REVIEW

The Impact of Digitalization on the Formation of new Business models in Electronic Commerce: Analysis and Trends

El Impacto de la Digitalización en la Formación de Nuevos Modelos de Negocio en el Comercio Electrónico: Análisis y Tendencias

Ganna Kolomiyets[1] ✉, Volodymyr Rodchenko[1], Olga Melentsova[1], Vladyslav Korol[1], Maryna Moskalenko[1]

[1]V. N. Karazin Kharkiv National University. Kharkiv, Ukraine.

ABSTRACT

Introduction: this study explores the transformative impact of digitalization on e-commerce business models, focusing on the role of technological advancements, financial strategies, and sustainability initiatives. It aims to analyze the evolution of e-commerce models, assess the integration of emerging technologies, and address challenges such as cybersecurity risks, data privacy, and ethical concerns.
Method: a systematic literature review and thematic analysis were conducted, guided by PRISMA methodology. Data were collected from peer-reviewed articles, industry reports, and case studies published between 2019 and 2023. The review focused on technological innovations such as artificial intelligence (AI), blockchain, and big data analytics, along with their financial and operational implications.
Results: the analysis identified key trends, including the rise of innovative business models like drop shipping, subscription services, and platform-based ecosystems. Technologies such as AI and blockchain were found to enhance customer engagement, operational efficiency, and financial sustainability. However, significant challenges persist, including cybersecurity threats, algorithmic biases, and compliance with data privacy regulations. Additionally, sustainability practices, such as carbon-neutral shipping and ethical sourcing, have gained traction, aligning with consumer expectations and regulatory demands.
Conclusions: e-commerce businesses must strategically adopt digital technologies, address ethical and security challenges, and integrate sustainability into their operations to remain competitive and socially responsible. The findings provide actionable insights for businesses and policymakers, emphasizing the importance of balancing innovation with ethical and sustainable practices to thrive in the digital age.

Keywords: Digitalization; Artificial Intelligence; Blockchain; Financial Strategies; Sustainability; E-Commerce Business Models.

RESUMEN

Introducción: este estudio explora el impacto transformador de la digitalización en los modelos de negocio del comercio electrónico, destacando el papel de los avances tecnológicos, las estrategias financieras y las iniciativas de sostenibilidad. Su objetivo es analizar la evolución de los modelos de negocio, evaluar la integración de tecnologías emergentes y abordar desafíos clave como los riesgos de ciberseguridad, la privacidad de los datos y las consideraciones éticas.
Método: se realizó una revisión sistemática de la literatura y un análisis temático, guiados por la metodología PRISMA. Los datos se recopilaron de artículos revisados por pares, informes del sector y estudios de casos publicados entre 2019 y 2023. El análisis se centró en tecnologías emergentes como la inteligencia artificial (IA), el blockchain y el análisis de Big Data, así como en sus implicaciones financieras y operativas.

Resultados: el estudio identificó tendencias clave, como el auge de modelos innovadores como el "drop shipping," los servicios por suscripción y los ecosistemas basados en plataformas. Se constató que tecnologías como la IA y el blockchain mejoran la experiencia del cliente, la eficiencia operativa y la sostenibilidad financiera. Sin embargo, persisten desafíos importantes, incluidos los riesgos de ciberseguridad, los sesgos algorítmicos y la necesidad de cumplir con normativas de privacidad de datos. Además, las prácticas sostenibles, como el envío carbono neutral y el abastecimiento ético, están ganando relevancia, alineándose con las expectativas de los consumidores y las exigencias regulatorias.

Conclusiones: las empresas de comercio electrónico deben adoptar estratégicamente las tecnologías digitales, abordar los desafíos éticos y de seguridad y priorizar la sostenibilidad para mantenerse competitivas y socialmente responsables. Los hallazgos ofrecen perspectivas prácticas para las empresas y los responsables políticos, subrayando la importancia de equilibrar la innovación con prácticas éticas y sostenibles para prosperar en la era digital.

Palabras clave: Digitalización; Inteligencia Artificial; Blockchain; Estrategias Financieras; Sostenibilidad; Modelos de Negocio.

INTRODUCTION

The landscape of electronic commerce (e-commerce) has experienced a significant transformation over recent decades, propelled by the rapid advancement of digitalization. This study conducts an extensive examination of how digitalization impacts the formulation and evolution of business models within the e-commerce sector. The importance of this analysis is highlighted by its implications for contemporary and future business strategies.

In a time when digital technologies are changing at a speed that has never been seen before, it is important for business owners, policymakers, and creators to understand how these changes affect business models. The digitization of commerce has changed not only how businesses and customers deal with each other, but also how markets work and how competitors do. This includes financial aspects like how to make money, cut costs, and plan investments.[1]

Drawing upon foundational literature such as[2] which discusses the extensive effects of digital technology progress, and Porter and Heppelmann[3], which sheds light on the digital age's business model transformations, this article integrates financial insights into digitalization's impact on e-commerce.

Covering a broad yet detailed scope, this article examines various e-commerce business models, focusing on specific technological innovations and their financial implications. It includes the analysis of data analytics and big data's role in financial forecasting and market analysis[3], the application of artificial intelligence and machine learning in refining customer service and personalizing financial advice,[4] and the use of blockchain technology to secure transactions and improve financial transparency.[5,6]

Technology improvements and changes in how people act have shaped the history of e-commerce, which has grown from simple electronic transactions to the complicated web of online interactions that define modern business. Electronic Data Interchange (EDI) development in the 1960s is credited with laying the foundation for e-commerce.[7] EDI, which is a digital data transmission method from one computer to another, took the role of conventional document mailing and faxing. It made possible the earliest kind of business-to-business computerized interactions.[8]

The World Wide Web's launch in the 1990s signaled a turning point in history and completely changed e-commerce. Online selling prospects started to appear around 1991, when the Internet started to become commercialized.[9] The beginning of the internet retail revolution may be traced back to the 1994 debut of Amazon, as described in Stone.[10] eBay, another significant figure that helped promote the business-to-consumer (B2C) and consumer-to-consumer (C2C) models, also emerged during this time period in 1995.

E-commerce had tremendous expansion and diversity in the early 2000s. Better internet access and the development of safe online payment methods allowed e-commerce to go beyond books and gadgets to encompass a large variety of goods and services.[11] gives an extensive examination of this growth period. Mobile commerce (m-commerce) and social commerce are two new e-commerce concepts that emerged in the 2010s due to the widespread use of smartphones and social media platforms.[11]

As mentioned in Turban et al.[12], these models profited from the growing trend of using social media and mobile devices for purchasing. The Internet of Things (IoT), big data, artificial intelligence (AI), and other innovative technologies are revolutionizing e-commerce by improving operational efficiency and enabling personalized purchasing experiences. The incorporation of augmented reality, voice commerce, and more developments in AI and machine learning are some of the potential future paths for e-commerce.

The use of digital technology to adapt or develop new business procedures, company cultures, and customer experiences in response to shifting market and business demands is known as "digitalization" in commerce.

[13] It involves using digital technology to change how a business runs and provides value to clients, not merely digitizing certain parts of the company. It drastically reimagines how companies run, engage with clients, and gain a competitive edge by utilizing digital technology.
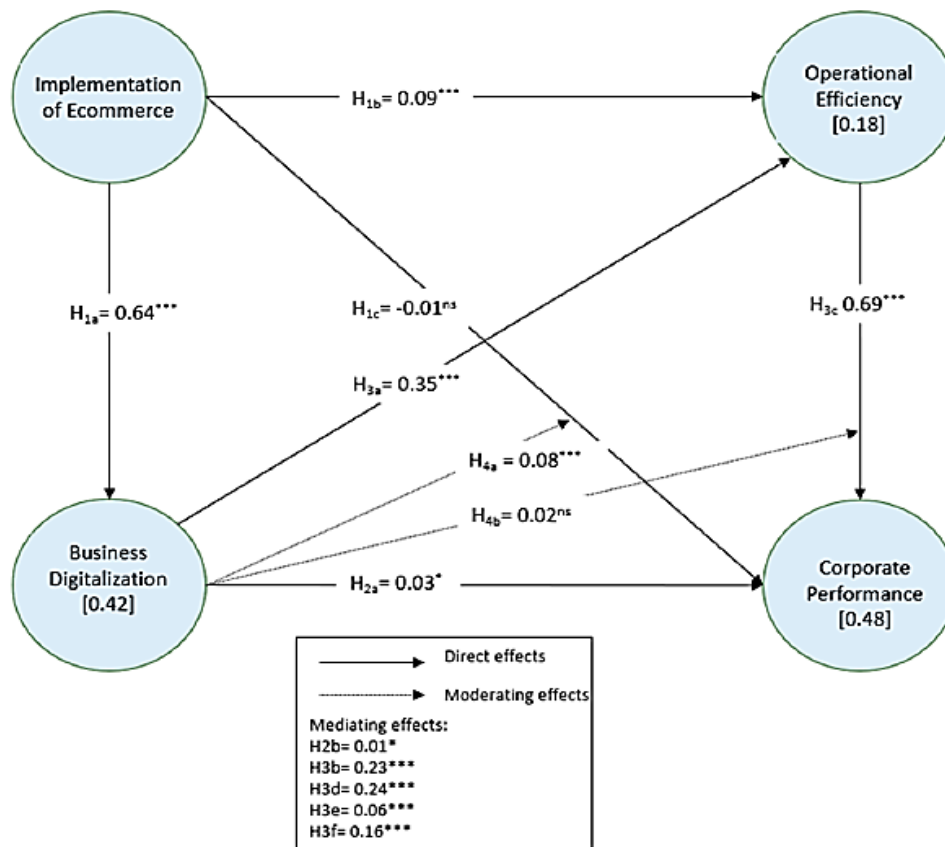
Source: Santos-Jaén et al.[14]

Figure 1. Structural Equation Model of E-Commerce Impact on Business Performance

As seen in figure 1, that e-commerce implementation improves corporate digitization, which in turn has a favorable effect on operational efficiency. The direct impact of e-commerce adoption on corporate performance is negligible, despite the considerable correlation between enhanced operational efficiency and increased corporate performance. This suggests that company digitalization plays a crucial mediating function between operational efficiency and corporate success.[14]

Digitalization is redefining value creation in commerce, transforming business models, and creating novel consumer experiences via the application of digital technology and digitalized data. Its reach extends beyond the operational level, affecting company culture and strategic planning.[15] Businesses' ability to automate and simplify their operations is indicative of the revolutionary nature of digitalization in commerce.[16] Innovative e-commerce business models have emerged as a result of digitalization. Some instances are on-demand services, peer-to-peer networks, and subscription-based business models.

The two growth tactics for these e-commerce businesses are inorganic and organic. Innovation models serve as catalysts, enabling various growth strategies to yield results that support the long-term, sustainable development of nations and enterprises.[17] Environmental, social, and governance (ESG) metrics are being used more often to assess an entity's performance and sustainability commitment. These metrics quantify these outcomes. The framework suggests that technological advancements in e-commerce can propel both macro (countries) and micro (businesses) level sustainable development when channeled through innovative growth strategies and measured against ESG criteria.[17]

Moreover, one of the most important aspects of digitization in commerce is the improvement of the client experience through customization and interaction.[18] Nikolenko[19] provides a philosophical exploration of artificial intelligence's positive and negative dimensions, reframing traditional analysis to unveil its societal implications.

Kolinets[20] through a comprehensive analysis of modern innovations such as blockchain, artificial intelligence, fintech platforms, crowdfunding, identifies key trends shaping the future of the global financial system. It outlines the stages of development, assesses current innovations, and forecasts future trajectories. The emergence of artificial intelligence, open banking, blockchain, and other technologies promises to redefine

the financial sector, enhancing services, optimizing processes, and fostering innovation and competitiveness. Digitalization also presents challenges, including cybersecurity risks, data privacy concerns, and the need for regulatory compliance.[21]

Central to this model is the cultivation of robust customer engagement, which lays the foundation for enduring relationships and loyalty. The rapid implementation of IT strategies propels the organization forward, leveraging technology as a catalyst for growth. Underpinning this dynamic is the alignment between business objectives and IT strategy, ensuring that technological advancements are strategically leveraged to drive the company's growth and secure its competitive position in the marketplace.[22]

Several key technologies have played pivotal roles in the advancement of e-commerce, these technologies have revolutionized customer experience and operational efficiency in e-commerce. AI-powered chatbots, personalized recommendations, and predictive analytics for inventory management are some examples.[23] Artificial Intelligence (AI) and Machine Learning (ML) have revolutionized many aspects of e-commerce, from customer service to backend operations. Moreover, predictive analytics for inventory management enable more accurate demand forecasting, reducing overstock and stockouts.[24]

The ability to analyze vast amounts of data has enabled e-commerce businesses to gain deep insights into customer behavior, preferences, and trends. The role of big data analytics in e-commerce is transformative. It allows businesses to analyze extensive datasets to understand customer behavior, preferences, and market trends. Blockchain has introduced new ways to ensure security and transparency in e-commerce transactions.[25]

While the proliferation of smartphones and the Internet of Things (IoT) has opened up new avenues for e-commerce, particularly in the context of mobile commerce and smart devices.[26] Mobile devices have become a primary medium for e-commerce transactions.[27] E-commerce platforms leverage cloud computing for cost-effective scalability, improved performance, and enhanced data storage capabilities.[28]

The "Four Pillars of Digital Transformation" encapsulate the essential strategies for organizations aiming to navigate the complexities of digitalization: IT Uplift, which involves the modernization of existing IT infrastructure to support new and scalable technologies; Digitizing Operations, the process of streamlining business operations through technology to enhance efficiency and agility; Digital Marketing, which leverages digital tools to revolutionize marketing, e-commerce, and customer acquisition; and New Ventures, the exploration and creation of innovative business models and products that capitalize on digital advancements. Collectively, these pillars provide a strategic roadmap for organizations to transform their capabilities and competitive positioning in the digital era.[29]

Platform-based business models, as seen in companies like Amazon and Alibaba, are at the forefront of e-commerce evolution.[30] These platforms create and capture value, discussing the network effects that are central to their success.[31] The subscription model, adopted by companies like Netflix and Spotify, is another significant digital business model. This model is based on providing continuous value to customers through a subscription fee.[32] Subscription Model is reshaping industries by focusing on long-term customer relationships and recurring revenue.

Airbnb and Uber are two examples of the sharing economy, which is a move toward people sharing access to goods and services with each other. This is expanded upon by Botsman et al.[33] who say that these models are based on the idea of group trust and sharing resources. Crowd-sourced material and services are also part of new digital business models like Wikipedia and Kickstarter.[34]

Crowdsourcing takes advantage of the knowledge and skills of many people working together, which can lead to new ideas and better ways to solve problems. Another area of e-commerce that is rising is the sale of digital goods and services like e-books, online courses, and software.

It is important to study how different technologies have changed e-commerce because these new technologies have completely changed the field.

Machine Learning (ML) and Artificial Intelligence (AI) have completely changed e-commerce, including how companies talk to customers and run their businesses.[35] The larger effects of these technologies, such as how they help automate chores and make e-commerce decisions based on data. One of the most obvious ways that AI and ML are used in e-commerce is in custom recommendation systems.

In customer service, AI-powered chatbots and virtual assistants make conversations with customers quick and tailored to their needs. E-commerce is safer and more trustworthy thanks to blockchain technology.[36,37] It has the potential to completely change e-commerce, especially when it comes to transaction security, supply chain openness, and product authenticity. It can also create decentralized marketplaces, reduce fraud, and enable more secure and transparent supply chains.[38] Moreover, the convergence of these technologies in e-commerce creates synergies that drive innovation further. For instance, the integration of AI with blockchain can lead to highly secure and intelligent systems for handling complex e-commerce transactions and data management.[39]

Digitalization has significantly altered consumer behavior and expectations. This is extensively covered in Solomon et al.[40] which examines how online platforms, with their vast array of choices and personalized marketing strategies, have changed the way consumers approach purchasing decisions. It also discusses

the psychological factors at play in digital settings, such as the effects of social proof and online reviews on consumer choices. Pine et al.[41] highlight the shift towards value creation through experiences, a trend increasingly evident in e-commerce.

The research of Sibghatullah Shah et al.[42] akin to Friedkin Johnsen's model, unveils the nuanced dynamics of social influence on consumption, emphasizing environmental awareness. It draws parallels with the impact of digitalization on new business models in e-commerce, stressing the importance of initiative-taking considerations. Just as a responsible society navigates choices for responsible consumption, businesses must adapt to emerging e-commerce paradigms influenced by digital trends. The study aligns with the need for individuals to form informed opinions, mirroring the evolving landscape of digitalized business models for a more efficient and sustainable electronic commerce future.

Israfilzade et al.[43] using a mixed-method approach examines five important remarketing strategies and finds notable variations in the two generations' (Generation Y and Z) within the dynamic digital marketplace. In order to achieve inventive advancement, Ovcharova[44] analyzes the potential for the growth of the smart economy, with a focus on the Internet of Things (IoT), and it measures the degree of digitalization in the nations of Central and Eastern Europe. Additionally, the examination of mortgage lending by Abdullayeva et al.[45] is consistent with our work since it recognizes the vital role that well-balanced state-level policies play in promoting economic growth and guaranteeing a stable shift to digitalized business models in industries like finance and real estate. Nurgaliyeva et al.[46] highlights the need of decentralization in management for efficient budgeting, stressing the requirement for specialized knowledge and cost optimization awareness.

The work of Kahneman[47] also offers insights into the psychological aspects of consumer decision-making in digital contexts. The book explains two systems of thought: the fast, intuitive, and emotional system, and the slower, more deliberative, and logical system. E-commerce platforms need to understand these mental processes in order to create user experiences and marketing campaigns that appeal to the way people think when they shop online. Also, the rise of mobile business and how it changes how people behave shows how the widespread use of mobile devices has changed the way people shop.[48,49]

Aims and Objectives

The primary aim of this study involves looking at how digitalization has changed e-commerce business models, specifically how new technologies and smart money management can be used together to make operations run more smoothly, keep customers interested.

1. To analyze the evolution of e-commerce business models in response to digital advancements and assess the role of technologies such as artificial intelligence (AI) and blockchain in enhancing business performance and financial sustainability.

2. To identify the challenges posed by digitalization, including cybersecurity and ethical considerations, and propose strategies to address these challenges while promoting sustainable growth and operational efficiency.

METHOD

This research examines the methodical ways in which digitalization has altered e-commerce business models by employing a structured review approach derived from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach. Important literature and case studies can be easily located, selected, and analyzed using this procedure.

Search Strategy and Keywords

The literature search for this study was carefully planned to ensure that all the significant scholarly works could be read and comprehended in their entirety. Reliable sites, like Scopus, Web of Science, and Google Scholar, Because the focus is on new ideas and trends, the standards for inclusion were changed to allow studies that came out between 2018 and 2024 more weight. This time frame was chosen to show how quickly digital technologies are changing and how they are affecting e-commerce business models at a time when the field is at its busiest and most creative.

There were several steps in the search process that used buzzwords and Boolean operators to find the most relevant studies. The main keywords were "Digitalization in e-commerce," "E-commerce business models," "Artificial intelligence in e-commerce," "Blockchain and e-commerce," "Sustainability in digital business," along with "Cybersecurity in e-commerce." These words were chosen to cover a wide range of parts of digitalization's impact on e-commerce, from new technologies to changes in operations and finances.

More keyword pairs and synonyms were used to narrow down the search and make sure that only high-quality, relevant studies were included. These terms included words like "digital business transformation," "financial strategies in e-commerce," "AI-driven personalization in commerce," plus "blockchain transparency in e-commerce." Boolean expressions like "AND," "OR," and "NOT" were used to carefully broaden or narrow the search, making sure that there was a balance between being broad and being specific.

The search turned up a first set of 1 350 records. 300 full-text articles were checked to see if they were eligible after duplicates were removed and relevance was checked. Sixty studies were chosen for the final analysis after a thorough review process. The studies that came out after 2019 showed how e-commerce business models have changed over time, how new technologies like AI and blockchain are being used, and the problems that come with security and moral issues.

This careful and thorough search method made sure that the studies chosen were not only relevant and up-to-date, but also of high academic quality. This gave the analysis and synthesis of results in this study a solid base. If you want to talk more about certain things, like the systems or the filtering process.

Table 1. Inclusion and Exclusion Criteria for Study Selection

Criteria Type	Criteria
Inclusion Criteria	Peer-reviewed journal articles, conference papers, and industry reports to ensure credibility and rigor.
	Studies published in English between 2018 and 2024 to maintain relevance and accessibility.
	Articles focusing on technological advancements (e.g., AI, blockchain) and their impact on e-commerce business models.
	Studies addressing financial, operational, or sustainability dimensions of e-commerce digitalization.
	Case studies demonstrating practical applications of digitalization in e-commerce to provide real-world insights.
Exclusion Criteria	Non-English articles and publications prior to 2018 to exclude outdated and inaccessible studies.
	Studies focusing exclusively on non-digital aspects of e-commerce, as these do not align with the research objectives.
	Articles with insufficient methodological details or lacking quantitative/qualitative analysis to ensure robustness.
	Grey literature and non-peer-reviewed sources unless highly relevant and cited in the academic context to maintain academic rigor.

The selection criteria were carefully thought out to only include studies that directly relate to the research goals and provide useful information about how digitization has changed e-commerce business models. Journal articles, conference papers, and business reports that had been reviewed by experts in the field were given the most weight to make sure that the results were valid and trustworthy. From 2018 to 2024 was chosen as the time range to include the newest and most useful technological advances while leaving out old studies. These factors make sure that we have a full picture of digitalization's many effects by focusing on studies that look at financial, operational, and long-term effects. Case studies were also included to fill in the gaps between theory and real-world use.

The criteria for exclusion were made to speed up the review process and get rid of studies that were not important or were of low quality. To make sure the information was up-to-date and easy to find, non-English papers and publications from before 2018 were left out. Studies that looked at e-commerce in ways other than digital were not included because they were not relevant to the study. In order to keep the review rigorous and easy to repeat, articles that didn't give enough methodological information were left out. Most grey literature and sources that were not reviewed by peers were left out, unless they were very important and commonly used in academic discourse. This made sure that the review only used strong and reliable sources.

PRISMA Flow Diagram
The PRISMA flow diagram outlines the systematic search and selection process undertaken in this study. The phases of the review are detailed below:

Table 2. PRISMA Flow Diagram

Phase	Number of Records
Initial search	1 350
Duplicates removed	250
Screened for relevance	1 100
Excluded at screening	800
Full-text assessed	300
Excluded after review	240
Final studies included	60

Data Extraction and Variable Description

Data were extracted from the selected studies using a standardized data extraction form. Key variables and their descriptions are summarized in table 3.

Table 3. Variable Descriptions	
Variable	**Description**
Business Models	Types of e-commerce models analyzed, such as marketplaces, drop shipping.
Technologies	Digital technologies discussed, e.g., AI, ML, blockchain.
Financial Implications	Impact on revenue models, cost structures, and profitability.
Sustainability	Inclusion of CSR, ethical practices, and environmental strategies.
Challenges	Issues such as cybersecurity threats, ethical dilemmas, and privacy concerns.
Geographic Context	Geographic focus of the study, including global or regional analysis.

Case Study Analysis

Along with the results of the literature review, three carefully chosen case studies were used to show how digital technologies can be used in e-commerce business models. There were certain factors used to make sure that the selection process covered all aspects of the digitalization trend. First, having people from a wide range of geographical areas was a top priority. This would help us learn how technology affects e-commerce businesses in various markets and regions. Second, different types and sizes of businesses were looked at, including small to medium-sized businesses (SMEs) and big companies to show a range of tactics and results. Third, the cases showed how digital technologies can change financial and operational results in a measurable way. They showed both successful applications and problems that came up during the integration process. We looked at each case's unique approach to digitalization, focusing on how adopting new technologies, financial strategies, and efforts to be more environmentally friendly all affect business efficiency and a company's ability to stay ahead of the competition.

Data Synthesis

This method linked together the information from the literature review and case study breakdowns to find important themes and links between them. The study discovered important patterns in how e-commerce business models have changed over time. These patterns show how digitization has changed how businesses are run and how they interact with customers. New technologies like AI, ML, blockchain, and big data analytics were seen as major innovators that would help companies become more efficient, customize customer experiences, and make better decisions. There is evidence that digital tools can help businesses make more money, cut costs, and work more efficiently. The study also looked at the effects on funds and operations. In addition, the review found common problems that e-commerce companies have, mostly with hacking, data privacy, and moral issues.

RESULTS

There is a lot of information in this study about how digitalization has changed e-commerce business methods. The main ideas that run through the key results are technological progress, financial effects, and sustainability. A thematic study of these areas shows how digitalization leads to new ideas, improves operational efficiency, and encourages actions that are good for society.

Technological Advancements

Digital technologies are changing e-commerce by making it easier to connect customers, run businesses more efficiently, and keep them safe. Table 4 shows a summary of these advances, which are also described below.

Table 4. Technological Advancements and Their Impact		
Technology	**Application**	**Impact**
AI and Machine Learning	Personalized recommendations, inventory forecasting	Enhanced customer engagement and operational efficiency.
Blockchain	Secure transactions, transparent supply chains	Increased customer trust and reduced fraud.
Big Data Analytics	Consumer behavior analysis	Improved marketing strategies and inventory management.
Cybersecurity	Data protection, fraud prevention	Essential for business continuity and consumer confidence.

AI and Machine Learning are key tools for making shopping more personalized. AI is used by companies like Amazon and Netflix to suggest products and material that are a good fit for each customer. This makes customers happier and more likely to stick with the company. As seen in Walmart's AI-driven supply chain optimization, predictive analytics improves inventory management even more by cutting down on overstock and gaps.

Blockchain technology makes sure that transactions are safe and that the supply chain is clear. Alibaba, for example, uses blockchain to track where products come from, which cuts down on fake goods and boosts trust in global trade.

Businesses can improve their marketing strategies by looking at trends in how customers act. Shopify, for instance, helps merchants understand what customers want and make their product lines better by using big data insights.

To keep customer info safe, you need strong cybersecurity measures. Businesses like eBay use multiple layers of security to make sure transactions are safe and to boost customer trust.

Financial Implications

E-commerce companies use digital tools to make the most money and cut costs as much as possible, which helps their finances stay stable and grow. The effects of technology on money are explained in:

Table 5. Financial Strategies and Impacts		
Financial Strategy	**Outcome**	**Example**
Digital Marketing	Improved customer acquisition and retention rates	AI-driven personalized marketing campaigns.
Operational Cost Optimization	Reduced inventory and logistics expenses	Adoption of predictive analytics tools.
Investment in Infrastructure	Long-term financial benefits	Blockchain systems for secure transactions.

Online Businesses can provide personalized marketing with AI-powered tools that make it easier to keep customers. Software-based robots and email marketing are two ways that Sephora tailors deals to the interests of its customers, which increases sales and keeps them coming back.

Predictive analytics tools lower the costs of managing warehouses and logistics. In order to cut down on waste and make the best use of its stock, Zara, a leader in fast fashion, uses these tools to figure out what people will want to buy next. Funding blockchain and AI technology makes things run more easily and safely. Collaboration between IBM and Maersk to use blockchain in global shipping is a great example of how to cut down on waste, protect transactions, and keep track of them.

Sustainability and Corporate Social Responsibility (CSR)

Sustainability efforts are becoming more important to e-commerce plans, which is in line with what customers want.

Table 6. Sustainability and CSR Practices		
Sustainability Practice	**Impact**	**Example**
Carbon-neutral Shipping	Reduced environmental footprint	Partnerships with eco-friendly couriers.
Sustainable Packaging	Increased consumer satisfaction	Biodegradable packaging materials.
Ethical Sourcing	Enhanced brand value	Compliance with fair trade certifications.

Carbon-neutral shipping is used by companies like Etsy that work with eco-friendly couriers and reduce their carbon emissions. This meets the needs of environmentally conscious customers and lowers the company's impact on the world.

Customer happiness goes up when biodegradable and recyclable materials are used. One well-known example is Amazon's "Frustration-Free Packaging" program, which aims to cut down on packaging trash and make things more environmentally friendly.

Compliance with ethical sourcing standards is becoming a cornerstone of brand value. Patagonia leads the way by ensuring fair labor practices and sustainable material sourcing, which strengthens its brand loyalty and market positioning.

The results emphasize that digitalization drives significant innovation and improvements in the e-commerce sector. Businesses adopting these technological, financial, and sustainable practices not only achieve operational efficiency and customer satisfaction but also address broader societal and environmental challenges.

Table 7. Themes and Explanations			
Theme	**Subcategory**	**Description/Explanation**	**Phenomenon/Context**
Technological Advancements	AI and Machine Learning	Facilitates personalized shopping experiences, predictive analytics, and operational optimization.	Used in platforms like Netflix and Amazon to improve customer engagement and inventory management.
	Blockchain	Ensures secure transactions, transparency in supply chains, and fraud prevention.	Adopted by Alibaba to enhance trust and mitigate counterfeit goods risks.
	Big Data Analytics	Enables detailed analysis of consumer behavior and supports data-driven decision-making.	Utilized by Shopify to refine marketing strategies and understand customer preferences.
	Cybersecurity	Protects sensitive customer data and prevents fraud.	eBay's implementation of multi-layered cybersecurity measures safeguards user information.
Financial Implications	Revenue Growth and Cost Optimization	Digital marketing improves customer acquisition; analytics reduce costs in logistics and inventory.	Zara uses predictive analytics for demand forecasting, reducing waste and improving stock management.
	Investments in Digital Infrastructure	Long-term financial benefits through technologies like AI and blockchain.	IBM-Maersk's blockchain initiatives streamline global shipping operations and ensure transaction security.
Sustainability	Environmental Practices	Carbon-neutral shipping and sustainable packaging reduce the environmental footprint.	Etsy collaborates with eco-friendly couriers to offset shipping-related carbon emissions.
	Ethical Sourcing	Enhances brand value by ensuring responsible procurement.	Patagonia's commitment to fair labor and sustainable material sourcing strengthens its market position.
	CSR Initiatives	Reflects societal and environmental responsibility, aligning with global sustainability goals.	Amazon's "Climate Pledge" focuses on achieving net-zero carbon emissions by 2040.
Challenges	Cybersecurity Risks	Increasing digital transactions heighten vulnerabilities to data breaches and fraud.	The growing adoption of online payments demands robust security measures like those in PayPal's systems.
	Data Privacy	Compliance with regulations like GDPR is crucial for consumer trust.	Companies like Facebook faced legal challenges due to non-compliance with data privacy standards.
	Ethical AI Deployment	Algorithmic biases and lack of transparency in decision-making raise ethical concerns.	Examples include controversies in AI-based credit scoring systems.
Globalization vs. Localization	Market Adaptation	Balances global reach with regional preferences and compliance.	Amazon tailors' payment options and product offerings to local markets in India and Japan.
	Cultural Sensitivity	Adapts business practices to cultural and linguistic differences.	Alibaba's expansion strategy includes localized interfaces and regional language support.

This table 7 consolidates the themes identified in the study, providing detailed descriptions of each subcategory, its implications. Technological Advancements shows how cutting-edge technologies, like AI, blockchain, and big data analytics, improve operational efficiency and customer interaction. Financial Effects section focuses on the money-saving advantages of digital tools, highlighting how to make money and cut costs by making smart investments and running processes more efficiently.

Sustainability meets the growing needs of consumers and regulators for practices that are good for the environment and ethical sources.

Challenges are that hacking, data privacy, and the ethical use of AI are important problems that need to be fixed right away in the digital age. Globalization vs. Localization explain about the need to both grow the global market and be sensitive to regional tastes, showing how important it is to be able to adjust.

DISCUSSION

The results show that digitalization has greatly changed the way standard e-commerce businesses work, leading to new ideas such as drop shipping, subscription services, and platform-based ecosystems. New technologies like artificial intelligence (AI), blockchain, and big data analytics are highly used in these models

to make operations more efficient, improve customer engagement, and make decisions more quickly. Many new business models have emerged in the world of e-commerce because of technology. These models have completely changed how companies work and how they interact with customers.

Drop shipping has become a standard way for businesses to avoid managing their inventory the old-fashioned way. This makes it much easier for new businesses to start up and lowers the risks that come with keeping goods in stock. But this model also brings complex problems with quality control and managing the supply chain, which needs a sophisticated method to keep up with product standards and delivery dates. At the same time, platform-based communities, such as those created by Amazon and Alibaba, have used network effects to change how customers can access products and make the market bigger.[50]

These platforms have not only made shopping more accessible to everyone, but they have also created a global market that breaks down walls of distance and makes it easier to do business across borders. Also, the subscription service model, which was made popular by digital content providers like Netflix and Spotify and later applied to physical goods by innovators like Dollar Shave Club, shows that businesses are moving toward building long-term relationships with customers through repeat business instead of one-time purchases. This model's success is rooted in its ability to consistently cater to evolving consumer preferences and anticipate future demands, thus ensuring customer loyalty and a steady revenue stream.[51]

The integration of AI-driven analytics has revolutionized marketing strategies and inventory management. Personalized recommendations, exemplified by platforms like Amazon and Netflix, enhance customer retention and satisfaction by tailoring experiences to individual preferences. Predictive analytics optimizes inventory forecasting, minimizing costs associated with overstock and stockouts, as evidenced by Walmart's supply chain strategies. The strategic infusion of analytics and artificial intelligence into e-commerce operations has engendered a personalized shopping ecosystem, with AI algorithms deftly analyzing customer data to tailor product recommendations and marketing strategies.[52]

Such data-driven strategies not only enhance customer experience but also propelling operational optimization. Predictive analytics, for instance, has become instrumental in fine-tuning invent-tory management and demand forecasting, as evidenced by the transformational strategies employed by leading coordination companies like UPS. The findings of Verbivska et al.[53] highlight the multifaceted impact of electronic commerce (e-commerce) on various aspects of Ukraine's economic landscape. The study reveals the significance of e-commerce in providing users with convenient access to goods and services, expanding market opportunities for business founders, and contributing to the country's GDP.

Blockchain has become an important tool for making deals safe and clear. For instance, Alibaba's blockchain-based projects show how this technology lowers the risk of fake goods and boosts customer trust. The results of this study show that these technologies have changed not only how e-commerce businesses work but also what customers expect, which has led to even more innovation in the field.

Businesses engage in digital infrastructure to stay ahead of the competition, which has big financial effects on e-commerce as it goes digital. Artificial intelligence (AI) and blockchain can have high start-up costs, but they have huge long-term benefits, such as higher profits, lower costs, and more trust from customers. Sephora's use of AI chatbots to make specific suggestions shows how digital tools can actually help businesses make more money. Predictive analytics tools have been very helpful in cutting down on operational and transportation costs. For example, Zara's use of demand forecasts tools shows how digitization cuts down on waste and makes the best use of stock levels, which backs up about the role of predictive analytics in cost management.

As e-commerce has become more computerized, cybersecurity and ethics have become very important issues. As businesses increasingly rely on digital transactions and customer data, the need for robust data protection measures and ethical practices has become non-negotiable. With the rising prevalence of data breaches, robust security protocols are essential. eBay's implementation of multi-layered security measures exemplifies how businesses can safeguard customer data. These findings emphasize the necessity of cybersecurity frameworks in maintaining consumer confidence and ensuring business continuity. The responsible deployment of AI systems, particularly in avoiding algorithmic biases, is a pressing concern. Transparency in AI-driven decision-making processes is crucial to maintaining trust. Additionally, the vast data repositories utilized to personalize customer experiences bring forth complex privacy concerns, prompting a reevaluation of data handling practices as businesses strive to align with stringent regulations like the GDPR.[54] The ethical deployment of AI is another critical area, with an imperative to address algorithmic biases and ensure transparency in automated decision-making systems, as these technologies be-come more pervasive in e-commerce operations. The notion of the fourth generation, which emerged in the 21st century amid scientific and technical advancement, is examined by Sapiński[55] in relation to the role that international organizations play in regulating and preserving such rights.

The study analyzes and identifies the rights of the fourth generation, looks into the role of international organizations in ensuring their protection, and suggests improvements to regulation and protection through the use of logical, dialectical, hermeneutical, and cognitive methods. In his investigation into the future's intellectual economy, Bushman[56] addresses the issues and tendencies arising from the continuous intellectualization of

international economic transactions. The work highlights the issues presented by changing labor needs in an intellectualized economy, the effect of information and communication technology, and the growth of international commerce in intellectual services. The discourse on sustainability and ethics in e-commerce reflects a growing consumer consciousness and a mandate for businesses to adopt environmentally friendly practices. [57] This extends beyond the adoption of sustainable packaging or carbon-neutral shipping; it encompasses a comprehensive approach towards ethical sourcing and corporate social responsibility, manifesting in initiatives that contribute positively to societal and environmental welfare.

Shlapak et al.[58] investigates into the profound impact of digitization on international trade, identifying a stark digital divide between developed and least developed countries. To enhance competitiveness, the study recommends expanding free trade agreements and updating legal frame-works to facilitate robust growth in e-commerce post-war. The focus of the paper by Karabayev et al.[59] is on how external public audits help developing nations' budgets remain financially stable. The writers stress the value of external state audits as a tool for wise resource allocation and efficient decision-making in management. It pro-poses digital tools to evaluate state audit effectiveness in developing countries, identifying problems and suggesting solutions. The study by Shakhatrekh[60] focuses on determining key strategies for developing e-commerce in Jordan while adhering to financial law regulations. Employing the method of analysis of hierarchies, the research builds a hierarchical model, providing insights into optimal e-commerce development strategies within the legal framework of Jordan. The study recognizes the constraints of examining the particulars of Jordanian financial law and e-commerce, but it also recommends that future studies examine the subtleties of e-commerce growth within global financial legal frameworks with the goal of incorporating best worldwide practices.

Sustainability has emerged as a strategic priority for e-commerce businesses, driven by increasing consumer demand for environmentally conscious practices and regulatory pressures. The integration of sustainability into business models enhances brand value while contributing to societal and environmental well-being. Initiatives like carbon-neutral shipping and sustainable packaging are becoming integral to e-commerce strategies. Etsy's partnerships with eco-friendly couriers exemplify how businesses can reduce their environmental footprint while appealing to eco-conscious consumers. These efforts align with research highlights the positive correlation between sustainable practices and consumer loyalty. CSR and ethical buying efforts, like the ones Patagonia has started, help brands stand out and build trust with customers.

The way that globalization and localization affect each other is complicated for e-commerce companies. Digital platforms make it possible to reach customers all over the world, but to expand successfully, there is need to be aware of regional tastes, cultural differences, and legal frameworks. Companies like Amazon show how to balance global and local strategies by making payment methods and product lines fit the needs of different regions. The results of this study strongly back the idea that digitalization has had a huge impact on e-commerce. It can drive innovation, improve finances, and make businesses more sustainable while also dealing with tough issues like ethics and cybersecurity. This study gives us a deeper understanding of the possibilities and challenges that e-commerce businesses face in the digital age by combining these new ideas with older research. In the future, researchers can build on these results by looking into new technologies and how they might improve e-commerce even more.

CONCLUSIONS

This study, which examines at how e-commerce business models have changed due to digitalization, accomplished the goals that were suggested. The article traced the evolution of several e-commerce business models, including subscription services, drop-shipping, and platform-based ecosystems. In particular, they discussed how they rely on cutting-edge innovation like blockchain, artificial intelligence, and big data analytics to boost productivity and interaction with customers. Scalability, network effects, and astute decision-making have become more vital to company operations as a result of these advancements.

Digitalization presents big chances to make more money and cut costs, but there are still big problems to solve, like hacking risks, data privacy issues, and moral concerns. The study stresses how important strong cybersecurity measures and the responsible use of AI are for maintaining customer trust and following the rules.

Also, incorporating sustainability into business models has become both a customer expectation and a strategic necessity. For example, carbon-neutral shipping and ethical sourcing are becoming more well-known. A key part of expanding markets successfully was also found to be finding a balance between globalization and localization. To summarize, the findings indicate that in order to remain competitive and socially responsible in the rapidly evolving digital economy, e-commerce enterprises must prioritize sustainability, address concerns related to ethics and security, and strategically plan their adoption of new technologies.

BIBLIOGRAPHIC REFERENCES

1. Volberda HW, Khanagha S, Baden-Fuller C, Mihalache OR, Birkinshaw J. Strategizing in a digital world: Overcoming cognitive barriers, reconfiguring routines and introducing new organizational forms. Long Range Plan [Internet]. 2021 May [cited 2024 Dec 13]:102110. Available from: https://doi.org/10.1016/j.lrp.2021.102110

2. Brynjolfsson E, McAfee A. The second machine age: Work, progress, and prosperity in a time of brilliant technologies. WW Norton & Company [Internet]. 2014 [cited 2024 Dec 11]. Available from: https://psycnet.apa.org/record/2014-07087-000

3. Porter ME, Heppelmann JE. How smart, connected products are transforming competition. Harv Bus Rev [Internet]. 2014 [cited 2024 Dec 11];92(11):64-88. Available from: https://hbr.org/2014/11/how-smart-connected-products-are-transforming-competition

4. Sarkar M, Ayon EH, Mia MT, Ray RK, Chowdhury MS, Ghosh BP, Al-Imran M, Islam MT, Tayaba M. Optimizing E-Commerce Profits: A Comprehensive Machine Learning Framework for Dynamic Pricing and Predicting Online Purchases. J Comput Sci Technol Stud [Internet]. 2023 Dec 15 [cited 2024 Dec 13];5(4):186-93. Available from: https://doi.org/10.32996/jcsts.2023.5.4.19

5. Zhang Q, Lu J, Jin Y. Artificial intelligence in recommender systems. Complex Intell Syst [Internet]. 2021 [cited 2024 Dec 11];7:439-57. Available from: https://link.springer.com/article/10.1007/s40747-020-00212-w

6. Xu P, et al. Blockchain as supply chain technology: considering transparency and security. Int J Phys Distrib Logist Manag [Internet]. 2021 [cited 2024 Dec 11];51(3):305-24. Available from: https://www.emerald.com/insight/content/doi/10.1108/IJPDLM-08-2019-0234/full/html

7. Munoz F, Holsapple CW, Sasidharan S. E-commerce. In: Springer Handbook of Automation [Internet]. Cham: Springer International Publishing; 2023 [cited 2024 Dec 11]. p. 1411-30. Available from: https://doi.org/10.1007/978-3-030-96729-1_67

8. Manthou V, Vlachopoulou M, Nanos I. EDI implementation: The EDI clusters Program in Greece. J Inf Technol Impact [Internet]. 2001 [cited 2024 Dec 11];2(2):71-82. Available from: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=75a284512c244e794a35e12f8fef0df069d52a5f

9. Stone B. The everything store: Jeff Bezos and the age of Amazon. Random House [Internet]. 2013 [cited 2024 Dec 11]. Available from: https://www.amazon.com/Everything-Store-Jeff-Bezos-Amazon/dp/0316219266

10. Chaffey D. E-business and E-commerce Management: Strategy, Implementation and Practice. Pearson Education [Internet]. 2007 [cited 2024 Dec 11]. ISBN: 978-0-273-75201-1

11. Thangavel P, Chandra B. Two Decades of M-Commerce Consumer Research: A Bibliometric Analysis Using R Biblioshiny. Sustainability [Internet]. 2023 [cited 2024 Dec 11];15(15):11835. Available from: https://doi.org/10.3390/su151511835

12. Turban E, King D, Lee JK, Liang TP, Turban DC. Electronic commerce: A managerial and social networks perspective [Internet]. 2015 [cited 2024 Dec 11]. Available from: https://eprints.ukh.ac.id/id/eprint/192/1/2015_Book_ElectronicCommerce.pdf

13. Gellweiler C, Krishnamurthi L. Editorial: How Digital Innovators Achieve Customer Value. J Theor Appl Electron Commer Res [Internet]. 2020 [cited 2024 Dec 13];15(1):0. Available from: https://doi.org/10.4067/s0718-18762020000100101

14. Santos-Jaén JM, Gimeno-Arias F, León-Gómez A, Palacios-Manzano M. The Business Digitalization Process in SMEs from the Implementation of e-Commerce: An Empirical Analysis. J Theor Appl Electron Commer Res [Internet]. 2023 Sep 26 [cited 2024 Dec 13];18(4):1700-20. Available from: https://doi.org/10.3390/jtaer18040086

15. Malenkov Y, Kapustina I, Kudryavtseva G, Shishkin VV, Shishkin VI. Digitalization and strategic transformation of retail chain stores: Trends, impacts, prospects. J Open Innov Technol Mark Complex [Internet]. 2021 [cited 2024 Dec 11];7(2):108. Available from: https://doi.org/10.3390/joitmc7020108

16. Butt J. A conceptual framework to support digital transformation in manufacturing using an integrated business process management approach. Designs [Internet]. 2020 [cited 2024 Dec 11];4(3):17. Available from: https://doi.org/10.3390/designs4030017

17. Faccia A, Le Roux CL, Pandey V. Innovation and E-Commerce Models, the Technology Catalysts for Sustainable Development: The Emirate of Dubai Case Study. Sustainability [Internet]. 2023 [cited 2024 Dec 11];15(4):3419. Available from: https://doi.org/10.3390/su15043419

18. Susiang MI, Suryaningrum DA, Masliardi A, Setiawan E, Abdillah F. Enhancing customer experience through effective marketing strategies: The context of online shopping. SEIKO: J Manag Bus [Internet]. 2023 [cited 2024 Dec 11];6(2):437–447. Available from: https://doi.org/10.37531/sejaman.v6i2.5235

19. Nikolenko K. Artificial Intelligence and Society: Pros and Cons of the Present, Future Prospects. Futurity Philosophy [Internet]. 2022 Jun. 30 [cited 2024 Dec. 13];1(2):54-67. Available from: https://futurity-philosophy.com/index.php/FPH/article/view/12

20. Kolinets L. International Financial Markets of the Future: Technological Innovations and Their Impact on the Global Financial System. Futurity of Social Sciences [Internet]. 2023 Sep. 20 [cited 2024 Dec. 13];1(3):4-19. Available from: https://futurity-social.com/index.php/journal/article/view/8

21. Habrat D. Legal challenges of digitalization and automation in the context of Industry 4.0. Procedia Manuf [Internet]. 2020 [cited 2024 Dec 11];51:938–42. Available from: https://doi.org/10.1016/j.promfg.2020.10.132

22. Kraus S, Jones P, Kailer N, Weinmann A, Chaparro-Banegas N, Roig-Tierno N. Digital transformation: An overview of the current state of the art of research. SAGE Open [Internet]. 2021 [cited 2024 Dec 11];11(3):215824402110475. Available from: https://doi.org/10.1177/21582440211047576

23. Choudhury RR, Phatak M, Joshi I. Artificial Intelligence in Retail: Opportunities and Challenges for the Future. Eur Econ Lett [Internet]. 2023 [cited 2024 Dec 11];13(4):921-36. Available from: https://eelet.org.uk/index.php/journal/article/view/685

24. Roslan FABM, Ahmad NB. The Rise of AI-Powered Voice Assistants: Analyzing Their Transformative Impact on Modern Customer Service Paradigms and Consumer Expectations. Q J Emerg Technol Innov [Internet]. 2023 [cited 2024 Dec 11];8(3):33-64. Available from: https://vectoral.org/index.php/QJETI/article/view/19

25. Sikder AS. Blockchain-Empowered E-commerce: Redefining Trust, Security, and Efficiency in Digital Marketplaces in the Context of Bangladesh. Int J Immin Sci Technol [Internet]. 2023 [cited 2024 Dec 11];1(1):216–35.

26. Saritas O, Bakhtin P, Kuzminov I, Khabirova E. Big data augmented business trend identification: The case of mobile commerce. Scientometrics [Internet]. 2021 [cited 2024 Dec 11];126(2):1553–79. Available from: https://doi.org/10.1007/s11192-020-03807-9

27. Taneja B. The digital edge for M-commerce to replace E-commerce. In: Emerging challenges, solutions, and best practices for digital enterprise transformation. IGI Global [Internet]. 2021 [cited 2024 Dec 11]. p. 299–318. Available from: https://www.igi-global.com/chapter/the-digital-edge-for-m-commerce-to-replace-e-commerce/275713

28. Yeung J, Wong S, Tam A. Data Analytics Architectures for E-Commerce Platforms in Cloud. Int J Appl Inf Manag [Internet]. 2021 [cited 2024 Dec 11];1(1):1-5. Available from: https://ijaim.net/journal/index.php/ijaim/article/view/3

29. Furr N, Shipilov A, Rouillard D, Hemon-Laurens A. The 4 pillars of successful digital transformations. Harvard business review [Internet]. 2022 Jan 28 [cited 2024 Dec 13]; Available from: https://hbr.org/2022/01/the-4-pillars-of-successful-digital-transformations

30. Charles O. Success factor-based business models for e-commerce platform providers [Internet]. Doctoral dissertation, University of Northumbria at Newcastle, United Kingdom. 2021 [cited 2024 Dec 11]. Available from: https://www.proquest.com/openview/db9398498575723f56ed360432ecb9d6/1?pq-origsite=gscholar&cbl=2026366&diss=y

31. Jelassi T, Martínez-López FJ. Strategies for e-Business: Concepts and Cases on Value Creation and Digital Business Transformation [Internet]. 4th ed. 2020 [cited 2024 Dec 11];467–500. Available from: https://dokumen.

pub/strategies-for-e-business-concepts-and-cases-on-value-creation-and-digital-business-transformation-4nbs ped-3030489493-9783030489496.html

32. Schneider R, Imai J. User-based valuation of digital subscription business models. Int J Real Options Strategy [Internet]. 2020 [cited 2024 Dec 11];8:1–26. Available from: https://www.jstage.jst.go.jp/article/ ijros/8/0/8_1/_article/-char/ja/

33. Botsman R, Rogers R. What's mine is yours: The rise of collaborative consumption [Internet]. 2010 [cited 2024 Dec 11]. Available from: https://tantor-marketing-assets.s3.amazonaws.com/sellsheets/1920_ MineIsYours.pdf

34. Bhuyan BP, Singh M. Introduction to crowdsourcing. In: Social Media and Crowdsourcing. Auerbach Publications [Internet]. 2024 [cited 2024 Dec 11];1–31. Available from: https://www.taylorfrancis.com/ chapters/edit/10.1201/9781003346326-1/introduction-crowdsourcing-bikram-pratim-bhuyan-manisha-singh

35. Afroz Lari H, Vaishnava K, KS M. Artificial intelligence in e-commerce: Applications, implications and challenges. Asian J Manag [Internet]. 2022 Jul 18 [cited 2024 Dec 13];235–44. Available from: https://doi. org/10.52711/2321-5763.2022.00041

36. Arora A, Sharma M, Bhaskaran S. Blockchain technology transforms e-commerce for enterprises. In: Data Science and Analytics [Internet]. Singapore: Springer Singapore; 2020 [cited 2024 Dec 12];26–34. Available from: https://doi.org/10.1007/978-981-15-5830-6_3

37. Sadeeq MA, Abdulla AI, Abdulraheem AS, Ageed ZS. Impact of electronic commerce on enterprise business. Technol Rep Kansai Univ [Internet]. 2020 Jun [cited 2024 Dec 13];62(5):2365–78. Available from: https://www. researchgate.net/publication/342550767

38. Dutta P, Choi T-M, Somani S, Butala R. Blockchain technology in supply chain operations: Applications, challenges and research opportunities. Transp Res Part E: Logist Trans Rev [Internet]. 2020;142(102067):102067. Available from: http://dx.doi.org/10.1016/j.tre.2020.102067

39. Bosri R, Rahman MS, Bhuiyan MZA, Al Omar A. Integrating blockchain with artificial intelligence for privacy-preserving recommender systems. IEEE Trans Netw Sci Eng [Internet]. 2021 [cited 2024 Dec 13];8(2):1009–18. Available from: https://doi.org/10.1109/tnse.2020.3031179

40. Solomon MR. Consumer Behaviour, Buying, Having and Being. 6th ed. Pearson Prentice Hall [Internet]. 2004 [cited 2024 Dec 13]. Available from: https://www.scirp.org/reference/referencespapers?referenceid=3100852

41. Pine BJ, Gilmore JH. The experience economy. Harvard Business Press [Internet]. 2011 [cited 2024 Dec 13]. Available from: https://hbr.org/1998/07/welcome-to-the-experience-economy

42. Sibghatullah Shah S, Serna RJ, Sepúlveda Delgado O. Modelling the influence of social learning on responsible consumption through directed graphs. Electron Res Arch [Internet]. 2023 [cited 2024 Dec 13];31(9):5161–206. Available from: https://doi.org/10.3934/era.2023264

43. Israfilzade K, Guliyeva N. Cross-Generational Impacts of Digital Remarketing: An Examination of Purchasing Behaviours among Generation Z and Generation Y. Futurity Economics&Law [Internet]. 2023 Jun. 25 [cited 2024 Dec. 13];3(2):96-117. Available from: https://www.futurity-econlaw.com/index.php/FEL/article/ view/109

44. Ovcharova S. On the Relationship between Digitalization and the National Model of the Smart Economy to Achieve Strategies for Innovative Progress. Futurity Economics&Law [Internet]. 2022 Sep. 25 [cited 2024 Dec. 13];2(3):60-76. Available from: https://www.futurity-econlaw.com/index.php/FEL/article/view/41

45. Abdullayeva M, Ataeva N. Mortgage Lending with the Participation of the Construction Financing Fund of the Bank of the Future: A Literature Review. Futurity Economics&Law [Internet]. 2022 Mar. 25 [cited 2024 Dec. 12];2(1):50-65. Available from: https://www.futurity-econlaw.com/index.php/FEL/article/view/71

46. Nurgaliyeva A, Ismailova D, Sarybayeva I. Regarding the Prospects for the Introduction of the Budgeting System of International Financial Organizations of the Future (Kazakhstan). Futurity Economics&Law [Internet].

2022 Sep. 25 [cited 2024 Dec. 13];2(3):77-94. Available from: https://www.futurity-econlaw.com/index.php/FEL/article/view/59

47. Kahneman D. Thinking, fast and slow. Macmillan [Internet]. 2011 [cited 2024 Dec 13]. ISBN: 978-0374275631.

48. Saprikis V, Markos A, Zarmpou T, Vlachopoulou M. Mobile shopping consumers' behavior: An exploratory study and review. J Theor Appl Electron Commer Res [Internet]. 2018 [cited 2024 Dec 13];13(1):71–90. Available from: https://doi.org/10.4067/s0718-18762018000100105

49. Shah SS, Serna RJ, Delgado OS. Modelling the influence of social learning on responsible consumption through directed graphs. Electron Res Arch [Internet]. 2023 [cited 2024 Dec 13];31(9):5161–206. Available from: https://doi.org/10.3934/era.2023264

50. Beaumier G, Kalomeni K, Campbell-Verduyn M, Lenglet M, Natile S, Papin M, et al. Global regulations for a digital economy: Between new and old challenges. Glob Policy [Internet]. 2020 [cited 2024 Dec 13];11(4):515–22. Available from: https://doi.org/10.1111/1758-5899.12823

51. Chen L, Dai Y, Ren F, Dong X. Data-driven digital capabilities enable servitization strategy——From service supporting the product to service supporting the client. Technol Forecast Soc Change [Internet]. 2023;197(122901):122901. Available from: http://dx.doi.org/10.1016/j.techfore.2023.122901

52. Fatima S, Desouza KC, Dawson GS. National strategic artificial intelligence plans: A multi-dimensional analysis. Econ Anal Policy [Internet]. 2020 [cited 2024 Dec 13];67:178–94. Available from: https://doi.org/10.1016/j.eap.2020.07.008

53. Verbivska L, Zhuk O, Ievsieieva O, Kuchmiiova T, Saienko V. The role of e-commerce in stimulating innovative business development in the conditions of european integration. Financial and Credit Activity Problems of Theory and Practice [Internet]. 2023 Jun. 30 [cited 2024 Dec. 13];3(50):330-4. Available from: https://fkd.net.ua/index.php/fkd/article/view/3930

54. Haddara M, Salazar A, Langseth M. Exploring the impact of GDPR on big data analytics operations in the e-commerce industry. Procedia Comput Sci [Internet]. 2023 [cited 2024 Dec 13];219:767–77. Available from: https://doi.org/10.1016/j.procs.2023.01.350

55. Sapinski A. Analysis of the Role of International Organizations in the Process of Regulating the Rights of the Fourth Generation: The Main Directions, the Challenges of the Time. Futur Econ [Internet]. 2022 Jun. 25 [cited 2024 Dec. 13];2(2):20-34. Available from: https://www.futurity-econlaw.com/index.php/FEL/article/view/53

56. Bushman I. The development of the intellectual economy of the future: trends, challenges of the future. Futurity Economics & Law [Internet]. 2021 Sep. 25 [cited 2024 Dec. 13];1(3):33-42. Available from: https://www.futurity-econlaw.com/index.php/FEL/article/view/29

57. Kavas E. Effect and importance of green logistics towards purchase behaviours of consumers in e-commerce. In: Global Street Economy and Micro Entrepreneurship. Emerald Publishing Limited [Internet]. 2020 [cited 2024 Dec 13];103:147–57. Available from: https://doi.org/10.1108/S1569-375920200000103021/full/html

58. Shlapak A, Yatsenko O, Ivashchenko O, Zarytska N, Osadchuk V. Digital transformation of international trade in the context of global competition: Technological innovations and investment priorities. Financ Credit Act Probl Theory Pract [Internet]. 2023 [cited 2024 Dec 13];6(53):334–47. Available from: https://doi.org/10.55643/fcaptp.6.53.2023.4241

59. Karabayev EB, et al. The role of external public audit in ensuring the financial stability of the budgets of developing countries. Public Policy Adm [Internet]. 2021 [cited 2024 Dec 13];20(1):108–17. Available from: https://www.ceeol.com/search/article-detail?id=951626

60. Shakhatrekh HDM. Development of electronic commerce within the framework of compliance with financial law. Financ Credit Act Probl Theory Pract [Internet]. 2023 [cited 2024 Dec 13];4(51):429–39. Available from: https://doi.org/10.55643/fcaptp.4.51.2023.4123

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Ganna Kolomiyets, Volodymyr Rodchenko.
Data curation: Olga Melentsova, Vladyslav Korol.
Formal analysis: Maryna Moskalenko, Vladyslav Korol.
Research: Ganna Kolomiyets, Olga Melentsova.
Methodology: Volodymyr Rodchenko, Maryna Moskalenko.
Project management: Ganna Kolomiyets.
Software: Vladyslav Korol.
Supervision: Volodymyr Rodchenko.
Validation: Olga Melentsova, Maryna Moskalenko.
Display: Vladyslav Korol.
Drafting - original draft: Ganna Kolomiyets, Maryna Moskalenko.
Writing - proofreading and editing: Volodymyr Rodchenko, Olga Melentsova.