



## CUSTOMER SERVICE QUALITY MANAGEMENT IN E-COMMERCE

Urszula Motowidlak, Daniel Jaksik, Gabriela Chomicz

### Abstract

**Purpose.** Today's e-commerce, which is one of the fastest-growing sectors of the economy, poses new challenges for companies in managing the quality of customer service. In the face of increasing competition and changing consumer expectations, high quality order processing is becoming a key factor affecting customer satisfaction and brand loyalty. According to the research thesis, the development of e-commerce is determined by modern development technologies, and the strength of this influence can be measured through consumers' purchasing decisions. The purpose of this article is to identify the determinants of e-commerce development and assess the importance of customer service quality management in a dynamically changing environment. The problem on which the study focused comes down to answering the questions: What features should characterize the company's strategy in the context of customer service and e-commerce market development?; What tools and activities are used by companies in their efforts to improve the quality of customer service within e-commerce chains?

**Methodology.** The article uses a literature review, including monographs, articles, and reports on modern technologies used in e-commerce order handling. The research methods and techniques used included: content analysis, cause-and-effect analysis, and selected qualitative analysis methods, which were used to achieve the study objective.

**Findings.** Effective customer service quality management not only influences a positive shopping experience, but also contributes to building lasting relationships with customers and achieving competitive advantage. Thanks to modern technologies and tools such as artificial intelligence and chatbots, it is possible to offer a faster, more personalised order fulfilment process, leading to higher service standards and optimised e-commerce processes.

**Keywords:** e-commerce, customer service, service quality management, modern digital technologies

**JEL classification:** M20, L89, O30

## Introduction

With the dynamic development of digital technologies and the growing popularity of e-commerce, managing the quality of customer service in e-commerce is becoming one of the key factors influencing the success of enterprises. E-commerce allows entities to reach a wider group of customers, while providing customers with convenience and the ability to make purchases from any location and device. The modern e-commerce market is characterized by high competition, and customers today have a wide range of products and services to choose from, available in a few seconds. The quality of customer service has become a critical element of building a competitive advantage, influencing not only customer satisfaction and loyalty, but also the financial results of enterprises (Grabowska, 2017).

Customer service quality is most often defined from the perspective of striving to satisfy customer needs and preferences. However, this is not the only way to achieve success. Effective service should not only respond to customer expectations, but also anticipate and exceed them. The key is the element of surprise, which is able to elicit stronger reactions than mere satisfaction, resulting in a greater impact on financial performance and added value (Kowalik, Klimecka-Tatar 2018). The evolution of business models introduces new opportunities for companies and consumers, stimulating the growth of added value and the development of innovation. One of the key factors that affect customer satisfaction in e-commerce is the speed and efficiency of delivery. The development of technologies such as artificial intelligence, the Internet of Things (IoT), as well as blockchain technologies, contribute to improving the efficiency and transparency in e-logistics, offering increasingly better experiences for customers and opening up new opportunities for business. These changes highlight the dynamic nature of the e-commerce sector and indicate its ability to quickly adapt to changing conditions (Guc, 2020).

According to the research thesis, the development of e-commerce is determined by modern development technologies, and the strength of this influence can be measured through the purchasing decisions of consumers. The aim of this article is to identify the determinants of e-commerce development and to assess the importance of customer service quality management in a dynamically changing environment. The problem that the study focused on comes down to answering the questions:

- What features should characterize the company's strategy in the context of customer service and e-commerce market development?
- What tools and activities are used by companies to improve the quality of customer service within e-commerce chains?

Particular attention has been given to the role of artificial intelligence, chatbots, process automation and data analytics, which are significantly changing the way businesses can manage customer relationships from the perspective of building competitive advantage. In order to achieve the adopted research objective and answer the formulated research questions, selected research methods and techniques were used. Descriptive analysis was used to define the subject of the study and identify the basic relationships within it. The desk research method proved useful for systematizing the current scientific achievements and the state of knowledge on the essence of customer service quality management and factors determining the development of e-commerce. The article reviews the literature, taking into account compact items and articles and reports on modern technologies used in e-commerce. The review of the literature on the subject was carried out in accordance with the classic approach, i.e.: selection of sources, search by keywords, review and selection of articles, in-depth analysis of selected publications in relation to the subject of the study, taking into account, among others, the latest publications. The analyzed scientific articles are indexed in recognized databases of scientific publications: Scopus, Science Direct and Google Scholar. Compact scientific publications, reports, expert opinions and scientific articles used in the study were published by recognized publishers and institu-

tions. The selected methods of cause-effect analysis made it possible to indicate the interdependencies between the development of the e-commerce market and the implementation of modern technologies and tools that support customer service quality management. The perceptions of the importance of pre-enterprise activities improving the quality of e-customer service through the implementation of new technologies and tools are presented on the example of selected case studies.

## 1. The importance of customer service quality management in e-commerce

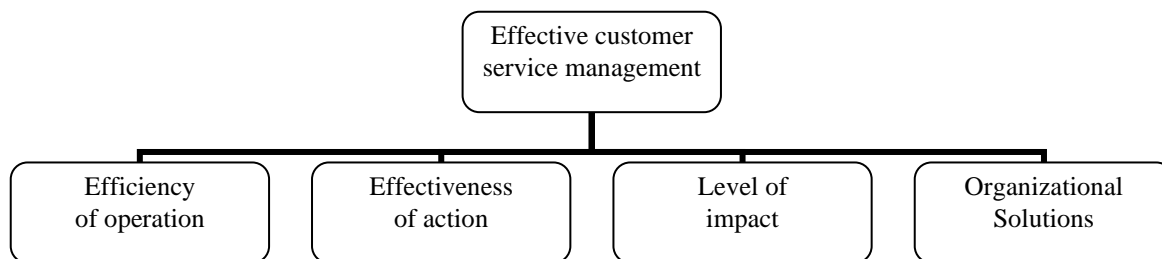
In today's fiercely competitive world, every company faces a battle for the customer. The quality of the services provided is increasingly becoming a key element that can determine the competitive advantage in the market. An enterprise, wishing to maintain its position and operate effectively in the market, must adapt its services to a certain level of quality, in line with the expectations of its customers (Pasaribu, Sari, Bulan, Astuty, 2022).

Historically, the concept of quality has evolved and its importance in the economy has been interpreted differently depending on the ideas dominating the era. The need for quality standards and regulations arose mainly as a result of the division of labour and the development of trade and services. The first to define the concept of quality is considered to be Plato (427-347 BC), who used the Greek term 'poiotes' to describe it. Later, Cicero (106-43 BC) translated the concept into the Latin term 'qualitas' (from which the English 'quality' is derived), and the symbol Q is still commonly used today (Oniszczyk-Jastrzabek, Czuba, 2017).

A contemporary approach to quality is the Japanese approach, which is based on the belief that every element can be improved. This concept is derived from the Kaizen philosophy, which holds that the foundation of business practice is continuous improvement. This means making small but continuous changes to improve quality in all processes involving all team members (Kowalik, Klimecka-Tatar, 2017).

Customer service is about deeply understanding who the customer is, what their thoughts and emotions are, what can irritate them and what gives them satisfaction, as well as recognizing their expectations and needs and finding the optimal ways to satisfy them. A modern approach to customer service is not limited to meeting basic requirements, but covers the entire process of building lasting relationships with the customer, leading to long-term, partnership-based cooperation (Kuraś, 2013). A key element of this relationship is the quality of service, which directly affects the level of customer satisfaction and loyalty. Managing the quality of customer service is therefore becoming an important element of a company's strategy, enabling it to systematically improve service processes and adapt them to changing customer needs (Sobihah, Mohamad, Ali, Ismail, 2015).

The growth of customer expectations in terms of service quality means, above all, meeting a wide range of needs and desires. It is associated with the assessment of logistics processes and relationships in supply chains and the analysis of improvements. Effective customer service management includes resource management, operational tasks and decision-making processes that affect the efficiency and effectiveness of operations (Figure 1). Operational efficiency is described by the ability of the supply chain to respond quickly in terms of meeting customer needs. It is determined, among other things, by the optimal use of chain resources. On the other hand, operational effectiveness is defined as the ability to achieve supply chain goals in the context of customer service (Laskowska-Rutkowska, 2013).



**Figure 1.** Effective customer service management

Source: own compilation based on Dendera–Gruszka, Kulińska, Masłowski (2017).

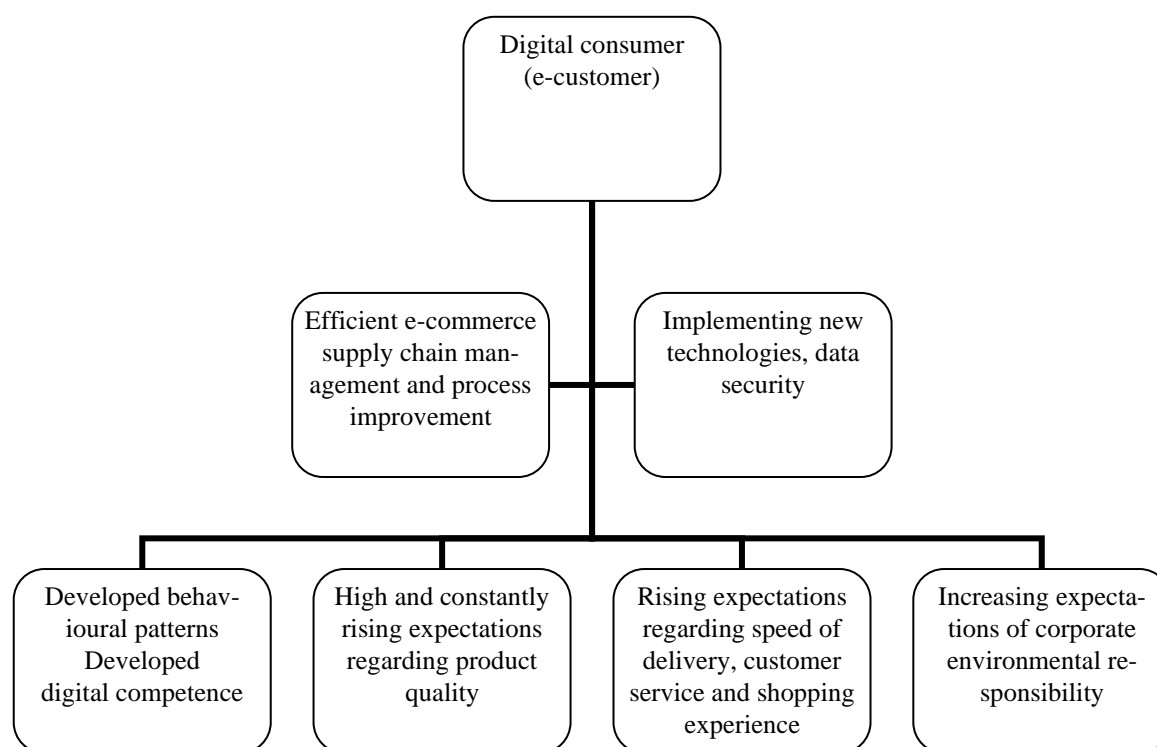
Successful customer acquisition is based on consistently building customer loyalty by increasing satisfaction with the use of products and services. A key element in this process is the continuous improvement of customer service, which is an important source of competitive advantage. In the case of customer service, referring to the quality of its provision, it is important that the service is provided by competent staff with whom the customer has direct contact, which significantly influences brand perception and builds customer loyalty (Shawn, 2021). Every staff member who interacts with the customer plays a key role in creating their experience with the brand, which influences future purchasing behaviour. To achieve this, it is essential to involve both staff at all levels and managers (Adamska, 2018).

The changes taking place in the modern world under the influence of the internationalization and globalization of the economy also significantly affect the consumption attitudes of households (Danisch, 2021). The behavior of buyers on the market is shaped by many factors, both economic, cultural and social (Zhang, 22). From an economic point of view, the goal of each household is to satisfy consumption needs by maximizing the expected benefits from consumption. However, from the perspective of non-economic factors, such as the family life cycle, the size of the household, lifestyle, value system, traditions, customs and habits, the goal of consumers may be to strive to achieve a level of consumption characteristic of specific social groups (Tokarski, Wawryniuk, 2023).

In the case of e-commerce customers, companies face a much more difficult task of understanding their needs than in the case of traditional trade, which requires systematic monitoring of the appropriate quality of service (Figure 2). The modern digital consumer (an entity interested in purchasing online) is characterized by many dynamically changing properties, mainly due to technological progress, which allows almost unlimited access to information (Lee, Hosanagar, 2021). Society, including e-commerce customers, is becoming more and more aware of their rights, especially consumer rights, and is also better educated and mobile. Customers are looking for attractively priced offers, tailored to their individual preferences, and strive to satisfy their needs by owning specific goods. The modern consumer wants to decide independently where and when to make a purchase, often not distinguishing between online and offline life. These changes have contributed to the development of a new entity on the market, i.e. the e-customer (Kozłowska, 2024).

The e-customer service process is determined by the individual nature of the offer, but in practice there are several common points for all companies. This process is multi-stage and covers the period from the moment the consumer becomes interested in the product/service to the sale and after-sales service (Nguyen et al., 2018). The customer service process map does not end with the finalization of the transaction. On the contrary - maintaining contact with the customer and guaranteeing them help and professional advice after the sale is an important stage from the perspective of establishing long-term interaction, building their loyalty to the brand. The customer service process in an online store emphasizes primarily the lack of real contact with the product and the person serving. Standardization of the e-customer service process is

therefore of great importance for sales efficiency. It is important in striving to optimize the e-customer service process to identify areas that require improvement. Therefore, owners of e-shops face major challenges related to minimizing the distance between the service and the buyer and efficient delivery of orders.



**Figure 2.** Characteristics of the e-customer from the perspective of order handling quality management in the supply chain

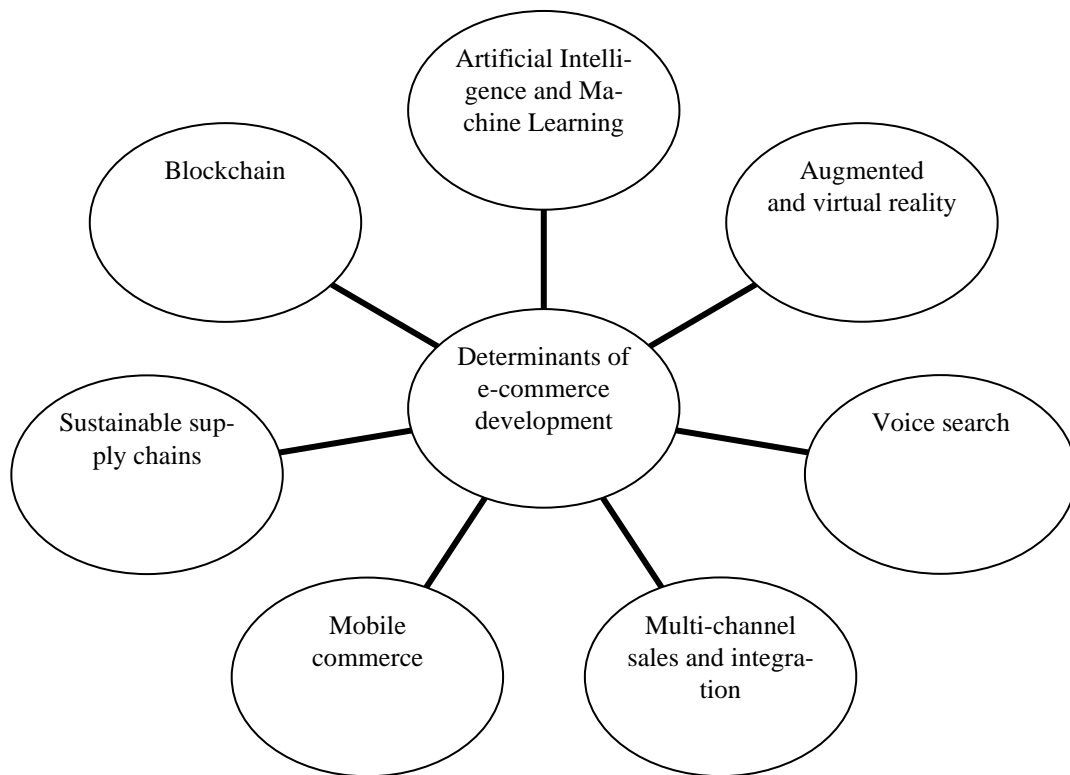
Source: own compilation based on Gulc (2020), Szczukocka (2022).

The process of managing the quality of customer service supports the creation of competitive advantage through preventive actions such as eliminating errors, improving the organisation and work culture within the enterprise. However, it is worth noting that service improvement can only bring competitive advantage if the company is able to offer a service that is better suited to customers' needs than those offered by competitors. In addition, it is important that customers recognise and appreciate the improvements made and attach importance to improving the quality of service. Furthermore, customers must be willing and able to pay a higher price for a higher level of service quality in order for the organization to gain an advantage in the marketplace (Kachniewska, 2002). There is a certain maximum after which introducing changes does not bring any benefits, but only reduces the efficiency of the entire enterprise (Dendera-Gruszka, Kulińska, Masłowski, 2017). Not every solution that brings positive results in a given organization will find the same results in another enterprise.

## 2. Modern technologies in customer service quality management

In recent years, e-commerce has been developing very dynamically, gaining importance among both consumers and businesses. The key role is played by the development of the Internet, innovative e-commerce services and global events such as the pandemic, which have accelerated the change in shopping habits. With growing customer expectations regarding the speed, con-

venience and price of shopping, modern technologies are starting to play an increasingly important role in managing the quality of customer service, introducing new standards in this field (Fajczak-Kowalska, Kowalska, 2023). The main changes and trends that largely affect the quality of e-commerce customer service are shown in Figure 3 (Szczukocka, 2022).



**Figure 3.** Factors determining e-customer service quality management

Source: own compilation based on Szczukocka (2022).

Artificial intelligence and machine learning are increasingly being used to personalize the shopping experience by displaying specific ads in real time, recommending products tailored to the user's individual preferences and shopping history. Chatbots have great potential in this area. Thanks to integration with shopping applications, chatbots significantly improve the efficiency and convenience of the shopping process, responding to customer inquiries almost immediately. One of the key aspects influencing the improvement of service quality is the ability of chatbots to personalize interactions. By analyzing the purchase history and preferences of customers, chatbots can recommend products and provide personalized advice, which increases the efficiency of the shopping process and shortens the time needed to make a decision. In addition, chatbots offer support in the form of voice and text messages, which allows people with visual impairments to fully use shopping applications. Thanks to this, e-commerce becomes more inclusive, and the availability of services significantly improves (Kanojiya, Chothani, Gosalia, Surve, 2021).

Chatbot technology operates continuously to provide 24/7 customer support, eliminating the limitations associated with traditional forms of service such as helplines and email. The ability of chatbots to integrate with different platforms and web browsers, and their adaptability to different networks and mobile devices, makes them a key component of modern customer service strategies. As a result, chatbots not only increase the operational efficiency of businesses, but

also build customer loyalty by providing a faster, more personalised and accessible shopping experience (Angelov, Lazarova, 2019).

Another rapidly developing technology used in e-commerce to improve the customer experience is drones, despite the many challenges to fully implement them in logistics, such as regulatory barriers, the need for public acceptance and the high cost of research and development, drones show great transformation potential. Many companies and industry experts see this technology as the future that can revolutionise logistics, introducing faster and more efficient delivery meto-days and they also see the social benefits that will follow, creating careers and jobs for drone pilots, for example, and increasing road safety by avoiding traffic and reducing accidents. The significant financial investments that are already being directed towards drone development are aimed not only at overcoming existing barriers but also at transforming traditional logistics models. While it may take time for drones to fully exploit e-commerce, their current applications are already delivering significant benefits, such as speeding up deliveries to hard-to-reach locations and improving inventory management efficiency. Parcel delivery by drone, which is particularly cost-effective for local deliveries, is now slowly being adopted by companies such as Amazon, FedEx and Alibaba. As drone research advances, their role in improving customer service will become increasingly important, becoming an integral part of modern e-commerce logistics solutions (El Jiati, 2021).

The innovation that developed during the COVID-19 pandemic and responded to the lack of direct experience of products in a brick-and-mortar store was the integration of virtual reality (VR), augmented reality (AR) and 3D environments in e-commerce. The use of a shopping mall or online store in 3D technology is a modern interface that allows shopping in a virtual space, simulating the experience known from traditional stores. Through the use of virtual reality (VR), augmented reality (AR) and 3D environments, customers can feel as if they are actually in the shop, increasing confidence when making purchasing decisions. This technology allows for a rea-listic representation of shopping environments and interaction with products in a way that is similar to actual stationary retail. Innovative virtual environments contribute to changing the perception of online shopping, revitalizing e-commerce by improving customer behavior, beliefs and interactions with products. They enable retailers to better understand customer preferences, which helps increase sales and provides not only convenience but also an attractive shopping experience. In addition, 3D technology supports anticipation of customer needs and allows for more effective targeting of the right audiences, which develops the e-commerce market and builds trust between consumers and retailers. (Gupta, 2021).

In the context of improving the quality of customer service, it is also necessary to take into account the importance of ecological aspects in online trade, which most customers currently pay attention to. In response to the growing ecological awareness of consumers, many e-commerce companies decide to implement solutions such as green packaging or more ecological means of transport for product delivery. Such activities are becoming a key element of marketing strategies, because they increase the value of the brand and respond to consumer expectations. Companies should avoid excessive packaging, which is contrary to the principles of sustainable development, and focus on effective brand positioning through authentic ecological values. From the perspective of customer service quality management, the implementation of ecological solutions not only improves the shopping experience, but also builds long-term customer trust and loyalty, contributing to a positive brand perception (Zhao, Pan, Cai, Luo, Wu, 2021).

### **3. Implementation of activities aimed at improving the quality of e-commerce customer service on selected examples**

An e-commerce company that is introducing a number of innovative solutions to improve the quality of customer service is Amazon. As a global leader in the e-commerce market, it is implementing advanced technologies that not only transform logistics processes but also affect the level of customer service. These activities include improving operational efficiency, minimizing risks to employees and reducing the negative impact on the environment. The place where the implementation of these technologies for Amazon's needs was initiated was the European Innovation Laboratory in Vercelli, Italy, where modern solutions in the field of mechatronics and ecological packaging have been developed since 2019. By the end of 2023, Amazon has planned to implement over a thousand streamlining solutions in European logistics centers, which is an unprecedented step in the optimization of logistics operations. Investments worth 700 million euros in technologies such as robotics and artificial intelligence have enabled the global scaling of these alternatives, which translates into shorter lead times and thus an improvement in the customer shopping experience. Automation not only increases efficiency, but also creates new opportunities on the labor market. Amazon has created over 700 new job categories related to the operation of automatic technologies. Additionally, cooperation with the Massachusetts Institute of Technology (MIT) allows for the study of the impact of automation on the labor market, health and safety, and the stability of employment and employee remuneration (Amazon, 2024).

Amazon is also taking an innovative approach to parcel packaging. Instead of the traditional cardboard boxes with a smile in the logo, more than half of the shipments in Europe are already delivered in minimalistic, recyclable packaging, such as paper bags and cardboard envelopes. In addition, under the 'Ships in Product Packaging' (SIPP) model, some products are shipped without additional packaging, reducing waste and the weight of shipments, which in turn reduces transport emissions and the amount of material to be recycled. Over the past five years, more than 700 million packages have been delivered in Europe in this way. Products requiring additional protection are packed in paper bags and envelopes that are up to 90% lighter than boxes of similar size, which allows for a reduction in the use of packaging materials and a reduction in wasted space in each package. The European Innovation Laboratory in Vercelli also tests modern packaging technologies with a low environmental impact. Examples include an automated system that produces packaging that perfectly matches the size of the product and an innovative labelling robot that automates the process of applying labels to packages, enabling them to be shipped without the need for additional boxes. Amazon is making a real difference to customer service by using these solutions and continuing to demonstrate its willingness to implement more (Amazon, 2024).

E-bay is another company on the e-commerce market that implements modern solutions and technologies in its operations to improve the shopping experience of customers and its functionality. E-bay, using advanced platforms with artificial intelligence, tries to analyze and process the collected knowledge about customers, behaviors, trends and contexts as quickly as possible. The platform uses machine learning algorithms to recognize sales results, find products and rank recommendations, and also analyzes and protects collected data from fraud. E-bay uses AI to shorten shipping and delivery times, increase customer confidence and reduce costs. Artificial intelligence is also used by E-bay to improve the shopping experience for customers with limited mobility. Thanks to HeadGaze technology, people with upper limb paralysis can independently make purchases on the platform. HeadGaze uses Apple ARKit and a head-tracking camera to allow for easy, hands-free navigation of the platform's interface. On the screen, a virtual pen follows the head's movements (up, down, side to side), collecting 3D head movement information from ARKit and applying 3D geometry mapping to obtain the location of the "cur-



sor” on the screen. At the same time, the team also designed and implemented new user interface widgets that sense and respond to “cursor” interactions. Much like a mouse moves a cursor around a desktop screen, the HeadGaze project lets you point your head at any spot on the screen and activate designated “buttons.” (Jak sztuczna inteligencja i głębokie uczenie zmieniają e-commerce, 2019).

Deep data analysis is characteristic of the fight against counterfeits, which are a huge problem in the online market. eBay uses image recognition technology, artificial intelligence identifies products in a way that is closest to human perception, analyzes style and patterns. eBay algorithms recognize the difference between authentic products and counterfeits. This advanced version of customer service management support ensures that products are offered as original, which translates into greater credibility and satisfaction with shopping (Jak sztuczna inteligencja i głębokie uczenie zmieniają e-commerce? - BRIEF. 2019).

In a global context, companies such as Amazon and eBay are continuing to grow, innovating to change the way consumers around the world shop, raising standards for speed of delivery and customer service. E-commerce is becoming increasingly integrated into everyday life, offering consumers convenience, speed and access to a global marketplace of products. The rapid pace of revenue growth and increasing number of users embracing e-commerce is creating new opportunities for businesses and creating challenges to adapt to rapidly changing market conditions. Legal regulations, such as personal data protection or compliance with local regulations, affect logistics operations and require companies to constantly monitor legal changes and invest in security and data management systems. At the same time, economic changes, such as globalization or recessions, shape market conditions to which companies must respond flexibly to maintain their competitiveness and meet the growing expectations of e-commerce consumers.

## Summary

Analysis of the results of many studies and observations of the e-commerce market allow for the formulation of conclusions in relation to the goal formulated in the introduction. Despite the belief that low prices are the driving force of e-commerce development, the quality of services offered, customer service and building mutual positive relationships are becoming increasingly important.

With the development of wireless technology and the growth of e-commerce, e-customer service management has become a reason for e-commerce success. Increasing demands for service quality are presenting new challenges for businesses. E-commerce customer service management is an integral aspect of companies' strategies to flexibly change and respond to customer needs. A key element of advantage is not only meeting, but exceeding, customer expectations. Today's marketplace requires a business to be able to meet the growing demands of the.

Modern technologies such as artificial intelligence, chatbots, automation and data analysis are essential tools in improving the quality of customer service. Chatbots, thanks to their personalization capabilities, improve the efficiency and comfort of the purchasing process. Integration with shopping applications and analysis of purchase and supplier history allows for the delivery of the most appropriate recommendations and solutions to problems.

Practical examples of companies such as Amazon and eBay illustrate how modern technologies and solutions can improve the quality of customer service. Amazon, by introducing advanced technologies, automation and ecological packaging, shortens the execution time and negative impact on the environment. eBay, in turn, by using artificial intelligence to analyze data, limits the possibility of selling counterfeits and improves the user

interface to ensure access to shopping also for customers with disabilities, which increases comfort, efficiency and safety.

Success in e-commerce depends on the ability of businesses to adapt and implement customer service innovations. Technologies such as AI, chatbots and automation are key to achieving positive results, improving the service experience. Businesses that use these tools effectively gain a competitive advantage. To succeed in the future, e-commerce players will need to not only invest in new technologies, but also respond flexibly to changing customer needs and the business environment.

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## ZARZĄDZANIE JAKOŚCIĄ OBSŁUGI KLIENTA W E-COMMERCE

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### Streszczenie

**Cel.** Współczesny handel elektroniczny, będący jednym z najszybciej rozwijających się działów gospodarki, stawia przed przedsiębiorstwami nowe wyzwania związane z zarządzaniem jakością obsługi klienta. W obliczu rosnącej konkurencji i zmieniających się oczekiwań konsumentów, wysoka jakość obsługi zamówień staje się kluczowym czynnikiem wpływającym na satysfakcję klientów oraz lojalność wobec marki. Zgodnie z przyjętą tezą badawczą rozwój handlu elektronicznego jest determinowany przez nowoczesne technologie rozwoju, a siłę tego wpływu można mierzyć poprzez de-cyzyjną zakupową konsumentów. Celem artykułu jest identyfikacja uwarunkowań rozwoju e-commerce i ocena znaczenia zarządzania jakością obsługi klienta w dynamicznie zmieniającym się otoczeniu. Problem, na którym skoncentrowano się w badaniu, sformułowany jest w postaci pytania: Jakimi cechami powinna się charakteryzować strategia przedsiębiorstwa w kontekście obsługi klienta i rozwoju rynku e-commerce?; Jakie narzędzia i działania są wykorzystywane przez przedsiębiorstwa w dążeniu do poprawy jakości obsługi klienta w ramach łańcuchów e-commerce?

**Metoda.** W artykule zastosowano przegląd literatury, z uwzględnieniem pozycji zwartych i artykułów oraz raportów dotyczących nowoczesnych technologii stosowanych w obsłudze zamówień e-commerce. Zastosowane metody i techniki badawcze obejmowały m.in.: analizę treści, analizę przyczynowo-skutkową oraz wybrane metody analizy jakościowej, które wykorzystano dążąc do realizacji celu badania.

**Wyniki.** Efektywne zarządzanie jakością obsługi klienta nie tylko wpływa na pozytywne doświadczenia zakupowe, ale również przyczynia się do budowania trwałych relacji z klientami oraz osiągania przewagi konkurencyjnej. Dzięki nowoczesnym technologiom i narzędziom takim jak sztuczna inteligencja, chatboty możliwe jest oferowanie szybszego, bardziej spersonalizowanego procesu realizacji zamówień, co prowadzi do podniesienia standardów obsługi i optymalizacji procesów e-commerce.

**Słowa kluczowe:** e-commerce, obsługa klienta, zarządzanie jakością usług, nowoczesne technologie cyfrowe

**Klasyfikacja JEL:** M20, L89, O30

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