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Review Article

ARTIFICIAL INTELLIGENCE AND INTELLIGENT COMMERCE: TRANSFORMATION OF BUSINESS MODELS AND COMPETITION

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Abstract

The aim of this paper is a theoretical consideration of the concept of intelligent commerce, which represents a new revolutionary phase in the development of contemporary trading organizations under conditions of intensive development of artificial intelligence. Accordingly, the impact of artificial intelligence on the transformation of business models, changes within the value chain, and the redefinition of competitive dynamics in commerce is analyzed. A theoretical-analytical approach is applied, with a focus on organizational learning and contemporary changes within trading organizations, along with the systematization of contemporary domestic and foreign literature, as well as the analysis of examples from the practice of advanced global trading companies. The results indicate that the application of artificial intelligence significantly changes operational processes in commerce, but also the logic of competition. The sustainable advantage of traders increasingly depends on rapid organizational learning, high-quality data, and the ability to operationalize analytical insights in real time. It is concluded that modern intelligent commerce implies a transition toward adaptive and self-improving systems that base their functioning on high-quality data.

Keywords: *artificial intelligence, intelligent commerce, organizational learning, value chain, competitive dynamics.*

Introduction

In the past three years, there has been an intensive development of artificial intelligence in business practice, with particularly pronounced growth in generative artificial intelligence, which creates new content, in contrast to models focused on the analysis and classification of already existing data (Vukmirović, Jovanović-Milenković, 2025; Grewal et al., 2025). Contemporary trading companies are under pressure from numerous suppliers offering innovative and transformative solutions based on artificial intelligence. The potential of

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artificial intelligence and the possibilities for improving trading operations are becoming increasingly evident.

The disruption that artificial intelligence brings to commerce is becoming increasingly visible. However, this is not the first time that commerce has been so intensively reshaped by the impact of technology. The expansion of the railway reduced distances, connected distant cities into unified economies, changed the way companies thought, centralized production, and decentralized distribution. Automobiles brought mobility, created new industries and logistics systems, generated new needs, and introduced a new lifestyle. They transformed not only travel and transport, but also urban planning and supply chains. The Internet brought information transparency, offered new ways of conducting commerce activities, and removed many of the limitations that had previously existed between market participants. It connected markets and dispersed knowledge at global speed, creating e-commerce, social platforms, and cloud computing. Each of these revolutions forced trading enterprises to change their own architecture and marketing channels.

Accordingly, we may say that commerce has historically developed through three phases. The first phase primarily concerned physical elements and relied on innovations in commerce infrastructure, such as the conquest of river and maritime routes, the development of the railway, and the system of traditional retail outlets. This was followed by the second phase, which introduced digital reality, driven by the development of the Internet, mobile technologies, and a multichannel distribution strategy. The third phase represents the current foundation of intelligent commerce, which is adaptive, anticipatory, and self-improving, and whose basis lies in continuous learning from an increasingly rich database. This phase encompasses the application of both analytical and predictive, as well as generative artificial intelligence, which together shape a new architecture of commerce systems.

In contemporary international literature, there is no single term that denotes this stage of development. In business practice, the term “intelligent commerce” is used to describe a trade model that is primarily based on data, analytical insights, and the application of artificial intelligence in decision-making (Berkman, 2022). In this paper, the term “intelligent commerce” is used as a conceptual framework encompassing the systemic and continuous application of artificial intelligence solutions in commerce operations, with an emphasis on organizational learning and changes in competitive dynamics.

The digital transformation of commerce, which has unfolded very intensively over the past thirty years, has brought about the relocation of trade operations to the Internet, the introduction of multichannel sales strategies, and significant improvements in the execution of back-office activities. Artificial intelligence now imposes a deepening of this transformation by embedding intelligence directly into processes (McFadyen, 2026). A new form of commerce is emerging, trade supported by artificial intelligence, in which all trade activities are driven by data.

Artificial intelligence is now bringing a revolution in decision-making and in the way data, people, and processes are connected, reducing the cognitive distance between insight and action (Vukmirović, Jovanović-Milenković, 2025). The boundary between idea and implementation is increasingly narrowing. The time gap between a posed question and the obtained answer is disappearing (Grewal et al., 2025). Decision-making speed is becoming a new competitive advantage. Companies now compete in the efficiency of learning and the speed with which they can transform collected information into new strategies. Traders face

the imperative to evolve from digital to intelligent systems that learn from every transaction (Hasan et al., 2025).

Today, commerce is increasingly less a simple, linear exchange between sellers and buyers. It is becoming ever more a data-driven process of continuous interaction, in which, in addition to consumers, all other traditional participants in marketing channels take part, as well as intelligent digital systems. Every activity, such as a consumer search, a click, opening a webpage, selecting a product, or issuing a voice command, generates datasets captured by analytical models. With the help of these models, the trading enterprise becomes a dynamic system that learns in real time, adapts to emerging changes, and optimizes its decision-making.

In this context, the question arises as to how the concept of intelligent commerce transforms business models, the value chain, and the competitive dynamics of contemporary trading enterprises, which constitutes the subject of analysis in this paper.

In the industrial and digital era of commerce, competitive advantage stemmed from the possession of physical resources and access to infrastructure and digital channels. In the era of intelligent commerce, the source of competitive advantage and differentiation arises from traders' ability to continuously learn from collected data and to use that knowledge in real time for decision-making and adaptive behavior. Intelligent organizations in commerce possess the competitive capability of high-quality decision-making and real-time resource adjustment. It becomes clear that market competition is shifting from scale and efficiency toward learning and the ability to anticipate market changes (Srećković, 2025).

From all of the above, it follows that intelligent commerce implies trading organizations in which data, algorithms, and organizational learning form an integrated whole, enabling real-time recognition of changes and patterns, the prediction of customer behavior, and the automatic adjustment of business decisions to these changes. Competitive advantage is achieved by traders who learn the fastest, acquire and process the highest-quality data, and possess the ability to rapidly translate acquired knowledge into operational changes.

The aim of the paper

The aim of this paper is a theoretical examination of the concept of intelligent commerce, which represents a new revolutionary phase in the development of trade and trading organizations. The focus is on analyzing the impact of artificial intelligence on business models in trade, the value chain, and the competitive dynamics among trading enterprises. The paper seeks to shed light on the change in the logic of competition under conditions of increasingly intensive application of artificial intelligence, in which competitive advantage is based less and less on physical and digital resources and increasingly on the ability of the trading organization itself to continuously learn, conduct data analysis, and adapt in real time on the basis of the insights obtained.

The impact of the use of artificial intelligence models within commerce operations is examined in terms of changes in decision-making logic, modes of organizational learning, and the achievement of sustainable competitive advantage. Accordingly, the transition is analyzed from digital systems characterized by automation and multichannel marketing toward intelligent, adaptive, and self-improving systems grounded in operational functioning based on the integration of data, algorithms, and decision-making processes.

The paper aims to illuminate the new architecture of intelligent commerce systems, which implies a dynamic, data-driven system of interconnected trade processes in which every event generates new data and new knowledge, further improving the quality of decisions made. In this way, it seeks to demonstrate that intelligent commerce does not represent merely a more advanced version of digital commerce, but rather a completely new competitive paradigm based on the speed of organizational learning and the ability to anticipate change. The speed of organizational learning and the ability to anticipate change are identified as key sources of competitive advantage.

Methodology

A theoretical-analytical approach was applied in this paper, based on the systematization and critical examination of contemporary domestic literature and literature from more developed markets in the fields of digital commerce, artificial intelligence, and the management of trading organizations. Starting from theoretical frameworks encompassing organizational learning and the dynamic capabilities of enterprises, the analysis moves toward understanding intelligent commerce as a new phase in the development of contemporary traders.

Descriptive and comparative analysis were employed with the aim of identifying key changes in the operations of traders, their value chains, and their competitive dynamics arising from the integration of artificial intelligence into their organizations. Emphasis is placed on the shift in the logic of competition, namely the transition from competition based on resources and efficiency to competition based on the speed of organizational learning and the ability to adapt. Additionally, examples from the practice of global companies that have already intensively begun implementing artificial intelligence-based solutions are analysed. These examples serve to illustrate and further clarify the theoretical framework.

Results and Discussion

Artificial intelligence today significantly shifts what people can decide about and how they make decisions. Analysts are increasingly less engaged in data collection and more focused on interpretation and drawing conclusions. At the same time, creative professionals are shifting their focus from generating a large number of ideas to selecting and refining proposals offered by artificial intelligence. The relationship between humans and technology is undergoing a profound transformation. In the past, technological advancements expanded human operational capacities, whereas artificial intelligence now expands human cognitive capabilities by analysing data, predicting outcomes, and structuring decisions (Huang, Rust, 2021). It enhances human potential and becomes a partner in the work process. As a result, trading enterprises are entering a process of structural reshaping and transformation into intelligent enterprises, expanding what humans and machines can achieve together, with a proven increase in productivity (Brynjolfsson et al., 2023).

Traders who implement artificial intelligence in their operations are beginning to demonstrate superiority in the market. Artificial intelligence models are already being applied across all stages of trade and throughout the entire value chain: from the creation and introduction of products and services to the market, through sales and delivery, to after-sales services (Cvijić, Stanković, 2023).

Such an impact of artificial intelligence within the value chain is based on the data that “feeds” it (McFadyen, 2026). It creates value in trade only when supported by adequate and

high-quality data on products, customers, orders, processes, and related elements (Yrjölä et al., 2025). Moreover, each stage of the value chain depends on data flowing from other segments with which it has points of interaction. For example, customer data inform segmentation, targeting, personalization, and related activities. Data on inventory, orders, and fulfilment define what can be promised to the customer and where operational constraints may arise.

Artificial intelligence models rely on the data they receive in order to understand context, recognize patterns, and make decisions. When these input data are reliable and consistent, artificial intelligence improves value chain flows by increasing accuracy, reducing friction, and delivering more relevant recommendations and actions. When input data are fragmented or outdated, the quality of artificial intelligence outcomes declines. In such cases, customer searches become less precise, the recommendations offered by the trader become less relevant, price optimization becomes less effective, and the logic of implementing activities becomes less efficient.

Artificial intelligence models enhance the reasoning process within the trading enterprise. Traders who begin implementing artificial intelligence gain a competitive advantage, which they sustain and further develop precisely through data-driven learning. Third-party sources may assist and accelerate insight. However, the data of the trading company itself, supported by artificial intelligence, gain value over time, accumulate, and improve through use. Over time, they are transformed into organizational knowledge, and that knowledge becomes a source of differentiation and recognizable value for customers.

It is clear that we are entering an era of intelligent commerce based on learning from data, adaptive real-time decision-making, integration of all value chain phases through the learning process, and cooperative interaction between humans and technology. In digital commerce, technology automates previously defined repetitive tasks, whereas in intelligent commerce, technology integrates artificial intelligence into the logic of the business model.

The objective of this integration is to achieve competitive advantage based on faster organizational learning, the quality and integration of data, and ultimately the enterprise's ability to transform acquired insights into operational activities in real time. Intelligent commerce is not merely an upgrade of digital commerce, but a new developmental phase of traders, based on adaptability, anticipatory capability, and self-improvement.

In traditional and digital commerce, the value chain is organized as a sequence of individual activities that follow one another in a precisely determined order (e.g., production – distribution – sales). In intelligent commerce, the value chain takes the form of an adaptive network in which each phase simultaneously acts as both a source of data and a recipient of information and knowledge generated in other phases. Intelligent commerce introduces a new architecture of the trade system, based on feedback learning loops and algorithms that continuously redefine the relationships between supply, demand, pricing, inventory, and communication with consumers (Hasan et al., 2025).

In contemporary commerce, the notion of the "store" is losing its traditional meaning, previously associated primarily with a physical location. For intelligent traders, the store is no longer merely a physical facility and/or a digital store or platform, but an environment that emerges at the moment a customer expresses the intention to make a purchase. The store becomes every touchpoint with consumers. Artificial intelligence plays a central role in this process by identifying behavioural patterns, recognizing customer intent, and translating it

into concrete action. It instantly creates a personalized offer with an appropriate price and suitable delivery and ultimately enables timely inventory replenishment.

In intelligent commerce, every touchpoint with consumers also becomes a source of highly valuable information serving as input data for artificial intelligence systems. In this way, customer intentions are identified more successfully, consumer preferences are interpreted, real-time monitoring and analysis are conducted, and the system generates an automatic response. Intelligent models are embedded in every touchpoint, data are continuously collected, and systems of ongoing learning are fed accordingly.

The transformation of trade through three developmental phases can be systematized on the basis of changes in the sources of competitive advantage, system logic, and the role of technology (Table 1).

Table 1: Three Eras of Commerce Development and the Transformation of Competitive Logic

Era of Development	Dominant Form and Nature of Transaction	Source of Competitive Advantage	System Logic and Organizational Structure	Role of Technology
Physical	Physical stores; transactions tied to a physical location	Location and infrastructure	Linear value chain; stable hierarchical organization	Mechanical and logistical support
Digital	Online stores and mobile applications; multichannel sales	Multichannel presence and accessibility	Digital integration of processes; process-oriented structure	Automation and networking
Intelligent	Data-driven trade; transactions that anticipate customer intent	Speed of organizational learning and data quality	Adaptive, data-driven network; self-improving organization	Analytical, predictive, and generative intelligence

The transformation toward intelligent commerce is confirmed by numerous examples from trading companies. Walmart has implemented intelligent systems based on computer vision in its stores, which identify products with low shelf stock and automatically initiate replenishment. Nike uses artificial intelligence to analyse consumer behaviour and predict demand for specific sizes and models, enabling more precise procurement and inventory management and cost reduction.

When analysing practical examples, it becomes evident that the application of artificial intelligence models in trading enterprises can be observed through two different sales models. The first comprises retail, B2C activities characterized by high volume, short cycles, and emotionally driven purchases. The second comprises wholesale, B2B activities involving contractual relationships, multiple roles on the buyer's side, approval requirements, and specialized demands. In accordance with these differences, the manner in which artificial intelligence is employed also differs (McFadyen, 2026).

For example, a retail price recommendation model cannot be directly applied in wholesale, where previously negotiated prices, order frequency, and product compatibility with specific customer requirements must be taken into account. Dynamic pricing in retail may rely on demand elasticity and promotional investments, whereas in wholesale it must incorporate negotiated discounts, quantity thresholds, and rebates. A consumer may search for products

by style or aesthetic criteria, while a wholesale buyer typically searches by product or service code, specification, certification, or compatibility with machinery or other materials.

When a consumer opens a retailer's application intending to reorder a product, the system recognizes patterns from previous purchases and displays carefully selected recommendations for repeat purchases or replenishment. If a product is unavailable in the nearest local store, the platform automatically checks nearby inventory, adjusts delivery options, and updates estimated delivery time before the consumer notices. A promotion for which the consumer qualifies appears on the screen or in the cart, tailored to the customer's loyalty level and seasonal behaviour.

By contrast, a professional wholesale buyer visits the portal of a wholesaler or distributor to procure goods for a specific project. The system recognizes the equipment used by the professional buyer, recommends appropriate parts, and suggests newer alternatives that may reduce costs. Contracted prices are automatically applied, taking into account achieved volume discounts. If, for example, the artificial intelligence system detects that a particular item requires approval from a superior manager within the buyer's organization, it sends an approval request without interrupting the procurement process.

In both cases, a vast number of micro-decisions are made in real time by artificial intelligence. Product data are enriched and search results are re-ranked. Forecasting models update demand information simultaneously as the buyer places orders. Pricing mechanisms evaluate competitive and contracted prices. The most efficient delivery route is selected. Customer support systems prepare responses anticipated to be needed. Each decision appears minor, yet together they create a seamless experience that seems simple and efficient.

Trade operations are transforming toward the recognition of user intent and actions, real-time analytics, and the creation of automated responses regarding pricing, delivery, inventory replenishment, and related activities. Learning speed becomes the new basis of competition (McFadyen, 2026).

Under these conditions, competitive dynamics take on an entirely different character. Market competition is no longer based primarily on price rivalry, offer differentiation, or spatial and locational advantages, but on traders' ability to integrate data in real time, recognize patterns, and adjust strategy before their competitors do. An intelligent trading organization is self-optimizing: it learns from its own operations and adapts to changes in real time.

Competition among intelligent traders is based on algorithmic superiority and the speed of organizational learning (Hasan et al., 2025). Those with more advanced analytical models and higher-quality data achieve competitive advantages that deepen over time, as each new interaction further improves decision-making models.

Conclusion

The application of artificial intelligence in commerce is not merely a technological enhancement of existing processes within trading enterprises, but rather a profound and structural transformation of the very logic of how traders operate. The digital phase was primarily oriented toward the digitalization of marketing channels, the automation of operational activities, and the achievement of improved information accessibility. The current transformation of commerce into intelligent commerce now implies the systematic integration of analytical, predictive, and generative intelligence within the business model.

Artificial intelligence in commerce is not merely a support tool; it becomes the central mechanism for organizational learning, decision-making, and competitive positioning (Bird & Bird LLP, 2025). This mechanism encompasses the entire value chain, from offer creation, inventory and pricing management, and offer personalization, to logistics and after-sales activities. At the same time, each interaction generates new data that contribute to the improvement of subsequent decisions. The trader's value chain thus becomes an adaptive, data-driven system with continuous feedback learning loops.

These changes have a particular impact on the logic of competition. In traditional and digital commerce, competitive advantage was based on the resources a trader possessed, infrastructure, access to marketing channels, and the efficiency of operational execution. Now, in the era of intelligent commerce, competitive advantage is achieved on the basis of the ability to continuously learn from data and apply new insights in real time before competitors do (Srećković, 2025). Competition is now won by shifting the focus from increasing transaction volume and cost efficiency toward the speed of organizational learning, improvement of data quality, and maximization of algorithmic superiority.

The relationship between humans and technology in commerce is also changing. Algorithmic models of artificial intelligence expand the cognitive capacities of the trading organization (Huang & Rust, 2021), while human work shifts from operational activities toward the interpretation of insights, strategic management, and value judgments (Vukmirović, Jovanović-Milenković, 2025). Decision-making in commerce increasingly becomes the result of cooperation between artificial intelligence models and humans between the system's analytical intelligence and human reasoning (Hasan et al., 2025).

It can be concluded that intelligent commerce represents a new phase in the development of trading organizations. Traders' business systems are transforming into adaptive, self-improving systems based on continuous learning from data (Bird & Bird LLP, 2025). Their competitive position increasingly depends on the speed of organizational learning, the integration of high-quality data, the anticipation of change, and the efficient transformation of analytical insights into operational action.

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Pregledni naučni članak

VEŠTAČKA INTELIGENCIJA I INTELIGENTNA TRGOVINA: TRANSFORMACIJA POSLOVNIH MODELA I KONKURENCIJE

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Apstrakt

Cilj ovog rada je teorijsko razmatranje koncepta inteligentne trgovine koja predstavlja novu revolucionarnu fazu u razvoju savremenih trgovinskih organizacija u uslovima intenzivnog razvoja veštačke inteligencije. U skladu sa tim analizira se uticaj veštačke inteligencije na transformaciju poslovnih modela, promene unutar lanca vrednosti i redefinisanje konkurentske dinamike u trgovini. Primenjuje se teorijsko-analitički pristup sa fokusom na organizaciono učenje i savremene promene unutar trgovinskih organizacija, uz sistematizaciju savremene domaće i strane literature, kao i analizu primera iz prakse naprednih svetskih trgovinskih kompanija. Rezultati ukazuju da primena veštačke inteligencije intenzivno menja operativne procese u trgovini, ali i logiku konkurisanja. Održiva prednost trgovaca sve više počiva na brzini organizacionog učenja, kvalitetu podataka i sposobnosti da u realnom vremenu operacionalizuju analitička saznanja. Zaključuje se da savremena inteligentna trgovina podrazumeva tranziciju ka adaptivnim i samounapređujućim sistemima koji svoje funkcionisanje zasnivaju na kvalitetnim podacima.

Ključne reči: *veštačka inteligencija, inteligentna trgovina, organizaciono učenje, lanac vrednosti, konkurentska dinamika.*

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