product Location and Fast Order Fulfillment:

The implementation of a WMS allows the organization to define specific bin locations or storage areas within the warehouse. Products and locations can then be assigned bar codes and entered into Zoho Inventory. When an order is received, warehouse employees can quickly look-up the location of the product(s) needed in the system versus relying on memory. When selecting products from storage, scanning the bar code on the storage location and the bar code on the product being selected virtually eliminates the possibility of selecting incorrect products, and therefore "losing" them. The overall result is a significant increase in the speed of fulfilling customer orders due to the reduced amount of time spent by employees searching for products. Additionally, Zoho Inventory supports bar code scanning for inventory transactions, allowing employees to easily capture receipt and shipment transactions using bar code scanning. With the ability to instantly see where each product is located and utilize scanning to guide selections, the warehouse operates much more efficiently and can rapidly locate and ship products to meet customer demand.

7.3.4) Centralized Data and Better Visibility:

Zoho Inventory replaces the numerous independent spreadsheets across the business and provides a common source of inventory information. With all employees (sales, warehouse, and finance) able to view/record changes in real time, this eliminates inconsistencies and differing versions of inventory levels between employees/departments. This eliminates issues with sales making promises that cannot be fulfilled due to lack of stock. Upon the completion of a sale, or receipt of a new shipment, the inventory level is updated in real time and is visible to both the sales and management teams. In addition, Zoho Inventory can update inventory quantities upon every sales order entry, providing a seamless, real-time update to ensure that employees are always accessing the most recent inventory quantities. Management has the ability to run reports at any time to determine inventory levels, product turn over, sales trends etc. and does not have to spend hours reconciling data from different systems to make decisions (i.e., what product to reorder next). This unified real-time system helps to eliminate the "silo" mentality of employee's not sharing information, allowing the organization to make better decisions and operate more efficiently.

7.3.5) Batch and Expiration Tracking:

An advanced Warehouse Management System (WMS) such as Zoho Inventory offers tracking capabilities for batch number and expiration date. Each batch of hygiene products is assigned a unique number and manufacture/expiration date. Employees are then able to scan each item to determine the batch number it belongs to. Zoho Inventory also makes it simple to find specific items using either their expiration date or batch number. For example, if you need to remove all units of a particular batch because they are close to expiring, Zoho Inventory makes it simple to do so. In addition, the system can provide alerts and reports to help you avoid selling expired products. The system also helps to maintain proper rotation of products (first expire first out), and prevent products from being left on shelves too long or being shipped out. In the event that a quality issue occurs, having all your product information stored in a central location, including batch number, allows you to rapidly trace back all affected products vs. searching through paper records.

7.3.6) Increased Efficiency & Improved Customer Service:

Once automation is implemented, many of the manual processes used today can be automated, saving time and reducing errors. For example, receiving new stock into your warehouse is now faster with employees scanning the new stock to record it, instead of recording it in a log book. The WMS can also assist employees by suggesting the best possible place to store new inventory, and once inventory is scanned and recorded in the correct location during receiving, it is immediately accessible and ready to ship. Although, there is an upfront cost to implement scanners and train employees, the time savings and reduction of errors quickly pay for themselves. As employees' workloads decrease, the company will be able to process orders faster and more accurately. Employees in sales and customer service will have confidence in the inventory data to respond to customer inquiries. For example, if a large customer in Rawalpindi places an emergency request for a shipment, employees will be able to verify inventory levels in Zoho Inventory and confidently offer a delivery date. Picking, packing and shipping orders will occur much faster with the use of a WMS with guided barcode scanning work flows, resulting in customers receiving their orders sooner. As a result of eliminating delays and reducing the occurrence of errors (i.e., stockout or incorrect shipments), the company will deliver a more consistent and reliable service to its customers. Ultimately, the streamlined supply chain from start to finish (from warehouse operations to sales) results in improved response times and increased customer satisfaction.

CHAPTER 5: TESTING AND DEPLOYMENT

8) Implementations:

8.1) Digital Order Processing & Cashless Payments

8.1.1) Deploy a Mobile Order App:

Give your mobile sales representatives/shop owners a smartphone/tablet app (CRM), for example Zoho CRM or Delta Sales App, to input their orders (instead of on paper). The app should allow users to enter orders anywhere, without internet connection, and automatically send those orders once internet is available again.

8.1.2) Integrate Payment Options:

Integrate the app with common Pakistani digital payment options (EasyPaisa, JazzCash, bank transfers) to enable instant digital payments via QR-code or in-app payments. Remove the need for cash handling.

8.1.3) Train Sales Reps & Shop Owners:

Educate your mobile sales representatives on how to use the new app and scanner and educate shop owners on how to place and pay for orders digitally. Modify current sales processes - i.e., sales representatives will not require cash or order books anymore. Include technical support to assist sales representatives with potential issues while rolling out the application.

8.1.4) Synchronize Existing Order & Stock Data:

Synchronize your pre-existing order and stock data (spreadsheets) to the new database and confirm that the new app reflects your real inventory level. Establish automatic synchronization for sales, warehouse and accounting departments to view the same updated information each day.

8.1.5) Faster and More Accurate Orders:

Once the order is entered into the system manually, the time to complete the order will significantly decrease. Companies experience a decline in average order entry time from around 11 minutes (manual) to 3 minutes with a fully automated process. Manual error rates associated with placing orders will also decline to near zero. With few exceptions, this results in happy customers because fewer orders will contain incorrect products and/or missing items.

8.1.6) Stock Levels Available in Real Time:

As orders are placed in the app immediately, the system can provide real-time stock checks. Thus, sales representatives will never sell an item that they do not have in stock and vice versa, as the representative will always see real-time inventory counts. Zoho states that barcode-based

inventory tracking provides “the exact number of product units you have at any given time so you’ll never miss a sale due to running out of stock.”

8.1.7) Safe and Auditable Payments:

Removing cash entirely removes many risks associated with it. All digital payments (e.g., wallets and transfers) update to the company's account immediately and leave a permanent audit trail for each invoice. Business News Daily states that digital payments “help reduce employee fraud” as every transaction is logged, making it much more difficult for employees to incorrectly report transactions. Cash disputes that occur when there is a discrepancy in the amount of money that was deposited are nearly impossible to resolve - instead of having to reconcile the cash at the end of the day, management can access the company's account records to verify transactions in seconds.

8.1.8) Reduced Workload and Reduced Paperwork:

Most manual paperwork will be removed. For example, sales representatives will not spend countless hours rewriting paper orders into a spreadsheet. The extra time will give them additional opportunities to contact clients and visit locations. Reports can be generated at the click of a button - such as daily sales, outstanding invoices, etc. By eliminating manual work, according to Delta Sales App, automated systems eliminate “manual errors” and “streamline order-to-cash cycles.” In reality, several businesses have seen their sales representatives' order entry workload reduced by 70%

8.1.9) Key Metrics after Rollout:

Accuracy of Orders:

Error rate declines from approximately 9% to less than 1%

Time for Processing:

Average time per order decreases by 70% to 80% (for example, 11 minutes → 3 minutes)

Cash Handling:

Lost/stolen cash incidents decline to 0; reconciliation time declines from hours to minutes.

Productivity/throughput:

A single representative can now enter many more orders in a day (due to faster processing and ability to order remotely).

8.2)GPS Fleet Tracking and Navigation

8.2.1) Install GPS Tracking Devices on All Company Vehicles:

GPS Tracking Devices (such as TPL Trakker) will be installed on all company vans. They are powered by the vehicle and continuously send the vehicle's speed/location information to a centralized database.

8.2.2) Set Up a Web-Based Fleet Management Application:

The fleet management application will utilize a web-based dashboard or mobile application to show the current position of all company vehicles in real time. Geofence settings will be configured for each delivery zone/route to send alerts for off-route travel, excessive idling, and speeding. Dispatchers will also be able to view the positions of the vehicles and historical trip records via the application.

8.2.3) Provide GPS Navigation Apps for Drivers:

GPS Navigation apps will be provided to each driver (such as Google Maps/Waze or a GPS enabled device). Pre-determined routes will be entered into the app, along with real-time traffic updates. The app will be explained to each driver and they will be trained on how to report delays/breakdowns immediately to management.

8.2.4) Train Managers/Dispatchers:

Managers/Dispatchers will be trained on the new tools/applications. They will learn how to read the live maps, respond to alerts, and re-route vehicles dynamically. Procedures will be established (i.e., if a long stop is shown by a tracker, contact the driver or send back-up).

8.2.5) Continuous Visibility of Every Vehicle:

All managers can track the current position/status of each vehicle at any time. This allows management to ensure that drivers stay on their designated routes and adhere to their schedules. Alerts are sent out to management if a driver goes off route or remains stopped for extended periods. Without the GPS tracking systems, this type of constant visibility and ability to manage/direct drivers were non-existent. Now, managers have visibility on "where every truck is at" and therefore have better control/accountability over their employees and vehicles. For example, GPS tracking systems provide continuous live tracking and geofencing alerts to notify the company "if a vehicle unexpectedly enters or leaves a defined area".

8.2.6) Safe and Secured Delivery Methods:

GPS tracking systems serve as anti-theft devices. The geo-fencing alerts help prevent unauthorized detours. If a truck is stolen, the police department has immediate information on the location of the vehicle. TPL Trakker reports that with GPS tracking systems, companies can quickly find and recover their vehicles and cargo with "instant movement alerts" and

"engine disable" functions. This provides an added layer of protection to "the product being transported on the truck because the company is essentially 'watching' over each vehicle as it travels".

8.2.7) Improved Route Optimization and Reduced Fuel Consumption:

With real-time navigation and route analysis, the GPS tracking systems help reduce fuel waste. The GPS tracking system helps drivers navigate through the most efficient routes avoiding congested roads/high traffic areas. Additionally, drivers do not need to remain idle when stuck in traffic. The GPS tracking system monitors "idle time" and inefficient routes allowing the company to eliminate unnecessary fuel consumption. Historically, many fleets experience significant decreases in fuel consumption (up to double digit percentage decrease) after implementing GPS tracking systems. Heavy trucks consume approximately one gallon of fuel per hour while remaining stationary/idle, thus, small reductions in idle time translate to reduced fuel consumption and more deliveries per gallon of fuel.

8.2.8) Increased Timeliness of Deliveries and Improved Customer Satisfaction:

With GPS tracking systems providing managers with the ability to accurately inform customers of estimated arrival times, any delays (traffic related, breakdown, etc.) are communicated to the customer immediately through the manager/dispatcher who can also direct another vehicle to make the delivery. Ultimately, GPS tracking systems improve delivery timeliness which improves customer satisfaction as well as reduce missed appointments.

8.2.9) Proactive Maintenance and Driver Training:

The GPS tracking systems track and log the usage of each vehicle (miles traveled, hours on the engine, etc.) as well as the driver's behaviors (speeding, hard braking, etc.). The company uses this data to schedule proactive maintenance on the vehicles reducing the number of breakdowns and ultimately reducing the number of unscheduled delays experienced during deliveries.

8.2.10) Metrics Expected to Improve Following Implementation:

Delivery On-Time Percentage:

It is expected that the number of on-time deliveries will increase significantly (example: 70% on-time to 92%+ on-time).

Fuel Efficiency:

The amount of fuel consumed per trip will decrease (typically by 10%-20%) as the routes become more efficient and the amount of idling decreases.

Idle Time:

It is expected that the amount of time spent idling by the engines of the company vehicles will decrease (typically 30%-50% less idling).

Number of Stops/Deliveries per Day:

Due to the improved efficiency of the routes, it is expected that each driver will be able to make more stops per day.

Safety/Regulatory Compliance:

The number of incidents of speeding or unauthorized stops will decrease (tracked by the alerts generated); the number of vehicles maintained according to the manufacturer's guidelines will approach 100%.

8.3) Integrated WMS with Barcode Scanning**8.3.1) Warehouse Management System:**

Zoho Inventory allows you to create a central database for your company and manage the entire process from sale through to delivery. Product data such as product name, SKU, description, etc., should be created within this database. Then, all product data for all products, including information related to the product (such as color, size), and product data for all locations in the warehouse (shelf/bin #, aisle #, etc.) should be defined in the system.

8.3.2) Barcodes and Labels:

A barcode label (RFID tag) should be created for every product and for each shelf/bin # in the warehouse. The barcodes for hygiene products with batch/expiration should also include the batch #. Barcode labels can be purchased in bulk online or in house using a label printer.

Barcode Scanners and Smartphones: Each employee in the warehouse should be equipped with a barcode scanner or smartphone with the Zoho Inventory mobile application. Employees will use their scanners to capture data on every transaction (receive, put away, pick, pack and ship).

8.3.3) Data Migration and Cleanup:

Your inventory count data from Excel should be migrated into the WMS during the initial setup. A physical inventory count should then be completed to verify that the opening quantities of each product in the WMS match what exists in the warehouse.

Training: Training sessions should be conducted for employees to learn how to use the barcode scanners, how to enter product codes into the mobile application and to confirm picks. New processes should be implemented, i.e.: On receipt, scan each box into the system, and on fulfillment of orders, scan the product being shipped and the location where the product was stored so that the WMS can validate the correct product has been selected and reduce the inventory count in real time. Training sessions should also be provided on how to perform cycle counts of inventory with the scanners.

8.3.4) Real-Time Inventory Accuracy:

With the use of the WMS, the inventory levels are updated in real time when an employee scans an item in or out of the warehouse. Therefore, the recorded inventory level will always reflect the true inventory level in the warehouse. In many cases, companies have reported that their inventory accuracy jumped to 95-99% once they implemented a WMS, whereas prior to that time their inventory accuracy was around 60%. Managers can now rely on the system generated inventory counts, and will know in real time whether an item is available in inventory to fulfill an order for a customer.

8.3.5) Batch/Expiry Control:

With the ability to store batch numbers and expiration dates in the system, the WMS can automatically generate "first expire first out" (FEFO) reports for picking. The system can identify which products are approaching expiration and provide management with reports to ensure that expired products are not shipped to customers. In addition, in the event of a recall, the system can quickly identify all affected batches.

8.3.6) Unified Data & Reporting:

All departments will view the same version of the truth. When sales or stock changes occur, the data will automatically be reflected across all departments. Sales logs, warehouse counts and financial records will no longer show different versions of the data. Managers will be able to make informed decisions based upon a dashboard view of the data, including current inventory levels, turnover rates and sales data by product, without having to reconcile data manually. This common platform will enable management to establish re-order points, develop promotional plans and modify forecasting plans quickly.

8.3.7) Labor and Cost Savings:

Routine tasks are automated and therefore eliminate labor. Receiving goods into inventory is faster and easier with the use of scanners eliminating the need to manually document each piece received. Fewer errors are made with the WMS reducing the amount of time required to investigate and resolve issues. There may be some upfront costs associated with purchasing scanners and providing training for employees but those costs will be recouped by avoiding stockouts and losses due to damaged/lost items, and by saving labor dollars on entering data into the system. Operational efficiency increases significantly.

Metrics to Monitor Post Implementation:

Inventory Accuracy: >95%

Picking Error Rate: <1%

Inventory Carrying Costs: Reduced

Audit Time: <20% of previous audit time (from days of manual counting to a few hours of scanning)

8.3.8) Efficiency & Effectiveness Gains Summary

The warehouse will transform from a paper driven, reactive business model to a data driven, efficient operation utilizing the digital and automation tools implemented. Efficiency will improve due to the speed at which routine tasks (order entry, routing, counting) are performed and the manual labor required to complete these tasks will decrease. Effectiveness will improve as the processes become more accurate and transparent. Order processing will be 3-4 times faster than before with virtually no errors, and inventory data will be updated in real time eliminating costly errors. The key performance indicators to track will be: order entry time, order error rate, on-time delivery rate, miles per gallon, and inventory accuracy. We anticipate dramatic improvements post implementation, e.g. error rates will drop to less than 1%, inventory accuracy will increase to greater than 95%, and miles per gallon will decrease due to improved routing. In summary, implementing an app-based order system, GPS tracked deliveries, and a barcode-based WMS will help eliminate delays and errors, improve security, and provide transparency of data for making decisions resulting in a faster and more reliable operation.

CHAPTER 6: RECOMMENDATIONS AND LIMITATIONS FOR WAREHOUSE DIGITAL SOLUTIONS

9) Recommendations

9.1) Digitize Order Processing and Cashless Payments

9.1.1) Select a low-cost, mobile/CRM order-entry application:

Select a basic mobile/CRM-based order entry system that matches the number of small SKUs you have (Zoho CRM; custom apps). As you have only 7-9 SKUs and vary from day to day, a simple digital entry form could be used in lieu of handwritten entries. Pilot-test the workflow using a group of sales representatives and a few shops to ensure the order entry process works smoothly. The digital ordering process reduces errors, reduces input times and speeds up the order entry process significantly. Studies indicate that mobile order entry can result in approximately 35% faster processing and approximately 25% fewer fulfillment errors (globe.com).

9.1.2) Install secure, cashless payment:

Add online payment options (i.e., EasyPaiza, JazzCash or bank transfer) into the order entry application. This allows sales representatives or owners to electronically complete payment upon receiving orders, eliminating the need for cash handling. Research has demonstrated that electronic payments "process transactions faster, provide reduced risk of theft and improve accounting efficiencies" (blog.autobooks.co). The result is less cash on hand (therefore less to steal) and all payments made electronically are automatically logged into the system. Use the QR-code or payment-link feature to allow customers to easily complete electronic payments, and connect payment confirmation back to the CRM so you are aware of when an order is paid.

9.1.3) Train users and designate product champions:

Provide short training sessions for bookers and store owners on the new order entry application and electronic payment process. Highlight the advantages (quicker responses, no longer misplaced orders) and develop simple reference guides. Get your employees involved early: designate some "product champions" who can assist their colleagues in learning the application. It has been shown through best practices in digital rollouts that employee involvement, particularly in the form of peer-to-peer assistance during the initial stages of adoption, is important to achieving high levels of user adoption (silver-lining.com, finaleinventory.com). For example, perform role-playing activities with the sales

representative(s) on taking orders with the application, demonstrating how the application automatically submits orders to the warehouse.

9.1.4) Pilot test and phase-in the rollout:

Do not convert every process at once. Rollout the digital order entry process in one geographic area, or with a limited number of customers. Test the entire process end-to-end (order entry, remote delivery scheduling, payment receipt) and make improvements. A phased rollout process enables identification and resolution of issues early. A study has indicated that "pilot projects [with] one or two key areas of transformation" enable you to find and resolve issues prior to a full-scale launch (silver-lining.com). When the pilot rollout is completed without issue, gradually expand to all bookers and stores. A phased rollout minimizes the risk of failure and assists in meeting the six-month deadline.

9.2) Implement Fleet GPS Tracking

9.2.1) Find a local GPS tracking provider:

Partner with a well-established local GPS tracking company (e.g., TPL Trakker) to install GPS tracking units on your vehicles. GPS tracking provides real-time vehicle location information, speed and route data for each vehicle. Using GPS tracking to monitor the movement of your vehicles in real-time will enable you to manage the schedule of your vehicles and also optimize routes. As a matter of fact, GPS fleet tracking "enables fleet managers to track ... location, speed, route adherence, and fuel consumption in real-time," which will help you address inefficiencies and minimize downtime of your vehicles. This will result in improved on-time delivery rates and reduced fuel usage by your drivers as they travel the most efficient routes.

9.2.2) Provide GPS navigation and alerts:

Provide your drivers with GPS applications or devices (often included as part of the GPS tracking unit) to view optimal routes based on real-time traffic and also receive notifications based on their driving habits. Optimizing routes has consistently resulted in improved transit times and reduced fuel costs (fit-global.com). Additionally, establish geofences and alerts within the GPS tracking system. The tracking system can send notifications to you if a vehicle deviates from its designated route or sits idle for extended periods of time. Such alerts will enhance security - GPS tracking systems have effectively provided "real-time tracking and alerts for unauthorized vehicle movements," allowing you to quickly respond to potential theft of your assets (fit-global.com). For example, if a vehicle leaves a defined geofence, you can take immediate action.

9.2.3) Train the drivers and dispatchers:

Train the drivers that the tracking will assist them in performing their job better (more safely, more efficiently navigate), and also provide protection to the fleet. Train the drivers to utilize the GPS navigation tool and any driver facing application. Additionally, train the dispatchers and/or warehouse staff to regularly check the fleet dashboard. If a driver is running behind, someone can reroute the vehicle or advise customers. Regularly evaluate driver reports for idling or excessive speed and educate drivers on eco-driving techniques. Over time, this will reduce both fuel expenses and maintenance requirements - many modern GPS tracking systems also report engine hours and alert you when maintenance is required.

9.2.4) Start Small with One Vehicle:

It is recommended to test the system first with just one or two vehicles. Once you have validated the data (location accuracy, alerting) and verified that the correct personnel receive notifications, make adjustments to your settings (e.g., geofence boundary) and resolve any technical problems. The same controlled deployment approach (as recommended by Digital Projects' silver-lining.com) will allow for rapid resolution of any problems identified during testing. Only after verifying the system will it be deployed to all of the vehicles in your fleet.

9.3) Deploy Barcode Inventory Tracking with WMS**9.3.1) Develop an integrated inventory management system:**

Utilize Zoho Inventory (utilizing a local Zoho Partner for set-up) as your centralized inventory management database. Transitioning from separate inventory databases (via spreadsheets) to one inventory management system will ensure that all departments view the exact same real-time stock levels. This unifies inventory views among departments to prevent sales personnel from offering inventory that does not exist within the warehouse. Generally, Barcode-Driven Warehouse Management Systems (WMS's) provide "accurate, real-time inventory tracking, resulting in less error and improved inventory control." skunexus.com. Therefore, your recorded inventory should be very close to actual inventory in the warehouse.

9.3.2) Print barcodes to product and location:

Print barcodes to each of your Stock Keeping Units (SKUs) and print barcodes to storage bin/shelf locations. Utilize hand held scanners (or utilize smart phone applications to read barcodes) while working within the warehouse to immediately update Zoho Inventory upon receiving an item and picking an order. These actions eliminate manual entries and paper logs and dramatically reduce the number of incorrect counts. According to one source, barcode systems may improve order accuracy rates by approximately 20% and reduce labor time by as much as 30%. Due to the low SKU count of your company, the implementation of this type of

barcode system is relatively easy and will result in significant improvements in inventory accuracy.

9.3.3) Sanitize Data and Migrate Carefully:

Prior to activating Zoho Inventory, take a complete physical count of current inventory and enter these quantities into Zoho. Standardize SKU numbers and assign storage areas in the system. Sanitization of data (typically 20% of the total project effort) is vital to successful implementation. A WMS Guide states that bad data will kill a WMS, therefore plan to establish a base-line inventory count prior to activating Zoho. When your Zoho inventory reflects true inventory, future scans will remain synchronized.

9.3.4) Train Warehouse Staff:

Train warehouse personnel on the proper scanning techniques and procedures for the new workflow. Conduct practical sessions where personnel scan products for a mock order or cycle count. Place a reference guide at each workstation for quick access. Establish a "train the trainer" approach so a few super-users become internal experts finaleinventory.com. While conducting training, emphasize to warehouse personnel that scanning will speed their work (no longer manual counting or searching for misplaced inventory) and reduce confusion.

9.3.5) Implement on a Limited Basis First, Then Expand:

To avoid disruption to other business functions, implement the barcode/WMS process initially on a limited basis. For example, implement the process on a few bins and track all inventory movement within those bins for a week. This pilot phase will expose potential process flaws (poor printed barcodes, lack of scans) before implementing across the entire warehouse. After completing the pilot phase, expand the process throughout the warehouse. After activation, utilize the built-in reporting features of Zoho to identify any irregularities (i.e. abnormal stock increases) and retrain accordingly. Additionally, activate batch/expire tracking in Zoho so each received batch has an expiration date attached to it. The system will alert you when to ship the oldest stock first and when a product is approaching its expiration date to avoid wasting products.

9.4) Phased Rollout and Employee Adoption

9.4.1) Phase Your Implementation:

Implement each solution in stages rather than all at once. For example, activate the digital ordering and payment system first (conduct a pilot with one sales team), followed by the activation of GPS devices, and lastly implement barcoding in the warehouse. This phased rollout approach is consistent with industry best practices. "Start with smaller pilot

projects...test new technology and processes on a smaller scale.” silver-lining.com. A phased rollout reduces risk, enables rapid learning, and enables the achievement of the six-month goal by concentrating efforts.

9.4.2) Involve Employees in the Process:

Include employees and departmental leaders from the beginning. Explain the reason behind each change and how it will enhance their job performance. Identify specific roles (i.e. warehouse leader, IT Coordinator) to promote the new systems. Provide hands-on training. Adults learn best by doing finaleinventory.com. One guide recommends train-the-trainer sessions and quick reference guides to assist even the most reluctant users to adapt to new systems. It is essential to provide ongoing support. Ensure that assistance is readily available (from IT or the software provider) as employees begin utilizing the new tools.

9.4.3) Monitor Progress and Make Adjustments:

Establish basic metrics (accuracy of orders delivered, on-time delivery, inventory variance) and review them weekly. If a particular metric is below desired standards, collect input and modify the process. For example, if numerous orders continue to arrive late, evaluate whether the tracking information is being utilized correctly. The willingness to modify (routes, employee routines, system settings) will assure that the transformation will endure silver-lining.com finaleinventory.com. Submit regular progress reports to upper level management to maintain momentum.

9.4.4) Use local resources to track, deliver, and save money:

Since we are limited by time and money, we need to use local resources when it comes to our technology; use Pakistani vendors or Zoho certified partners for your implementation (Fairchance for CRM is a Zoho certified partner) www.fairchanceforcrm.com. Our local partners have a better understanding of the local market and therefore will be able to provide you with faster response times. Additionally, choose cloud/SaaS solutions; the use of Zoho Inventory eliminates the need to purchase hardware and reduces the initial licensing fee www.finaleinventory.com. When possible, negotiate to implement only the necessary features to meet the needs of the organization at this point (example, order entry, simple tracking), and save advanced capabilities (such as complete ERP modules) until later. This phased approach to investing will enable us to stay within budget and on schedule.

If we follow these recommendations — phased deployment, focused training, and cost-effective local solutions — then the warehouse should "track smarter and deliver faster" as originally planned. The referenced industry information clearly shows that transitioning from paper-based to digital orders significantly reduce errors and expedite processing www.go-

globe.com, utilizing GPS for tracking routes will optimize them, and utilizing bar coding will lock in accurate real-time inventory levels www.skunexus.com. Therefore, if we carefully plan our implementation, the business will experience fewer errors, lower costs, and greater customer satisfaction, all before our six-month target date.

10) Limitations

The inherent difficulty in coordinating activities amongst the three students was exacerbated because they were separated geographically in Rawalpindi and Islamabad which has been documented to create barriers in group work including uneven participation and communication when working from different locations. The students also had to contend with other obstacles related to their project including, limited access to Waseem and Brother's physical facilities and personnel, this is a typical obstacle for students completing an internship or project for a business that limits the students' ability to observe, collect data directly and potentially impacts the quality of the data collected. Additionally, the students' heavy course load created extreme time constraints for the project timeline. It has been reported in previous studies that "time constraints" can severely impact the scope and quality of data collected during undergraduate research. Furthermore, from a research perspective, proprietary information was limited and therefore, there was limited access to internal company data (another commonly cited limitation) limiting the depth of analysis that could be conducted. Assessing the feasibility of various digital tools was also challenging for the students. An example of the types of tools that were difficult to assess included international inventory or CRM platforms (Zoho Inventory and Zoho CRM). These types of systems typically require a high subscription fee and have not localized for Pakistan's tax and regulatory environment; in addition, local IoT tracking services such as TPL Trakker were unknown to the students. Another area where assessing digital tools was complicated for the students was evaluating payment options (Easy Paisa, Jazz Cash and traditional bank transfers). Finally, acquiring a local vendor to provide a warehouse management system was further complicated for the students because of inconsistent technical support and training requirements. Industry reports suggest that although inventory solutions may be suitable for inventory control, inventory solutions will not perform as expected if customers do not receive proper training or customer service. The cumulative effect of these logistical and research limitations resulted in the students being unable to complete the warehouse automation study.

CHAPTER 7: CONCLUSION

The main operational inefficiencies of this warehouse were the dependency on manual processing of orders and handling of cash, there was no GPS tracking on delivery vehicles, and there was little to no use of barcodes or a fully functional Warehouse Management System (WMS) for inventory tracking. All of these areas created additional delay time, communication breakdowns and additional workloads within the warehouse operations.

To address all of the above-mentioned issues, the project team recommended low-cost, business-friendly alternatives. The team believed that utilizing a CRM system (Zoho CRM) for order entry, combined with allowing customers to pay for orders on-line using Mobile Money Transfer Applications (Easy Paisa, Jazz Cash, Bank Transfer) would significantly reduce the amount of cash transactions that occur in the warehouse. The team also believed that installing GPS tracking devices (TPL Trakker) in delivery vehicles would allow for the ability to track vehicles in real time; thus, enabling customers to have estimated times of arrival for their deliveries. The team felt that an integrated inventory system with barcode scanning (Zoho Inventory) would enable automatic tracking and updating of products and eliminate the need for manual counting of inventory.

As previously stated, the student teams' roles were to analyze and propose solutions and not to implement those solutions. The proposed solutions did not get implemented by the project team; they merely suggested affordable ways to improve warehouse operations. The intent behind the proposed solutions is to act as a tool for the company's future planning. Any future implementations of the proposed solutions would need to be carried out by the company through the appropriate avenues and resources. It is ultimately up to the company's management to determine if the proposed solutions should be implemented. The possible enhancements to the company's warehouse operations have been illustrated through this study and it is now up to the company to decide what options best fit their needs. If the proposed solutions are implemented, the company could see improvements in the speed and accuracy of order processing, lower error rates and greater visibility into shipment and inventory tracking. The student team feels that the data contained in this study will aid the company in making informed decisions about their warehouse operations.

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Annexures

11) Interview Questions:

When and how was the distribution centre started?

How many products are handled in the warehouse?

What is the current WMS you are using?

How are orders booked and delivered to the customers?

Is any tracking system used in delivery vans?

How is stock in warehouse managed and counted?

Who is responsible in case of fraud or theft from inventory in warehouse?

Do delivery drivers have to face issues while going for delivering products?

