

## MECHANISMS FOR MAKING MARKETING DECISIONS BASED ON ARTIFICIAL INTELLIGENCE

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**Annotation:** this article analyzes the theoretical and practical aspects of marketing decision-making mechanisms based on artificial intelligence (AI) technologies. The role of artificial intelligence in the processes of data-based marketing management, forecasting consumer behavior, segmentation, development of personalized proposals, and evaluation of marketing effectiveness in the digital economy is highlighted. As a result of the study, an integrated model aimed at optimizing marketing decisions was proposed.

**Keywords:** artificial intelligence, marketing management, data-driven decisions, Big Data, consumer behavior, forecasting, CRM, marketing analytics, digital economy.

**Introduction.** The processes of digital transformation are fundamentally changing the content of marketing activities in the world economy. A sharp increase in the volume of data and the development of analytical technologies require a transition from traditional intuitive approaches to a data-based management model in making marketing decisions. From this point of view, artificial intelligence technologies are manifested as an important tool for increasing the effectiveness of marketing management [1].

In the scientific literature, it is noted that artificial intelligence is widely used in the field of marketing in systems for analyzing consumer behavior, forecasting demand, personalized advertising, and dynamic pricing. In the research of J. Davenport and R. Ronanki, it was noted that artificial intelligence yields effective results in enterprises in three main areas - process automation, consumer interaction optimization, and decision support [2].

The main advantage of using artificial intelligence in marketing theory is the ability to process and predict large amounts of data in real time. P. Kotler and K. Keller note that an analytical approach and data-driven decision-making in marketing management ensure a competitive advantage [3]. At the same time, in the research of V. Kumar et al., it is substantiated that with the help of artificial intelligence, it is possible to determine the Customer Lifetime Value and adapt the marketing strategy at the individual level [4].

The mechanism for making marketing decisions based on artificial intelligence includes the following stages:

1. Data collection and integration (CRM, social networks, sales data);
2. Data cleaning and analysis (Big Data Analytics);
3. Forecasting and modeling (machine learning algorithms);
4. Optimization of decisions (price setting, segmentation, advertising placement);
5. Monitoring and evaluation of results (ROI, conversion, CAC indicators).

In the studies of Brynjolfsson and McAfee, it was shown that digital technologies, in particular artificial intelligence, are the main factor in increasing the efficiency of enterprises and forming an innovative advantage [5].

Therefore, the scientific development and implementation of mechanisms for making marketing decisions based on artificial intelligence is a pressing issue in increasing the competitiveness of enterprises.

### RESEARCH RESULTS.

Artificial intelligence (AI) is a complex of algorithms, software tools, and technologies capable of automating the processes of analyzing, studying, forecasting, and making decisions on large volumes of data. In marketing management, AI systems are mainly used through machine



learning, deep learning, natural language processing (NLP), computer vision, and predictive analytics [1].

If in marketing theory the decision-making process is traditionally based on managerial experience and statistical analysis, then in the context of the digital economy this process is transformed into an analytical model based on data. Scientific research shows that the effectiveness of marketing decisions directly depends on the volume, accuracy, and speed of data processing [2].

While traditional marketing analysis is based on limited data, artificial intelligence allows processing large volumes of real-time data. And this is:

- clarification of market segmentation;
- formation of a dynamic pricing policy;
- optimization of the advertising budget;
- forecasting customer behavior

allows you to perform tasks with high accuracy.

As Kotler and Keller emphasized, modern marketing management should be based on an analytical approach, and decisions not based on data in the digital environment lead to the loss of competitive advantage[3]. Therefore, AI is considered a strategic tool in marketing management.

The process of making marketing decisions based on artificial intelligence is carried out systematically and in stages. This mechanism consists of the following interconnected components.

Marketing data has a multi-source character. These include:

- Customer profiles in CRM systems;
- behavioral data on social networks;
- transaction data on e-commerce platforms;
- indicators of mobile applications and web analytics;
- call-center and service information.

Big Data technologies allow for the collection, purification, and standardization of this data on a single integrated platform [4]. Due to the fact that AI algorithms can give inaccurate forecasts in conditions of low data quality, the process of data purification and transformation is of great importance.

At this stage, machine learning algorithms are used, and analytical models supporting marketing decisions are created. Including:

- consumer segmentation through clustering algorithms;
- determining the probability of purchase in regression and classification models;
- demand forecast based on the time series model;
- Customer Lifetime Value (LTV) calculation model.

In the research of Kumar et al., it is substantiated that forecasting client behavior using AI increases the effectiveness of marketing investments and optimizes the management of client capital [4].

Also, using neural networks, it is possible to identify hidden consumer needs and develop personalized marketing strategies.

Artificial intelligence allows not only to analyze marketing decisions, but also to optimize them. Including:

- Dynamic pricing - adjustment of prices in real time depending on demand and competitive conditions;
- Automation of advertising campaigns - placement of advertising through algorithmic bidding systems;
- Personalized offers - individual product recommendations for each client;
- Content personalization is content generation based on user behavior.



In the studies of Davenport and Ronanki, it was noted that artificial intelligence reduces subjective errors caused by the human factor in marketing processes and increases the speed of decision-making [2].

Scientific research has substantiated that the widespread use of digital technologies is an important factor in increasing the efficiency of enterprises. According to research by Brynjolfsson and McAfee, enterprises actively using digital technologies, in particular artificial intelligence, achieve higher results in terms of production and management efficiency indicators compared to enterprises with a traditional management model [5]. This result is also confirmed in the field of marketing management.

The application of artificial intelligence in marketing activities leads to the following economic results:

- optimization of expenses due to the targeted distribution of the advertising budget;
- increase in the conversion rate and increase in sales volume;
- decrease in customer acquisition value (CAC);
- increased level of customer loyalty;
- Increased accuracy and effectiveness of marketing campaigns.

Marketing strategies developed on the basis of predictive analysis provide higher efficiency compared to the traditional mass advertising model. For example, through personalized offers and algorithmic advertising placement systems, the return on marketing investments (ROI) increases. This allows for accurate measurement and optimization of the economic return on marketing expenses.

Based on the research results, an integrated conceptual model of marketing decision-making based on artificial intelligence was developed. This model consists of the following interconnected elements:

**Database → Analytical platform (SI algorithms) → Decision module → Monitoring and KPI system → Strategy adaptation**

**Stage 1: Database.** Data from CRM, ERP, social networks, e-commerce platforms, and other sources will be integrated into a single platform.

**Stage 2: Analytical platform.** Segmentation, forecasting, and behavioral analysis are carried out using machine learning algorithms.

**Stage 3: Decision Module.** Dynamic pricing, advertising placement, and personalized offers will be developed.

**Stage 4: Monitoring and KPI system.** ROI, CAC, LTV, conversion rate, and other indicators are evaluated in real time.

**Stage 5: Strategy adaptation.** Based on the results obtained, the marketing strategy is constantly updated and optimized.

This model makes it possible to scientifically substantiate marketing decisions, reduce risks, increase economic efficiency, and strengthen the competitiveness of the enterprise. The model also integrates the levels of strategic and operational management through a single information system.

**Conclusion.** Artificial intelligence has become a strategic tool of marketing management, allowing for the automation, acceleration, and optimization of the decision-making process. The data-based marketing model, unlike the traditional intuitive approach, forms a scientifically based, predictive, and economically effective management mechanism.

Systematic implementation of artificial intelligence in marketing management:



- increases the profitability of marketing investments;
- optimizes the management of client capital;
- reduces market risks;
- ensures the long-term competitiveness of the enterprise.

Therefore, marketing management based on artificial intelligence should be considered as a strategic direction that ensures the sustainable development of enterprises in the digital economy.

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