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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON MODERN BUSINESS

Artificial intelligence (AI) has become one of the most transformative technologies of the 21st century, significantly influencing various sectors of the global economy. Modern business environments are rapidly evolving as AI-based systems integrate, enhancing decision-making, automating routine tasks, and improving overall efficiency. According to S. Russell and P. Norvig (2021), artificial intelligence is the study and development of systems capable of performing tasks that normally require human intelligence, such as learning, reasoning, and problem-solving.

One of the key impacts of AI on modern business is automation. Many companies use AI-powered tools to automate repetitive processes such as data entry, customer service, document processing, and inventory management. It allows organizations to reduce operational costs, minimize human error, and significantly increase productivity. For example, chatbots and virtual assistants are widely used in customer support systems, providing fast and accurate responses to clients' requests at any time of the day (Brynjolfsson & McAfee, 2017). In addition, robotic process automation (RPA) is increasingly applied in the finance and logistics industries to handle structured tasks without human intervention.

Another important aspect is data analysis and decision-making. Modern businesses generate vast amounts of data every second, which is impossible to process manually. AI algorithms enable companies to analyze large datasets, identify hidden patterns, and make accurate data-driven decisions. As T. H. Davenport and R. Ronanki stated (2018), AI technologies help businesses gain valuable insights that improve strategic planning and increase market competitiveness. Predictive analytics, for instance, enables companies to forecast customer demand, optimize pricing strategies, and reduce investment risk.

AI also plays a crucial role in personalization and customer experience. E-commerce platforms and digital marketing systems use AI to analyze user behavior, preferences, and purchase history in order to provide personalized recommendations. It increases customer satisfaction, engagement, and loyalty. Companies such as Amazon, Netflix, and Spotify are well-known examples of businesses that successfully implement AI-driven recommendation systems (Chaffey & Chadwick, 2023). Personalization has become a key competitive advantage in the digital economy, as customers increasingly expect tailored services and products.

In addition, artificial intelligence contributes to innovation and the development of new business models. Many startups and large corporations use AI to create innovative products and services that did not exist before. For example, AI is widely used in fintech for fraud detection, credit scoring, and algorithmic trading. In healthcare-related businesses, AI supports diagnostic systems and medical imaging analysis, improving both speed and accuracy of diagnoses. This demonstrates that AI is not only improving existing processes but also enabling entirely new industries to emerge.

Despite its advantages, implementing AI in business also presents several challenges. One of the main concerns is job displacement, as automation may replace certain human roles, especially in repetitive and routine-based occupations. However, AI also creates new job opportunities in areas such as data science, machine learning engineering, and AI system management. This leads to a transformation of the labor market rather than complete job elimination.

Additionally, issues related to data privacy, security, and ethical use of AI are becoming increasingly important in modern society. Businesses that rely on AI systems often collect large amounts of personal data, raising concerns about how it is stored and used. According to Floridi et al. (2018), ethical frameworks are necessary to ensure responsible development and use of AI technologies, particularly in terms of transparency, accountability, and fairness.

Another significant challenge is the high cost of AI implementation. Developing and maintaining AI systems requires advanced infrastructure, skilled specialists, and continuous updates. It can be difficult for small and medium-sized enterprises (SMEs), which may lack sufficient financial and technical resources. As a result, there is a growing gap between large corporations and smaller businesses in their digital transformation efforts.

Furthermore, AI systems may sometimes produce biased or inaccurate results when trained on incomplete or biased datasets. This can lead to unfair decision-making, especially in sensitive areas such as recruitment, lending, or law enforcement applications in business environments. Therefore, ensuring data quality and algorithm transparency is essential for reliable AI performance.

In conclusion, artificial intelligence has a profound impact on modern business by increasing efficiency, improving decision-making, supporting innovation, and enhancing customer experience. It allows companies to operate more effectively in an increasingly competitive digital economy. However, it also raises important ethical, social, and economic challenges that need to be carefully addressed. The future of business will likely depend on the balance between technological innovation and responsible implementation of AI systems, ensuring that the benefits of AI are maximized while minimizing its potential risks.

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DIGITALIZATION IN ENGINEERING AND ECONOMICS AS A DRIVER OF INNOVATION AND GLOBAL CHALLENGES

The rapid advancement of digital technologies has become a defining feature of contemporary engineering and economic processes. In the context of European integration, digitalization acts as a powerful catalyst for innovation while simultaneously generating complex global challenges that require interdisciplinary solutions.

The paper aims to explore the role of innovative digital technologies in engineering and economics and to analyze the major global challenges they pose to modern society.

First, it is important to clarify the concept of digitalization and how it differs from related terms. Digitalization refers to the adoption and integration of digital technologies into business models, processes, and value chains, fundamentally transforming how organizations operate and deliver value (Brennen & Kreiss, 2016). Unlike simple digitization (the conversion of analog data to digital form), digitalization involves broader organizational and cultural changes. In engineering, it manifests through digital