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INNOVATIVE APPROACHES TO ASSESSING ECONOMIC SECURITY USING DIGITAL ANALYTICS

In the current context of globalization, digitalization of economic processes, and increasing uncertainty in the external environment, the issue of ensuring economic security has become particularly significant. Traditional approaches are increasingly proving insufficiently adaptive to dynamic changes associated with digital transformation, the growth of large datasets, and the increasing complexity of economic risks. The implementation of innovative approaches based on digital analytics, business intelligence, artificial intelligence, and predictive modeling enables timely threat detection, enhances the justification of managerial decisions, and strengthens the analytical support of the economic security system, highlighting the scientific and practical relevance of the chosen topic.

The assessment of economic security is based on the integration of indicator-based and risk-oriented approaches, economic analysis methods, and modern digital analytics. The use of multi-criteria methods, index-based approaches, scenario modeling, as well as big data processing algorithms and machine learning, allows the formation of a comprehensive, adaptive, and forecast-oriented risk assessment system. Digital tools make it possible to account for internal and external threats, evaluate the impact of key factors, and identify hidden patterns that are inaccessible to traditional approaches.

Modern approaches involve the use of an integrated digital environment, which includes:

- BI systems (Power BI, Tableau, Qlik), which automate the collection, aggregation, and visualization of financial, operational, and non-financial indicators of economic security, ensure continuous monitoring, enable

prompt detection of deviations, and enhance the transparency of analytical processes.

- Big Data, which allows the analysis of large volumes of structured and unstructured data, including financial and management reports, transaction datasets, tax and customs information, open statistical resources, government registry data, and social media. The integration of such data provides a comprehensive assessment of internal and external threats and enables the identification of hidden interdependencies among indicators.
- artificial intelligence and machine learning, including classification, clustering, regression, and neural network analysis, which support predictive risk assessment, modeling of crisis scenarios, and the generation of recommendations for managerial decision-making.

The practical application of modern digital tools in the field of economic security is confirmed by examples from both global and Ukrainian practice. At the global level, *Mastercard* uses artificial intelligence algorithms to detect fraudulent transactions in real time, allowing for prompt responses to financial risks. The analytical platform *Quantexa* applies Big Data technologies to analyze data interconnections and assess potential financial risks and cases of fraud, improving forecasting accuracy and asset protection. In Ukraine, companies such as *Kyivstar* and *Fozzy Group* utilize Big Data to forecast consumer demand and manage operational and financial risks. The startup *Dropla* employs artificial intelligence to process drone video data and assess threats in logistics, demonstrating the practical effectiveness of digital tools in ensuring economic security.

These practical examples highlight the need to improve the system of economic security assessment by developing an integrated, multi-level set of indicators that take into account financial, operational, social, and innovation-related criteria, as well as standardized threshold values for risk evaluation. Modern analytical models, based on multi-criteria approaches, indices, and scenario forecasting, in combination with Big Data and AI, enable the automation of calculations, the identification of hidden

interdependencies among indicators, and the enhancement of the accuracy of economic security assessments.

The proposed approaches to economic security assessment based on digital analytics demonstrate high efficiency at various levels of management and allow the implementation of a comprehensive strategy for risk mitigation and the enhancement of the resilience of economic systems.

At the enterprise level, the application of these approaches contributes to improving risk management efficiency, timely identification of financial, operational, and strategic threats, optimization of the indicator system, and the development of well-founded strategic and operational decisions. The implementation of integrated digital models and analytical platforms enables enterprises not only to analyze historical data but also to forecast risk development and crisis scenarios, thereby enhancing business adaptability and competitiveness.

For government authorities, digital approaches provide the capability to conduct integrated assessments of economic risks at regional and national levels, develop predictive models of crisis scenarios, and formulate policies and strategies aimed at strengthening the country's economic security. The use of such tools enhances decision-making transparency, ensures timely responses to changes in the macroeconomic environment, and improves coordination among various state institutions.

Analytical centers and research institutions can apply digital tools for continuous monitoring of key economic security indicators, conducting comprehensive analytical studies, identifying hidden patterns and interconnections between economic processes, and preparing scientifically grounded recommendations for enterprises and government authorities. This ensures a high level of operational efficiency, accuracy, and adaptability in the analytical support of management decisions under conditions of digital transformation and increasing economic risks.

Contemporary challenges to economic security necessitate a shift from traditional assessment methods to the use of digital analytics and innovative tools that ensure operational efficiency, integration, and predictive capabilities in analytical

processes. The application of Big Data technologies, BI systems, artificial intelligence, and machine learning methods enables the processing of large volumes of structured and unstructured data, the identification of hidden patterns, the modeling of risk development scenarios, and the improvement of the accuracy of analytical conclusions. The enhancement of indicator systems and analytical models allows for a comprehensive consideration of internal and external threats, increases the objectivity of economic security assessments, and strengthens the justification of managerial decisions. The implementation of digital tools transforms the economic security assessment process into a dynamic, integrated, and forecast-oriented system, contributing to the reinforcement of management processes, the resilience of enterprises and the state against economic risks, and the adaptation to an ever-changing digital environment.

References

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