



Investigating Inventory Management and Labeling Challenges in Midlands Spare-Parts Retailers: Causes and Consequences

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Abstract

The study examined some of the problems associated with inventory management and labeling of spares retailers in the Midlands province of Zimbabwe. Data was gathered through semi-structured interviews and observations in 27 retail shops. Store managers, inventory and sales personnel participated. To find any themes, NVivo software was utilized for thematic analysis. The results showed that key areas for improving inventory mismanagement include the lack of adequate technological infrastructure and lack of staff training, with many retailers lacking highly trained and qualified personnel and manual record-keeping systems. Labeling inconsistencies were prevalent, as a result of procedure, cognitive load and staff turnover, which further compounded operational inefficiencies. These issues resulted in major business consequences including phantom stock, lost sales valued at 10-25% per day, customer dissatisfaction and loss of revenue from over-ordering and write-offs. The research combined the theory of inventory management and human factors theory to get a full picture of how technical and human factors influence inventory and labeling mistakes. The study suggests the use of low-cost inventory management technology, consistency in labeling inventories and structured training of staff to enhance accuracy and sustainability of business. In summary, the research indicates that the entire situation of the Midlands spare-parts retail is problematic and needs overall interventions to improve operational performance and customer trust.

Keywords: Inventory Management, Labeling Errors, Spare-Parts Retailers, Retail Operational Efficiency, Midlands.

Introduction

Effective inventory management and accurate labeling are fundamental to the smooth operation and profitability of retail organizations globally. In high-income economies such as the United States, Japan, and Western Europe, significant investments have been made in automated inventory systems, bar-coding, RFID technology, and comprehensive staff training programs to mitigate mismanagement and labeling errors (Merlano et al., 2024; Kamarudin et al., 2025). Despite these advancements, research shows that even technologically advanced markets continue to grapple with inventory inaccuracies and labeling mistakes, often due to integration challenges, human oversight, and process bottlenecks (Kuhn & Stünkel, 2024). The European retail sector, for example, operates within a mature yet complex environment where supply chains span multiple countries, and advanced inventory and labeling systems are commonplace, supported by strict regulatory standards and a strong focus on traceability (Nyang'au & Muturi, 2021). However, even in these settings, labeling errors and stock discrepancies persist, especially in sectors characterized by high product turnover and extensive manual handling, reaffirming the critical influence of human factors in inventory management and the necessity for continuous process and employee training improvements (Kuhn & Stünkel, 2024).

In contrast, African retailers face even more pronounced barriers to effective inventory management. Many operate with limited access to advanced technological solutions, inconsistent staff training, and significant resource constraints (Agyapong & Boamah, 2021). Consequently, inventory management in these contexts often relies on manual or partially automated systems, increasing vulnerability to mismanagement and labeling errors. Additional infrastructural inadequacies and insufficient regulatory oversight further exacerbate these vulnerabilities, leading to frequent stock discrepancies and operational inefficiencies (Kassim, 2020). In the Southern African Development Community (SADC) region, retailers contend with additional region-specific challenges, such as supply chain disruptions, regular stock outs,

and shortages of skilled labor, which amplify inventory and labeling issues and result in financial losses and erosion of customer trust (Mukwakungu, 2020).

The problem is starkly evident in Zimbabwe's Midlands province, with the example of spare parts retail outlets highlighting the starkness of the local-level issues in this sector. The companies often face challenges with inventory errors and improper labeling, leading to disruptions, inventory inaccuracies, and reduced customer satisfaction. The problems of mismanagement of inventory and label can result in the position where customers can see a product they want, but can't find it. As a result, sales personnel end up spending too much time looking for products they want, which they often don't find. This turmoil initially makes customers feel let down and many will opt not to come back to such a disorganized store. This phenomenon is among other factors reported as a problem of consumer mistrust of locally sourced products (Phiri, 2024).

While these problems have been addressed and even lessened—particularly by implementing simple inventory control systems and conducting inventory training sessions from time to time—it has been difficult to make sustainable changes. This is mostly due to lack of integration of processes and poor employee engagement (Mangwiro & Chikombingo, 2022). Many shop owners and employees still struggle with stock organization and proper part identification that are causing loss of sales opportunities and the damage to their reputation. Besides, the inefficiencies create more pressure on owners for stock acquisition when their existing stock is unsold because of the lack of management.

Ongoing operational inefficiencies, poor customer satisfaction, and rising financial losses are just a few of the far-reaching implications these problems have on the business. Not only is this a business risk, but it's also a regional economic risk. If not addressed these can all lead to loss of competitiveness, business closure and job losses.

Problem Statement and Justification

Midlands spare-parts retailers are experiencing operational inefficiencies, stock inaccuracies, and customer dissatisfaction due to significant challenges with inventory and labeling. Attempts to resolve these issues through basic inventory management tools and periodic staff training have been unsuccessful, largely because these interventions lacked proper integration and failed to address the root causes of the problems. If these challenges remain unresolved, retailers will continue to experience financial losses, damage to customer trust, and a decline in competitiveness within an increasingly demanding market. This situation not only threatens the profitability of individual businesses but also has broader economic implications for the Midlands province, where the spare-parts sector plays a crucial role in supporting local livelihoods.

The research seek to answer three objectives which are:- exploring the key factors contributing to inventory mismanagement, Investigating the underlying causes of labeling errors in these retail environments, and the last one is to assess the operational and business impacts of inventory and labeling issues on Midlands spare- parts retailers. By addressing these objectives, this study seeks to provide an evidence-based understanding of the inventory and labeling challenges faced by Midlands spare-parts retailers and to inform the development of more effective interventions at both the business and policy levels.

Theoretical Framework

This study seeks to investigate challenges in inventory and labeling in Midlands Spare Parts retailers and is based on an integrated framework that merges Inventory Management theory with Human Factors Theory. Intellectual developments in inventory management theory, stemming from the basic studies of operations management and supply chain research from early researchers such as Ford W. Harris in 1913 with the EOQ model, offer valuable insights for the effective control of stocks, record-keeping practices, and efficient supply chain operations that ultimately lead to more profitable businesses. This theory is important in the study of technical and procedural factors that lead to mismanagement of inventory and labeling in the Midlands retail environment. To this, there is an additional theory called Human Factors Theory, which was codified during World War II by human factors pioneers like Frederick Taylor, Paul Fitts, and Alphonse Chapanis, that deals with the relationship between humans and systems. It points out the critical importance of human behavior, training, and ergonomic design on the outcomes of operations. This theory is used to explain why, despite the presence of technological tools, human errors, inadequate training and poor system integration, inventory and labeling issues escalate, particularly in situations where resources are limited, such as Midlands retailers. This approach brings together the analytical rigor of Inventory Management Theory with the human factors and behavioral understanding of Human Factors Theory, providing a holistic perspective for exploring systemic and human factors associated with inefficiencies. This comprehensive strategy paves the way for building sustainable solutions in Midlands spares retailers to help enhance stock accuracy, customer satisfaction and business performance.

Justification for Theoretical Framework

The applicability of Inventory Management Theory is explained because it offers a basic knowledge of the way inventory systems should be managed to maximize the stock level, minimize discrepancies and improve profitability. The theory

has been widely used in the retail and supply chain arena to understand inventory practices and their effects on business efficiency (Harris, 1913; Hopp & Spearman, 2008). This study concentrates on inventory mismanagement and labeling errors; Inventory Management Theory provides the principles which can be used to evaluate and enhance technical and procedural inventory problems of Midlands retailers of spares.

Human Factors Theory is also integral, as it focuses on the human side of operational systems, and its understanding of the role of human behavior, training, and the human factors on the performance and error rates of the system (Chapanis, 1996; Wickens et al., 2015). Studies reveal that despite cutting-edge technology, human factors like insufficient education and improper system design play a crucial role in inventory and labeling errors (Kuhn & Stünkel, 2024). This theory is especially applicable in environments where resources are limited, such as Midlands where employee involvement and manual handling add to operational inefficiencies. The use of Human Factors Theory allows for the examination of interaction between people and systems and its effect on inventory accuracy and enterprise results.

These theories, when combined, offer a strong basis for examining the technical and human aspects of inventory and labeling problems, and are suitable for the purpose of the study, which aimed to look for sustainable solutions for improvement of operational activities.

LITERATURE REVIEW

This work is a literature review of the various issues that can arise due to wrong inventories and labeling in a retail store, especially in the case of spare parts retail management. Combines the results of empirical studies conducted in the last few years which delve deeper into the root causes of the discrepancies, such as human, process and technical issues, and their operational and financial implications for retail businesses.

Underlying Causes of Labeling Errors in Retail Shops

Labeling errors in retail environments arise from a complex interplay of human, procedural, and systemic factors. Best et al. (2022) investigated the causes of positive inventory discrepancies in retail stores using simulation modeling of error-prone processes, revealing that various operational errors including incorrect labeling during receiving and shelving significantly drive discrepancies between physical stock and system records. Similarly, Kosagiama et al. (2025) found that human-related issues such as data input errors, non-compliance with standard operating procedures, and limited verification practices constitute the dominant sources of inventory discrepancies in warehouse operations. Their study further identified that warehouse system limitations, including delayed WMS synchronization and scanner reliability issues, significantly contribute to data inaccuracies. Negi and Kharde (2021) used a multi-criterion decision-making approach (TOPSIS) to prioritize the causes of inventory accumulation and identified sales and forecasting errors, quality-related issues, and communication gaps between departments as the top three drivers, along with data entry errors and untraceable product categories. Inprasepta et al. (2025) conducted a root cause analysis of inventory discrepancies and found that human error, mixed materials in pallets, and misalignment between actual material transfers and recorded data represent the largest contributors, underscoring the importance of strengthening warehouse discipline and standardizing control mechanisms.

Operational and Business Impacts of Inventory and Labeling Issues in Retailers

Inventory and labeling inaccuracies impose significant operational and financial burdens on retail businesses. Glock, Syntetos, and Rekik (2025) conducted a systematic literature review and interviewed 25 retail executives, finding that inventory record inaccuracy is a source of major cost and service inefficiencies in retailing, particularly in omni-channel environments where customers expect real-time stock visibility for services such as in-store pickup and home delivery. Destro et al. (2022) used dynamic system modeling to analyze how inventory record inaccuracy impacts picking productivity, lost sales, and warehouse capacity utilization, demonstrating that ghost and hidden inventory have distinct detrimental effects across different types of warehouses. Obadire, Boitshoko, and Moyo (2022) studied 30 retail stores in South Africa and found that effective inventory management tools including bar-coding and inventory management software have a positive effect on store performance by improving service delivery, increasing sales and turnover, and enabling better management of over-stocking and under-stocking. Rekik et al. (2025) conducted a field quasi-experiment in grocery retailing covering approximately 24,000 SKUs across 11 stores and found that performing an inventory audit led to 11% store-wide sales lift, with the benefits concentrated on items exhibiting negative inventory record inaccuracy where the system shows more stock than actually available. The retail stores is characterized with small items in shelves which can also mean that clients may fail to find inventory yet goods are available in the shop only that they are where they are not seen.

Inventory Management in Spare Parts Retail Stores

Spare parts inventory management presents unique challenges due to demand unpredictability and the vast variety of stock-keeping units. Zhang, Huang, and Yuan (2021) reviewed 148 papers and classified the spare parts inventory management literature by supply chain structure and analytics techniques, identifying significant research gaps in reverse logistics, demand pattern modeling, and big data analytics applications for spare parts. Saber et al. (2024) reviewed

industrial engineering methods and strategies for determining optimal spare parts inventory levels, emphasizing the importance of demand forecasting, inventory optimization models, and data analysis techniques to balance inventory levels with demand variability and minimize stockouts. Inga-Guardia et al. (2025) proposed an integrated model combining AI-powered demand forecasting with Lean Warehousing methodologies and IoT/RFID traceability technologies for an automotive dealership, achieving improvements in inventory accuracy from 85% to 93.3% and reducing out-of-stocks from 9.68% to 4.15%. Turi (2024) conducted a multiple case study on three automotive OEMs and found that main inventory data inaccuracy issues arise from ordering quantities mismatching actual customer demand and lead time reliability concerns, with the introduction of a new warehouse management system improving overall quality by 5 percentage points through 60% higher utilization of production equipment.

Methods

In this study, the qualitative research design was used to analyze the problem of inventory and labeling in the retail stores dealing with spare parts. In this way, the study acquired a comprehensive insight into the issues encountered by the management staff in these outlets (Zhang, Huang & Yuan, 2021; Ifraz et al., 2025). The qualitative design of the research enabled the collection and analysis of the data in detail and concentrated on the experience of those who are engaged (Allison & De Sousa, 2024).

A combination of a semi-structured interview, direct observations, and document analysis was used to collect data (Mashuri et al., 2022). The interviews were held with store managers, inventory employees, and sale workers to heed their views on the issue of inventory management and labeling (Adeoye-Olatunde & Olenik, 2021). Actual observation in the selected outlets gave information on the actual practices and the bottlenecks that were experienced. The analysis of inventory logs and error reports in documents also provided more contextual details about the findings by identifying patterns and contributing factors (Malvaceda-Espinoza & Flores-Pereyra, 2026).

Because the actual number of potential respondents, i.e. retailers of spare parts, was unknown, as most of these retailers are not properly registered, the study used snowball sampling method (Gierczyk et al., 2024). This approach was appropriate to target unregistered retailers using the existing networks to determine further participants (Leighton et al., 2021; Ting et al., 2025). Twenty seven retail shops provided data by way of interviews, and being observed. Saturation was obtained when the interviewers got to the twenty seventh retail shop.

The data was thematically analyzed (Fuchs, 2023). The study determined the recurring themes and root causes and their effects by transcribing and coding the information gathered (Weckesser & Denny, 2022). In order to organize and code data, it was convenient to use qualitative data analysis software as NVivo that guaranteed thorough analysis of the information (Olapane, 2021; Hartono et al., 2025).

The most important consideration in this research was ethics. All the participants provided informed consent, which ensured their discretion and anonymity (Rajasegaram & Gani, 2025). Also, the ethical standards of the study were maintained by seeking the approval from area leaders (McNair, 2022; Mogi & Liu, 2024).

Results

Thematic analysis of semi-structured interviews, direct observations, and document analysis across 50 spare-parts retail shops in the Midlands province revealed three primary themes. First, the key factors contributing to inventory management challenges included inadequate technological infrastructure and a shortage of trained staff. Most retailers relied on manual record-keeping methods, such as handwritten ledgers or basic spreadsheets, which were insufficient for tracking the vast array of spare parts in stock. Inventory employees also reported receiving minimal training, often expected to learn duties on the job without structured on boarding or manuals. The observation results showed that most of the retailers were being managed by the owner who most of them had little education. Most of the workers were unqualified relatives to the owner.

Second, labeling errors were found to be pervasive and deeply rooted. Many shops lacked standardized labeling procedures, resulting in inconsistent formats, deteriorating handwritten tags, and frequent mislabeling. One of the employees said, "We don't even know how we are supposed to do it we just do things which we think we will remember, but as time goes we tend to forget how we labeled the spares". Employees faced cognitive overload and fatigue from juggling multiple tasks, leading to both accidental labeling mistakes and omissions. High staff turnover further exacerbated these problems, as new employees were less familiar with the wide range of parts, increasing the risk of errors. Observation results also showed little to no motivation among the workers, which contributed to mistakes in labeling.

Third, the operational and business impacts of these inventory and labeling issues were significant. Participants described frequent instances of "phantom stock," where items present in-store could not be located due to mislabeling or disorganized shelving, leading to estimated daily sales losses of 10% to 25%. Customer dissatisfaction was common, with lost sales and erosion of customer loyalty when parts were unavailable or misidentified. Financially, these issues

resulted in lost revenue, unnecessary over-ordering, and periodic write-offs, putting substantial pressure on business viability. Observation data showed that most of the spares, for example shocks for cars were seen to be plenty in one of the shops but the worker didn't know for which car were these shocks.

Discussion

The findings underscore that inadequate technology and lack of trained personnel are central bottlenecks for effective inventory management in Midlands spare-parts retailers. This resonates with existing literature, such as Alsoussi and Tahboub (2025) and Muñoz Macas et al. (2021), which highlight similar challenges in other contexts where small and medium enterprises rely on informal systems and lack investment in sophisticated management tools. The persistent gap in employee training mirrors conclusions drawn by Pramesti (2024), where training materials and actual work needs often diverge.

Labeling errors, as frequently observed, stem from both organizational and human factors. Inconsistent procedures and cognitive overload among staff contribute to frequent mistakes, aligning with Human Error Theory, which attributes such slips to intentional failures. The high staff turnover and lack of knowledge retention further complicate the situation, consistent with studies by Astuti and Imaroh (2025). Comparisons to environments where technological solutions such as bar-coding or integrated inventory management systems have been implemented, Ferdira, Santoso, & Baskoro, (2025) reveal that Midlands retailers, in contrast, remain vulnerable to human error due to their reliance on manual processes.

Operationally, these challenges create a cascade of negative effects, from lost sales to declining customer trust and financial instability. Literature from similar retail environments (Obadire, Boitshoko, & Moyo, 2022; Perdani & Andika, 2026; Kittisak, 2023) supports the observation that poor inventory visibility and inconsistent service erode performance and business viability. The Theory of Constraints suggests that resolving the most critical bottleneck, such as establishing basic labeling standards, could substantially improve operations. However, as Human Error Theory points out, sustainable improvement depends on addressing both technological and behavioral root causes suggesting that staff training and process standardization are as crucial as technological upgrades.

Taken together, these results indicate that inventory and labeling challenges in Midlands spare-parts retail shops are not isolated incidents but reflect broader systemic issues. The interplay of technological, human, and procedural deficiencies requires a comprehensive approach for long-term resolution.

Conclusion

The study highlights that inventory and labeling challenges in Midlands spare-parts retailers are deeply rooted in inadequate technological infrastructure, insufficient staff training, and a lack of standardized procedures. These issues are not only operational but also have significant financial and reputational impacts, leading to lost sales and declining customer trust. The challenges observed are consistent with broader patterns in similar retail environments, suggesting that without targeted interventions, these systemic issues will persist and continue to hinder business performance and sustainability.

Recommendations

Adopt Basic Inventory Management Technology: Retailers should prioritize the adoption of affordable inventory management software or systems, even at a basic level, to improve record-keeping, stock tracking, and reduce manual errors.

Standardize Labeling Procedures: The development and implementation of clear, standardized labeling protocols can help minimize errors and ensure consistency, regardless of staff changes.

Invest in Staff Training: Structured onboarding and ongoing training programs are essential to equip employees with the necessary skills for effective inventory handling and labeling, reducing reliance on informal, on-the-job learning.

Implementing these recommendations can help Midlands spare-parts retailers address the critical bottlenecks in their operations, reduce inventory and labeling errors, and ultimately improve their competitiveness and sustainability.

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