

The professional competence of chemistry teacher trainees in the digital environment must be closely integrated with discipline essence, digital technology, and teaching practice. The four-dimensional system can serve as the core basis for revising training programs, setting up courses, and conducting competence assessments. Future research will conduct empirical investigations to verify the system's scientificity, combine it with TPACK development strategies proposed by Xu Chunhua et al. [3], and explore specific cultivation paths to improve the practical system of chemistry teacher education.

References

1. Ministry of Education of the People's Republic of China. Professional Standards for Secondary School Teachers (Trial Implementation) [S]. Teachers [2012]. – 2012. – № 1.
2. *Mishra, P.* Technological pedagogical content knowledge: A framework for teacher knowledge / P. Mishra, M. J. Koehler // Teachers College Record. – 2006. – № 108(6). – P. 1017–1054.
3. *Xu, Chunhua.* TPACK level and development strategy of teachers in Chinese universities / Xu Chunhua, Fu Gangshan, Hou Xiaoju // Modern Educational Technology. – 2018. – № 28 (1). – P. 59–65.

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USE OF BIG DATA IN ENTERPRISE MANAGEMENT

Использование больших данных в управлении предприятием

This study examines the application of Big Data technologies in enterprise management, focusing on their impact on operational efficiency, decision-making quality, and competitive performance. The objective of the research is to analyze how large-scale data collection and analytics can optimize business processes, enhance customer understanding, and provide measurable economic benefits for organizations across different sectors.

Effective use of this information allows businesses to more accurately adjust strategies in accordance with market requirements and strengthen competitiveness.

Big data analytics enable you to process millions of records in real time, enabling rapid response times and informed decision-making.

Integral Solutions offers solutions that allow you to unleash the full potential of the collected data.

These platforms collect and analyze information, enabling organizations of all sizes to improve efficiency without investing heavily in IT infrastructure.

The use of big data technologies can provide a tangible economic impact for enterprises. According to a study by the McKinsey Global Institute, companies that actively use big data analytics tools demonstrate 5–6 % higher productivity and profitability compared to competitors.

In addition, the use of big data can significantly reduce costs. According to research, organizations can reduce operating costs by up to 10 % by improving the efficiency of internal processes, optimizing costs, and reducing the risks associated with management decisions.

Key benefits of big data analytics include:

1. Deep acquaintance with customers and individualization: Volumetric processing of information flows allows you to more accurately determine the needs and behavior patterns of consumers, develop personal offers and build targeted marketing campaigns. This strengthens loyalty, increases brand trust and activates audience engagement.

2. Improve business processes: Data analysis helps to identify operational bottlenecks, reduce costs and increase efficiency. In manufacturing, it helps prevent downtime and equipment failures, and in retail, it helps optimize inventory and logistics.

3. Forecasting and informed decisions: predictive analytics based on big data makes it possible to predict market trends and buyer behavior, adjust strategies at the right time and reduce potential risks. Integral Solutions technologies provide the ability to analyze data in real time, which is especially critical for companies operating in dynamic industries.

Examples of the use of big data technologies in different industries:

- E-commerce: Analytics from massive amounts of data allows companies to more accurately tailor offers to each customer, increase conversion rates, and increase customer satisfaction. By studying customer behavior patterns, you can plan promotions more effectively and improve product mixes.

- Financial sector: Banking institutions and other financial institutions use big data to calculate credit risk, anticipate market trends, and detect fraudulent activity. These approaches enable more informed decision-making and reduce potential losses.

- Industry: In manufacturing, massive data is used to monitor machine health and improve processes. Its analysis contributes to the planning of preventive maintenance, reduces downtime and reduces operating costs.

The research demonstrates that the implementation of Big Data analytics enables enterprises to improve process efficiency, deepen insights into customer behavior, and make more accurate forecasts. These outcomes contribute to cost reduction, enhanced decision-making, and strengthened competitive positions, confirming the strategic value of data-driven management in modern organizations.