Anastasiia Shkinder
Dmytro Motornyi Tavria State
Agrotechnological University
Scientific supervisor: Candidate of Pedagogical Sciences,
Associate Professor Viktoriia Vertegel
Language adviser: Candidate of Philological Sciences,
Associate Professor Viktoriia Vertegel

ISSUES OF BIG DATA IN ECONOMICS

Big Data in economics refers to extremely large volumes of structured and unstructured information (social media, transactions, sensors) that cannot be processed using traditional methods. They are used for in-depth market analysis, forecasting consumer behavior, optimizing business processes, reducing costs, and making managerial decisions in real time.

The use of Big Data in economics makes it possible to more accurately assess the risks and benefits of various strategies, optimize production processes, improve the quality of products and services, increase the effectiveness of marketing campaigns, identify consumer preferences and needs, and manage resources and budgets more efficiently, among many other applications.

Big Data in economics is becoming especially relevant in the context of the rapid development of digital technologies such as the Internet of Things (IoT), artificial intelligence (AI), cloud computing, and others, which contribute to the generation and accumulation of even larger volumes of data. These technologies provide new opportunities for collecting, storing, analyzing, and using data in order to optimize business processes and create value.

The most common Big Data technologies in the economic context

Collection and analysis of large volumes of data	The use of Hadoop, Spark, and other tools enables the collection and analysis of data from social media, sensors, transactions, customer databases, and more to identify trends and patterns.
Machine learning and data analytics	Machine learning algorithms help uncover hidden patterns, forecast market trends,

	optimize business processes, and analyze customer behavior and risks.
Distributed databases and cloud computing	They ensure efficient storage and processing of large volumes of data.
Internet of Things (IoT)	Data from sensors, "smart" devices, and vehicles are used to optimize production, logistics, and business processes.
Social media analysis	It enables the analysis of user opinions, sentiments, and trends for marketing and product promotion.
Financial data analysis	It includes markets, transactions, investments, credit, and banking activities for decision-making in finance and risk management.
Forecasting and optimization	Based on data on demand, supply, prices, and competitors' activities, it supports effective business decision-making.
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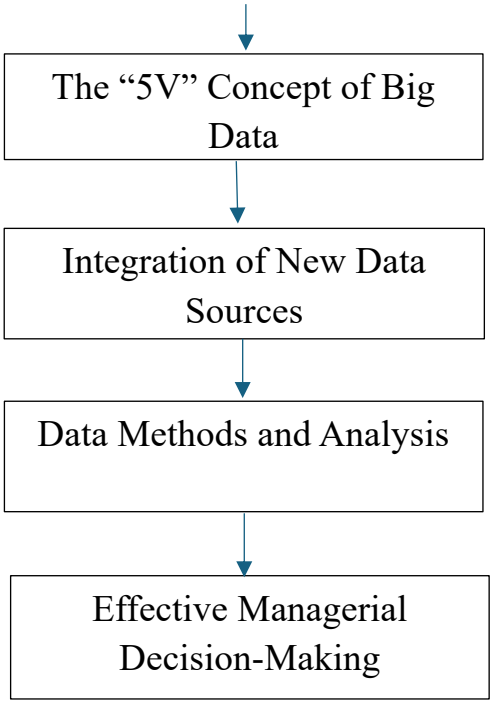
Customer data analysis	Identifying customer preferences and behavior to personalize offerings and increase satisfaction.
Logistics and supply chain analysis	Optimization of operations, cost reduction, and improved delivery efficiency.
Competitive environment analysis	Data on competitors' prices, products, and marketing activities is used for pricing strategy and enhancing competitiveness.

The effective implementation of Big Data in the practice of official statistics requires a combination of methodological rigor and technical flexibility. The key principles of Big Data implementation include:

- horizontal scalability of data collection and storage systems;
- fault tolerance of the computing infrastructure;
- maintaining data locality to reduce transmission costs and enhance security;
- implementation of modular platforms that allow methods to be adapted to new data sources without completely rebuilding the system.

The Role of Big Data in Economic and Statistical Analysis of the Digital Economy



These principles should be incorporated into national strategies for the digitalization of statistics, particularly when developing technical specifications for information systems integrated with registry-based or naturally generated data.

Based on the data presented in the "Concept of Digital Transformation of the State Statistics Service of Ukraine," the need for unification of state information systems, integration of administrative registers, and development of institutional cooperation has been confirmed. As a result, the recommendations for strengthening the institutional capacity of official statistics are scientifically substantiated, namely:

- Improvement of the legal framework for access to digital data sources;
- Establishment of interagency groups for Big Data analysis;
- Improvement of digital literacy among the staff of statistical institutions;
- Gradual implementation of EU standards in terms of data interoperability and the ethical handling of personal data.

REFERENCES

1. Alabdullah , B., Beloff , N. & White, M. (2018). Rise of Big Data – Issues and Challenges. https://www.researchgate.net/publication/330030032_Rise_of_Big_Data_-_Issues_and_Challenges