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APPLICATION OF LEAN MANAGEMENT IN RETAIL: A RESEARCH AGENDA

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Purpose: The implementation of Lean Management continues to pose challenges, particularly in sectors that differ significantly from mass production. The aim of this study is to identify and systematize areas of uncertainty and obstacles encountered when applying Lean methodology to retail operations.
Design/methodology/approach: The study primarily employs a scoping literature review methodology. Full-text scientific databases were utilized for source research. Identified knowledge gaps were analysed, evaluated, and subsequently systematized.
Findings: The findings of the study identify eight key areas for further research in Lean Retail. These areas encompass all aspects of Lean methodology, beginning with Lean philosophy and extending to continuous improvement. The recognized key areas are crucial for the ongoing development of Lean methodology in the retail sector. The investigation suggests that the concept of waste is, in fact, the most significant starting point for implementing Lean practices in retailing.
Research limitations/implications: The study is limited by the number of literature sources on Lean implementations in retailing, alike proposed conceptualizations. Numerous promising and important field have not been extensively studied by the literature to date.
Originality/value: The article offers a visualization of desired research areas in Lean Retail research related to the Toyota Way model.
Keywords: retail, Lean Management, Lean Retail, Lean principles, waste.
Category of the paper: literature review, conceptual study.

1. Introduction

The retail industry focuses on selling goods and services to individual consumers to meet their needs and expectations. It plays a crucial role in the economy by facilitating the connection between producers and final consumers. Retailing encompasses a diverse range of store formats and sales platforms, including both physical and online operations.

The store features a wide array of offerings, including a diverse selection of products. This range encompasses everyday items, durable goods such as electronics and furniture, as well as various services. Retailers may specialize in specific product categories or provide a comprehensive assortment of goods, as seen in supermarkets and hypermarkets. The necessity of maintaining close contact with customers compels retailers to adapt their product ranges and strategies to align with changing consumer preferences. This adaptability is achieved through the implementation of various marketing strategies and the provision of high-quality customer service. Essentially, the concept of Lean in retailing focuses on responding swiftly to fluctuations in demand rather than maintaining large inventories (Lukic, 2012).

Retailers face significant competition, particularly in larger urban centres and on digital marketplaces. These businesses compete on various factors, including price, product quality, shopping experience, technological innovation, and customer service. The expansion of e-commerce has heightened the necessity for companies to invest in digital technologies and adopt new business models. Large retailers can leverage economies of scale and extensive resources to gain a competitive advantage (Noda, 2015).

The effectiveness of a retail business is closely tied to the efficiency of its supply chain and logistics management. Key factors that contribute to a business's overall success include the ability to deliver products on time, optimize warehouse utilization, and monitor stock levels. Enhancing the supply chain leads to a quicker response of supply to actual sales (Lukic, 2012).

Modern retail is increasingly leveraging technology to enhance the customer experience and optimize operational efficiency. The analysis of large data sets serves as a primary tool for predicting consumer trends and managing inventory levels effectively. This analysis is typically employed alongside process automation in logistics and order processing. In their study, Wolniak et al. (2024) present an evolutionary analysis of grocery shopping from a technological perspective. They identify and describe the transformations that have occurred in the shopping process, ranging from traditional shopping and self-service checkouts to solutions based on artificial intelligence and augmented reality. The advent of digital transformation in grocery shopping has reconfigured consumer roles, with consumers now actively participating in the co-creation of their shopping experience (Wolniak et al., 2024).

2. Research method

The study employs the scoping literature review method. Scoping reviews are invaluable tools, particularly for researchers in the early stages of exploring a topic. These reviews aim to map the existing literature, identify gaps, and help clarify research questions (Grant, Booth, 2009). A scoping literature review provides a comprehensive overview of the current state of

research, enabling researchers to orient themselves within the subject and formulate more targeted research questions.

This research commenced with a comprehensive search of various full-text databases for studies documenting the application of Lean concepts by retailers. The second stage of the research process involved searching for studies and conceptual work that were either directly or indirectly related to Lean Retail (LR). These studies were deemed particularly relevant to the research topic due to their emphasis on process improvement methodologies within retail sectors. The objective of this stage was to identify significant research issues or directions pertinent to the specifics of retail activities. The collected research challenges were analysed, evaluated, and subsequently systematized.

3. Lean Management concept

Lean Management was first widely elaborated by James P. Womack and Daniel T. Jones. This concept focuses on eliminating waste and creating value for the customer. The fundamental principles of this management concept are articulated in the seminal text *Lean Thinking* (Womack, Jones, 1996), which outlines five core principles:

1. Value: The starting point is to understand what is genuinely valuable from the customer's perspective and what they are willing to pay for. All activities that do not add value should be identified as waste.
2. Value Stream: This is a principle for analysing all the steps involved in creating a product or service. It facilitates the visualisation of the entire process and the flow of resources and information. It is used to monitor and eliminate waste (Bonaccorsi et al., 2011).
3. Flow: The optimal work flow of products, services or information through the various stages of the product or service creation process, without periods of inactivity or delay. Overcoming barriers to the flow of resources and information is a fundamental aspect of improving operational efficiency.
4. Pull system. A pull system is one in which the customer initiates production or services by placing an order. The intention of manufacturing is to produce goods and services according to actual demand, thereby avoiding unnecessary accumulation of overstock and overproduction (Ballard, Tommelein, 2012; Hicks, 2007).
5. Perfection: The essence of the Lean methodology is a commitment to continuous improvement. Once changes have been implemented, there is always room for further waste elimination and process improvement. These five principles form the foundation of the Lean approach and help organisations to optimise processes, improve quality and reduce costs (Womack, Jones, 1996).

The Toyota Production System (TPS) was developed by Taiichi Ohno at Toyota Motor Company in the 1950s. The primary objective of TPS is to reduce costs and enhance productivity. This is accomplished by eliminating waste, which encompasses excess inventory. The integrated systems approach has gained widespread acceptance in manufacturing industries globally and has subsequently been adopted by various non-traditional sectors (Lander, Liker, 2007).

In his seminal work, *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*, Jeffrey Liker outlines 14 principles that illuminate the Toyota approach to management and philosophy (Liker, 2004). These principles are encapsulated within a four-point framework represented by the acronym 4P. The four pillars of the Toyota Way are Philosophy, Process, People and Partners, and Problem Solving. These principles reflect Toyota's approach to managing production, processes, and organizational culture. A fundamental tenet of the Lean model is the idea that an organization should be guided by a long-term philosophy when making decisions, often prioritizing this over short-term gains. The following section addresses the topic of processes. The associated principles advocate for the implementation of a continuous process flow, the use of a pull system to prevent overproduction, the balancing of workloads (heijunka), the establishment of a culture that encourages stopping to address issues to ensure quality from the outset (jidoka), the standardization of tasks to facilitate training and continuous improvement, the deployment of visual control mechanisms, and the exclusive use of validated technology to enhance the capabilities of individuals and processes (Liker, Morgan, 2006).

The subsequent pillar comprises a set of principles aimed at supporting individuals and external partners whose contributions are invaluable in the context of a Lean transformation process. It is essential to cultivate leaders who possess a thorough understanding of the work and can effectively share this knowledge with others, including outstanding individuals and teams that align their actions with the company's core values. Furthermore, it is vital to strengthen positive relationships with partners and suppliers by offering them the necessary support to foster their growth and development (Liker, Franz, 2011).

The final three principles of the fourth pillar focus on problem resolution. It is advisable to make decisions slowly but implement them quickly (nemawashi) to gain a comprehensive understanding of the situation and observe it directly (genchi genbutsu). The goal is to evolve into a learning organization through the practice of continuous reflection (hansei) and ongoing improvement (kaizen). Collectively, these 14 principles form a management system that emphasizes process efficiency, respect for individuals, continuous improvement, and long-term thinking. In practice, these principles have significantly contributed to Toyota's status as one of the world's leading automotive manufacturers (Liker, 2004).

4. Lean in retail companies

The concept of LR was introduced in 1999 by Abernathy, building on earlier research related to Lean Thinking. This research demonstrated that Lean practices are instrumental at various levels of the retail sector, including sales, purchase monitoring, inventory management, and supply chain management (Jimenez, Bedoya, 2021). The fundamental principle of LR is the elimination of waste. In line with the tenets of Lean Manufacturing, the primary sources of waste in the retail sector are identified as excess inventory, product defects, unnecessary movement, underestimated labour hours, and wasted time.

The optimization of both internal and inter-organizational processes is a fundamental principle of the LR concept. As part of the Effective Consumer Response strategy, manufacturers and retailers aim to enhance the flow of products and information throughout the value chain, starting at the point of sale and leveraging comprehensive demand data (Lukic, 2012). The front-end of this strategy focuses on pricing and creating value for customers, while the operational strategy, which emphasizes cost optimization and value creation for operators, constitutes the back-end. The integration of activities from both areas into a cohesive corporate strategy is designed to minimize sales volatility and reduce operating costs (Noda, 2015).

In their case study, Čiarnienė and Mančas (2024) present an analysis of a retail entity that employed the Lean approach to minimize some losses. The authors examine a range of typical Lean management tools, including 5S, Value Stream Mapping, visual management, and Kanban. They conclude that, despite the overall favourable assessment of the Lean program, several barriers related to Lean persist. These barriers include employee resistance to change, a lack of knowledge about Lean principles, and insufficient support from management (Čiarnienė, Mančas, 2024).

A significant study on the implementation of Lean methodology in the retail sector was conducted at the well-known convenience store chain 7-Eleven. This study focused on the movement of goods from a holistic perspective that encompassed the entire supply chain, aligning with the Lean program being implemented. The adoption of the Lean program led to an increase in delivery frequencies while simultaneously reducing the number of trucks used, thereby optimizing logistics and minimizing resource waste (Naruo, Toma, 2007). The establishment of a combined distribution centre enhanced the flow of goods and reduced waste associated with storage and transportation. Additionally, inventory levels were decreased, and obsolete units were eliminated, creating space for new items and reducing wasted space. The company even developed and introduced own method called Tanpinkanri, the method allows as item-by-item control. This approach involves managing each commodity with the goal of determining the optimal number of stock-keeping units in trade (Naruo, Toma, 2007).

A study conducted in a Portuguese hypermarket utilized Value Stream Mapping (VSM) and Kanban methodologies (Marques, Jorge, Reis, 2022). The VSM methodology was employed to redesign the replenishment process in the fruit and vegetable department, which exhibited the highest incidence of stock shortages. Kanban was implemented in an e-commerce warehouse with the objective of enhancing inventory management. The implementation of these methodologies resulted in significant improvements across several key performance indicators, including a reduction in stock shortages from 10% to 4.2%, a 33% decrease in the time required to replenish shelves, and an increase in the order fulfilment rate in the e-commerce store from 90% to 93% (Marques, Jorge, Reis, 2022).

It is evident that the concept of LR is inadequately explained in the existing literature. The available studies, which aim to provide a comprehensive understanding of the operations of retail entities, are fragmented, addressing only select areas and issues (Čiarnienė, Manča, 2024). Nevertheless, the current research indicates that there is significant potential for implementing Lean methodology in retail operations. This includes the distribution of goods, their movement through store warehouses, and placement on display shelves, as well as the organization of work and the enhancement of quality and efficiency across all processes undertaken by retailers.

5. Desired research issues for LR

Nevertheless, despite the relatively limited literature sources on LR, there are studies that explicitly identify significant research directions and essential challenges for implementing Lean principles in retail operations. It is also important to consider more comprehensive works that address the field of distribution as a whole, including services, within which retail operations are clearly encompassed. Similarly, regarding related methodologies associated with continuous improvement, such as Six Sigma and Lean Six Sigma, references to these will highlight significant research issues for LR as well.

Čiarnienė and Mančas (2024) argue that implementing Lean principles in the retail sector presents a more complex set of challenges compared to manufacturing operations. This complexity arises from the unique characteristics of the industry, such as the need to align supply with demand, the simultaneous production and consumption of services, and the active involvement of customers in the production process. The researchers emphasize the need for further investigation into the barriers to implementing Lean in the retail sector. They categorize these barriers into three main groups: those related to people, those related to the organization, and those related to processes (Čiarnienė, Mančas, 2024, p. 95).

Another study conducted a morphological analysis of research gaps, defined as opportunities for further investigation regarding the application of Lean Six Sigma in service sectors (Sunder et al., 2018). The authors identified a total of 355 research gaps, which they systematically categorized and analysed. In their conclusion, they highlighted particularly relevant research directions, some of which also pertain to commercial activities. The aforementioned gaps include the following:

- Adaptation of models for implementing Lean Six Sigma methodologies in organizational contexts typical of commerce, specifically focusing on the adaptation of Lean implementation in inbound logistics, outbound logistics, customer service, and other relevant areas.
- Adaptation of the Lean toolkit for the service sector (applicability, ease of use, and preferred application in various core and support functions within the trade sector).
- Verification of the assumption that Lean practices serve as a catalyst for incremental innovation and a continuous improvement orientation within retail organizations.
- To evaluate whether the implementation of Lean principles in retail organizations enhances customer satisfaction and employee satisfaction. If it does, what are the key attributes, influencing factors, and measures of success?
- Evaluation of the various tangible and intangible outcomes achieved through the implementation of the Lean approach in retail contexts.
- The impact of Lean implementation on retail' competitiveness and market share.
- How can the success of Lean implementation among retailers be evaluated? This includes conceptual models, preferred applications, and validation within retail companies (Sunder et al., 2018, p. 168).

Other authors adopt an urban supply logistics perspective to highlight the research and application challenges associated with implementing the Lean approach (Escuder et al., 2022). One of the most significant challenges is the lack of comprehensive research on the application of Lean principles in urban logistics, particularly concerning the retail phase. Therefore, it is essential to adopt a holistic approach to managing goods flows in urban environments. The authors emphasize the necessity of analysing the specific waste generated in this context and the benefits that can be derived from reducing various types of waste, particularly in the supply logistics phase. Similarly, other researchers underscore the importance of optimizing processes both within commercial organizations and between different organizations, as well as across various distribution links (Lukić, 2012).

Taking a customer experience and service system perspective, the authors (Serravalle, Pantano, 2023) formulate several research questions. Particularly significant in the context of applying the Lean approach, these questions include:

- What is the significance of delegating greater responsibility and authority to retail employees and customers?
- Is there a correlation between higher employee satisfaction and increased customer satisfaction, particularly regarding the value perceived by the customer?
- Will empowering employees and customers enhance the performance of retail businesses?
- How can retail shops effectively measure and mitigate negative customer behaviour, which is a specific form of waste?
- Which advanced technologies most effectively support service management, and what criteria should be used for their selection? In what ways can artificial intelligence contribute in this context? (Serravalle, Pantano, 2023, p. 3).

With reference to the last bullet point above, it is important to emphasize that other authors highlight the significance of technology in optimizing inventory management and enhancing efficiency in retail (Lukić, 2012). A study by Wolniak et al. (2024) indicates that retail establishments will become smarter and more interconnected through technologies such as artificial intelligence, augmented reality, and the Internet of Things. For instance, artificial intelligence can personalize the shopping experience by providing tailored recommendations, promotions, and product information, as well as improving inventory management and automating checkout processes. Additionally, retailers will adopt environmentally friendly technologies, such as carbon footprint calculators, to assist customers in making more sustainable choices.

The differences between services and manufactured products are significant and have serious implications, making a focused examination of the theory of value co-creation in services essential. This analysis leads to the identification of research challenges that are directly relevant to retail activities. It is crucial to achieve a comprehensive understanding of customer value, which includes both tangible and intangible elements, as well as relational aspects (Urban, 2016). A key issue then is implementing changes that streamline organizational processes typically for Lean methodology and at the same time making enhancements of customer experience. Redefining waste in standard retailing processes and understanding organizational culture's role in customer-facing businesses is essential. Lean tools, such as standardization, should be tailored to retail operations (Urban, 2016, p. 598). Some other Lean tools and policies have to be redeveloped as equivalents, as for example Just-in-Time and Kanban (Naruo, Toma, 2007, p. 391).

A significant number of retailing entities are structured as large organizations with hundreds of locations, each facing a variety of unique constraints in their daily operations. One common issue is the financial limitations encountered by employees, often resulting from downsizing

strategies aimed at enhancing profitability. Another prevalent challenge is the high staff turnover rate, which has been observed to reach as much as 35% (Madhani, 2020). Such circumstances make it difficult to engage personnel in change initiatives and to sustain the changes that have been implemented. Typically, changes are introduced at the corporate level; however, due to the autonomy of individual spots, these changes may face considerable challenges in being adjusted to the specific needs of each retail site. Additionally, there is a pressing need to respond to evolving customer preferences, which often requires frequent modifications to retail environments. Furthermore, a particular type of waste is associated with information access, specifically the lack of access to data or its misuse (Madhani, 2020). The simultaneous submission of change requests by various corporate departments complicates the decision-making process for shop managers, making it difficult to determine whether to implement, disregard, or postpone these requests. This can turn even the simplest changes into a complex process, which becomes itself a distinct form of waste.

Another common issue in retail is the use of price promotions. Noda (2015) argues that price promotions can contribute to waste. A reduction in price aimed at stimulating sales often leads to significant fluctuations in demand, which in turn can result in overstocking and shortages. This situation generates additional storage and handling costs, which are clearly wasteful (Noda, 2015). Investigating the effects of pricing strategies on process flow and the incidence of waste is a critical issue that aligns with the fundamental principles of the Lean approach, particularly the goal of stabilizing processes and eliminating all forms of waste. Escuder et al. (2022, p. 561) note that the accumulation of excessive quantities of goods in warehouses at both the distributor and retail levels leads to over-utilization of warehouse space and decreased employee productivity, resulting in high levels of waste.

Some studies have indicated that price promotions in the retail sector may contribute to waste on the part of consumers (Farr-Wharton et al., 2014). This primarily refers to excessive and misguided food purchases; however, it can also occur with durable goods, where unnecessary purchases are driven by promotional factors. Furthermore, investigating waste issues and pursuing strategies to reduce this waste are significant research topics, particularly in the context of the Green Lean concept (Amani et al., 2015).

The authors emphasize the importance of identifying methods to eliminate waste, including overstocking, product defects, unnecessary movements, overstaffing, and wasted time, across various trading activities (Lukić, 2012). The literature also identifies additional potential sources of waste in retailing that require particular attention. These sources include defects in the selection of goods and/or quantities, which can lead to either an under-supply or over-supply to customers (Escuder et al., 2022, p. 562). However, there is a lack of comprehensive systematization of waste in retail operations, based on in-depth empirical research, as well as an estimation of its magnitude across different types of retail formats.

6. Discussion

Despite the limited cross-sectional research on LR, a review of the current literature, along with the fundamental assumptions of Lean methodology, allow to reveal several critical issues essential for the development of this approach. These issues hold both theoretical and practical significance. Additionally, they are of application and consulting interest due to the potential business benefits associated with the Lean concept in retail, especially considering its current slight presence in the sector. Based on the findings presented in the previous section, several key thematic areas emerge that require further investigation within the field of LR as figured out below.

1. Adaption of models and tools to LR.
   It is essential to adapt the methodologies and tools developed by Lean Management to the specific conditions typical of retail organizations. Where necessary, new tools should be created to address particular challenges faced in the retail sector, as demonstrated by Naruo and Toma (2007) in their Lean program at the 7-Eleven chain. (References: Escuder et al., 2022; Sunder et al., 2018; Urban, 2016; Naruo, Toma, 2007).
2. Define and measure LR effects.
   Developing potential effects offers a response to the fundamental question of why LS should be utilized. The governing rules of commercial activities are inherently specific. Therefore, it is crucial to establish a methodology for measuring the effects characteristic of LR and to substantiate, with reliable data, the extent of benefits realized by the selected stakeholders. This will aid in persuading managers to consider implementing this approach. (Serravalle, Pantano, 2023; Sunder et al., 2018).
3. Examining value flows in terms of the distribution chain.
   The retailing sector is closely interdependent with the preceding distribution links; therefore, many beneficial changes must be addressed from a broader perspective that extends beyond the commercial organization itself (Escuder et al., 2022; Lukić, 2012).
4. Customer value.
   The value perceived by customers in retail services has a distinct profile. In addition to price, various other factors are significant, such as location and personal relationships. This necessitates a comprehensive operationalization for the successful implementation of LR applications (Serravalle, Pantano, 2023; Urban, 2016).
5. Waste in retail.
   Wastes that are well-documented and justified for mass production should be identified for retail organizations. It is crucial to understand the factors that contribute to waste, including retailers' strategies, promotional practices, and irresponsible customer behaviour. Customer-related waste warrants particular research attention, in line with

the value indicated above (Serravalle, Pantano, 2023; Escuder et al., 2022; Madhani, 2020; Urban, 2016; Noda, 2015; Lukić, 2012).

6. Continuous improvement at LR.
   Continuous improvement, which leads to numerous incremental innovations, requires dedicated employees and is deeply rooted in the specifics of process flows. In the retail sector, employee commitment encounters several challenges, while processes are significantly influenced by the close presence of customers (Serravalle, Pantano, 2023; Madhani, 2020; Sunder et al., 2018).
7. Relevance of new technologies at LR.
   New technologies from the digital sphere are significantly transforming commercial activities. It is advisable to utilize these technologies extensively to enhance all processes, including those related to customer service, as well as to introduce new retail models (Wolniak, Stecuła, Aydın, 2024; Serravalle, Pantano, 2023; Lukić, 2012).
8. LR organisational barriers.

There is no doubt that the implementation of LR must address adversities and organizational barriers. Analysing these challenges can significantly enhance and expedite the application and delivery of outcomes through LR (Čiarnienė, Mančas, 2024; Madhani, 2020).

The Toyota Way outlines the management culture of Toyota, based on four fundamental principles collectively known as the 4Ps. These principles serve as a graphical representation of the Lean concept, into which Liker integrated the 14 principles. Fig. 1 illustrates the application of the identified subject areas relevant to exploration within the LR sphere as applied to this framework. Previously, eight LR research gaps were systematically organized according to the Toyota framework. The four key areas of focus are as follows: Philosophy, Process, People and Partners, and Problem Solving.

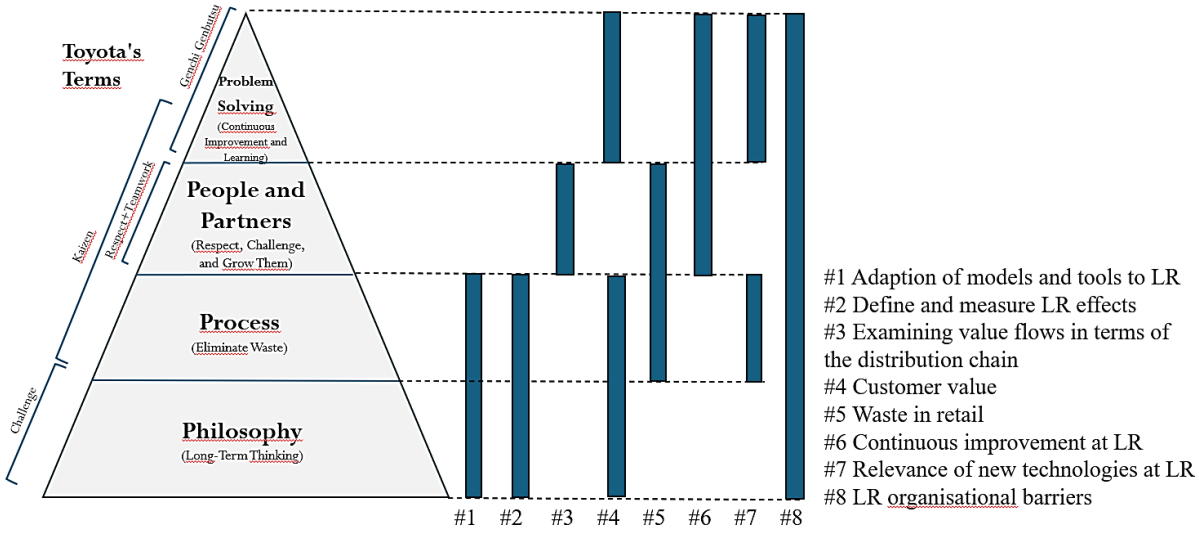

Figure 1. Systematics of research challenges for LR in terms of the 4P of Toyota Way model.
Source: Liker, 2004, p. 27, own elaboration.

As illustrated in Fig. 1, the majority of challenges are associated with the fundamental building blocks of Lean approach: Philosophy and Process. This suggests that focusing on these research areas (#1, #2, #4, #5, #7, #8) will help establish a foundation for addressing issues related to the higher levels of the pyramid. The capacity for long-term thinking is a crucial component of organizational development, enabling the creation of a robust and resilient structure committed to the pursuit of continuous improvement. The elimination of waste not only reduces costs but also allows for more efficient results, thereby facilitating the ongoing implementation of Lean principles and enhancing the appeal of the concept to other organizations.

7. Conclusions

The adoption of Lean methodology in the service sector is a trend that is becoming increasingly evident across a diverse range of economies, including both developing economies and leading ones. When considering the application of Lean in the context of services, it is crucial to recognize the differences in the interpretation of value flow principles that arise from the distinct characteristics of service provision compared to industrial production. This article presents an in-depth analysis of the relevant issues surrounding the development of Lean methodology in retailing. To achieve a comprehensive approach to LR, it is essential to examine retail businesses from a broader perspective, encompassing the distribution chain, long-term strategies, and external partnerships. Existing research indicates that LR is not yet a sufficiently well-explored subject. However, there are studies that highlight key research directions and barriers to implementing Lean in retail. By investigating previously unstudied areas, it is possible to identify and leverage the potential benefits of LR.

Some of the identified barriers to the implementation of LR originate from within the organization itself. The role of the customer in value creation is a crucial factor in the development of service organization strategies, which are increasingly focused on customer satisfaction and sustainable growth. Consequently, unfavourable circumstances for implementing change may arise, such as high staff turnover rates and the need to adapt to changing customer preferences through point-of-sale modifications or pricing policies. A certain dissonance exists between the corporate strategy and the operational level responsible for executing this strategy. Therefore, it is recommended that the methodology for measuring the quality experienced by customers be integrated with the operational improvement methods used in Lean Management. This close connection is an essential component of the process of developing and enhancing the competitiveness of service companies.

In the context of a study exploring the field of city logistics, the concept of waste is defined specifically within this domain (Escuder et al., 2022). These types of waste closely resemble the seven forms of muda, as articulated by Taiichi Ohno in relation to manufacturing processes (Mossman, 2009). When there is an imbalance between the outsourcing of tasks and the availability of resources, various forms of waste are generated in operations. This underscores the necessity for comprehensive research insights into the commercial aspects of waste. A review of the literature reveals that waste in commerce remains largely unexplored. There are only scattered hints and fragmented observations, with no systematic categorization or assessment of the potential scale for specific types of commercial facilities. The concept of waste serves as a fundamental starting point for LR, alongside an understanding of its objectives. Identifying the underlying causes of waste is crucial, as it is a complex issue. This identification is essential for the successful implementation of the Lean approach in retail. Consequently, this suggests a direction for future research: to identify the optimal points and synergies that enable corporate-level decisions and actions to effectively eliminate waste.

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