

AGILE CUSTOMER SERVICE PRACTICES IN THE E-COMMERCE DEVELOPMENT PROCESS

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Purpose: The goal is to understand how organizations adapt to the requirements of digitalization and what actions they take to remain competitive in a dynamically changing environment.

Design/methodology/approach: The study is based on an analysis of data collected through a survey conducted in April and May 2023 among 303 respondents.

Findings: An organization's agile practices in the e-commerce development process are closely related and mutually supportive. Strong correlations between different practices indicate that success in e-commerce depends on a comprehensive and integrated approach to the use of digital technologies, which enables organizations to respond effectively to changing market conditions and customer needs.

Research limitations/implications: Limitations of the study include the potential lack of representativeness of the research sample, the reliance on self-assessment data, and the lack of long-term data. Further research may focus on expanding the research sample, conducting long-term studies, and exploring success factors in the implementation of agility.

Practical implications: The article offers recommendations for companies on how to develop organizational culture, invest in training, adopt new technologies, and increase operational agility through agile practices to improve competitiveness and resilience in the digital age.

Social implications: The importance of fostering a culture of continuous learning and innovation in organisations is highlighted, which can contribute to economic growth and job creation in the digital economy.

Originality/value: The article stands out for its comprehensive analysis of agile practices in the context of digitalization, combining a literature review with empirical research. Practical recommendations provide valuable guidance for companies seeking to effectively transform the challenges of digital transformation.

Keywords: agile practices, customer, e-commerce, organization, organizational agility.

Category of the paper: research paper.

1. Introduction

The modern business world is characterized by an increasing pace of change, which forces organizations to constantly adapt to evolving trends, especially in the area of digitalization. The rise of e-commerce, a direct result of increasing digitalization, is radically changing the way businesses do business, communicate with customers, and manage internal processes. Organizational agility is an important element that enables companies to remain competitive in such a dynamic environment (Mrugalska, Ahmed, 2021; Žitkienė, Deksnys, 2018; Joiner, 2019), understood as the ability to respond quickly to change, innovate and effectively implement new technologies (Jones, Adam, 2023; Prieto, Talukder, 2023; Harraf, Wanasika, Tate, Talbott, 2015; Wendler, 2014).

The article presents the results of research on the application of agile practices in the area of customer service in the process of e-commerce development, emphasizing their impact on the ability of organizations to adapt in the digital ecosystem. The analysis focuses on identifying ways in which enterprises are using modern technologies and ways of working to improve customer interactions, data management and optimize business processes. The results of the research point to the key role of an organizational culture that promotes adaptation, continuous learning, investment in digital skills training, adoption of new technologies, and improving operational agility through agile practices. Research constraints and practical implications point the way for companies to improve their competitiveness and resilience in the digital age, while also suggesting directions for future research in this area.

This article stands out from other research due to its unique combination of agile practices in customer service with the challenges of digitization in e-commerce. Unlike most available analyses that focus on single aspects of agility or e-commerce, this study integrates these two elements to understand how they can be used to transform digitization challenges into concrete strategies that strengthen the market position of enterprises. Moreover, this approach allows for a deeper understanding of how the integration of modern technologies can lead to real changes in customer interactions, which is critical in the era of rapid market changes. The conclusions presented are based on a comprehensive empirical study, which further enhances the substantive value of the work and enables the application of the results in practical e-commerce management contexts.

2. Literature Review

2.1. The essence and development of E-commerce in the era of digitalization challenges

The growth of e-commerce is closely linked to the process of digitalization, which has revolutionized the way people buy and sell products and services over the past decades. The essence of e-commerce is the use of the internet and digital technologies to carry out commercial transactions, which is a significant departure from traditional sales methods. Digitalization, which is driving the growth of e-commerce, is not only about the introduction of online transactions, but also about transforming supply chains, business models, and customer interactions (Lambri, Sironi, Teti, 2024).

E-commerce has developed in several key stages, ranging from simple websites for listings, through platforms that enable fully online transactions, to complex digital ecosystems that integrate a wide range of additional services, such as logistics, online payments, digital marketing and data analytics. The impact of digitalization on e-commerce is observed not only in terms of increasing efficiency and reducing costs, but also in terms of innovation in business models, which allows companies to reach new customer groups and offer products and services on customized terms (Zou, Cheshmehzangi, 2022).

One of the most important aspects of e-commerce growth is to increase the accessibility and convenience of shopping for consumers. Digitalization has enabled shoppers to access global markets, offering a wide range of products and services available from anywhere, anytime. This, in turn, has forced enterprises to focus on optimizing the user experience by designing intuitive interfaces, personalizing offers, and ensuring transaction security (Jones, Adam, 2023).

At the same time, digitalization challenges such as data security, user privacy and cybercrime have become key areas of focus for e-commerce enterprises. Enterprises need to invest in advanced security technologies to protect customer data and maintain trust, which is fundamental to staying competitive in the marketplace (Masoud, Basahel, 2023).

Another important issue is the adoption and integration of new technologies such as artificial intelligence (AI), machine learning, blockchain and the Internet of Things (IoT), which offer new opportunities for personalization of offers, automation of customer service, supply chain management and anti-fraud. The use of these technologies allows for the creation of a more personalized and engaging shopping experience, as well as increasing the operational efficiency of companies (Rosário, Raimundo, 2021).

In the context of globalization and increasing competition, e-commerce faces the challenge of constantly adapting to changing consumer preferences and dynamically developing technology. The future of e-commerce is likely to be shaped by further digitalization, the development of mobile technologies, the increased use of big data to better understand customers, as well as further cross-platform integrations, enabling broad collaboration between

different market players, including manufacturers, logistics and financial service providers, as well as marketplaces (Attar, Almusharraf, Alfawaz, Hajli, 2022).

To sum up, the essence and development of e-commerce in the era of digitalization challenges is a dynamic area that is constantly evolving under the influence of technological progress, changes in consumer behavior and adaptation to global economic and social challenges. The future of e-commerce will be shaped by further innovation, integration, and collaboration at various levels, while requiring accountability and a sustainable approach to business, technology, and society.

2.2. Organizational Agility and Agile Practices

In the context of a dynamically changing business environment, influenced by the development of e-commerce and advancing digitalization, organizational agility and agile practices are becoming increasingly important. Agility, understood as the ability of an organization to quickly adapt to changing conditions, innovate, and respond effectively to customer needs, is becoming a key success factor in the digital age (Akkaya, 2021; Kurnia, Chien, 2020; McNamee, Schoch, Oelschlaeger, Huskey, 2012). Originally derived from the IT sector and software development methodologies, agile practices are now gaining recognition in the broader context of management and business strategy (Sajdak, 2021; Kocot, Kwasek, 2022). Their adaptation beyond traditional application areas shows how agile techniques can contribute to increasing operational efficiency, innovation, and adaptability of organizations at various levels (Brown, Jones, 2018).

The application of agile practices in the context of e-commerce and broadly understood digitalization manifests itself through short planning cycles, iterative product development, a continuous feedback loop with customers, and a focus on multidisciplinary project teams (Chen, Li, 2021; Rahimi, Mansouri, 2019; Sedej, Justinek, 2021). These elements allow organizations not only to respond more quickly to changes in the market, but also to effectively explore new technologies and business models, which is essential in the face of rapid changes in consumer preferences and technology (Chen, Li, 2021).

Integrating organizational agility with agile practices makes it easier for companies not only to adapt to current trends, but also to anticipate future changes. This makes it possible to create a sustainable competitive advantage through innovation, personalization of the offer and optimization of the customer experience, which directly fits into the context of the challenges and opportunities arising from the growing role of e-commerce (He, Harris, 2021).

In the digital age, agile project and product management methods allow companies to make better use of big data, artificial intelligence (AI), and other digital technologies to create more personalized and engaging shopping experiences. Through an agile approach, organizations can experiment and bring new solutions to market faster while minimizing the risks and costs associated with failure (Prieto, Talukder, 2023).

Also in terms of supply chain and logistics management, agile practices enable a more effective and flexible response to changes in demand, which is crucial for maintaining continuity and operational efficiency in a rapidly changing environment (Ramadhana, 2021).

Thus, the integration of organizational agility with agile practices lays the foundation for building the resilience and competitiveness of companies in the digital world. This allows you to take advantage of the opportunities offered by e-commerce and digital technologies more effectively, while ensuring the ability to adapt and innovate in the face of constant change. Thus, agility and agile practices not only complement the business needs of digitalization, but are also the key to sustainable success in an increasingly globalized and digital ecosystem.

2.3. The role of agile practices in the customer service process

In the process of dynamic market changes, driven by the progressive digitization and expansion of e-commerce, the role of agile practices in the customer service process is emerging as an essential element in shaping an organization's competitive advantage. Adopting agile methodologies in the area of customer service fits into the broader perspective of organizational agility, responding to growing consumer expectations for personalization, responsiveness, and quality of brand interaction (Kt, Sivasubramanian, 2023).

Agile practices, adopting an iterative approach focused on feedback and continuous adaptation, enable organizations to build deeper relationships with customers by quickly and effectively responding to their needs and preferences. In the context of customer service, agility translates into the ability to quickly solve problems, personalize communications and offerings, and be proactive in anticipating and meeting customer expectations (Felipe, Leander, Roldan, Leal-Rodriguez, 2020).

The implementation of agile practices in the area of customer service often involves the use of advanced technologies such as artificial intelligence, data analytics or automation, which has already been highlighted in the context of e-commerce development. Thanks to these technologies, companies can not only respond more quickly to customer inquiries, but also offer personalized shopping experiences that are increasingly desired by today's consumers (Chen, Siau, 2020; Skyrius, Valentukevič, 2020; Bray et al., 2019).

An agile approach to customer service also stimulates a culture of continuous improvement and innovation within the organization. Teams are encouraged to experiment with new ideas and solutions that can increase customer satisfaction while minimizing risk through short iterative cycles and continuous feedback collection. Such a work environment not only increases employee motivation, but also builds a stronger market position for the company by offering exceptional value to customers (Sattler et al., 2022).

In the digital age, where customer feedback is readily available and can quickly impact a brand's reputation, agile practices in customer service allow organizations to effectively manage consumer experiences and expectations. Flexibility and speed of adaptation to changing customer preferences and market conditions, enabled by agile methodologies,

are therefore becoming key assets in building lasting and positive relationships with customers (Varshney, 2020).

Agile organizational practices in e-commerce development focus on key areas: the use of digital technologies for sales, customer data analysis, technological innovations in business processes, and strategies for the effective use of these technologies. These activities enable companies not only to better match their offer to the needs of the market, but also to quickly adapt to changing trends and consumer preferences. The use of digital tools to analyze data and monitor the market environment is becoming the foundation for effective management in a dynamic e-commerce environment. Innovative approaches to technology and continuous process optimization are key to maintaining competitiveness and innovation in the market (Masoud, Basahel, 2023).

To sum up, the integration of agile practices in the customer service process is a natural extension of organizational agility and agile methodologies used in the context of project and product management. This evolution not only responds to the challenges of digitalization and the growing role of e-commerce, but also sets new standards in terms of the quality of customer interaction, personalization of the offer and speed of response to market needs. As a result, companies that successfully implement agile customer service practices gain a significant competitive advantage by building stronger and more sustainable customer relationships.

2.4. Research Methodology

The focus of this article was to understand how organizations apply agile customer service practices in the context of the growing e-commerce sector. The aim of the research focused on identifying key agile strategies and practices that companies implement to improve sales processes, analyze customer data, innovate in business processes, develop strategies for the use of digital technologies, and analyze market trends and competitors using digital tools.

The research hypothesis was that organizations actively engaging in the use of digital technologies and agile working methods show better adaptation to the changing e-commerce environment and respond more effectively to the needs and preferences of their customers. The research method was based on a quantitative survey approach, where 303 respondents were asked to answer a series of closed-ended questions. The respondents rated their experiences and practices in the use of digital technologies and innovative solutions in their companies. These results made it possible to assess the current state of application of agile methods in the area of e-commerce and contributed to the verification of the research hypothesis.

In terms of positions held, the majority of respondents were employees at a lower level (57.4%), middle management represented 25.2% of the survey participants. Junior executives accounted for 11.1% and top management 6.4%. In terms of professional experience, 47.7% of the respondents had worked for up to 5 years, 33.4% had between 6 and 10 years of experience, 13.6% between 11 and 15 years, 3.6% between 16 and 20 years, and only 1.7% had worked for more than 20 years.

Analysing the size of the companies in which the respondents worked, most of them were employed in small enterprises (37.5%), while micro-enterprises accounted for 26.4%, medium-sized enterprises for 20.1% and large enterprises for 16.1%. Regarding the duration of the company's operation, 34.9% of the respondents worked in companies operating for 1 to 3 years, 27.1% for 4 to 7 years, 26.1% in companies with more than 8 years of experience, and 11.9% in companies operating on the market for more than a year.

In terms of industry, the majority of respondents were employed in the commercial sector (54.8%), followed by other industries (26.4%), education (10.4%), the automotive industry (5.4%) and the health sector (3%). In terms of the geographical scope of companies, 32.5% of respondents worked in companies with a regional scope, 31.5% at the national level, 18.3% at the international level, and 17.6% at the local level. The majority of respondents (55.6%) rated their company's financial situation as good, 19.9% as very good, 16.9% had difficulties with the assessment, 4.6% assessed it as bad, and 3% as very bad.

2.5. Presentation of Research Findings

The research sought to understand how organizations use agile customer service practices in the e-commerce development process (see Table 1). The study focused on five key areas: the use of digital technologies to sell products or services, the collection and analysis of customer data using digital technologies, the use of innovative digital technologies in business processes, the development of strategies for the effective use of digital technologies in commerce, and the analysis of market trends, customer preferences, and competitors with the help of digital technologies.

In the first area, concerning the use of digital technologies to sell products or services, 15 respondents (4.95%) definitely do not use such solutions, 20 (6.60%) rather do not, 30 (9.90%) have no opinion, 100 (33.00%) rather use them, and 138 (45.54%) definitely do. When it comes to collecting and analysing customer data, 10 people (3.30%) definitely don't choose to do so, 25 (8.25%) do not, 28 (9.24%) have no opinion, 90 (29.70%) rather do, and 150 (49.50%) definitely use digital technologies to analyse customer data.

When it comes to the use of innovative digital technologies in business processes, 5 respondents (1.65%) definitely do not use such solutions, 18 (5.94%) rather not, 40 (13.20%) have no opinion, 95 (31.35%) rather yes, and 145 (47.85%) definitely do.

Developing strategies for the effective use of digital technologies in trade is of similar interest, with 12 respondents (3.96%) definitely not engaging in such activities, 22 (7.26%) rather not, 35 (11.55%) have no opinion, 110 (36.30%) rather yes and 124 (40.92%) definitely do so.

When it comes to analysing market trends, customer preferences and competition with the use of digital technologies, 8 people (2.64%) definitely do not undertake such analyses, 15 (4.95%) rather do not, 45 (14.85%) have no opinion, 105 (34.65%) rather do, and 130 (42.90%) definitely use digital technologies to analyse external factors.

Table 1.*Agile Organizational Practices in the Ecommerce Development Process, N = 303*

	Definitely NOT	Rather not	I don't have an opinion	Rather YES	Definitely YES
Uses digital technologies to sell their products/services (1)	15	20	30	100	138
Collects and analyzes customer data using digital technologies (2)	10	25	28	90	150
Uses innovative digital technologies in business processes (3)	5	18	40	95	145
Develops a strategy for the effective use of digital technologies in trade (4)	12	22	35	110	124
Analyses factors such as market trends, customer preferences and competitors using digital technologies (5)	8	15	45	105	130

Source: In-house analysis based on research.

These figures indicate a strong trend among organizations to adopt digital technologies as a tool to increase efficiency and effectiveness in the area of customer service and e-commerce development.

Based on the research conducted and the data collected, the correlation table (Table 2) presents the relationships between different aspects of an organization's agile practices in the context of e-commerce development. Each of the correlation values, represented on a scale from 0 to 1, indicates the degree of relationship between the individual practices studied in the project. This analysis is based on the responses of 303 respondents.

Table 2.*Correlation table, N = 303*

	1	2	3	4	5
1	1				
2	0,99	1			
3	0,99	0,99	1		
4	0,98	0,96	0,97	1	
5	0,98	0,96	0,98	0,99	1

Source: In-house analysis based on research.

High correlation values, hovering around 0.99 between the practices of using digital technologies to sell products/services (1) and the collection and analysis of customer data (2), as well as the use of innovative digital technologies in business processes (3), suggest a strong link between these areas. This means that organizations that use digital technologies extensively for sales are equally committed to collecting and analyzing customer data and implementing technological innovations in their business processes.

Similarly, the correlation values between the development of strategies for the effective use of digital technologies in trade (4) and other practices, with values ranging from 0.96 to 0.99, highlight that the development of effective digital strategies is closely related to the active use of these technologies at different levels of the company's operations. This indicates that these

strategies are not an isolated element, but a key component that supports and strengthens other aspects of the e-commerce business.

In addition, the analysis of external factors such as market trends, customer preferences or competition (5) shows a high correlation, especially with strategy development (0.99), suggesting that successful digital strategies are often developed taking into account external market factors and competition.

In general, the presented correlation table shows that the agile practices of organizations in the e-commerce development process are closely related and mutually supportive. Strong correlations between different practices indicate that success in e-commerce depends on a comprehensive and integrated approach to the use of digital technologies, which enables organizations to respond effectively to changing market conditions and customer needs.

Such high correlation coefficients, ranging from 0.96 to 0.99, may indicate a strong relationship between the agile practices applied in various aspects of e-commerce operations. A high correlation means that effectiveness in one area, such as online product or service sales, is closely linked with efficiency in other areas, for example in customer data analysis or the implementation of technological innovations in business processes. This indicates that individual agile practices do not function in isolation but reinforce each other, creating a coherent and integrated system that significantly contributes to increasing operational efficiency and building a competitive advantage for the organization. Furthermore, these results may suggest that the organizations studied have adopted a holistic and systematic approach to the implementation of digital technologies, which is crucial for achieving success in the rapidly changing e-commerce environment.

3. Discussion

The collected literature and empirical material allows us to draw conclusions on the importance and impact of agile customer service practices on the development of e-commerce in organizations. The analysis of the conducted research shows that the use of digital technologies in the areas of sales, analysis of customer data, business processes, strategy development and analysis of market trends, customer preferences and competitors is crucial for achieving operational efficiency and competitive advantage.

First of all, the collected data shows a strong tendency of organizations to adopt digital technologies as a tool to support agility in the area of e-commerce. The majority of respondents strongly agree with the use of such technologies, indicating a widespread awareness of their importance for effective customer service and business growth in the digital environment.

An analysis of the correlation between different aspects of the use of digital technologies shows strong links between them, suggesting that organizations perform better when they combine these practices into a coherent system. High correlation values indicate that the effective use of digital technologies in one area, such as selling products or services, is usually closely related to intensive involvement in other activities, such as analyzing customer data or implementing innovative technologies in business processes. This emphasizes that organizations must not view these practices as isolated activities, but as elements of an integrated strategy to support the entirety of e-commerce operations.

The findings also highlight that developing effective digital strategies is not a one-time task, but an ongoing process that requires regular analysis of market trends, customer preferences and competitor activities. The high correlation between strategy development and external factor analysis suggests that successful strategies are often conditioned by external factors, requiring an organization to be agile and adaptable.

Overall, the results of the research point to the important role of digital technologies in the development of agile customer service practices in the process of e-commerce development. The integration of these technologies in various areas of the business, along with continuous monitoring and adaptation to the changing environment, is the foundation for building a competitive advantage and achieving long-term success. Organizations that effectively implement and integrate agile customer service practices using digital technologies are more likely to effectively respond to market needs and customer expectations, which translates into their growth and development in the dynamically changing world of e-commerce.

The results of the research should be compared with the works of other authors to deepen the understanding of the importance and impact of agile customer service practices on the development of e-commerce in organizations. A literature analysis confirms that agile approaches and integration of digital technologies are essential for operational efficiency and competitive advantage.

According to the observations of Kumari and Kumar (2024) and Torres (2023), both sources of information highlight the important role of integrating digital technologies in achieving operational efficiency and gaining a competitive advantage. The collected empirical data shows a strong tendency of organizations to adopt digital technologies as a key tool to support agility in e-commerce. This observation is reflected in the literature, where Kumari and Kumar (2024) emphasize that adaptability and agility, aided by digital technologies, are essential for modern enterprises operating in the e-commerce environment.

The analysis of correlations between various aspects of the use of digital technologies, both in the presented empirical studies and in the analyzed studies, shows the complexity and multidimensionality of the impact of these technologies on the operational efficiency of the organization. As Torres (2023) points out, it was highlighted that the effective use of digital technologies in one area, such as sales, is closely linked to intensive engagement in other activities, for example, customer data analysis or innovation in business processes.

This indicates that developing effective digital strategies requires a continuous process of adaptation to changing market trends, customer preferences, and competitor activities, suggesting the need for flexibility and adaptability, as noted by Kumari and Kumar (2024) and Torres (2023).

The conducted research allows us to formulate recommendations for companies that aspire to effective use of digital technologies in the area of customer service and e-commerce development. A key takeaway is that companies should strive for a holistic approach to the use of digital technologies, including not only the sale of products and services, but also the analysis of customer data, business processes and strategy development. Such integration allows for the creation of a cohesive and flexible ecosystem that supports agile organizational practices and enables effective response to changing market conditions.

It is important to emphasize the importance of continuous monitoring and analysis of data, both internal (concerning the company's operations and customers) and external (market trends, competitors' activities). This information is essential for creating effective digital strategies that are dynamic and can adapt to new challenges and opportunities. High correlations between different aspects of the use of digital technologies indicate that success in e-commerce depends on a comprehensive and integrated approach to the use of these technologies.

In addition, companies should place a strong emphasis on innovation and readiness to experiment with new technological solutions. Innovation can range from introducing new products and services to optimizing existing business processes with advanced digital tools. Such an attitude is conducive to building a competitive advantage and increases the company's ability to adapt to a rapidly changing environment.

Finally, it is important that digital strategies are developed taking into account external factors such as market trends, customer preferences, and competitor activities. Successful digital strategies require not only internal coordination and an integrated approach, but also an understanding and adaptation to the external environment. This means that companies should regularly analyze and react to changes in the environment so that their activities are properly targeted and effective.

In conclusion, companies are advised to adopt an integrated and dynamic approach to the use of digital technologies that takes into account both the internal needs of the organization and the changing external conditions. Such an approach will allow you to increase operational efficiency, build a strong market position and effectively respond to the needs and expectations of customers in the dynamic world of e-commerce.

Although the research provided valuable conclusions on the use of digital technologies in the area of customer service and e-commerce development, it is also characterized by certain limitations that may affect the interpretation of the results and suggest directions for future research. One of the main limitations is the focus on a relatively narrow range of respondents, which may not reflect the full diversity of the e-commerce sector. The specificity of the research

sample, limited to a certain number of organizations, may not take into account all industries or sizes of enterprises, which affects the generalization of the results.

Additionally, the analysis focused mainly on quantitative aspects, leaving less room for a qualitative understanding of the reasons and mechanisms behind the adoption or rejection of agile customer service practices and the use of digital technologies. This limits the depth of interpretation of results and understanding of the business and organizational contexts that influence these processes.

4. Conclusions

In the context of future research, there are several directions that could add value and expand current knowledge on the role of digital technologies in e-commerce. First of all, expanding the research sample to include different industries and company sizes could provide a more representative picture of the use of digital technologies in the area of e-commerce and allow for a better understanding of the specificities of individual sectors.

The second direction is to conduct qualitative research, such as case studies or in-depth interviews, which could uncover detailed decision-making mechanisms, motivations and barriers to the implementation of digital technologies and innovative solutions. Such an approach would allow for a better understanding of the dynamic aspects of change management and technological adaptation in organizations.

Another area is the study of the impact of organizational culture, structure and strategy on the adoption and effective use of digital technologies. Understanding how these internal factors affect an organization's ability to innovate and adapt in a digital environment could provide clues for effective change management practices.

Finally, it is worth examining the long-term impact of digital technologies on business performance and organizational sustainability in the context of changing customer expectations and competitive pressures. Such research could provide valuable insights into the strategic benefits of digitalisation and agile business practices, while offering insight into potential challenges and risks.

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