

THE IMPACT OF LOGISTICS AND DELIVERY SERVICES ON E-COMMERCE

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Abstract: This article provides an in-depth analysis of the impact of logistics and delivery services on the development of e-commerce. The necessity of fast and efficient delivery systems in the rapidly growing e-commerce sector, the critical role of logistics, technological innovations, and their influence on consumers and business processes are examined. The interrelation between logistics services and e-commerce is demonstrated through practical experiences and empirical studies from various countries.

Keywords: e-commerce, logistics, delivery services, digital economy, supply chain, innovations

Аннотация: В данной статье проводится глубокий анализ влияния логистики и служб доставки на развитие электронной торговли. Рассматривается необходимость быстрой и эффективной системы доставки в быстрорастущем секторе электронной коммерции, ключевая роль логистики, технологические инновации и их влияние на потребителей и бизнес-процессы. Взаимосвязь между логистическими услугами и электронной торговлей иллюстрируется практическим опытом и эмпирическими исследованиями из различных стран.

Ключевые слова: электронная торговля, логистика, службы доставки, цифровая экономика, цепочка поставок, инновации

Introduction

Electronic commerce (e-commerce) is one of the fastest growing segments of the global economy today. In particular, during the pandemic, its growth has accelerated significantly, which has made the effective functioning of the supply chain, especially logistics and delivery services, even more important. Fast and reliable delivery systems are crucial for increasing customer satisfaction and ensuring business efficiency. Therefore, logistics and delivery services are seen as the foundation of e-commerce activities.

This article analyzes the role of logistics and delivery services in the field of e-commerce, the factors affecting them, technological innovations, as well as trends in global and local markets on a scientific basis. In addition, strategies and practical experiences adopted to increase the efficiency and quality indicators of these services are also considered.

Main part

E-commerce is the process of selling and purchasing goods and services via the Internet and other electronic systems. In the modern digital economy, e-commerce has become an integral part of doing business. In other words, e-commerce is the migration of the traditional trading process between a customer and a seller to digital platforms. This process is carried out through any electronic means, including computers, smartphones, tablets.

The main types of e-commerce are:

- B2C (Business-to-Consumer): A form of electronic commerce between a company and a consumer. For example, online stores such as Amazon, Ozon.

- B2B (Business-to-Business): Electronic commerce between enterprises. On these types of platforms, products or raw materials are sold in large quantities.
- C2C (Consumer-to-Consumer): The exchange of goods between consumers, for example, sites such as eBay.
- C2B (Consumer-to-Business): The provision of services or products by consumers to enterprises, for example, freelance platforms.

Over the past decade, e-commerce has grown significantly globally. International studies show that in 2023, the volume of global e-commerce exceeded 5 trillion US dollars, and this figure is increasing every year. Quarantine restrictions during the pandemic and people's desire to shop without leaving home have spurred the rapid development of e-commerce.

The development of e-commerce in local markets is also continuing at a rapid pace. A culture of online shopping is gradually taking shape in Uzbekistan and other Central Asian countries. Local brands and retail companies are also moving their activities online, increasing the demand for logistics services.

The success of e-commerce depends on a number of factors. The most important of them is the availability of fast, reliable and affordable delivery services. Customers expect to receive their purchased products on time and without damage. Therefore, the quality and efficiency of the delivery system play a decisive role in the sustainable growth of e-commerce.

Also, the convenience of digital payment systems, user-friendly interfaces for online customers, and customer support services affect the development of e-commerce activities. However, the logistics and delivery system is the most complex and expensive part of these processes, as it provides a physical connection between the buyer and the seller.

Logistics is a complex management process that ensures the delivery of products or services to the right place, at the right time, in the right quantity, with minimal costs. This area includes chain stages: warehousing, packaging, transportation, shipment control, product re-delivery, delivery confirmation, and customer service support.

In the process of e-commerce, logistics services form the physical form of product movement. That is, although the buyer chooses the goods in a virtual environment, he receives the goods in reality. Therefore, this process must be reliable, transparent and efficient.

Modern e-commerce systems are directly integrated with logistics services. For example, as soon as the buyer places an order, his data is transmitted to the logistics system. Here, the delivery service automatically determines the nearest warehouse, the fastest delivery route and the most convenient mode of transport. Artificial intelligence, automated control systems and real-time tracking tools play an important role in this process.

Large companies — Amazon, Alibaba, JD.com — have created their own independent logistics infrastructures, which have managed to optimize the delivery process using drones, robots and automated warehouse systems. This experience is now serving as a model for other countries.

The impact of logistics services on e-commerce is manifested in the following main aspects:

- Delivery speed: Customers pay great attention to fast delivery. Products that can be delivered within 24–48 hours are usually in greater demand.
- Reliability: Orders should reach the customer on time and in full. This increases customer confidence.
- Flexibility: Customers want to receive their orders anywhere and anytime. Therefore, the logistics system must be flexible.
- Costs: Logistics costs directly affect the price of the product. Therefore, cost optimization is important for e-commerce companies.

One of the main problems encountered in e-commerce logistics is the underdevelopment of infrastructure. In some regions, poor road conditions, slow postal services, and the lack of adequate warehouse systems lead to delayed delivery of products.

Another problem is transit customs clearance and border procedures. These stages in international delivery require a lot of time and money. Therefore, e-commerce participants are increasingly turning to local delivery services.

In today's digital economy, logistics innovations play a central role in the success of e-commerce. These technologies not only enable fast and secure delivery of products, but also reduce costs, reduce environmental impact, and increase customer satisfaction.

Innovative technologies are being implemented in the following areas:

- Automated warehouses: Large companies around the world are using robots to perform warehouse work. Amazon, for example, has significantly accelerated order picking and shipping using Kiva robots.
- IoT (Internet of Things): Sensors and GPS devices that allow real-time tracking of cargo provide customers with accurate information about the status of products.
- AI and Machine Learning: Artificial intelligence systems are widely used to analyze order flows, optimize warehouse locations, and determine transport routes.
- Drones and autonomous vehicles: In some regions, Amazon, Google, and Alibaba are testing experiments with delivering small quantities of goods using drones. This is a particularly relevant solution for rural areas and dense urban areas.

Customer satisfaction with e-commerce largely depends on the quality of the delivery process. Principles such as “fast delivery”, “superior service”, “delivery to any destination” are the basis of customer experience. Therefore, service quality has become a competitive advantage.

The main factors for improving delivery quality are:

- Accurate fulfillment of orders (there should be no ambiguity, wrong product or wrong address)
- Adherence to delivery deadlines
- Flexibility (adjustment in time, place, style depending on customer preferences)
- Quick response to problems

All this directly affects the brand image of an e-commerce company.

Numerous studies conducted around the world confirm that logistics innovations have a significant positive impact on the growth of e-commerce. In particular, the following indicators have been studied:

- An increase in the number of customers as delivery times decrease.
- An increase in the number of repeat purchases in orders.
- An increase in customer trust as delivery errors decrease.

The relationship was analyzed based on the following simple model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

- Y is the level of customer satisfaction,
- X1 is the delivery time,
- X2 is the accuracy of orders,
- X3 is the price flexibility.

The result of the model shows that the coefficient of X1 is negative, that is, as the delivery time decreases, customer satisfaction increases. X2 and X3 are positive.

E-commerce companies are constantly updating their logistics systems and striving to create an efficient ecosystem. This system consists of the following stages:

1. Order acceptance and confirmation
2. Product selection from the warehouse
3. Packaging and shipping
4. Loading into a vehicle
5. Real-time monitoring
6. Delivery to the customer
7. Returns and after-sales support

Each stage of this system is being improved using innovative technologies.

The e-commerce market in Uzbekistan has grown significantly in recent years. Especially during the pandemic, the volume of online purchases has increased sharply, which has increased the need for logistics services. Currently, positive developments are observed in the following areas:

- Development of local platforms: companies such as Asaxiy.uz, Texnomart, Goodzone are expanding their logistics infrastructure.
- Popularization of delivery services: services such as Express24, UzEx, CDEK Uzbekistan promise customers same-day delivery.
- Automated services: QR-code shipments, real-time tracking and support services are being launched.

However, there are still some problems in the system:

- Incomplete digitalization of transport infrastructure.
- Lack of uniformity of standards in packaging and shipping products.
- Regional inequality - while the level of service in the capital and large cities is high, such opportunities are insufficient in remote areas.

The US model. Amazon has the most advanced logistics system in the world. It offers:

1. Prime Delivery: 1-2 day delivery.
2. Fulfillment by Amazon (FBA): Sellers place their products in Amazon's warehouses, and the company takes care of the rest.
3. Drone delivery: It is looking to optimize time and cost through pilot projects.

China's logistics infrastructure is fast and comprehensive. JD.com stands out with its drones, autonomous vehicles, and AI-powered warehouses. Meanwhile, platforms like Cainiao Network manage global delivery systems.

In Germany, logistics focuses not only on speed, but also on environmental safety:

- Delivery by electric trucks and bicycle couriers is widely used.
- There are strict standards for reducing the carbon footprint of deliveries.
- Integrated solutions are provided by services such as DHL, Hermes and UPS.

In the case of developed countries, the success of the logistics system is explained by their:

- digital infrastructure,
- automated systems,
- user-centric service approach,
- and a strategy based on environmental responsibility.

In Uzbekistan, however, there is still great potential in this area. In particular, this market can be rapidly developed through public-private partnerships, technological investments and standardization.

Conclusion

The effective development of e-commerce directly depends on the quality of logistics services. By solving problems in the logistics sector and introducing innovative approaches, not only the domestic market but also international trade opportunities will expand. This will contribute to the diversification of the economy of Uzbekistan, the formation of a modern digital infrastructure, and the increase in the well-being of the population.

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