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THE ROLE OF MULTICHANNEL RETAIL SYSTEMS IN THE DEVELOPMENT OF E-COMMERCE SERVICES

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Abstract. The article examines the economic role of multichannel retail systems in the development of e-commerce services. The analysis distinguishes the simple presence of several sales channels from their coordinated operation and argues that the economic effect of multichannel retail is formed through the consistency of product information, pricing, inventory, orders, payments, fulfilment and customer service. Particular attention is paid to the interaction between physical stores, websites, mobile applications, social media channels and digital marketplaces. The development of digital payment infrastructure in Uzbekistan is used to characterize the technological environment supporting cross-channel transactions. The study systematizes the main sources of coordination costs, identifies the risks arising from fragmented channel management, and proposes a staged approach to channel integration. The article concludes that multichannel retail creates sustainable economic value when channel expansion is accompanied by common data standards, shared inventory visibility, centralized order processing, integrated payment reconciliation and unified service rules.
Keywords: e-commerce, multichannel retail, omnichannel integration, sales channel, inventory visibility, order management, digital payment, fulfilment, customer service.

INTRODUCTION

The development of e-commerce has changed not only where products are sold, but also how consumers move between the stages of the purchasing process. A customer may discover a product through social media, compare its characteristics on a corporate website, check reviews on a marketplace, complete the order in a mobile application, pay digitally and collect the product from a physical store. From the customer's perspective, these actions form one purchasing journey even though the enterprise may technically operate each channel through a different system.

This transformation changes the economic logic of retail management. In a traditional channel structure, the store, warehouse and sales staff may operate within a relatively stable physical environment. In a multichannel system, every additional point of contact creates new requirements for updating prices, product descriptions, stock levels, promotions, payment status and fulfilment

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information. If these elements are not coordinated, the enterprise may expand market access while simultaneously increasing administrative workload, duplicated operations and the probability of service errors.

The distinction between multichannel presence and channel integration is therefore fundamental. Multichannel retail means that the enterprise uses more than one channel to interact with customers. Integrated multichannel or omnichannel retail requires those channels to exchange consistent information and to support the same transaction without forcing the customer or employee to restart the process. From an economic point of view, the key problem is not the number of channels, but the cost and quality of coordination among them [3; 4].

Uzbekistan's digital payment environment has expanded substantially and creates favourable conditions for transactions across physical and digital retail channels. According to the Central Bank of the Republic of Uzbekistan, almost 108 thousand QR codes had been issued to business entities through the QR-online system by the end of 2024, while transaction volume through the system reached UZS 441.8 billion. NFC-based payment transactions reached UZS 41.4 trillion in the same year [2]. These indicators do not measure multichannel retail directly, but they show that enterprises increasingly have access to payment instruments that can be used at different customer touchpoints.

At the same time, the expansion of payment options alone does not solve the managerial problem of channel fragmentation. If a digital payment is not automatically linked to the relevant order, if online stock information does not reflect store inventory, or if a return initiated through one channel is invisible in another, the enterprise experiences additional reconciliation costs and the customer receives inconsistent service. Therefore, technological availability must be accompanied by organizational integration.

The purpose of this study is to determine the economic role of multichannel retail systems in the development of e-commerce services, identify the principal sources of coordination costs and formulate practical directions for improving the integration of sales channels in retail enterprises. The research focuses on the relationship between channel consistency, inventory utilization, order processing, payment reconciliation, fulfilment flexibility and service quality.

LITERATURE REVIEW

The scientific discussion on multiple retail channels has evolved from the study of parallel channels toward the analysis of integrated customer journeys. Verhoef, Kannan and Inman emphasize that the transition from multichannel to omnichannel retailing changes the scope of channel management because customers increasingly use channels simultaneously rather than sequentially. This requires the firm to manage customer experience, fulfilment and information flows across channel boundaries [3].

Beck and Rygl propose a classification of multiple-channel retailing that differentiates among multichannel, cross-channel and omnichannel systems according to the degree of interaction between channels [4]. This distinction is economically important because two retailers may have the same number of channels but very different coordination costs and customer outcomes. A retailer with

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separate systems may face duplicated inventory and inconsistent pricing, whereas an integrated retailer can use common information and shared resources.

Balbín Buckley and Marquina Feldman, based on a survey of 516 retail customers, find that product and pricing consistency, transaction information and order fulfilment across channels significantly influence customer experience [5]. Their results show that channel integration is multidimensional: successful integration cannot be reduced to a single website or application because information, transaction and fulfilment processes must be coordinated simultaneously.

Inventory and fulfilment have become central research areas in multichannel retail. Bansal, Bisi, Roy and Venkateshan demonstrate that inventory replenishment and online demand allocation are interdependent when physical stores are used to fulfil online orders [6]. Hübner, Holzapfel and Kuhn similarly show that the design of last-mile fulfilment in omnichannel retail depends on the interaction between distribution structures, store networks and customer delivery options [7]. These studies indicate that the economic benefit of a physical store network can increase when store inventory is visible and usable for digital orders.

Another strand of literature emphasizes the role of information quality. Channel integration requires product identifiers, pricing rules, inventory records and customer transactions to be consistently represented across systems. Inconsistent master data create hidden transaction costs because employees must manually verify information, correct orders or communicate with customers after a problem has occurred. Consequently, data standardization can be viewed not only as a technical task but as a mechanism for reducing coordination costs.

The literature provides a strong theoretical basis for understanding integrated retailing, yet the practical question remains especially important for emerging digital markets: how should enterprises expand channels without allowing coordination complexity to grow faster than sales opportunities? This article addresses that issue through a functional analysis of channel integration and by linking each area of integration to a measurable economic effect.

RESEARCH METHODOLOGY

The study applies systematic analysis, comparative analysis, functional grouping and scientific generalization. Multichannel retail is examined as a set of interdependent functions: product-information management, pricing, inventory, order processing, payment, fulfilment, returns and customer service. The economic effect of integration is assessed through its potential influence on duplicated operations, order accuracy, inventory utilization, transaction reconciliation, fulfilment time and customer continuity.

Official data from the Central Bank of the Republic of Uzbekistan are used to characterize the digital payment environment. These data are not interpreted as direct measures of multichannel retail adoption. Instead, they are used to demonstrate the availability of payment instruments that can support transactions across physical and digital channels. The analytical conclusions concerning

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integration are based on the reviewed academic literature and functional relationships among retail processes.

ANALYSIS AND RESULTS

A multichannel retailer may operate a physical store, a website, a mobile application, social-media sales pages and profiles on one or more digital marketplaces. Each additional channel can increase market reach, but it also creates another point at which product information, stock levels, prices, promotions and customer orders must be synchronized. Therefore, the first economic effect of channel expansion is not necessarily higher profit; it is an increase in coordination requirements.

The most visible coordination problem is product-information inconsistency. If the same product is described differently on the website and marketplace, or if a promotion appears in one channel but not another, customers face uncertainty and employees spend additional time resolving questions. The economic consequence appears through abandoned purchases, complaints, manual corrections and loss of trust. A common product-information source reduces these costs because one update can be reflected across channels.

Pricing creates a similar problem. Price differences can be economically justified when channels have different service conditions, delivery costs or promotional objectives. However, unexplained differences create customer dissatisfaction and may encourage customers to use one channel only for information while completing the purchase elsewhere. Thus, the purpose of price integration is not necessarily to impose one price everywhere, but to establish transparent rules that explain when and why prices differ.

Inventory visibility is the next critical element. Separate inventory records can lead to two opposite losses. First, a product may be shown as available online although it has already been sold in a physical store, resulting in cancellation and service failure. Second, the enterprise may hold stock in one location while refusing an online order because that stock is invisible to the digital channel. Shared inventory visibility reduces both lost sales and unnecessary safety stock.

Table 1.

Selected indicators of the digital payment environment in Uzbekistan, 2024

Indicator	2024 value	Relevance to multichannel retail
QR codes issued to business entities through QR-online	Nearly 108 thousand	Extends digital payment acceptance at physical sales points
QR-online transaction volume	UZS 441.8 billion	Supports digital payment at multiple customer touchpoints
NFC-based transaction volume	UZS 41.4 trillion	Expands contactless transactions in physical retail
Tap-to-phone users by 1 January 2025	Nearly 3.2 thousand business entities	Allows smartphones to function as payment acceptance devices

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Source: compiled from the Central Bank of the Republic of Uzbekistan, Annual Report 2024 [2].

Table 1 shows that the payment environment increasingly offers businesses several ways to accept digital transactions. The figures should not be interpreted as the scale of multichannel retail itself. Their significance lies in the fact that the same enterprise can potentially accept payments through a physical point of sale, QR-based interaction, contactless devices and remote channels. The managerial value emerges only when these payment records are connected to a common order and accounting system.

Order management is the mechanism through which individual channel transactions become a unified retail process. Orders received through the website, mobile application, marketplace and physical store should enter a common environment where payment status, inventory reservation and fulfilment method can be verified. This reduces duplicate processing and makes it possible to prioritize orders according to stock availability, delivery promise or customer status.

Fulfilment integration expands the economic use of existing assets. A retailer with several stores can potentially use those stores not only as sales points but also as pickup locations, return points or sources of inventory for nearby online orders. The financial effect depends on operational conditions: ship-from-store can shorten delivery distance but may also increase store workload. Therefore, each fulfilment option should be evaluated through cost, speed and service-quality indicators rather than adopted only because the technology is available.

Customer-service integration is equally important. A customer who places an order through a mobile application but later contacts a physical store should not be treated as a new transaction. Employees need access to the order record, payment status and fulfilment history. Without such access, the customer repeatedly provides the same information and the enterprise incurs additional service time. A unified transaction history therefore reduces both customer effort and internal information-search costs.

Table 2.

Maturity levels of multichannel retail integration

Integration level	Typical characteristics	Main economic limitation	Priority management task
Fragmented	Channels operate independently; separate prices, stock and order records	High duplication, manual reconciliation, inconsistent service	Create common product and order identifiers
Coordinated	Basic data shared; selected processes synchronized	Partial visibility; exceptions handled manually	Integrate inventory, payment and fulfilment data
Integrated	Common product data, shared inventory, centralized	Higher dependence on data quality and system	Strengthen governance, monitoring and exception

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	order processing	reliability	rules
Adaptive	Channels optimized using demand, cost and service data	Complex decision requirements	Continuously rebalance channels and fulfilment options

Source: developed by the author based on the reviewed literature [3–7].

The maturity approach in Table 2 demonstrates that channel integration should be treated as a gradual managerial process. Many enterprises do not need to move immediately to technically complex systems. A fragmented retailer can achieve significant gains simply by establishing common product codes, reliable stock records and a single order register. More advanced integration becomes economically justified when transaction volumes and channel interactions increase.

A key issue is measurement. The number of channels is a poor indicator of multichannel performance because it rewards expansion without considering coordination quality. More informative indicators include: the share of stock visible across channels; the share of orders processed through a common system; cancellation caused by inaccurate inventory; the average time required to reconcile payment with an order; fulfilment cost by channel; the proportion of returns accepted across channels; and the share of customers whose transaction history is available at all service points.

These indicators make it possible to distinguish channel growth from channel productivity. For example, if marketplace sales increase but return handling remains disconnected from the enterprise's own system, the gross sales increase may conceal higher administrative costs. Similarly, a mobile application may attract orders but create little value if its inventory data are frequently outdated. Therefore, channel performance must be measured through the full transaction cycle rather than only sales revenue.

The economic logic of multichannel retail can be summarized through four effects. First, market-access effect: additional channels allow customers to discover and purchase products through preferred interfaces. Second, inventory-utilization effect: shared visibility allows a larger proportion of existing stock to serve demand. Third, transaction-cost effect: integrated data reduce repeated entry, manual checking and reconciliation. Fourth, service-continuity effect: the customer can move between channels without losing transaction history.

However, integration also creates costs. Common systems require investment, employee training and data discipline. A system failure can affect several channels simultaneously. For this reason, enterprises should avoid treating integration as purely technological modernization. Governance rules are required to determine who is responsible for product data, which system is the authoritative source for inventory, how price changes are approved, how failed payments are reconciled and how exceptions are escalated.

For small and medium-sized retailers, a practical sequence is advisable. At the first stage, establish common product identifiers and a single source of price information. At the second stage, connect stock records and introduce automatic reservation after order confirmation. At the third stage,

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centralize orders and link payments to order identifiers. At the fourth stage, integrate fulfilment and returns. Only after these foundations are reliable should the enterprise introduce advanced personalization, dynamic allocation or artificial-intelligence tools.

This sequence has an important economic advantage: it prevents the enterprise from automating inconsistent processes. If product codes and stock records are unreliable, advanced analytics will reproduce the same errors at a larger scale. Consequently, the quality of basic transaction data is a prerequisite for obtaining economic value from sophisticated digital tools.

In the context of Uzbekistan, the continuing development of digital payments and marketplace activity increases the relevance of channel integration. As enterprises combine physical retail with digital interfaces, competition will increasingly depend not on whether a firm has an online presence, but on whether its channels provide consistent information and predictable fulfilment. The ability to coordinate channels may therefore become an important source of service differentiation.

CONCLUSION AND RECOMMENDATIONS

The study shows that the development of multichannel retail systems should be understood as an organizational and economic integration problem rather than a simple expansion of sales outlets. Multiple channels create value when they are coordinated through common product information, transparent pricing rules, shared inventory visibility, centralized order processing, integrated payment reconciliation and continuous customer service.

The main economic benefit of integration is the reduction of fragmentation. Fragmentation produces duplicated work, inaccurate stock information, order cancellations, slow reconciliation and inconsistent customer service. Integration reduces these losses and allows the enterprise to use existing inventory, stores and information more efficiently. At the same time, integration requires reliable data governance and clearly assigned responsibility for shared processes.

Based on the analysis, retail enterprises are recommended to: (1) create a single authoritative source for product and price information; (2) establish common product and order identifiers across channels; (3) introduce shared visibility of store and warehouse inventory; (4) connect all payment methods to a common order record; (5) coordinate delivery, pickup and return options within one fulfilment framework; (6) evaluate channels through both revenue and service costs; and (7) introduce advanced analytics only after the reliability of basic transaction data has been ensured.

Thus, the role of multichannel retail in e-commerce development is determined not by the number of websites, applications or marketplace profiles operated by a firm, but by the degree to which these channels function as parts of one commercial system. The more effectively the enterprise reduces informational and operational breaks between channels, the greater the potential for lower coordination costs, improved inventory use and higher service quality.

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