



**SZÉCHENYI ISTVÁN UNIVERSITY
KAUTZ GYULA FACULTY OF ECONOMICS**

**EVALUATION OF THE EFFECTIVENESS OF LOGISTICS
AND SUPPLY CHAIN MANAGEMENT TO ENHANCE
CUSTOMER SATISFACTION IN THE FAST-FOOD
DELIVERY SECTOR**

Author:

ELIZABETH EZEH (Z0JL79)

Supply Chain Management MSc

Supervisor:

Dr. Buics László

Dr. Sós Eszter

ABSTRACT

This systematic literature review explores how logistics and supply chain management (SCM) practices can enhance customer satisfaction in the fast-food delivery sector. It delves into key questions such as how delivery times and order accuracy impact customer experiences and examines the logistics strategies adopted by fast-food service providers. Additionally, the study looks at theoretical frameworks to better understand the connection between SCM practices and customer satisfaction, the role of service quality in shaping perceptions of logistics efficiency, and how technology can optimize supply chain processes.

The research process began with an initial keyword search, identifying 1,099 articles from ScienceDirect and 270 from Scopus. After eliminating 14 duplicate articles and applying strict inclusion and exclusion criteria, the pool was refined to 114 articles. A deeper screening based on titles further narrowed this to 44 articles. Guided by the PEO model, open-access articles from the Scopus and ScienceDirect databases were selected through a PRISMA screening process and analyzed in detail.

This study provides actionable insights and practical recommendations for local fast-food businesses. By pinpointing the key logistical factors that shape customer experiences, it offers valuable guidance for improving service quality and operational efficiency. With these findings, fast-food providers can better understand how to enhance their logistics operations and deliver greater satisfaction to their customers.

Keywords: Customer satisfaction, Supply chain management, Logistics strategies, Delivery time optimization, Order accuracy, Technology integration, Lean management, Last mile delivery, Customer satisfaction, Service quality, delivery performance, and Customer retention.

Contents list

1. INTRODUCTION	4
2. METHODOLOGY	5
3. LITERATURE REVIEW	10
3.1 SUPPLY CHAIN MANAGEMENT IN THE FAST-FOOD INDUSTRY	10
3.2 LOGISTICS AND SUPPLY CHAIN MANAGEMENT IN FAST FOOD DELIVERY SERVICES.....	11
3.3 KEY COMPONENTS OF FAST-FOOD DELIVERY LOGISTICS	11
3.4 CUSTOMER SATISFACTION IN FAST FOOD DELIVERY.....	13
3.5 TECHNOLOGY INTEGRATION IN FAST FOOD LOGISTICS	13
3.6 FACTORS INFLUENCING CUSTOMER SATISFACTION.....	14
3.7 RELATIONSHIP BETWEEN DELIVERY PERFORMANCE AND CUSTOMER SATISFACTION	16
3.8 CUSTOMER RETENTION AND LOYALTY IN FAST FOOD DELIVERY SERVICES.....	17
3.9. THEORETICAL FRAMEWORKS RELEVANT TO LOGISTICS AND CUSTOMER SATISFACTION	18
3.10 INNOVATIVE APPROACHES IN FAST FOOD DELIVERY LOGISTICS.....	18
3.10.1 APPLICATION OF LEAN MANAGEMENT PRINCIPLES.....	18
3.10.2 LAST MILE DELIVERY OPTIMIZATION TECHNIQUES.....	19
FUTURE RESEARCH DIRECTION.....	20
CONCLUSION	21
REFERENCES.....	22

1. INTRODUCTION

Efficient supply chain management (SCM) and logistics strategies are essential for enhancing operational efficiency and ensuring customer satisfaction in the fast-food delivery sector. Logistics services are essential in connecting the fast-food delivery sector with consumers, significantly contributing to customer happiness and promoting the sustainable development of fast-food enterprises (Yang et al., 2024). With the increasing need for rapid and reliable food delivery services, companies aiming to thrive in a competitive market must implement strategic logistical planning. Technological advancements and digital platforms have accelerated the growth of the food delivery sector and enhanced supplier competitiveness. Consequently, firms must uphold elevated service standards that significantly influence the consumer experience while managing increasingly intricate supply chains.

Efficient logistics involves the strategic planning, execution, and management of the movement of goods, services, and information from the source to the consumer (Tan, 2001). In places, where the fast-food industry is rapidly advancing, entities that prioritize logistical efficiency can significantly improve their service delivery. By diminishing delays and avoiding order inaccuracies, these firms can substantially enhance customer satisfaction. Timely deliveries are crucial in influencing customer opinions, as consumers increasingly anticipate both swift service and superior items. Reliable delivery times and precise order fulfillment enhance client loyalty and bolster overall brand reputation.

The fast-food delivery industry in several urban locales has experienced swift technology integration. Mobile ordering applications, GPS delivery monitoring, and data analytics for route optimization have become increasingly prevalent (Nagy et al., 2018). These technologies not only augment client experience but also yield significant data for optimizing logistics and supply chain management. The importance of sustainable practices in the fast-food delivery sector is growing in response to heightened environmental awareness. This involves collaborating with restaurants that prioritize locally sourced ingredients, utilizing eco-friendly packaging, and optimizing delivery routes to minimize carbon emissions. Furthermore, effective logistics collaboration and optimization are essential for establishing sustainable supply chains. Key strategies include the use of consolidation hubs, enhanced route optimization, and efficient last-mile delivery practices aimed at reducing waste and improving resource efficiency (Muchenje, 2024)

The goal of the review is to assess how logistics and supply chain management practices contribute to enhancing customer satisfaction in the fast-food delivery sector. Which aim is to identify the key logistical factors affecting delivery speed order accuracy and service quality. It also seeks to explore theoretical models that could improve operational efficiency within the sector and evaluate the technological solutions currently employed in supply chain management to optimize and improve customer experience. To achieve the goal the review is to comprehensively evaluate and synthesize existing research on logistics and supply chain management strategies that enhance customer satisfaction in the fast-food delivery sector. This review aims to bridge the gap between general logistics theory and the specific challenges faced in medium-sized European cities with complex urban landscapes.

2. METHODOLOGY

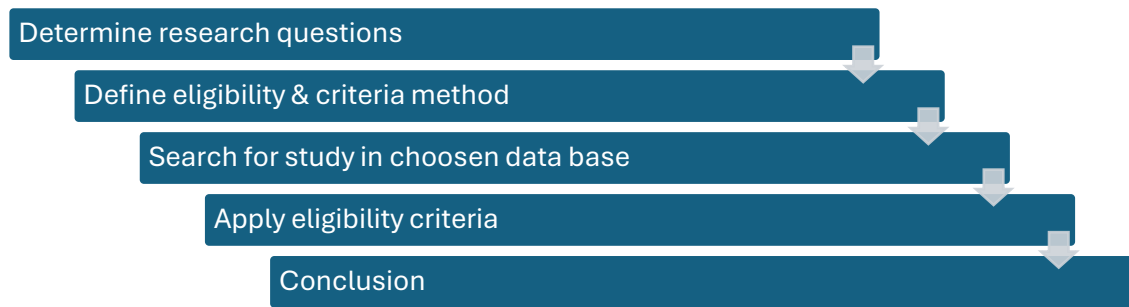


Figure 1. The steps for the Literature review

Source: Author's own creation

The fast-food delivery industry has experienced significant growth in recent years, driven by changing consumer preferences and an increasing demand for convenience. More consumers are opting for fast food delivery services, highlighting this trend. However, despite the industry's expansion, concerns about customer satisfaction persist. Various factors related to logistics and supply chain management (SCM) can influence this satisfaction. The research problem focuses on the ways in which effective logistics and supply chain management (SCM) practices can enhance customer satisfaction within the fast-food delivery industry. Customer satisfaction is a vital component for achieving success in the competitive fast-food market. In the realm of fast-food delivery, factors such as order accuracy, delivery time, and overall service quality play crucial roles in shaping customer perceptions (Cheng et al., 2021). Efficient logistics management optimizes these elements, enhancing customer experiences.

(Yang et al., 2024) stress that an efficient logistics and supply chain can result in improved service levels which in turn increases customer loyalty. On the other hand, inefficiencies in logistics processes can result in delays and errors, which may negatively affect customer satisfaction. Therefore, it is crucial to assess how specific logistical strategies used by fast food delivery services affect overall customer satisfaction.

Despite the importance of logistics and supply chain management in the fast-food delivery sector, there is limited research on the specific practices and strategies used by companies to enhance customer satisfaction. Furthermore, there is a lack of understanding of how logistics and supply chain management factors (e.g., delivery speed, order accuracy, product quality) impact customer satisfaction. In addition, existing studies have emphasized the importance of integrating theoretical frameworks into practical applications. For example, the SERVQUAL model proposed by Parasuraman et al. (1988) offers a comprehensive approach to measuring service quality based on dimensions such as reliability, responsiveness, assurance, empathy, and tangibles. Applying this framework to analyze logistics performance in fast food delivery could provide valuable insights into areas that need improvement. This research seeks to address the gap in understanding how logistics and supply chain management practices impact customer satisfaction within the fast-food delivery industry. By exploring both practical strategies and theoretical frameworks relevant to this industry context, the study aims to offer actionable recommendations for enhancing service quality and ultimately improving customer experiences.

RESEARCH GOALS AND OBJECTIVES

Research Goal

The research goal is to assess how logistics and supply chain management practices contribute to enhancing customer satisfaction in the fast-food delivery sector. The review aims to identify the key logistical factors affecting delivery speed order accuracy and service quality. It also seeks to explore theoretical models that could improve operational efficiency within the sector. Additionally, this research will evaluate the technological solutions currently employed in supply chain management to optimize customer experience

Research Objectives

The research objective is to comprehensively evaluate and synthesize existing research on logistics and supply chain management strategies that enhance customer satisfaction in the fast-food delivery sector. This systematic review aims to bridge the gap between general logistics theory and the specific challenges faced in medium-sized European cities with complex urban landscapes. Specifically, this study aims to:

1. To identify and analyze the key logistical factors that significantly influence customer satisfaction and loyalty in fast food delivery services, including delivery times, order accuracy, and service quality.
2. To examine the current supply chain strategies employed by fast food delivery services focusing on their impact on operational efficiency and customer satisfaction.
3. To explore relevant theoretical frameworks that explain the relationship between supply chain management practices and customer satisfaction, providing a foundation for understanding these dynamics in the fast-food industry.
4. To assess customer perceptions regarding service performance and quality assurance in fast food delivery services, determining how these perceptions correlate with overall satisfaction levels.
5. To provide actionable insights and recommendations for local fast-food providers aimed at optimizing logistics operations to enhance customer satisfaction effectively.

RESEARCH QUESTIONS

Theoretical:

1. What theoretical frameworks may be employed to comprehend the correlation between supply chain management practices and customer satisfaction within the fast-food industry?
2. How does the concept of service quality influence customer perceptions of logistics efficiency in fast food delivery services?
3. What role does technology play in streamlining supply chain processes and augmenting customer satisfaction within the food delivery sector?

Practical:

1. What is the influence of delivery times and order accuracy on customer satisfaction within the fast-food delivery sector?

2. What logistical strategies are employed by fast food delivery services in to enhance customer satisfaction?

However, to answer the research question, a systematic literature review is applied by using the Scopus and Science Direct databases to collect and categorize articles. During the preparation of the systematic literature review, the following inclusion and exclusion criteria were formulated:

- The articles have to be freely accessible.
- The articles have to be published between 2018 and 2025.
- The articles which are present in both databases have to be eliminated to avoid duplication.
- The articles have to be related to the research question.
- Documents should be either articles or conference papers.
- Articles/ Conference papers should be in English language.
- Subject areas should be limited to Logistics, supply chain management, business management, and economics

During keyword identification, the research also took into consideration the most common synonyms and alternatives of customer satisfaction and fast-food delivery. An initial keyword search yielded 1,099 articles from ScienceDirect and 270 from Scopus. Based on this concept the following keywords were identified and used during the research.

Customer satisfaction, Supply chain management, Logistics strategies, Delivery time optimization, Order accuracy, Technology integration, delivery performance, Lean management, Last mile delivery, Customer satisfaction, Service quality, and Customer retention.

After removing 14 duplicate articles and applying inclusion and exclusion criteria, the results were narrowed down to 114 articles. A subsequent title-based screening further filtered this to 44 articles. Based on keywords developed through the PEO model, open-access articles from the Scopus database and Science Direct were selected through a PRISMA screening and they were analyzed using a systematic literature review. Figure 2 displays the above-described PRISMA steps.

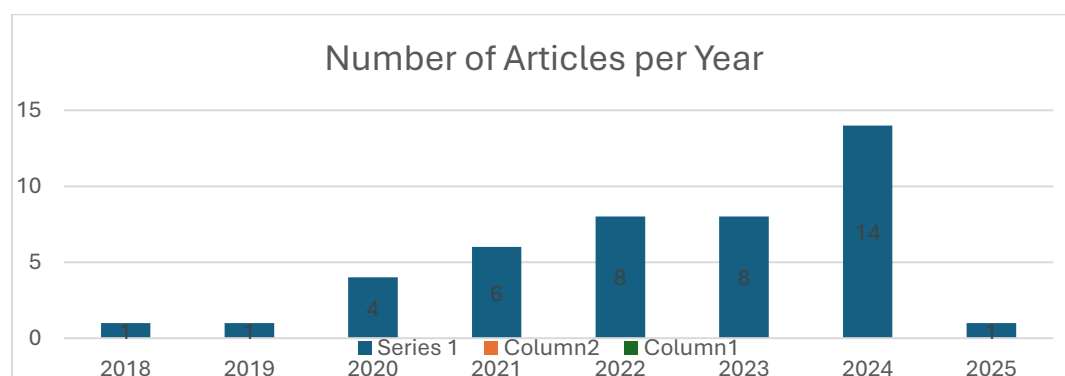


Figure 2. Number of Articles per Year

Source: Author's own creation

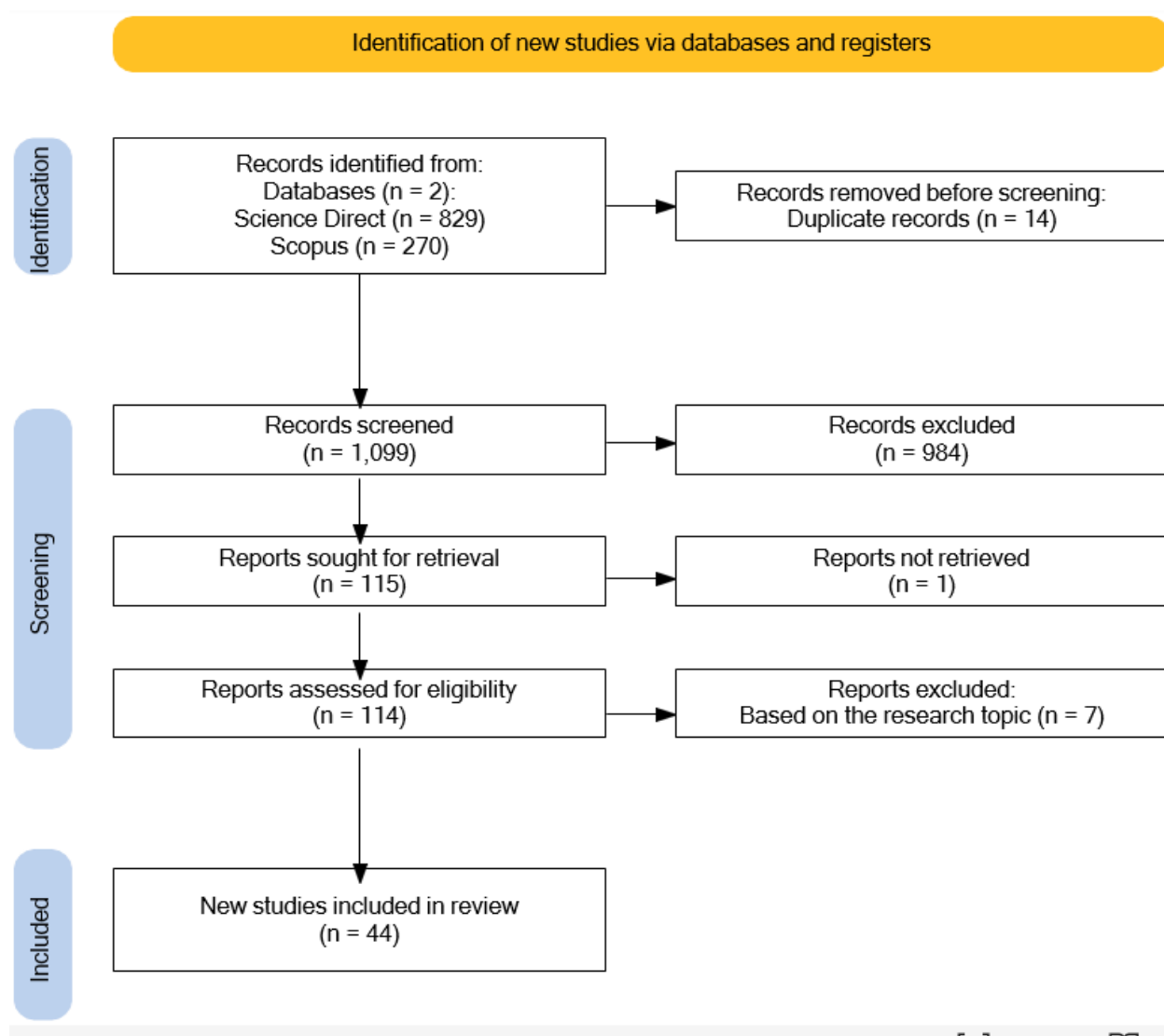


Figure 3. Number of Articles per year, based on ScienceDirect and Scopus

Source: Author's own creation

To organize the chosen keywords and to achieve more relevant research results during the database search the PEO (Population, Exposure, Outcome) framework was applied to organize the keywords into the three major categories, as shown in Table 4.

Table 1. Categorization of keywords

Population	Exposure	Outcome
Fast food consumers	Supply chain management	Customer satisfaction
Customer satisfaction	Logistics strategies	Service quality
	Delivery time optimization	Operational efficiency
	Order Accuracy	Delivery performance
	Technology integration	Customer retention
	Lean management	

Source: Author's own creation

SIGNIFICANCE OF THE STUDY

The importance of this study lies in its potential to advance the understanding of how logistics and supply chain management practices can improve customer satisfaction, particularly within the fast-food delivery sector. By identifying critical logistical factors that impact customer experiences, this research can offer valuable insights for fast-food businesses looking to enhance their service quality and operational efficiency.

Additionally, the findings may guide local stakeholders, such as managers and policymakers, in implementing effective strategies to optimize supply chain processes in a competitive market. The study also aims to connect theoretical frameworks with practical applications, enriching academic literature on logistics and customer satisfaction while providing actionable recommendations for industry professionals.

LIMITATIONS OF THE STUDY

This study may have several limitations that could impact its findings and generalizability. Firstly, the research will be limited to the food delivery sector, which may restrict the relevance of the results to other aspect of logistics. Additionally, external factors such as economic fluctuations or changes in consumer behavior during the study period could independently impact customer satisfaction levels, regardless of logistics practices. Lastly, while theoretical frameworks will be explored, their application may not fully capture all the nuances of real-world scenarios in fast food delivery logistics. The methodology for assessing how logistics and supply chain management impact customer satisfaction in the fast-food delivery sector, will be carefully structured to ensure thorough data collection and analysis.

3. LITERATURE REVIEW

3.1 SUPPLY CHAIN MANAGEMENT IN THE FAST-FOOD INDUSTRY

Supply chain management (SCM) in the fast-food business has grown considerably in recent years, driven by increasing expectations for sustainability, efficiency, and technological integration. As consumer preferences shift towards ecologically sustainable practices, fast food firms must modify their supply chain activities to enhance their sustainability profile. (Duong et al., 2020) assert that the implementation of robotics and autonomous systems in the food business can markedly enhance supply chains by minimizing human error and facilitating more sustainable practices. These technologies are crucial as organizations endeavor to enhance efficiency and diminish their carbon footprints.

A primary difficulty for the fast-food business is the necessity to reconcile operational efficiency with sustainable standards. A study by (Lin & Guan, 2023) reveals that the carbon footprint resulting from food industry consumption can be significantly reduced through improved supply chain management measures. The authors assert that fast food corporations can mitigate their environmental footprint by implementing more efficient transportation systems and reducing waste. Furthermore, the incorporation of circular economy principles, as articulated by (Ada et al., 2023) enables organizations to utilize resources more efficiently, hence enhancing sustainability in product and product life cycles.

The emergence of Industry 4.0 technology offers a framework to enhance the efficiency of supply chain activities in the fast-food business. According to (Rad et al., 2022) the systematic use of key technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and data analytics enhances real-time monitoring and decision-making. This integration can result in more resilient supply chains that not only react to disruptions but also enhance resource utilization. (Khedr & S, 2024) emphasize the significance of deep learning and automated learning approaches in enhancing supply chain management, equipping organizations with rapid predictive skills for better demand forecasting and inventory management.

Moreover, the IoT emerges as a pivotal technology advancement facilitating operations management in the fast-food supply chain. (Rejeb et al., 2020) conducted a bibliometric analysis indicating that the implementation of IoT solutions enhances visibility throughout the supply chain, enabling organizations to oversee production, inventory levels, and real-time delivery operations. This transparency is crucial for achieving environmental goals and fostering an open relationship with consumers.

The logistics and distribution tactics greatly impact sustainability in the fast-food supply chain. (Gružauskas et al., 2019) demonstrate that accurate forecasting is crucial for the functioning of logistics groups, which are necessary for reducing transport emissions and optimizing delivery routes. The accurate forecast enables enterprises to align their supply with consumer demand, thereby minimizing waste and assuring the effective delivery of perishable items.

Nonetheless, the significance of packaging in attaining sustainability cannot be disregarded. (Parashar et al., 2020) emphasize the need of modelling food supply chains to mitigate carbon footprints, underscoring the necessity for fast food companies to implement biodegradable and recyclable packaging solutions. These initiatives are crucial within the global framework of

environmental governance, particularly given heightened regulatory demands and consumer anticipations.

3.2 LOGISTICS AND SUPPLY CHAIN MANAGEMENT IN FAST FOOD DELIVERY SERVICES

Logistics management in meal delivery services plays a crucial role in ensuring that food items are transported efficiently and effectively from restaurants to consumers. This process involves several key components, including order processing, which entails receiving and confirming customer orders; packaging, which ensures that the food remains fresh and secure during transit; transportation, which involves selecting the best routes and methods to deliver the food quickly; and final delivery, where the food is handed over to the customer.

The primary objective of logistics management in this sector is to guarantee not only the prompt and safe delivery of meals but also to maximize customer satisfaction by maintaining food quality throughout the delivery process (Yang et al., 2024). In the fast food delivery industry, this system relies on a sophisticated network of interconnected logistical elements, such as real-time tracking, efficient route planning, and coordination among multiple stakeholders including restaurants, delivery personnel, and customers.

3.3 KEY COMPONENTS OF FAST-FOOD DELIVERY LOGISTICS

Component	Description
Order Processing Systems	Integrated systems managing multiple input channels and integrating with inventory and delivery dispatch systems.
Inventory Management	Just-in-Time (JIT) inventory management to minimize waste and maximize food freshness.
Transportation and Route Optimization	Use of AI and machine learning algorithms for route planning and resource allocation.
Real-time Tracking	Mobile applications allow customers to track their food orders in real-time.
Last-mile Delivery	The final stage of delivery from a distribution center to the consumer's doorstep.

Table 2: Logistics component in fast-food delivery

Source: Author's own creation

Key components of fast-food delivery logistics:

- **Order Processing Systems:** The findings by (Dirsehan & Cankat, 2021) highlight the critical role of integrated order processing systems in optimizing fast food delivery

operations. These systems effectively manage multiple input channels such as mobile applications and telephone orders ensuring a seamless integration with inventory management and delivery dispatch systems. The authors note that fast food chains that invest in sophisticated order processing technologies see significant improvements in key performance metrics, including order accuracy and processing speed. Furthermore, these enhancements contribute to increased customer satisfaction and brand loyalty, illustrating the strategic importance of advanced order systems in the competitive fast food industry.

- **Inventory Management:** Just-in-Time (JIT) inventory management has transformed the fast-food sector by prioritizing efficiency and freshness, as noted by (Ufua et al. 2022). This approach allows restaurants to receive food and supplies precisely when needed, combating the challenges associated with excess inventory that often leads to spoilage and waste. By closely monitoring customer demand and real-time inventory levels, fast-food chains can ensure that meals are prepared using the freshest ingredients available, significantly improving taste and overall quality. This strategy not only enhances the culinary experience for customers but also boosts operational efficiency. Minimizing storage costs and reducing losses from expired products translates into lower overheads for businesses. Consequently, JIT inventory management aligns with the industry's focus on customer satisfaction, as it ensures that the food served is of high quality and meets the rapidly changing preferences of consumers. Additionally, by embracing JIT principles, restaurants can better uphold the service standards that customers expect in the fast-paced food industry, reinforcing their competitive edge.
- **Transportation and Route Optimization:** As order density escalates, particularly during peak hours, the necessity for effective transportation and route optimization has intensified. (Reyana & Kautish, 2024) examine the increasing application of artificial intelligence and machine learning algorithms for enhancing supply chain visibility, optimizing route planning and resource allocation, facilitating predictive maintenance, improving inventory management, automating warehouse operations, and bolstering risk management and security protocols.
- **Real-time tracking:** Delivery dispatchers must reevaluate their competitive advantages in the current technology-driven landscape and seek possibilities to improve their processes. Mobile applications have developed into a distinct category of e-commerce that offers consumers the convenience of tracking their food from any location at any time, thereby conserving time and effort (Dirsehan & Cankat, 2021). Meal quality, delivery reliability, customer service responsiveness, user-friendly digital interfaces, and promotions are critical elements that improve satisfaction across all performance levels. The perspectives of delivery riders and the efficacy of real-time tracking substantially improve satisfaction at high-performance levels.
- **Last-mile Delivery:** Last-mile delivery refers to the final stage of the delivery process where products are transported from a distribution center or local warehouse directly to the consumer's doorstep (Aggarwal et al., 2024). This phase is often considered the most critical part of the delivery chain, as it directly impacts the customer experience and satisfaction. Efficient last-mile delivery can enhance a brand's reputation, encourage repeat business, and ultimately foster customer loyalty. Challenges in this stage can include traffic congestion, varying delivery locations, and the need for precise timing, all of which require effective logistics strategies to ensure timely and accurate deliveries.

3.4 CUSTOMER SATISFACTION IN FAST FOOD DELIVERY

Customer satisfaction has become a vital focus in fast food delivery, especially as the industry evolves rapidly with technological advancements and changing consumer expectations. Several factors play a key role in shaping customer experiences, including the quality of service, efficiency of delivery, the freshness and condition of the food upon arrival, order accuracy, ease of use of ordering platforms, and the professionalism and courtesy of delivery drivers

Customer satisfaction in the food delivery domain is complex. The SERVQUAL model, established by Parasuraman et al. (1988), This model identifies five essential dimensions of service quality: reliability (the ability to perform promised services dependably and accurately), responsiveness (the willingness to help customers and provide prompt service), assurance (the knowledge and courtesy of employees and their ability to inspire trust and confidence), empathy (the provision of caring, individualized attention to customers), and tangibles (the physical facilities, equipment, and appearance of personnel).

In the context of fast-food delivery, (Yang et al., 2024) modify these characteristics, highlighting the significance of meal quality, delivery speed, and order correctness. The study revealed that meal quality, delivery service quality, and pricing and promotions significantly enhance consumer satisfaction in food delivery services. Understanding customer satisfaction is vital for several reasons. In the competitive fast-food delivery market, high levels of customer satisfaction can significantly affect customer loyalty, encouraging repeat purchases, and increasing the overall success of fast-food establishments.

3.5 TECHNOLOGY INTEGRATION IN FAST FOOD LOGISTICS

Embracing technology is essential for the fast food industry to stay competitive and improve efficiency across critical areas like supply chain management, inventory control, and delivery systems. As digital innovations evolve rapidly, the ability to adapt and integrate these tools has become a game-changer for businesses in this space. In supply chain management, technology enhances visibility and streamlines operations. Real-time tracking systems enable restaurants to monitor inventory, track deliveries, and anticipate demand changes. This not only reduces waste but also ensures smoother operations and better service for customers. Inventory control also benefits significantly from technological advancements.

Automated systems and data analytics allow fast food businesses to manage stock levels more effectively, ensuring ingredients are always fresh and available. This minimizes the risk of shortages or overstocking, keeping operations efficient and customers satisfied. Delivery systems, too, have been revolutionized by technology. Mobile apps and online ordering platforms offer customers unparalleled convenience while boosting delivery efficiency. These tools not only enhance customer satisfaction but also help businesses reach a wider audience, solidifying their presence in an increasingly competitive market. Ultimately, technology has become a key differentiator in the fast-food delivery sector, driving improvements in service quality, operational efficiency, and customer experience. By focusing on these innovations, fast-food businesses can position themselves for sustained success, with several key areas of focus:

- **MOBILE APPS AND GPS TRACKING:** (Dirsehan & Cankat, 2021) highlight the importance of customer satisfaction in fostering brand loyalty within the restaurant

industry. Mobile applications have emerged as a distinctive form of e-commerce, providing consumers with convenience by saving both time and effort. Notably, mobile apps equipped with GPS tracking have become standard in numerous fast-food delivery services. These applications not only streamline the ordering process but also allow customers to monitor their orders in real-time. This feature has proven to enhance customer satisfaction and alleviate concerns regarding delivery times.

- **AI AND MACHINE LEARNING:** The utilization of AI and machine learning for demand forecasting and route optimization is on the rise, as noted by (Reyana & Kautish, 2024). Machine learning algorithms can enhance the intricate process by forecasting client preferences and optimizing routes accordingly. Logistics 4.0 addresses personalized customer demands without increasing expenses and enhances the efficacy of relief operations. The influence of disruptive technologies on multiple facets of logistics, encompassing inventory management, route optimization, predictive maintenance, and last-mile delivery. Utilizing real-time data and sophisticated analytics, AI algorithms provide precise demand forecasting, automated replenishment systems, and customized delivery alternatives, resulting in enhanced efficiency and customer satisfaction.
- **BLOCKCHAIN TECHNOLOGY:** Although in its nascent phase, blockchain technology is being investigated for its potential to improve transparency and traceability, mitigate risk, and, crucially, bolster confidence among many stakeholders within fast food supply chains (Pandey et al., 2022). (Thakur & Ahuja, 2024) assert that the implementation of this solution will provide all stakeholders in the supply chain with access to an immutable and full record of all transactions and activities. As a result, the likelihood of fraudulent actions will be diminished, efficiency will be enhanced, and expenses related to traditional supply chain management systems will be lowered. Smart contracts will be utilized to automate multiple facets of the food supply chain, encompassing order processing, inventory management, and payment processing. This automation will optimize the process, leading to diminished time and effort needed for supply chain management. He also posits that this technology could markedly improve food safety and consumer confidence.
- **INTERNET OF THINGS (IOT):** The swift progress in supply chain management, propelled by digitization, has transformed the logistical landscape in the fast food industry. The implementation of technologies like the Internet of Things (IoT) enabled real-time monitoring of supplier products to retail locations, therefore decreasing delivery times and enhancing coordination (Nagy et al., 2018) These enhancements in visibility enabled fast food companies to dynamically adapt to consumer demand, thereby maximizing inventory levels and minimizing waste. The incorporation of IoT sensors enables real-time monitoring of environmental variables, improving visibility and allowing for proactive problem solutions.

3.6 FACTORS INFLUENCING CUSTOMER SATISFACTION

Customer satisfaction in fast food delivery services has become a fundamental area of study, mainly because the sector has evolved quickly with technological advances and changes in consumer needs. Several factors influence customer satisfaction, including quality of service, delivery efficiency, and technology use. Several key factors have been identified in the

literature as significant influences on customer satisfaction in fast food delivery. (Koay et al., 2022) their comprehensive study of the online fast food market results show that five dimensions of online food delivery service quality, including assurance, maintenance of meal quality and hygiene, reliability, security, and system operation, are significant to customer satisfaction.

However, other factors also play important roles:

- **SERVICE QUALITY:** is a crucial determinant of customer satisfaction in fast food delivery services (Koay et al., 2022). (Cheng et al., 2021) have created a service quality scale tailored for the online meal delivery sector, delineating elements such as responsiveness, assurance, and empathy. Their research emphasized that consumer quality perception profoundly influences satisfaction, underscoring the necessity of dependable service provision. Conversely, inadequate quality can result in detrimental customer experiences, as illustrated by the findings of (Burlea-Schiopoiu et al., 2022), which revealed that service inconsistency negatively influenced the behavior of Romanian consumers during the Covid-19 pandemic.
- **DELIVERY SPEED:** A crucial factor influencing satisfaction is the efficacy of delivery, encompassing both the rapidity and precision of the service. Evidence suggests that expedited delivery times are directly associated with heightened customer satisfaction (Pal et al., 2024). The swift proliferation and utilization of food delivery services during the pandemic underscored the necessity for expedited service. These platforms have established a vital link between consumers and food establishments, profoundly influencing customer opinions of service efficacy.
- **USER-FRIENDLY ORDERING PLATFORMS:** The growing prominence of mobile app ordering has rendered the user-friendliness of these platforms a critical consideration. (Ma et al., 2024) identified that the usability of digital interfaces and promotional strategies are critical factors in enhancing satisfaction across all performance tiers. The incorporation of technology is essential for enhancing consumer satisfaction (Anbumathi et al., 2023). Recent research reveal that consumers are progressively accepting and satisfied with technology-enhanced delivery alternatives. The study by (Seo & Roh, 2025) examined the integration of online and offline delivery attributes, clarifying the impact of technological acceptance on consumer happiness and loyalty. Their findings indicate that the implementation of new technologies can streamline operations and enhance user experiences, enabling fast-food restaurants to fulfill and beyond customer expectations.
- **Driver Courtesy:** Although frequently disregarded, the engagement between the delivery driver and the consumer can profoundly influence overall satisfaction. (Hsu et al., 2024) analyzed the disparity in driving habits during non-meal-peak hours versus meal-peak hours, ostensibly attributed to the incentive program implemented by the platform. It was discovered that, in contrast to non-on-demand food delivery drivers, on-demand food delivery drivers are more prone to engage in aggressive and hazardous driving behaviors, as evidenced by their increased longitudinal and lateral speeds, more abrupt acceleration and deceleration, higher incidence of weaving maneuvers, reduced safety gaps, and diminished time-to-collision. Their aggressive and hazardous driving

conduct is more likely to manifest during peak eating hours. Operators implement these advances to maintain competitiveness and satisfy evolving consumer demands.

3.7 RELATIONSHIP BETWEEN DELIVERY PERFORMANCE AND CUSTOMER SATISFACTION

In the fast-food sector, delivery performance measures, including speed, accuracy, and overall service quality, substantially impact consumer satisfaction. The emergence of food delivery services in many locations necessitates a thorough analysis of these measures and their relationships with consumer perceptions and behaviors. Recent studies emphasize that the efficacy of delivery operations is crucial for enhancing consumer loyalty and happiness, especially in the realm of online food delivery. An essential element of delivery performance is the caliber of service rendered in both online and offline contexts. (Seo & Roh, 2025) demonstrate that consumer online interactions and the efficacy of delivery operations are essential in shaping customer happiness and loyalty. Their findings indicate that prospective fast-food brands should concentrate not alone on the product, but also on the entirety of the delivery experience, underscoring the necessity for a comprehensive grasp of online delivery attributes.

Throughout the COVID-19 pandemic, consumer behavior underwent a transition, as demonstrated by (Burlea-Schiopoiu et al., 2022) Their investigation into Romanian customers indicated that prompt and secure delivery emerged as critical factors influencing customer satisfaction. The pandemic heightened consumer expectations for prompt delivery and contactless interaction, reflecting the industry's broader shift towards technological use. Moreover, defining a unique and robust service scale for the online food delivery industry can facilitate the identification of critical performance areas. (Cheng et al., 2021) offer a service quality scale that encompasses essential components for assessing delivery performance. Metrics such delivery punctuality, order accuracy, and customer service responsiveness significantly influence satisfaction levels and intentions for repeat purchases.

The rivalry between platform logistics and self-logistics significantly complicates delivery dynamics. (Niu et al., 2021) contend that restaurants must meticulously assess their collaboration with online delivery platforms, balancing the advantages of logistical efficiency with profitability and sustainability factors. These selections ultimately illustrate the impact of delivery performance on consumer satisfaction and preferences. However, (Pourrahmani et al., 2023) discovered that extended delivery times were associated with diminished consumer satisfaction when modelling food delivery pricing and waiting periods. This underscores the necessity of reducing waiting time as a vital delivery performance parameter for fast food services, which is crucial for sustaining a competitive edge.

The implementation of sophisticated technology, such as smart food lockers and autonomous delivery robots, has elicited growing interest among customers (Hu et al., 2024); (Zibarzani et al., 2024) Implementing new delivery options enhances client experience and demonstrates a dedication to service excellence. The integration of environmental sustainability in delivery techniques enhances consumer happiness. Thus, it is clear that delivery performance measures significantly impact consumer satisfaction in the fast-food delivery industry. As the industry

progresses, comprehending and enhancing these indicators will be crucial for fostering loyalty and attaining sustained success. Companies must continuously develop and adapt to consumer expectations, ensuring their delivery services meet the demands for quality, speed, and sustainability.

3.8 CUSTOMER RETENTION AND LOYALTY IN FAST FOOD DELIVERY SERVICES

In today's fast-paced world, retaining loyal customers is essential for success in the fast-food delivery industry. With rapid technological advancements and ever-changing consumer preferences, understanding customer behavior has become a cornerstone for building loyalty. Customer loyalty can be viewed through two key dimensions: behavioral and attitudinal. Behavioral loyalty is reflected in customers' repeated purchases, while attitudinal loyalty highlights their emotional commitment and preference for a particular brand (Alsalman & Nafea, 2024). A meta-analytic review by (Shankar et al., 2024) has shed light on the reasons consumers prefer online food delivery services. It emphasizes that convenience and a diverse range of options are significant motivators. The findings suggest that improving these aspects can effectively enhance customer loyalty.

Another important factor to consider is the quality of delivery services (Anbumathi et al., 2023). (Seo & Roh, 2025) examines both online and offline delivery methods, utilizing the technology acceptance model, has shown that improvements in delivery processes are essential for achieving customer satisfaction, which in turn fosters loyalty. This insight suggests that investing in logistics and ensuring timely delivery can significantly enhance customer retention. (Dogra et al., 2023) investigated client repurchase intentions within the online food delivery environment (OFDL), employing Structural Equation Modeling (SEM) and fuzzy set/Qualitative Comparative Analysis (FSQCA) to demonstrate that contentment enhances repurchase intentions. This emphasizes the necessity for a client-centered methodology in service design.

Alongside delivery quality, variables influencing clients' repurchase intentions are equally critical. (Yang et al., 2024a) underscore the significance of food quality, delivery speed, and order accuracy. It indicated that meal quality, delivery service quality, and pricing and promotions significantly enhance customer happiness, retention, and loyalty in food delivery services. (Kumar & Ayodeji, 2021) emphasized the critical elements of electronic delay that facilitate client activation and retention. His empirical investigation demonstrated that comprehending client wants and providing unique experiences are essential for cultivating loyalty. (Shamah et al., 2018) investigated customer loyalty from a self-congruity perspective, emphasizing the significance of harmonizing brand images with consumer self-congruity.

Customer satisfaction is the foundation of building lasting loyalty. When people have positive experiences with a product or service, they feel valued and appreciated. This sense of satisfaction naturally strengthens their connection to the brand, encouraging repeat purchases and fostering a deeper commitment. Simply put, happy customers are loyal customers, and nurturing this loyalty is key to long-term success in any business (Liu et al., 2023).

Building customer retention and loyalty in fast food delivery requires more than just great service—it calls for a well-rounded approach. This means truly understanding what customers

want, improving delivery quality, and leveraging technology to streamline the experience. By embracing these strategies, backed by solid research, fast food delivery businesses can thrive in a competitive market while earning the trust and loyalty of their customers.

3.9. THEORETICAL FRAMEWORKS RELEVANT TO LOGISTICS AND CUSTOMER SATISFACTION

Several theoretical frameworks are valuable for understanding the dynamics between logistics, supply chain management, and customer satisfaction in the fast-food delivery industry:

- **Service Quality (SERVQUAL) Model:** Introduced by Parasuraman et al. (1988), this model emphasizes five core dimensions of service quality—reliability, assurance, tangibles, empathy, and responsiveness. Applied to food delivery, these dimensions serve as benchmarks for evaluating both the quality of the delivery service and the food itself, offering insights into areas for improvement.
- **Theory of Planned Behavior (TPB):** Proposed by Ajzen (1991), TPB sheds light on the intentions and behaviors of consumers using food delivery services. This model considers factors such as attitudes, social norms, and perceived behavioral control to explain why certain customers may be more satisfied than others. It provides actionable insights into how businesses can enhance customer satisfaction by understanding consumer motivations.
- **Technology Acceptance Model (TAM):** Developed by Davis (1989), this model is useful for understanding how customers adopt and use food delivery apps and platforms. It focuses on perceived usefulness and perceived ease of use as key factors influencing technology adoption.
- **Supply Chain Operations Reference (SCOR) Model:** Created by the Supply Chain Council, the SCOR model offers a structured approach to evaluating and enhancing supply chain performance in terms of reliability, consistency, and efficiency (Jain et al., 2022). Applied to fast food delivery, it provides a standardized framework for optimizing logistics and ensuring a seamless, high-quality service.
- **Just-in-Time (JIT) Philosophy:** Originally designed for manufacturing, JIT principles can be adapted to the fast food delivery sector to reduce waste, cut down on inventory costs, and boost operational efficiency (Ufua et al., 2022). This approach aligns with the sector's need for speed and freshness, enhancing both operational performance and customer satisfaction.

3.10 INNOVATIVE APPROACHES IN FAST FOOD DELIVERY LOGISTICS

3.10.1 APPLICATION OF LEAN MANAGEMENT PRINCIPLES

Lean management principles are becoming crucial in fast food delivery, where they help boost efficiency, cut down on waste, and improve customer satisfaction. Lean management is all about refining resources and processes to deliver greater value to customers while reducing excess. In the fast-paced world of fast food, where speed is key, Lean methods can streamline operations, enabling quicker service and a better overall experience for customers (Farrukh et

al., 2023). Waste reduction, a fundamental tenet of lean management, is especially pertinent in the fast-food industry, where food waste may substantially affect profitability and sustainability. The implementation of green lean-six sigma methodologies promotes the shift towards a circular economy, highlighting resource recovery and sustainable supply (Farrukh et al., 2023) For instance, some fast-food companies have begun to adopt waste management plans that encompass recycling, reuse, and reduction of food goods, consistent with the multiple "R" paradigm for waste strategy development (Zorpas,2024)

The operational efficiency of fast-food delivery is crucial because of the industry's rapid pace. Lean management approaches foster a culture of continuous improvement by eliminating non-value tasks, resulting in expedited recovery timelines. The execution of process mapping and value flow analysis helps pinpoint bottlenecks in the delivery workflow, enabling swift corrective actions. The Internet of Things (IoT) has emerged as a transformative catalyst for Lean principles, facilitating real-time monitoring of service and inventory management processes (Rezaee et al., 2023). Fast food operators can leverage data gathered through IoT systems to forecast demand and optimize workforce allocation, thereby enhancing operational efficiency. Integrating robotics into food manufacturing is proving to be a valuable approach to boosting quality control and reducing waste along supply chains, underscoring the importance of efficient waste management (Liberty et al., 2024). Applying Lean management principles to fast food delivery offers a way to streamline operations, cut down on waste, and improve customer satisfaction. By embracing modern technologies alongside established management techniques, fast food companies can meet the demands of a highly competitive market while consistently delivering exceptional value to their customers.

3.10.2 LAST MILE DELIVERY OPTIMIZATION TECHNIQUES

The rapid growth of online food ordering and delivery services has profoundly transformed the last mile of the supply chain, presenting both challenges and opportunities for fast food providers. This final stage of delivery, where meals are transported from restaurants directly to customers' doors, has become a critical battleground for competition in the industry. To thrive in this dynamic environment, fast food companies must adopt innovative strategies that optimize logistics and enhance delivery processes. Key to this optimization is the effective use of technology. Streamlining order processing, improving route planning, and managing drivers efficiently are paramount for success. At the same time, it is essential to reduce operational costs while maintaining high standards of quality and speed in delivery. Achieving this balance is vital for remaining competitive in a crowded marketplace.

The Last Mile Delivery represents the last phase of product distribution to the consumer's location (Aggarwal et al., 2024). The last phase of delivery, also known as "last-mile delivery," is arguably the most pivotal for client satisfaction. The optimization of last-mile delivery in fast food establishments is increasingly essential for enhancing service efficiency and ensuring customer satisfaction. This section of logistics focuses on technical advancements, route optimization, and responsiveness to consumer demands. Technology is essential for optimizing the last mile. The emergence of automation, namely via autonomous vehicles (AV) and drones, has started to transform food delivery methods. (Fehling & Saraceni, 2023) assert that the incorporation of autonomous delivery systems can markedly decrease transportation expenses and delivery durations. The viability of employing drones for fast food deliveries is contingent

upon addressing both technical and legal obstacles. The ongoing exploration in this kingdom indicates that automated guided vehicles (AGV) provide promise for enhancing distribution efficiency (Zibarzani.et.al.,2024)

The optimization of the route is a crucial focus in last-mile delivery. Effective route planning not only decreases travel duration but also reduces fuel consumption, hence enhancing sustainability. Algorithmic methods, including linear programming of mixed integer and heuristic techniques, have been employed to address routing challenges in food delivery, enhancing delivery systems while accommodating changeable customer demand (Aggarwal et al.,2024)

Customer satisfaction is paramount in any last-mile delivery plan. Contemporary consumers anticipate not only prompt deliveries but also a seamless ordering experience. The use of mobile applications that enable order tracking and offer expected delivery times significantly enhances the overall consumer experience (Alnaggar et al., 2021). Considerations about sustainability are interconnected with consumer happiness and logistical operations. An increasing emphasis on eco-friendly delivery techniques aligns with consumer preferences, as numerous customers now choose services that exhibit environmental responsibility (Melkonyan et al., 2020) Organizations are acknowledging the significance of synchronizing their delivery methods with sustainability goals to enhance their market standing and consumer allegiance (Guzenko & Guzenko, 2022) .

The incorporation of automated learning in delivery logistics enhances both route optimization and inventory management, guaranteeing that fast food can adequately meet varying demand. Automated learning systems examine extensive data sets to forecast consumer behavior and subsequently modify operational strategy. This adaptability is essential for sustaining client happiness in a competitive market. The enhancement of last-mile delivery in fast food logistics entails a comprehensive strategy that integrates technical advancements, effective routing, environmental considerations, and consumer happiness. The integration of these factors enhances operating efficiency and meets the demands of changing consumers, hence facilitating success in the fast food industry.

CONCLUSION

The fast-food sector is experiencing dynamic growth as consumer habits change and convenience demand increases. However, ensuring client satisfaction is still a major challenge, which is strongly influenced by logistics and supply chain management practices. This systematic review explored the effectiveness of logistics and SCM in enhancing customer satisfaction in the fast-food delivery sector. The study identified the key logistics factors of delivery times, order accuracy, and service quality, It examined the theoretical frameworks and technological solutions, enabling local fast-food providers to make actionable suggestions and recommendations.

The review highlighted the importance of efficient logistics management to maintain food quality, minimize delays, and ensure timely delivery. Technological advancement, including the integration of AI, machine learning, IoT, and blockchain technologies, provide promising paths for optimizing supply chain processes and improving customer satisfaction. Furthermore, implementing sustainable practices and adopting the principles of circular economy can improve the efficiency and environmental responsibility of fast-food delivery operations.

This research will be carried out in Győr, a medium-sized European city with a complex urban landscape. In focusing on specific challenges and opportunities in this context, the aim is to bridge the gap between general theory of logistics and practical application. The insights obtained from this research will benefit local stakeholders such as managers and policy makers, as well as contribute to broader academic literature on logistics and customer satisfaction.

The study highlights the critical role of logistics and SCM in improving customer satisfaction in the fast-food supply sector. Through the identification of key logistical factors, the study of theoretical models, and the assessment of technical solutions, the study provides valuable guidance to fast-food enterprises wishing to improve service quality and operational efficiency.

REFERENCES

- Ada, E., Kazancoglu, Y., Gozacan-Chase, N., & Altin, O. (2023). Challenges for circular food packaging: Circular resources utilization. *Applied Food Research*, 3(2), 100310. <https://doi.org/10.1016/J.AFRES.2023.100310>
- Aggarwal, A., Ghosh, P., Sharma, K., Sharma, S., Raj, M., & Ali, M. M. (2024). Ant-Inspired Route Optimization for Last Mile Delivery. *Proceedings - International Conference on Computing, Power, and Communication Technologies, IC2PCT 2024*, 366–371. <https://doi.org/10.1109/IC2PCT60090.2024.10486417>
- Alnaggar, A., Gzara, F., & Bookbinder, J. H. (2021). Crowdsourced delivery: A review of platforms and academic literature. *Omega*, 98, 102139. <https://doi.org/10.1016/J.OMEGA.2019.102139>
- Alsaman, D., & Nafea, R. (2024). Examining the Relationships Among Service Quality Dimensions, Customer Loyalty, and Customer Satisfaction Towards Third-Party Online Food Delivery Apps in Kuwait. In *Sustainable Innovations in Management in the Digital Transformation Era: Digital Management Sustainability* (pp. 102–113). Taylor and Francis. <https://doi.org/10.4324/9781003450238-11>
- Anbumathi, R., Dorai, S., & Palaniappan, U. (2023). Evaluating the role of technology and non-technology factors influencing brand love in Online Food Delivery services. *Journal of Retailing and Consumer Services*, 71, 103181. <https://doi.org/10.1016/J.JRETCONSER.2022.103181>
- Burlea-Schiopoiu, A., Puiu, S., & Dinu, A. (2022). The impact of food delivery applications on Romanian consumers' behaviour during the COVID-19 pandemic. *Socio-Economic Planning Sciences*, 82, 101220. <https://doi.org/10.1016/J.SEPS.2021.101220>
- Cheng, C. C., Chang, Y. Y., & Chen, C. T. (2021). Construction of a service quality scale for the online food delivery industry. *International Journal of Hospitality Management*, 95, 102938. <https://doi.org/10.1016/J.IJHM.2021.102938>
- Dirsehan, T., & Cankat, E. (2021). Role of mobile food-ordering applications in developing restaurants' brand satisfaction and loyalty in the pandemic period. *Journal of Retailing and Consumer Services*, 62, 102608. <https://doi.org/10.1016/J.JRETCONSER.2021.102608>
- Dogra, N., Adil, M., Sadiq, M., Dash, G., & Paul, J. (2023). Unraveling customer repurchase intention in OFDL context: An investigation using a hybrid technique of SEM and fsQCA. *Journal of Retailing and Consumer Services*, 72, 103281. <https://doi.org/10.1016/J.JRETCONSER.2023.103281>
- Duong, L. N. K., Al-Fadhli, M., Jagtap, S., Bader, F., Martindale, W., Swainson, M., & Paoli, A. (2020). A review of robotics and autonomous systems in the food industry: From the supply chains perspective. *Trends in Food Science & Technology*, 106, 355–364. <https://doi.org/10.1016/J.TIFS.2020.10.028>
- Farrukh, A., Mathrani, S., & Sajjad, A. (2023). Green-lean-six sigma practices and supporting factors for transitioning towards circular economy: A natural resource and

- intellectual capital-based view. *Resources Policy*, 84, 103789. <https://doi.org/10.1016/J.RESOURPOL.2023.103789>
- Fehling, C., & Saraceni, A. (2023). Technical and legal critical success factors: Feasibility of drones & AGV in the last-mile-delivery. *Research in Transportation Business & Management*, 50, 101029. <https://doi.org/10.1016/J.RTBM.2023.101029>
- Gružauskas, V., Gimžauskienė, E., & Navickas, V. (2019). Forecasting accuracy influence on logistics clusters activities: The case of the food industry. *Journal of Cleaner Production*, 240, 118225. <https://doi.org/10.1016/J.JCLEPRO.2019.118225>
- Guzenko, A., & Guzenko, N. (2022). Process optimization for last mile logistics. *Transportation Research Procedia*, 63, 1700–1707. <https://doi.org/10.1016/J.TRPRO.2022.06.184>
- Hsu, C. K., Lee, T. C., & Io Wong, K. (2024). Time is money: Effects of time-sensitive incentive on risky driving among on-demand food-delivery motorcyclists in Taiwan. *Safety Science*, 176, 106549. <https://doi.org/10.1016/J.SSCI.2024.106549>
- Jain, V., Kumar, S., Mostofi, A., & Arab Momeni, M. (2022). Sustainability performance evaluation of the E-waste closed-loop supply chain with the SCOR model. *Waste Management*, 147, 36–47. <https://doi.org/10.1016/J.WASMAN.2022.05.010>
- Khedr, A. M., & S, S. R. (2024). Enhancing supply chain management with deep learning and machine learning techniques: A review. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(4), 100379. <https://doi.org/10.1016/J.JOITMC.2024.100379>
- Koay, K. Y., Cheah, C. W., & Chang, Y. X. (2022). A model of online food delivery service quality, customer satisfaction and customer loyalty: a combination of PLS-SEM and NCA approaches. *British Food Journal*, 124(12), 4516–4532. <https://doi.org/10.1108/BFJ-10-2021-1169>
- Kumar, V., & Ayodeji, O. G. (2021). E-retail factors for customer activation and retention: An empirical study from Indian e-commerce customers. *Journal of Retailing and Consumer Services*, 59, 102399. <https://doi.org/10.1016/J.JRETCONSER.2020.102399>
- Liberty, J. T., Habanabakize, E., Adamu, P. I., & Bata, S. M. (2024). Advancing food manufacturing: Leveraging robotic solutions for enhanced quality assurance and traceability across global supply networks. *Trends in Food Science & Technology*, 153, 104705. <https://doi.org/10.1016/J.TIFS.2024.104705>
- Lin, B., & Guan, C. (2023). Assessing consumption-based carbon footprint of China's food industry in global supply chain. *Sustainable Production and Consumption*, 35, 365–375. <https://doi.org/10.1016/J.SPC.2022.11.013>
- Liu, X., Lim, X. J., Cheah, J. H., Ng, S. I., & Kamal Basha, N. (2023). Food at your doorstep? Examining customer loyalty towards online food delivery applications. *British Food Journal*. <https://doi.org/10.1108/BFJ-02-2023-0116>
- Ma, B., Limiarta, J., Teo, C. C., & Wong, Y. D. (2024). Unveiling consumers' nonlinear evaluation of service performances in online food delivery: a quantitative Kano analysis. *British Food Journal*, 126(2), 834–863. <https://doi.org/10.1108/BFJ-06-2023-0503>

- Melkonyan, A., Gruchmann, T., Lohmar, F., Kamath, V., & Spinler, S. (2020). Sustainability assessment of last-mile logistics and distribution strategies: The case of local food networks. *International Journal of Production Economics*, 228, 107746. <https://doi.org/10.1016/J.IJPE.2020.107746>
- Muchenje, K. C. (2024). Green logistics and supply chain management. In *Contemporary Solutions for Sustainable Transportation Practices* (pp. 33–61). IGI Global. <https://doi.org/10.4018/979-8-3693-3755-4.ch002>
- Nagy, J., Oláh, J., Erdei, E., Máté, D., & Popp, J. (2018). The Role and Impact of Industry 4.0 and the Internet of Things on the Business Strategy of the Value Chain—The Case of Hungary. *Sustainability 2018, Vol. 10, Page 3491*, 10(10), 3491. <https://doi.org/10.3390/SU10103491>
- Niu, B., Li, Q., Mu, Z., Chen, L., & Ji, P. (2021). Platform logistics or self-logistics? Restaurants' cooperation with online food-delivery platform considering profitability and sustainability. *International Journal of Production Economics*, 234, 108064. <https://doi.org/10.1016/J.IJPE.2021.108064>
- Pal, S., Kumar, P., Kumar, D., Bhambu, S., & Jain, A. (2024). Consumer's Perception Regarding Instant Food Delivery Model: A Case of Zomato. *Library Progress International*, 44(3), 2502–2510.
- Pandey, V., Pant, M., & Snasel, V. (2022). Blockchain technology in food supply chains: Review and bibliometric analysis. *Technology in Society*, 69, 101954. <https://doi.org/10.1016/J.TECHSOC.2022.101954>
- Parashar, S., Sood, G., & Agrawal, N. (2020). Modelling the enablers of food supply chain for reduction in carbon footprint. *Journal of Cleaner Production*, 275, 122932. <https://doi.org/10.1016/J.JCLEPRO.2020.122932>
- Pourrahmani, E., Jaller, M., & Fitch-Polse, D. T. (2023). Modeling the online food delivery pricing and waiting time: Evidence from Davis, Sacramento, and San Francisco. *Transportation Research Interdisciplinary Perspectives*, 21, 100891. <https://doi.org/10.1016/J.TRIP.2023.100891>
- Rad, F. F., Oghazi, P., Palmié, M., Chirumalla, K., Pashkevich, N., Patel, P. C., & Sattari, S. (2022). Industry 4.0 and supply chain performance: A systematic literature review of the benefits, challenges, and critical success factors of 11 core technologies. *Industrial Marketing Management*, 105, 268–293. <https://doi.org/10.1016/J.INDMARMAN.2022.06.009>
- Rejeb, A., Simske, S., Rejeb, K., Treiblmaier, H., & Zailani, S. (2020). Internet of Things research in supply chain management and logistics: A bibliometric analysis. *Internet of Things*, 12, 100318. <https://doi.org/10.1016/J.IOT.2020.100318>
- Reyana, A., & Kautish, S. (2024). Machine learning techniques for route optimizations and logistics management description. In *Computational Intelligence Techniques for Sustainable Supply Chain Management* (pp. 197–224). Elsevier. <https://doi.org/10.1016/B978-0-443-18464-2.00010-8>

- Rezaee, N., Zanjirchi, S. M., Jalilian, N., & Bamakan, S. M. H. (2023). Internet of things empowering operations management; A systematic review based on bibliometric and content analysis. *Telematics and Informatics Reports*, 11, 100096. <https://doi.org/10.1016/J.TELER.2023.100096>
- Seo, K., & Roh, T. (2025). Online and offline delivery qualities: O2O satisfaction and loyalty through technology acceptance model. *Journal of Retailing and Consumer Services*, 82, 104079. <https://doi.org/10.1016/J.JRETCONSER.2024.104079>
- Shamah, R. A. M., Mason, M. C., Moretti, A., & Raggiotto, F. (2018). Investigating the antecedents of African fast food customers' loyalty: A self-congruity perspective. *Journal of Business Research*, 86, 446–456. <https://doi.org/10.1016/J.JBUSRES.2017.05.020>
- Shankar, A., Jebarajakirthy, C., Maseeh, H. I., Nayal, P., Kumar, A., & Krishnan, C. (2024). Why do consumers choose online food delivery services? A meta-analytic review. *International Journal of Hospitality Management*, 123, 103921. <https://doi.org/10.1016/J.IJHM.2024.103921>
- Tan, K. C. (2001). A framework of supply chain management literature. *European Journal of Purchasing & Supply Management*, 7(1), 39–48. [https://doi.org/10.1016/S0969-7012\(00\)00020-4](https://doi.org/10.1016/S0969-7012(00)00020-4)
- Thakur, K. S., & Ahuja, R. (2024). Empowering Fast-Moving Consumer Goods Supply Chain Leveraging Blockchain. *Lecture Notes in Networks and Systems*, 873, 729–740. https://doi.org/10.1007/978-981-99-9442-7_62
- Ufua, D. E., Ibidunni, A. S., Papadopoulos, T., Matthew, O. A., Khatoon, R., & Agboola, M. G. (2022). Implementing just-in-time inventory management to address contextual operational issues: a case study of a commercial livestock farm in southern Nigeria. *TQM Journal*, 34(6), 1752–1771. <https://doi.org/10.1108/TQM-09-2021-0268>
- Yang, Q., Wang, Z. Sen, Feng, K., & Tang, Q. Y. (2024a). Investigating the crucial role of logistics service quality in customer satisfaction for fresh e-commerce: A mutually validating method based on SERVQUAL ijand service encounter theory. *Journal of Retailing and Consumer Services*, 81, 103940. <https://doi.org/10.1016/J.JRETCONSER.2024.103940>
- Zibarzani, M., Abumalloh, R. A., & Nilashi, M. (2024). Adoption behavioural intention of robots in last mile food delivery: The importance of environmental friendliness and moderating impacts of privacy and security concerns. *Research in Transportation Business & Management*, 55, 101146. <https://doi.org/10.1016/J.RTBM.2024.101146>
- Zorpas, A. A. (2024). The hidden concept and the beauty of multiple “R” in the framework of waste strategies development reflecting to circular economy principles. *Science of The Total Environment*, 952, 175508. <https://doi.org/10.1016/J.SCITOTENV.2024.175508>