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E-Commerce 3.0: Integrating Mobile, Social and Omnichannel Trade into Digital Entrepreneurship

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ABSTRACT

The relevance of the study lies in the fact that E-commerce 3.0 represents a new phase in the digital transformation of trade and entrepreneurship, driven by the integration of mobile, social, and omnichannel commerce into a unified customer interaction platform. Over recent years, the growing importance of digital channels and shifts in consumer preferences have necessitated the adaptation of modern enterprises to new market demands, where traditional approaches to customer management and interaction are no longer effective. In Ukraine, where the development of e-commerce is gaining new momentum, the integration of modern digital solutions is particularly important for ensuring the competitiveness of enterprises in a global environment. The study aims to substantiate an integrated E-commerce 3.0 model, incorporating mobile, social, and omnichannel solutions for managing customer experience and data analytics. The paper proposes an enterprise readiness assessment system for digital integration. Using analytical, comparative, and structural–logical methods, the study synthesizes academic and industry sources from 2024–2025 and develops a digital maturity matrix of E-commerce 3.0 (dimensions: mobile, social, omni). The results reveal a clear relationship between the level of omnichannel coherence, the sophistication of customer data analytics (CDP/DWH, AI models), and key business indicators: increased conversion rates, repeat-purchase frequency, improved unit economics, reduced service costs, and faster response times. Practical priorities for digital investment are outlined, including mobile interaction, social-commerce tools, and a unified data layer supporting assortment management, pricing, and last-mile logistics. The conclusion is that the integrated E-commerce 3.0 architecture creates a client-centric decision-making system and can serve as a methodological basis for further quantitative studies on the relationship between channel integration and the financial performance of trade and distribution enterprises.

KEYWORDS

e-commerce 3.0, digital entrepreneurship, mobile commerce, social commerce, omnichannel strategy, trade organization, customer-data analytics, digital transformation.

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СОЦІАЛЬНИЙ РОЗВИТОК: економіко-правові проблеми

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Електронна комерція (e-commerce) 3.0: інтеграція мобільної, соціальної та омніканальної торгівлі у цифрове підприємництво

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СТАТТЯ

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АНОТАЦІЯ

Актуальність дослідження полягає в тому, що E-commerce 3.0 є новим етапом розвитку електронної комерції, який зумовлений інтеграцією мобільної, соціальної та омніканальної торгівлі в єдину платформу для взаємодії з клієнтами. За останні роки, зростання значення цифрових каналів і зміни у споживчих перевагах вимагають адаптації сучасних підприємств до нових вимог ринку, де традиційні підходи до управління та взаємодії з клієнтами вже не є ефективними. В Україні, де розвиток електронної комерції набуває нових темпів, інтеграція сучасних цифрових рішень стає особливо важливою для забезпечення конкурентоспроможності підприємств у глобальному середовищі. Метою дослідження є розробка інтегрованої моделі E-commerce 3.0, яка включає мобільні, соціальні та омніканальні рішення для управління клієнтським досвідом і аналізу даних. У роботі пропонується система оцінки цифрової зрілості підприємств, яка допомагає зрозуміти, як впровадження нових технологій може покращити не лише внутрішні процеси, але й взаємодію з кінцевим споживачем. У процесі дослідження проведено аналіз існуючих моделей цифрової торгівлі, розроблено матрицю цифрової зрілості E-commerce 3.0 і оцінено роль різних технологій, зокрема, Customer Data Platforms (CDP), Data Warehouses (DWH) та інструментів штучного інтелекту для прогнозування споживчих запитів і зниження витрат. Досліджено вплив мобільних додатків, соціальних мереж та омніканальних платформ на підвищення лояльності клієнтів, збільшення частоти покупок і поліпшення ефективності операцій. Висновки свідчать про те, що цифрова інтеграція E-commerce 3.0 дозволяє підприємствам не лише автоматизувати взаємодію з клієнтами, а й створювати нові можливості для персоналізації обслуговування. Водночас, для досягнення успіху необхідно забезпечити ефективну синергію між технологіями та організаційними процесами. Українські підприємства вже активно впроваджують окремі елементи цієї моделі, проте для успішної реалізації в повному обсязі потрібно подолати ряд бар'єрів, серед яких – недостатній рівень цифрової зрілості, відсутність узгоджених стандартів і кадрові проблеми.

КЛЮЧОВІ СЛОВА

електронна комерція 3.0, цифрове підприємництво, мобільна торгівля, соціальна комерція, омніканальна стратегія, організація торгівлі, аналітика клієнтських даних, цифрова трансформація.

1. Introduction

The global economy is entering a phase when e-commerce is no longer just a sales channel – it becomes a medium for the formation of a new business logic. What was called "online commerce" a decade ago is now transforming into a complex network of digital platforms integrated between mobile apps, social media, and physical touchpoints. It is this integration that forms the phenomenon that is increasingly referred to as E-commerce 3.0 – a stage where the digital presence of a business not only reflects its activities, but determines the ways of creating value.

The relevance of the topic is due not only to the speed of technological changes but also to the deep behavioral shifts of consumers. The generation of users who were born with a phone in their hands expects instant communication, personal experience and continuity of service – whether they buy in a mobile application or visit the sales floor. For enterprises, this means the need not just to "be online", but to create a unified digital commerce architecture where customer data analytics, mobile interaction, and omnichannel experiences become the core of competitive advantage.

Scientific interest in the problems of E-commerce 3.0 is due to the fact that this stage of development does not have an established theoretical model. If previous waves of e-commerce described technological progress (E-commerce 1.0 – online stores, E-commerce 2.0 – marketplaces), now the digital integration of entrepreneurship comes to the fore: the ability of businesses to synchronize digital channels with logistics, marketing and customer analytics. This shifts the focus from technical solutions to managerial competencies and strategic models that ensure resilience in a changing environment.

The problem is that the majority of domestic enterprises perceive e-commerce mainly as an "additional sales channel", not realizing its systemic potential in creating value. At the same time, the experience of international companies proves that mobile, social and omnichannel integration allows not only to increase sales, but also to form a new logic of relations between the enterprise and the consumer – based on data, trust and quick adaptation.

2. Literature Review

In the modern scientific discussion, the integration of mobile, social and omnichannel commerce is considered a key factor in the formation of the E-commerce 3.0 stage. In the works of B. Alexander and R. Varley, it is show that the combination of physical and digital consumer experience forms new "territories" of interaction with the buyer and rethinks the role of trade formats [2]. The study of H. Mehrabi et al. emphasizes the need to develop the analytical capacity of enterprises – the ability to work with customer data to make managerial decisions in the digital environment [15]. A similar conclusion is confirmed by M. A. Hossain et al., who propose a toolkit for evaluating "customer analytics" as a bridge between platform logic and the operational activities of the enterprise [11].

Behavioral differences between users of mobile devices and desktop computers are analyzed in detail in the work of A. Goldstein and Ch. Hajaj. It is shown that the difference in conversion paths requires a specific interaction design and measurement of channel performance [9]. In the field of social commerce (sales through social networks), an extended model of technology adoption for consumers is presented in the work of P. Sarker and colleagues [22]. The risks and limits of omnichannel are substantiated by S. M. Rahman and co-authors: without proper synchronization of sales, service and logistics processes, operating costs increase, and consequently, the economics of channel integration deteriorate [19]. A case study in the fashion segment (B. Khalid) confirms that customer satisfaction is formed due to the consistency of all points of contact, and not individual channels [13].

Analytical reports from leading organizations and companies complement the academic base. According to an analytical report by Deloitte, the key drivers of retail growth in 2025 are related to mobile transactions, social interaction, and personalization of offers [7; 8]. The Organization for Economic Co-operation and Development (OECD) outlines regulatory trends in digital trade – from cross-border data flow to transparency and security requirements – that define the framework for business models in different jurisdictions [17; 18]. McKinsey shows how AI-powered personalization is transforming marketing approaches, increasing the effectiveness of real-time offers [14], while industry

reviews of Shopify and GS1 US record an acceleration of the transition to mobile and omnichannel interaction scenarios [23; 10].

In the Ukrainian context, several publications note the role of C2C marketplaces in sustainable development and describe the mechanisms of digital innovations that reduce costs and strengthen the competitive advantages of enterprises; These conclusions are presented as applied guidelines for the transformation of trade practices [4; 5]. A separate co-author's work devoted to the influence of macroeconomic factors (in particular, inflation) on economic dynamics emphasizes the indirect influence of the external environment on consumer behavior and the structure of electronic demand [12].

Summing up, the available sources convincingly prove the importance of each of the components – mobile, social and omnichannel – for the effectiveness of e-commerce. At the same time, there is a lack of a comprehensive model that connects these three areas with the organizational and economic mechanisms of entrepreneurship, logistics and data management. It is this gap that determines the research niche that the E-commerce 3.0 concept proposed in our article is designed to fill.

3. Problem Statement

Based on the results of the literature analysis, we can conclude that modern e-commerce is at the stage of transition from a multi-channel presence to a true digital integration of business processes. Despite a significant number of studies that reveal certain aspects of mobile commerce, social interaction and omnichannel, there is still a lack of a comprehensive approach to defining the organizational and economic mechanisms of E-commerce 3.0 in the scientific plane.

The main problem is the lack of a holistic vision of how the combination of mobile, social and omnichannel tools transforms entrepreneurial activity and creates added value in the digital environment. For trade and distribution enterprises, this issue is of particular importance, since competitiveness, speed of customer service and financial results depend on the effectiveness of such integration.

The article is aimed at scientific substantiation of the concept of E-commerce 3.0 as an integrated model of digital entrepreneurship that combines mobile, social and omnichannel channels of interaction with customers, as well as the development of analytical guidelines for assessing the level of readiness of enterprises to implement this model.

To achieve the goal, it is necessary to solve the following tasks:

1. To clarify the essence and structure of the concept of "E-commerce 3.0" in the context of the evolution of e-commerce.
2. To identify the key economic and organizational factors that ensure the successful integration of mobile, social and omnichannel trade.
3. To develop a generalized model of digital integration in the field of entrepreneurship.

To offer practical directions for the implementation of this model for trade and distribution enterprises, taking into account modern technological trends.

4. Methods and Materials

The methodological approach of this article is based on an interdisciplinary combination of economic theory, digital technologies and management practices. The focus is not on individual tools of e-commerce, but on its systematic integration into the architecture of entrepreneurship. This led to the use of several methods that allow describing, interpreting and explaining the processes of transformation of business models under the influence of digitalization.

Firstly, a conceptual and analytical method was applied, which provided a rethinking of the concept of E-commerce 3.0 in the context of modern economic dynamics. Through the synthesis of approaches of different schools – from the classical theory of entrepreneurship to the digital data economy – a framework vision of this stage has been formed as a logical continuation of the previous phases of the evolution of e-commerce.

Secondly, structural and logical modeling is used to build a generalized scheme of integration of mobile, social and omnichannel trade into entrepreneurial processes. The model allows you to trace the

connection between interaction channels, data flows and the results of the enterprise, as well as to identify critical points of digital maturity.

Thirdly, the work uses a comparative and analytical method, which makes it possible to compare international practices of digital commerce with national conditions for trade development. At the same time, materials from Deloitte, OECD, McKinsey, Shopify and other analytical sources were used, reflecting the real processes of integrating digital technologies into retail and distribution activities.

An important part of the methodology was the system analysis of managerial decisions in the digital environment. It made it possible to determine how mobile applications, social platforms, and customer data analytics are shaping new decision-making logic – from strategic planning to daily operational interaction with consumers.

The information base of the study was academic publications in professional journals (Journal of Retailing, Technological Forecasting & Social Change, Journal of Business Research), analytical reports of international organizations (OECD, WTO), industry research of leading consulting companies (Deloitte, McKinsey, Amperity) and the results of the author's analysis of open data on the dynamics of the e-commerce market in 2023–2025. Industry reviews of CDP Institute customer data [3] and Adobe digital retail trends [1] were used to confirm the dynamics. An overview of US legislative initiatives on digital trade is also summarized in a study by the Congressional Research Service [6].

The combination of theoretical and applied methods made it possible to provide not only a descriptive, but also a diagnostic and analytical nature of the study, aimed at identifying patterns that determine the success of integrating digital channels into entrepreneurial models.

5. Results and Discussion

In the works of modern scientists, theoretical and methodological approaches to defining the essence of e-commerce as a component of the digital economy have been formed [2; 7; 11; 17]. Based on these developments, we will consider the evolution of its stages – from the initial models of E-commerce 1.0, which were based on one-way interaction between the seller and the buyer, to the modern stage of E-commerce 3.0, where an integrated digital ecosystem of entrepreneurship is being formed. This approach allows us to realize how changes in technological, socio-economic and behavioral factors determined a new logic for the organization of trade processes.

E-commerce in its first forms (1.0) was characterized mainly by the automation of transactions and the emergence of online stores as a new distribution channel. The main technological drivers were the development of websites, electronic payment systems, and the first CRM solutions. However, this model remained one-sided: the consumer played the role of a passive user, and marketing communications were predominantly massive.

The E-commerce 2.0 stage was associated with the emergence of social networks, the growing role of the mobile Internet and personalized advertising. Business models began to shift from transactional to relational, which involved establishing long-term relationships with customers. According to research by Deloitte and Statista, it was during this period (2010–2018) that the largest increase in the share of online shoppers was observed, due to the spread of mobile technologies and social commerce.

The current stage of E-commerce 3.0 is formed under the influence of the intellectualization of business processes, the merger of mobile, social and omnichannel commerce. Its essence is to create a comprehensive environment where customer experience is a central element of the enterprise's digital ecosystem. Enterprises are implementing integrated CDP platforms (Customer Data Platform), analytics based on artificial intelligence, as well as automated logistics solutions that allow achieving a high level of personalization. Some surveys of frontline staff confirm an increase in customer expectations for seamless service [16]. This trend is confirmed by publications of leading media, which record an increase in the share of real-time purchases [26].

The generalized characteristics of the main stages of e-commerce development are presented in Table 1.

Table 1. Evolution of the stages of development of e-commerce

Development stage	Formation period*	Main characteristics	Key Technologies	Dominant business model
E-commerce 1.0	1995–2005	The beginning of online trading, the creation of web stores, and the emergence of the first payment systems	HTML sites, email, payment gateways, basic CRM	Transactional (sale of goods through the site)
E-commerce 2.0	2006–2018	Socialization of trade, development of marketplaces, and use of mobile platforms	Social networks, mobile applications, Big Data, targeting	Relational (building relationships with the client, personalization)
E-commerce 3.0	≈2019–present	Integration of mobile, social, and omnichannel commerce; Focus on customer experience	Artificial Intelligence, Customer Data Platform, Automated Logistics	Integrated (digital entrepreneurship, customer value management)

Source: Stage periods are an analytical interpretation based on sources [2; 7; 8; 10; 14; 17; 18; 23] and reflect the dominant technological and organizational characteristics of the relevant phases of e-commerce development.

At the same time, E-commerce 3.0 is not just about technological updates. This is a qualitatively new phase of digital transformation of entrepreneurship, where analytical, logistics, marketing and management processes are integrated. Such integration creates prerequisites for the emergence of "smart" business models, in which information flows are interconnected with operational decisions, and the client becomes an active co-creator of value.

As shown in Table 1, the development of e-commerce is progressive. The first stages focused on automating sales and transactions, while the modern phase of E-commerce 3.0 is characterized by integrating data, analytics, mobile, and social channels into a single ecosystem of digital entrepreneurship.

In particular, unlike the previous stages, where the main goal was to optimize transactions, E-commerce 3.0 is aimed at building long-term digital loyalty based on an analytical understanding of consumer behavior and seamless interaction between all channels – online and offline. This involves the use of single customer ID systems, automated personalization scripts, and multi-channel dashboards.

Thus, modern e-commerce is transforming from a purely commercial form of activity into a multi-level customer experience management system, which combines technology, marketing, analytics and logistics. This process marks the transition from simple "network trading" to the concept of digital entrepreneurship, in which data acts as a strategic asset and a source of competitive advantage.

The development of e-commerce to stage 3.0 is accompanied by a change not only in technological means, but also in the logic of building entrepreneurial systems. If the previous phases were focused mainly on improving sales channels, then the modern model is based on the creation of a single digital architecture, which combines communication channels, analytics tools, and customer experience management processes. According to an analytical review by SmartCommerce, more than half of shoppers believe that the lack of a single user profile makes it difficult to interact with a brand [24].

Studies of leading analytical companies confirm that the integration of three areas – mobile, social and omnichannel trade – has become a basic condition for business competitiveness in the digital age [7; 8; 14]. Within E-commerce 3.0, these components form an interconnected system of value creation, where customer data circulates in a closed cycle "collection – analytics – personalization – interaction – loyalty".

Mobile commerce has become a key point of contact between the enterprise and the consumer. It provides instant access to the product, personalized recommendations, and a flexible communication system. McKinsey analytics show that more than 70% of e-purchases in 2025 are made through mobile devices, and the conversion rate in mobile applications is on average 30% higher than in browser versions [14].

Social commerce is becoming not only a sales tool, but also a space for forming communities. As noted by S. M. Rahman et al. and P. Sarker et al., social platforms have turned into full-fledged marketplaces, where interaction between users creates trust, which previously required significant branding costs [19; 22]. The introduction of elements of gamification, streaming sales, and content

integration changes the traditional marketing model, focusing it on the active participation of the consumer in the process of creating value.

Omnichannel commerce is the third key element of the E-commerce 3.0 model. It ensures the continuity of interaction between online and offline channels: the buyer can start the process in the mobile application, continue on the social network, and complete the purchase in the physical store. Research by B. Khalid and M. Weippert shows that effective omnichannel is directly correlated with customer satisfaction and long-term profitability [13; 28].

Thus, the integrated E-commerce 3.0 model can be presented as a system of three interconnected blocks – mobile, social and omnichannel commerce – united by a single information loop and platform solutions for customer data management (Customer Data Platform, CDP). On their basis, coordinated analytics, personalization of offers, automated logistics, and synchronization of pricing policies are formed.

As shown in Table 2, the key elements of E-commerce 3.0 form a complete integrated system.

Table 2. Key components of E-commerce 3.0 integration

System Component	Content and functional role	Technologies used	Expected implementation results
Mobile Trading	Provides instant access to products and services, personalized offers, and fast payments via mobile apps	Mobile platforms, apps, push notifications, mobile analytics	Increase in the frequency of purchases, increase in conversion rates and user loyalty
Social Trading	Realization of sales through social networks, content integration and interaction between users	Social Media Platforms, Marketplace Integration, Gamification, Content Marketing	Increase trust, increase audience reach, form brand communities
Omnichannel Trading	Ensures continuity of customer experience between all channels of interaction - online and offline	CDP platforms, ERP systems, automated logistics, consumer behavior analytics	Reduction of losses in the purchase process, synchronization of pricing policy, increase in profitability
Intelligent analytics and personalization	Formation of predictive customer behavior, customer life cycle management	Artificial Intelligence, Machine Learning, Big Data, Predictive Analytics	Optimization of marketing costs, increasing the accuracy of offers, increasing the average check

As can be seen from the content of Table 2, the effectiveness of modern e-commerce is determined by the complexity of integration, when mobile, social and omnichannel trade do not function in isolation, but as complementary components of a single digital ecosystem. As a result, e-commerce is becoming not only a sales channel but a platform for the development of digital entrepreneurship.

The architecture of the integrated E-commerce 3.0 model (Figure 1) covers five agreed levels: channels of interaction with the consumer; customer experience orchestration (coordinated management of customer journey crossings across channels); data and analytics (CDP/DWH, artificial intelligence models); operating core (OMS/ERP/WMS/TMS); and management and control. Bidirectional flows between the data layers, orchestration, and operations provide real-time personalization and "training" of the system based on the results of order fulfillment.

The presented model (Figure 1) reflects five interconnected levels of digital architecture: interaction channels; Orchestration of customer experience (i.e., alignment of all user touchpoints), data and analytics (CDP/DWH, AI models); operating core (OMS/ERP/WMS/TMS); and management and control. Bidirectional flows between the data, orchestration, and operations layers provide real-time personalization and system training based on the results of completed orders, which directly increase key performance metrics such as responsiveness, demand accuracy, and customer retention.

Research by Deloitte and OECD shows that in the digital economy, the degree of integration of analytical and operational processes directly correlates with business productivity indicators [7; 18]. Businesses with high levels of digital maturity demonstrate more flexible logistics, faster responsiveness to changes in demand, and reduced transaction costs. In this context, E-commerce 3.0 can be considered as the highest phase of the evolution of digital entrepreneurship, where the level of technological integration determines not only competitive advantages, but also the ability to innovative self-development.

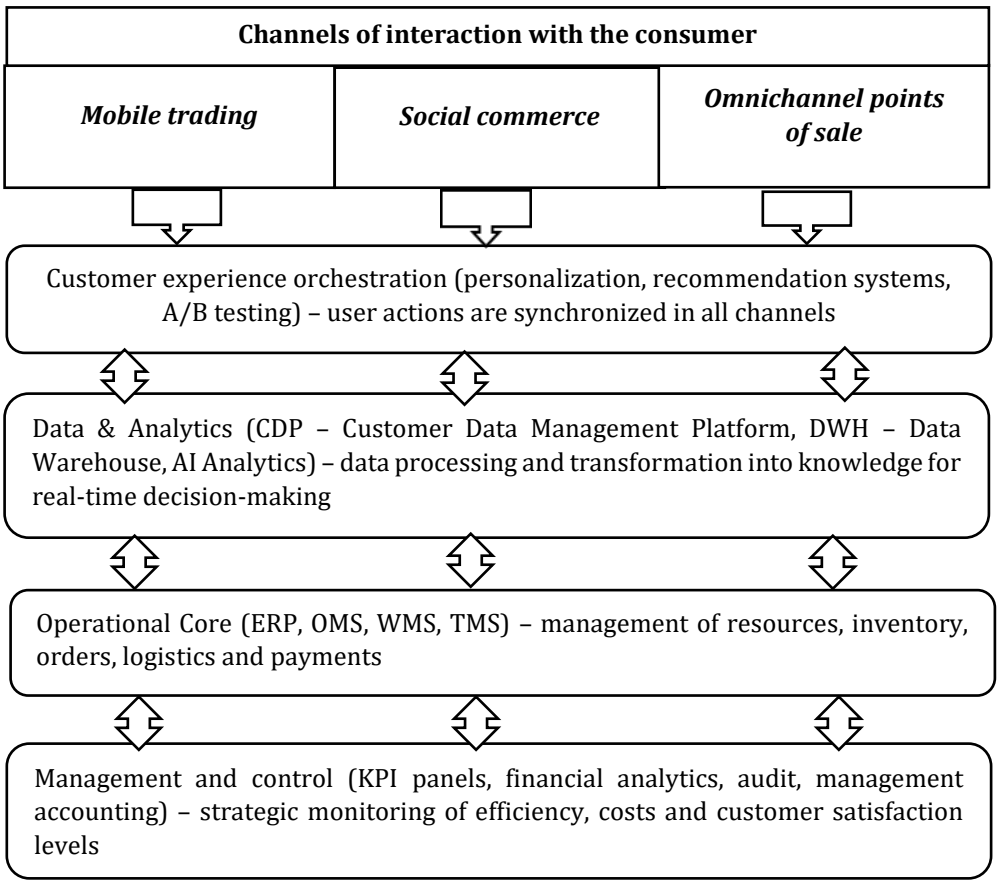

Figure 1. Architecture of the integrated E-commerce 3.0 model

To assess the digital maturity of enterprises, a model is proposed that takes into account five levels of development, from basic digital presence to full integration of data, processes and analytics. It is shown in Figure 2, where the interdependence between the degree of digital maturity and the effectiveness of the enterprise can be traced.

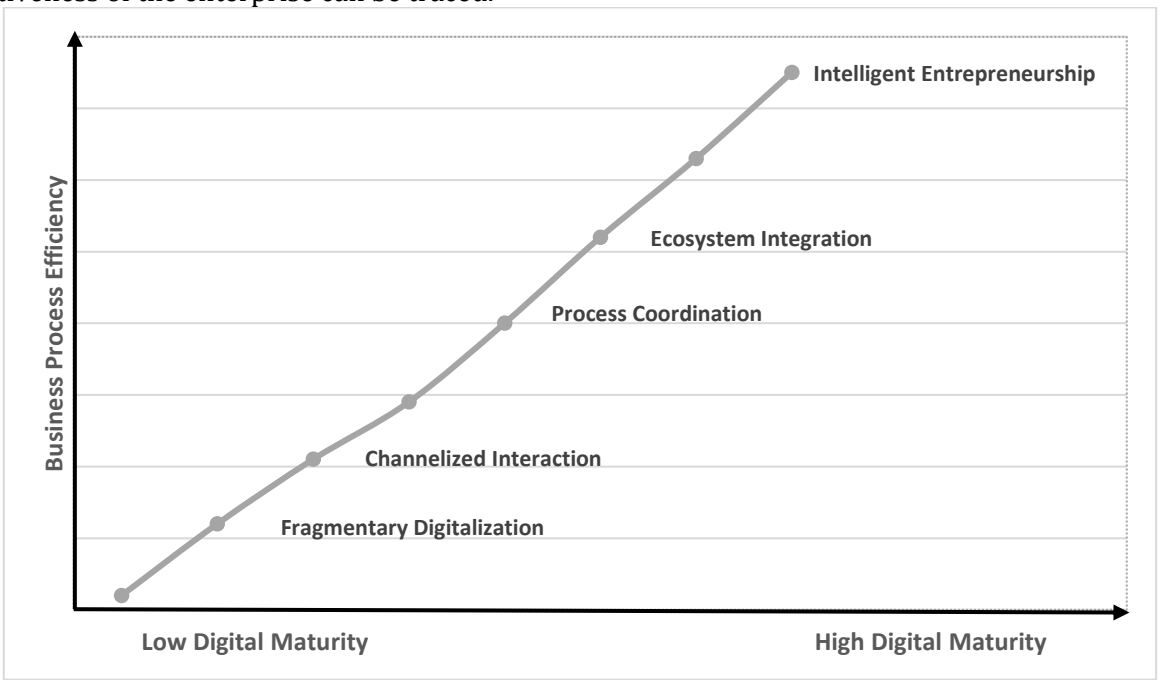

Figure 2. Interdependence of the level of digital maturity of the enterprise and the efficiency of its business model

Figure 2 demonstrates that the growth of the level of digital integration directly correlates with an increase in productivity indicators, in particular, the effectiveness of acquisition channels and the reduction of customer service costs (cost-to-serve)

The above diagram shows five successive levels of maturity:

1. Fragmented digitalization, when the company only implements basic tools of online presence (website, electronic payments).
2. Channeled interaction, which involves the use of several digital channels without intersystem integration.
3. Coordination of processes, CRM systems, customer data analytics, synchronization of part of the processes appear at this level.
4. Integration into a single ecosystem where mobile, social, and omnichannel commerce are connected by a common data platform (CDP) and common analytical logic.
5. Intelligent entrepreneurship, where the system becomes self-organized: AI (Artificial Intelligence) algorithms predict demand, automatically optimize supply chains, and personalize communications with customers.

The transition between levels is accompanied not only by technological changes, but also by the transformation of management approaches. According to McKinsey and Turki research, only enterprises that combine technological modernization with restructuring of business processes demonstrate a significant increase in efficiency indicators [14; 25]. This suggests that digital maturity is not a final state, but a continuous process of adaptation to market dynamics and consumer behavior.

For a visual display of the criteria for assessing digital maturity, Table 3 provides a generalized maturity matrix of E-commerce 3.0. In it, enterprises are classified according to the main areas – technological infrastructure, channel integration, analytical capacity, customer experience management and organizational adaptability.

According to Table 3, the transition of the enterprise from fragmented digitalization to integrated customer experience management is accompanied by a steady increase in metrics such as the consumer loyalty index (NPS – Net Promoter Score), customer retention rate and gross sales of goods through the platform (GMV – Gross Merchandise Value), which indicates an increase in organizational maturity and the effectiveness of the business model.

Table 3. Digital Maturity Matrix of Enterprises in the Context of E-commerce 3.0

Digital maturity level	Level characteristics	Technological infra-structure	Channel integration	Analytical capacity	Customer Experience Management
1. Fragmented digitalization	Using basic digital tools without system integration	Separate websites, electronic payments, basic CRM	Separate online channels without coordination	Analytics are missing or performed manually	Passive interaction with the consumer through standard messages
2. Channeled interaction	Using multiple channels without collaborative data management	Mobile site, separate marketing platforms	The channels operate autonomously, data exchange is minimal	Fragmented customer analytics	Interaction is episodic, without personalization
3. Coordination of processes	Application of integrated CRM and campaign management systems	Unified CRM/ERP base, automation of operations	Partial integration of channels, synchronization of orders	Getting started with BI (Business Intelligence)	Personalization of content for major customer segments
4. Integration into the eco-system	Formation of a common information space with a single client profile	CDP platform, automated logistics, integrated systems	Full synchronization of online and offline channels	Advanced analytics, demand forecasting	Focus on long-term customer loyalty
5. Intellectual entre-preneurship	Automated business management based on data and AI	Artificial Intelligence, Machine Learning, Predictive Analytics	Dynamic adaptation of channels in real time	Self-learning analytical models, full automation	Proactive real-time customer experience management

The digital maturity of enterprises is evolving from the fragmented use of technology to the full integration of analytics, channels, and processes. The transition to the level of intellectual entrepreneurship provides an increase in efficiency, accuracy of managerial decisions and forms new competitive advantages.

The analysis of the proposed model makes it possible to establish that enterprises with a high level of digital maturity demonstrate not only greater profitability, but also higher resistance to external shocks. In such companies, data becomes a strategic asset, and analytics becomes the basis for managerial decision-making. Accordingly, the transition to E-commerce 3.0 should be considered as a process of forming an intellectual-analytical economic system, where value is created due to the speed of data exchange, transparency of processes and the ability of the enterprise to self-update [8; 17; 27].

The results of the study allow us to in-depth assess the transformation of e-commerce in the direction of the E-commerce 3.0 model. It has been revealed that the key factor in the transition to this level is not just the digitalization of individual functions of the enterprise, but the integration of mobile, social and omnichannel solutions into the common architecture of customer experience management. This is in line with current trends recorded in reports from Deloitte [7; 8] and McKinsey [14], which highlight the growing importance of data analytics, personalization, and real-time channel synchronization. The main barriers to digital integration of trade enterprises in Ukraine are summarized in Table 4.

Table 4. Main barriers to digital integration in Ukraine

Barrier category	The essence of the problem
Technological **Organizing** **Personnel**	Fragmentation of the IT infrastructure, lack of integrated data management systems, weak compatibility between channels.
	Lack of a strategic vision of digital transformation, disunity of marketing, logistics and financial subsystems.
	There is a shortage of specialists with competencies in data analytics, digital marketing, and omnichannel processes.
Regulatory **Financial** **Barrier category**	Instability of the legal field, lack of clear rules for e-commerce and data circulation.
	Limited opportunities for financing digital projects, high costs for infrastructure implementation and cyber defense.
	The essence of the problem
Technological	Fragmentation of the IT infrastructure, lack of integrated data management systems, weak compatibility between channels.

Source: systematized by [4; 5; 12; 18; 20; 21].

As can be seen from Table 4, the main obstacles remain the fragmentation of digital infrastructure, the low level of analytical maturity of enterprises and the shortage of personnel with competencies in the field of omnichannel coordination. At the same time, even under these conditions, Ukrainian companies are demonstrating their readiness to implement E-commerce 3.0 elements, primarily in the segments of mobile commerce, marketplaces, and logistics services. This indicates the gradual formation of prerequisites for the transition from situational digitalization to systemic transformation of business models.

The developed architecture (Figure 1) demonstrates that it is the orchestration of customer experience that is the central element of a new stage in trade development. Enterprises that move to high digital maturity levels (Table 3) not only increase service speed and demand accuracy, but also form new customer retention mechanisms. This is in line with the findings of OECD research [17; 18], which states that the future of digital commerce is determined by the ability of businesses to combine technological and behavioral data in a single management system.

A comparison of the results obtained with previous e-commerce models shows that E-commerce 1.0 and 2.0 were limited to transactional logic – selling goods through a website or mobile application. In model 3.0, there is a transition from "sales channels" to "interaction ecosystems", where the consumer becomes an active participant in value creation [2; 9; 22]. Thus, digital entrepreneurship goes beyond technical tools and turns into a comprehensive management concept that covers marketing, logistics, finance and communications.

From the point of view of practical implementation, an important condition for the effectiveness of E-commerce 3.0 is the development of analytical competencies of personnel and the availability of flexible data management platforms (CDP – Customer Data Platform, DWH – Data Warehouse). They

allow you to synchronize marketing and operational processes, which, according to H. Turki [25] and M. A. Hossain et al. [11], provides an increase in profitability and a shortening of the customer service cycle.

In general, the results of the study confirm that the effective integration of mobile, social and omnichannel commerce creates conditions for the formation of a new quality of entrepreneurship – intellectual, adaptive and customer-centric. This approach not only optimizes costs, but also strengthens the position of enterprises in the global market, which is consistent with the conclusions of the OECD [18] and GS1 US [10] on new standards for sustainable digital development.

The results of the study show that the transition to the E-commerce 3.0 model is not only a technological update, but forms a new paradigm of digital entrepreneurship. The integration of mobile, social, and omnichannel tools creates a synergistic effect when customer experience management, logistics processes, and data analytics are combined into a single decision-making system [7; 11; 15; 19; 25; 27].

For Ukrainian enterprises, the key conclusion is that the effectiveness of digital transformation is determined not by the number of technologies used, but by the level of their consistency. The development of CDP (Customer Data Platform) systems, end-to-end analytics and ERP integration helps to increase the accuracy of demand forecasting, reduce customer service costs, and increase the profitability of operations. This is confirmed by both OECD industry research [18] and the results of Deloitte analytics [7; 8].

At the same time, it is the human factor and managerial culture that remain decisive in the implementation of the new architecture. Organizations that combine technological maturity with agile management and staff training demonstrate the highest performance and customer loyalty rates. Such interaction of technical and socio-economic elements forms the basis of the "digital synergy" of entrepreneurship, which becomes the core of competitiveness in the modern global economy.

6. Conclusions

The study made it possible to systematically reveal the essence and structural logic of the E-commerce 3.0 model as a new stage in the development of digital entrepreneurship. It has been established that the main factor of transformation is the integration of mobile, social and omnichannel commerce into a single customer-centric space, where data analytics and artificial intelligence technologies provide personalization of interaction with the consumer and increase the operational efficiency of the business.

As a result of the theoretical and applied analysis, three key directions of the evolution of e-commerce have been identified: the transition from a transactional model to an integration model; growing the role of analytics platforms (CDP, DWH) as the basis for customer experience management; increasing the interdependence between technological maturity and financial results of the enterprise. The developed architecture (Figure 1) and the digital maturity matrix (Table 3) prove that the complex integration of channels and data creates a synergistic effect in the form of an increase in the speed of service, the accuracy of demand forecasts and the level of customer loyalty.

A practical generalization of the experience of Ukrainian companies shows the presence of structural barriers to digital integration – technological, personnel, regulatory and financial. At the same time, there is a positive trend in the introduction of mobile and social commerce tools, in particular in the field of marketplaces, which confirms the ability of national enterprises to adapt global trends to their own environment.

The scientific novelty of the work lies in the formation of an integrated concept of E-commerce 3.0, which coordinates architectural, analytical and organizational aspects of the development of e-commerce and offers an approach to assessing the digital maturity of enterprises. The practical value is in the possibility of using the proposed model as a methodological basis for developing strategies for digital transformation in the field of trade and distribution.

Further research should be directed to empirical verification of the relationship between the level of integration of channels and economic indicators of enterprises, as well as to the analysis of mechanisms for the sustainable development of digital trade in Ukraine in the context of global technological changes.

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