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Optimization of Business Processes in Retail to Increase Efficiency

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Abstract: ***Business process optimization in retail is a strategic tool for improving operational efficiency, reducing costs and improving customer service. The main purpose of the research is to study modern optimization methods, which include the use of analytical systems, automation and intelligent solutions. The research methodology is based on the analysis of successful practices in the implementation of predictive analytics, intelligent routing and self - service cash register systems in large retail chains. The study identified key areas of optimization: inventory management, logistics and customer interaction at the cash level. The use of predictive models to predict demand and optimize logistics routes can reduce transportation costs and reduce inventory levels. Automation of cash register processes using self - service systems reduced the average service time, which contributed to an increase in the capacity of cash register areas and increased customer satisfaction. The introduction of omnichannel strategies, such as the integration of online and offline sales channels, has increased conversion and increased customer loyalty. In conclusion, the implementation of modern automation technologies and methods in key retail business processes contributes to a significant increase in operational efficiency, cost reduction and the creation of sustainable competitive advantages in the market.***

Keywords: business processes, retail, optimization, automation, predictive analytics, operational efficiency, logistics, self - service, omnichannel strategies.

1. Introduction

In the context of the modern economy, retail plays a critical role by providing consumers with access to a wide range of goods and services. Amid growing competition and the accelerating digitalization of the consumer market, retail enterprises are compelled to seek new ways to enhance operational efficiency. One of the most promising approaches is business process optimization, which not only reduces costs but also improves customer service quality, a decisive factor in competitiveness.
The relevance of this topic is supported by several factors. First, recent years have seen a significant increase in the complexity of supply chains and the expansion and diversity of product assortments, necessitating the adoption of more flexible business process management models. Second, technological advancements and automation systems enable the use of artificial intelligence algorithms for demand forecasting, logistics optimization, and inventory management, leading to substantial reductions in operational costs. Third, the growth of e - commerce and the spread of omnichannel strategies demand the integration of all customer interaction channels, which further requires optimization of companies' internal processes.

This study aims to examine and analyze current methods of business process optimization in retail, their impact on operational efficiency, and to identify key areas that may enhance competitiveness within a rapidly changing market environment.

2. Materials and Methods

In researching business processes in retail, the works of Kutashova E. V. and Skobeleva O. A. [1] were utilized. The authors posit that goods and services intended for a broad audience are distributed through various retail points, including shopping centers, specialty stores, and online platforms. The commercial activity itself plays a key role in organizing sales. A notable feature of this activity is the fixed location used for exchanging goods for monetary value. Often, these are physical stores; however, for online sales, products are delivered directly to the customer's address or to a designated pickup location.

Another crucial component is organizational structure. Regardless of the size of the enterprise—be it a large corporation, medium - sized business, or small business—operations adhere to a set of common rules. These rules govern interactions with customers, regulatory compliance, adherence to sanitation standards, and ensuring high product quality [1].

From a regulatory standpoint, the term "business process" is defined within the ISO 9000 - 2001 standard as a collection of interrelated activities that transform inputs into outputs [7]. The main types of business processes are described in Table 1.

Table 1: The main types of business processes [8].

Types of Business Processes	Description
Primary (Core)	Business processes comprising the primary activities of the enterprise. They are focused on the production of goods or provision of services that deliver value to the customer and generate revenue.
Supporting (Auxiliary)	Processes intended to ensure the effective performance of core business processes and infrastructure. They provide continuity and efficiency to core and management processes. These include accounting, marketing, human resources, and procurement of various resources. Supporting processes do not directly benefit consumers.

Further, in examining areas for improvement, the approach of V. K. Romanovich was studied, emphasizing the importance of business process management as a key tool for network organizations, which supports the standardization of their internal processes. In A. B. Smirnov's works, the relevance of process management is substantiated, which is ensured by structuring the activities of retail enterprises [2]. Additionally, I. A. Krasyuk, D. G. Khukhlaev, and A. I. Barbaruk contributed significantly to the development of this concept by elaborating on the process approach and the possibilities of its application in the retail sector [3].

In the current environment, it is essential to consider trends related to the growth of e - commerce. In their work, O. V. Ilyin and A. B. Smirnov emphasize the transformation of business processes through the use of information technologies, with key participants being sellers, buyers, and suppliers. The use of information systems helps eliminate barriers between retail organizations and their customers. However, the authors omit an analysis of the role of other significant participants, such as service providers and agricultural enterprises, which also contribute to the final value of the product [2]. To evaluate the effectiveness of business processes, A. V. Smirnov proposed a system of key performance indicators for retail, focused on product value outcomes and integrated with accounting systems. As a solution to the challenge of continuously updating stock on the shelves, a management accounting system is proposed to ensure transparency in business processes [2].

In the context of retail digitalization, the adoption of technologies such as computer vision and Big Data becomes a significant area of focus, as reflected in the research of V. V. Baharev and G. Y. Mityashin [4]. One noteworthy advancement in this field is the implementation of ERP systems, such as SAP for Retail, which automates the product assortment and pricing policies of retail chains. However, a study of SAP implementation within the "Bahetle" chain revealed that automation covered only 30% of business processes, primarily due to constraints in staff training [2].

Inventory management in retail enterprises is another crucial element of successful operations, as thoroughly investigated by A. N. Gabdulhakova, K. M. Iragimova, and L. R. Magazova, who proposed their own models for optimizing enterprise operations, taking into account various institutional participants, such as government agencies and agricultural producers [5].

I. N. Shostak's research highlights the need to consider external and internal environmental factors, which significantly influence the transformation of business processes in retail [6].

The practical side of the question will be illustrated with examples of modern business process optimization methods applied by companies like Decathlon, Magnit, Lenta, L'Etoile, and Eldorado [11 - 16].

Thus, research indicates that managing business processes within retail chains requires consideration of multiple factors, including digitalization trends, the specifics of e - commerce, and the involvement of various participants.

3. Results and Discussion

The necessity of implementing innovative processes is driven by the rapid advancement of digital technologies. Digitalization in retail is accompanied by the integration of robotic warehousing systems, smart supplier contacts, chatbots, and big data technologies for demand analysis. Significant influence has also come from global changes, which have led to shifts in consumer behavior and demand structure.

Methods such as SWOT analysis and PEST analysis are used to identify the need for new business processes. SWOT analysis allows for the evaluation of an organization's strengths and weaknesses, along with external threats and opportunities, to establish development priorities. PEST analysis, in turn, ranks political, economic, social, and technological factors that directly affect the operations of retail companies. In certain cases, change initiators may include not only company executives and shareholders but also external experts [8].

Developing new business processes can encompass a wide range of tasks, from implementing new forms of retail services to exploring new markets and product promotion methods. A key element in each business process is the effective allocation and use of resources, which may include goods, technology, finances, and intellectual assets. To properly rank and apply these resources effectively, methods such as economic - mathematical calculations, heuristic methods, and expert assessments are utilized.

Evaluating the efficiency of business processes involves both quantitative and qualitative indicators. For instance, in warehousing processes, defect and mismatch rates serve as key quality metrics. Meanwhile, cost indicators in monetary and time terms help determine the efficiency of each process. The operational cycle efficiency is calculated as the ratio of the time taken to perform all operations to the total cycle duration.

New business processes may require revisiting a company's organizational structure. In some cases, it is advisable to transition from one organizational model to another, such as from a linear to a functional model. To successfully

implement business processes, it is important to prepare personnel, overcome resistance to change, and introduce a control system. Controlling plays a critical role here, serving as a set of tools to ensure the execution of managerial decisions and the achievement of planned outcomes [9].

The primary business processes of retail trade are described in Table 2.

Table 2: The Main Business Processes of Retail Trade [10].

Business Process	Description
Product Ordering	Ordering products from suppliers begins with selecting a suitable partner based on criteria such as transparency of cooperation terms, delivery times, product quality, and pricing. The process includes placing an order, agreeing on terms, and receiving goods at the store.
Goods Reception	The reception of goods from suppliers involves checking the quantity and quality of products against accompanying documents. This step is essential for timely identification of defects or shortages. The process concludes with entering data into the inventory management system for further stock control.
Product Returns	Product returns to suppliers occur upon detection of defects, expiration, contract violations, or unsuccessful sales. The procedure includes preparing return reports, documenting the return, and coordinating it with the supplier.
Product Sales	The sales process includes scanning the product, processing payment, and issuing a receipt. Refunds are issued if the product does not meet customer needs or is defective.
Inventory Management	Inventory is conducted to compare actual stock levels with system data. This essential inventory control tool prevents stock shortages or surpluses. The effectiveness of inventory management is enhanced by automated systems for stock control and accounting.

Under current market dynamics, optimizing inventory management processes is a critical catalyst for enhancing operational efficiency in retail. Utilizing advanced inventory management systems based on demand forecasting algorithms minimizes both shortage risks and excess stock, directly impacting capital turnover rates.

The aspects of optimizing business processes in retail trade to enhance efficiency are outlined in Table 3.

Table 3: Optimization of Business Processes in Retail Trade to Increase Efficiency [11].

Aspect	Description	Benefits	Example Tools
Sales Automation	Implementation of automated systems for order processing, payments, and inventory management.	Reduces errors, decreases processing time.	POS systems, ERP systems, CRM systems
Supply Chain Optimization	Enhancing collaboration with suppliers and managing logistics for timely deliveries.	Lowers storage and transportation costs.	Warehouse Management Systems (WMS), logistics software
Human Resource Management	Implementation of solutions for managing work schedules and evaluating employee performance.	Increases labor productivity, improves service quality.	Shift planning software, KPI systems
Customer Data Analysis	Utilizing analytical tools to study customer behavior and preferences.	Enhances customer satisfaction, improves targeting.	Business analytics systems, customer segmentation tools
Marketing Campaign Optimization	Using data to tailor personalized marketing offers and promotions.	Boosts conversion rates, improves customer engagement.	Marketing platforms, email automation tools
Mobile and Online Platforms	Developing user - friendly mobile apps and online stores to enhance the shopping experience.	Increases sales through online channels, improves loyalty.	E - commerce platforms, mobile applications
Inventory Management	Implementing systems for real - time inventory monitoring and management.	Reduces storage costs, prevents stockouts and overstock.	Inventory software, ERP systems
Customer Feedback	Integrating tools for collecting feedback and analyzing customer experience.	Improves service quality, boosts customer loyalty.	CRM systems, customer survey platforms

Optimizing these aspects can significantly enhance the operational efficiency of retail businesses, ensuring cost reduction, improved customer service, and streamlined processes across multiple domains.

The following section examines practical examples of companies optimizing business processes in retail to enhance efficiency.

For instance, the French retailer Decathlon, specializing in sports goods, previously faced frequent stockouts of popular products due to seasonal demand fluctuations [12]. This negatively impacted profitability and increased operating costs associated with storing unsold inventory. Implementing a machine learning - based analytics system integrated with ERP and developing service systems allowed the company to synchronize procurement and distribution processes with actual customer needs. A precise demand forecasting model, based on historical seasonal data and behavioral factors, reduced product information errors by 75% and decreased manual labor for product information management by 80%, while also lowering operating costs [12]. The use of intelligent systems based on big data analysis ensured accurate demand forecasting and enabled automated supply chain management, factoring in sales dynamics. Implementing solutions based on intelligent routing and transportation cost analysis led to substantial improvements in operational efficiency [11].

Another example is the supermarket chain Magnit, which actively incorporates intelligent logistics technologies [13]. Previously, the distribution of goods among warehouses and stores lacked proper optimization, leading to unnecessary transportation costs and longer delivery times. After implementing a routing system that analyzes real - time data (including traffic, warehouse load, and vehicle location), the company achieved a reduction in transportation expenses. Modern algorithms, incorporating real - time data on traffic conditions, significantly optimized logistics processes, reducing transport costs and accelerating delivery times [13].

A third example is the hypermarket chain Lenta. The company implemented self - service systems integrated with mobile payments and contactless technologies, which reduced average checkout time. This solution notably increased checkout throughput during peak demand periods, improving customer satisfaction and easing the workload on staff [14].

L'Etoile created a unified customer interaction platform, allowing customers to shop through multiple channels: website, mobile app, and social media. Integrating all customer data into a single CRM system enhanced the accuracy of personalized offers, resulting in a 25% increase in conversion rates. Customers gained the ability to seamlessly switch between channels, which increased loyalty and encouraged repeat purchases. Complete integration of customer data and behavior across different channels facilitated the creation of a personalized, continuous customer experience, improving overall interaction efficiency. Marketing strategies based on consumer behavior data enabled the development of personalized campaigns targeting specific audience segments with a high likelihood of conversion [15].

Eldorado also implemented an analytics system to segment customers based on their purchase history and preferences, which allowed for individualized discounts and products matching customer interests. Personalized emails and social media advertising campaigns increased conversion rates by 22%, and the average transaction value rose by 16% due to more accurate targeting of offers. Relying on behavioral data and analytics, the company developed offers tailored to specific customer needs, leading to higher conversion rates and revenue growth [16].

These examples demonstrate that adopting modern methods for optimizing business processes in retail not only enhances operational efficiency but also contributes to increased profitability. Integrating analytics, automation, and intelligent solutions into each key area of retail operations not only reduces costs but also creates competitive advantages in the market.

4. Conclusion

The conducted study demonstrates that optimizing business processes in retail is essential for enhancing operational efficiency and competitiveness. The implementation of modern technologies, such as predictive analytics, automated inventory management systems, intelligent routing, and self - checkout solutions, significantly improves key aspects of retail operations. Analysis of successful practices shows that adopting these solutions reduces costs, increases service speed, and enhances customer experience, which is particularly crucial in a highly competitive and rapidly digitizing market.

Integrating omnichannel strategies across both traditional and digital sales channels enables more effective use of customer preference data and improves offer personalization. This, in turn, fosters customer loyalty and boosts conversion rates. The optimization strategies identified in this study provide key recommendations for companies aiming to improve operational efficiency and adapt to market changes.

Thus, effective management and optimization of business processes in retail require a comprehensive approach that includes the adoption of advanced technologies and automation systems. This approach allows retail companies to respond promptly to demand shifts while building sustainable competitive advantages in the market.

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