DOI: https://doi.org/10.46793/6461-101.359S
Original Scientific Article

DIGITAL TRANSFORMATION AND ARTIFICIAL INTELLIGENCE IN THE FUNCTION OF GREEN ECONOMY

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Abstract: This paper will present the process of digital transformation with an emphasis on artificial intelligence, as one of the fastest growing technologies in today's world, from the aspect of impact on business processes, operations and green economy. Based on a systematic review of the latest literature, the theoretical foundations of the process of digital transformation and the definition of the phenomenon of artificial intelligence were evolved. In the thematic research, we will learn about digital transformation, artificial intelligence, its history, models, types, divisions, structure and application possibilities in the function of the green economy. In this context, the structural concepts of artificial intelligence will be evolved, including machine learning, neural networks, natural language processing and computer vision. For the purposes of the work, research on the application of digital transformation and artificial intelligence will be carried out in specific business systems, and to investigate, among other things, the attitude of employees in companies towards digital transformation and artificial intelligence in business. In this sense, on the basis of the conducted surveys, we will analyze and present the obtained results, the possible impact of artificial intelligence on business decision-making in the function of the green economy, while the analysis will be based on the research questions. The results show that the responses of key users differ regarding the application of digital transformation and artificial intelligence in business from the aspect of business decision-making and application in the green economy.

Key words *digitalization, AI, green economy*

INTRODUCTION

Businesses and the economy itself are crucially linked to economic growth, which has long been linked to technological innovation and the changes it brings. One of the changes is the digital transformation, which undoubtedly represents one of the main factors in the development of business and technical business today. In this context, artificial intelligence is increasingly being applied, which represents a broad field of computer science that deals with the development of systems capable of performing tasks that usually require human intelligence. It is stated in the literature that the beginnings of artificial intelligence date back to the sixties of the 20th century, and that it has undergone enormous development in recent years [8]. Some developers of artificial intelligence systems use the term human-centered AI, and with that term they mean systems that are designed on the basis of social responsibility, fairness, accountability and transparency [21]. Artificial Intelligence is now used in almost all sectors and attempts are being made to follow the development through its use. Interest in artificial intelligence began to grow at the end of 2019 and today it is one of the most popular topics in the manufacturing, supply chain and logistics industries[8]. Research in practice shows that people who do not accept digital

transformation do not have a long-term future in modern companies. In this sense, it is important for companies to be able to adapt to many changes as successfully and quickly as possible [3]. The basis of artificial intelligence is models and algorithms that allow computers to learn from data and experience and improve their efficiency without explicit programming. Marr (2019) states that "artificial intelligence gives machines the power to see, hear, taste, smell, touch, speak, walk, fly and learn". The following figure 1 presents the evolution of the digital transformation process [18].

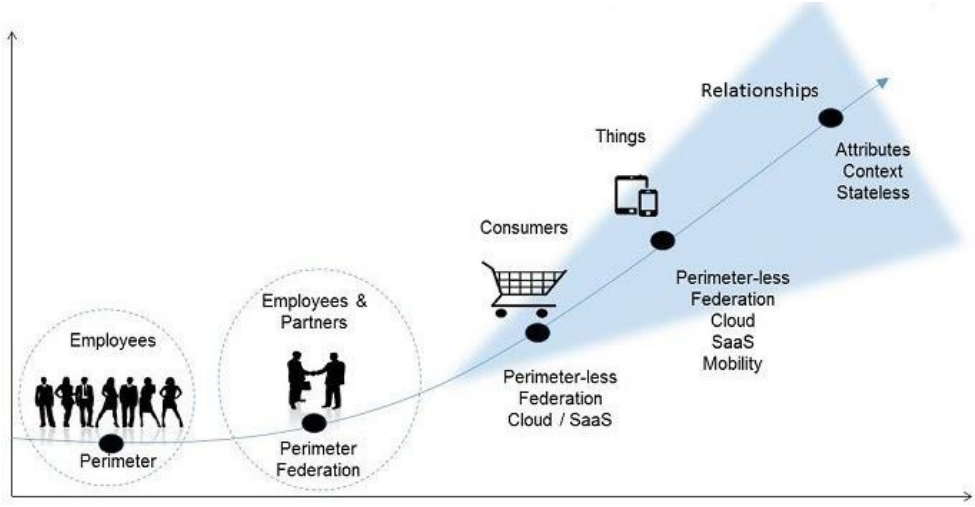

Figure 1. The evolution of digital transformatio [17]

Well-known authors state that if companies want to be successful, they must constantly monitor what is happening in the technological environment and study the forces that dictate digital transformation (Arslanian and Fischer, 2019). In this sense, the transformation affects all aspects of work, from the way we communicate and collaborate to the way we learn and innovate. As organizations continue to embrace digital transformation, we can expect even more changes in the way work is done [17].

THEORETICAL BASIS OF ARTIFICIAL INTELLIGENCE

The definition of AI comes from the principle of human intelligence, which is imitated by a machine and performs tasks ranging from the simplest to the most complex. Intelligence is often defined as the ability to learn or use experience, adapt to new situations, solve new problems, act with purpose, think rationally and act effectively in the environment [7]. Artificial intelligence is a branch of computing that focuses on the automation of intelligent behavior in all fields, including humans, animals, and plant life [7]. Frankenfield (2020) states that AI is based on the principle that

human intelligence can be defined as being easily imitated by a machine and performing tasks, from the simplest to the most complex. A concise definition of intelligence reads [7]: Intelligence = Perception + Analysis + Reaction. Based on the above, the lack of a single definition is obvious, which is a challenge in the discussion of artificial intelligence, however, one of the more accepted definitions is "Systems that exhibit intelligent behavior by analyzing their environment and acting with a certain degree of autonomy to achieve goals." [13]. Research in practice shows that the introduction of artificial intelligence can completely change the work process. The literature states that AI is therefore constantly being developed and used by many different industries [14]. Well-known authors in this direction emphasize that companies in every industry will have to be aware of AI and its impact on changes in the way they do business in their investment, innovation and development strategies [19]. New trends that have a direct impact on the dynamics of the AI industry include the increasing use of AI in IoT applications and processors. AI will transform every business in the future and increase its potential to increase profits, market share and revenue. The use of AI in the analysis of huge amounts of business data has borne fruit in many areas, the technology industry, banking, marketing, entertainment, etc. In this sense, it is precisely big data that allows AI to advance at a high speed [4] .

TYPES AND CATEGORIES OF ARTIFICIAL INTELLIGENCE

Artificial intelligence is classified in the field of data science and includes both classical programming and machine learning (English machine learning, ML) [6]. AI-based systems are the result of advances in fundamental concepts of artificial intelligence, including machine learning, neural networks, natural language processing, and computer vision. Machine learning, as part VI, allows systems to learn and improve based on experience and consists of a wide range of models and methods, including: deep learning (eng. deep learning, DL) and artificial neural networks (eng. artificial neural networks, ANN) [6]. Robotics and AI bring many benefits such as enabling banks to optimize costs and improve operations. Compared to humans, robots collect, move, arrange and stack things much faster and more accurately, and in addition, they improve productivity and reduce the number of errors. The following Figure 2 presents the relationship between machine learning and deep learning artificial intelligence.

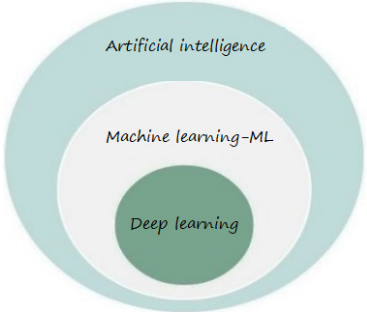

Figure 2. The relationship between AI, ML and deep learning [9]

Machine learning is a branch of artificial intelligence that focuses on developing algorithms that allow computers to learn from data and make predictions based on it. Some authors state that machine learning would, for example, improve material handling and help robots decide which are the most efficient and appropriate ways to collect and distribute supplies [22]. Deep learning, a subset of machine learning, uses complex algorithms and artificial neural networks to learn from data. AI technologies are also driving industry innovations such as biometric authentication, voice business and robo-advisors. Robotic vaccination system: The robotic system would read the animal's chip and, based on that, collect data about the individual animal, and in case vaccination is needed, it would direct it to the appropriate place, where the mechanism would ensure the execution of the vaccination [16]. Artificial neural networks, the foundation of deep learning, enable advanced analysis and recognition of patterns in data. Neural networks, which are inspired by the human brain, are key to deep learning, which is capable of processing large amounts of data and creating complex models. Natural language processes enable computers to understand and respond to human language, which is the basis for virtual assistants and translation services. Computer vision enables machines to analyze visual information and interpret it, which is key to technologies such as self-driving cars and facial recognition. Two categories of artificial intelligence are known: weak artificial intelligence (Weak AI) and strong artificial intelligence (Strong AI). For example, weak AI is used in a variety of applications, from voice assistants like Siri and Alexa, which allow users to interact with devices via speech, to self-driving cars that rely on complex AI algorithms to safely navigate roads. Many pioneering companies in the financial services industry are already experimenting with the use of AI, e.g. to power chatbots, provide 24-hour customer service and use technology to prevent fraud and ensure legal compliance. Strong artificial intelligence, also known as general artificial intelligence, is capable of performing a wide range of tasks that a human can perform. Has the ability to understand, learn, adapt and perform tasks that require general intellectual ability. Strong artificial intelligence is still in the research and development stage, as it includes complex abilities and can adapt to different situations without pre-programmed tasks.

MATERIALS AND METHOD

In this research, given the need to describe various processes, relationships and facts, the descriptive method of work will be used at the beginning of the research. In the introductory part, a systematic literature review of various recent scientific researches, such as journal articles, scholarly articles, online literature, etc., is evolved. In this regard, when discussing and defining new concepts, we will use the classification method. With the aim of verifying the hypothesis, we will compare facts, relationships and processes using the comparative method. In essence, a combined qualitative research method will be applied [20]. All described methods will be full and compilation

methods, because we will summarize the observations, findings, conclusions, views and latest results of eminent authors.

RESULTS

Research results show that today artificial intelligence accompanies us in our daily personal lives, and is increasingly included in business environments as well. Practice shows that artificial intelligence brings numerous advantages that significantly affect various aspects of business and everyday life[11]. By using artificial intelligence, companies can improve the efficiency of their business processes, increase productivity and profitability, but the value of artificial intelligence is not only in the technology of the systems themselves, but in how companies use these systems to help people[12]. The following figure 3 presents the current state of application of artificial intelligence.

Figure 3. Current use of artificial intelligence in businesses [5]

Many artificial intelligence systems have been successfully implemented in many industry sectors, but this is not the case in construction, where artificial intelligence is used on a smaller scale [2].In this context, Joice (2018) states that by 2030, traditional financial institutions can reduce costs by 22 percent with AI, representing a billion dollars in projected cost savings[15]. With the ability to process large amounts of data and automate tasks, it greatly increases efficiency and accuracy in many areas. Among the key shortcomings of artificial intelligence are limitations in the areas of creativity, emotional intelligence and ethics, which can affect the way the technology affects society. Figure 4 presents the results of possible impacts of VI.

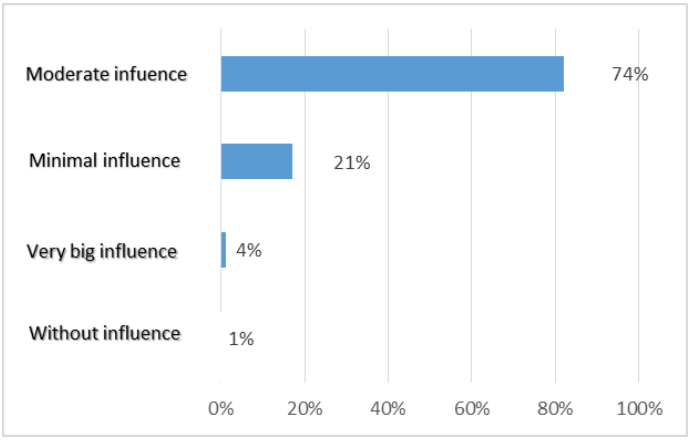

Figure 4. Results of possible effects of artificial intelligence on business decision-making in the function of green economy [10]

DISCUSSION

The benefits of implementing digital transformation are numerous, and most companies see it as a way to improve operational efficiency and customer experience, save costs, and contribute to the organization's sustainability efforts [24]. Almost all innovations are related to the digital perception of the world, and the change of business models towards digitalization is essential for the survival of companies. In this regard, the total estimated amount of green investments in Serbia for 2022 is 200 million. Practice shows that AI enables the recognition of patterns and trends that would be difficult for humans to recognize, which contributes to better decisions and innovations. According to the Chamber of Commerce of the Republic of Serbia, green transformation and digitization of business are becoming imperative and one of the biggest challenges for preserving the competitiveness of the Serbian economy in the years ahead. Artificial intelligence represents a broad research area focused on solutions similar to human intelligence, while machine learning is a practical way of implementing artificial intelligence that allows computer systems to learn and improve their performance through interaction with the environment [25]. Mitigating climate change is one of the top goals of global economies, including Serbia. Data shows that the use of AI in many business sectors has increased by 270% from 2017 to 2021, so it is crucial for companies to explain what their systems do in a way that builds trust among users. Not only in the tech world, AI is becoming standard in all companies, regardless of sector. As many as 90% of the world's leading companies are already investing in AI technologies, and more than half have reported that their productivity has increased [23]. Practical research shows that smart machines and artificial intelligence

systems are becoming more and more complex and powerful. Some computers already exceed the limits, which means that they can perform as many calculations in an instant as an ordinary person would do in a million years. This power allows computers to gain skills and perception that were once unique to humans.

CONCLUSION

The networking of the digital economy and the green transition presents businesses and organizations with an exceptional opportunity to innovate, evolve and become competitive and powerful players in today's increasingly open market. The speed of entry into digital transformation is what leads to successful cost reduction, so those who recognize trends and join them earlier achieve savings of up to 70% thanks to digital transformation, while for those who follow trends, the percentage of savings is 30%, according to a new study by Schneider Electric. Artificial intelligence will completely change the nature of work in some sectors, and employees will have to get used to this change. One of the predictions for the future is that every job will quickly become obsolete, so we will be under constant pressure to acquire new competencies. As our jobs will be threatened by automation and new skills, we will be willing to work cheaper. It was established that, despite the presence of artificial intelligence in some companies, there is still a large percentage of respondents (57%) whose companies do not use this technology. The majority of respondents reported benefiting from faster processes and better efficiency, indicating the positive results companies are achieving from implementing artificial intelligence. Companies often report that, despite having the right competencies on staff, they prefer to use external consultants, as managing their own teams is often more difficult and slower. Digital business transformation has become an integral part of every successful business system or organization. The benefits of using AI, such as improved accuracy, business efficiency and competitive advantage, are clear, but respondents also point to risks such as cyber-attacks, model bias and ethical challenges. The use of artificial intelligence in the work process can bring both positive and negative things, but in any case, we must be very careful when dealing with artificial intelligence. Although it brings many advantages, artificial intelligence raises important ethical and social issues, such as privacy, bias in algorithms and the impact on the labor market. Understanding artificial intelligence is therefore key to meeting future challenges and harnessing its potential to improve the quality of life.Thanks to the digital transformation of business, energy savings range from 20 to as much as 80%, while the investment pays for itself in an average of three years," Schneider Electric Serbia points out. The analysis of the current state of AI use in the financial sector reveals numerous opportunities and challenges faced by companies in this sector. Research shows that the implementation of AI brings many advantages, such as faster processes, improved accuracy of data analysis and greater business efficiency, which allows companies to become more competitive on the market and improve their service offering. Further research could focus on analyzing the causes of the current state of digital transformation.

REFERENCES

1. Arslanian H. in Fischer, F. (2019). *The future of finance, the impact of fintech, AI and crypto on financial services*. Palgrave Macmillan.
2. Abioye, S. O., Oyedele, L. O., Akanbi, L., Ajayi, A., Delgado, J. M. D., Bilal, M. in Ahmed, A. (2021). Artificial intelligence in the construction industry: A review of present status, opportunities and future challenges. Journal of Building Engineering, 44, 103299.
3. Astafeva, O. V., Pecherskaya, E. P., Tarasova, T. M. in Korobejnikova, E. V. (2019). Digital transformation in the management of contemporary organizations. V *International scientific conference "Digital transformation of the economy: challenges, trends, new opportunities"* (str. 382–389). Springer.
4. Anyoha, R. (2017, 28. avgust). *The History of Artificial Intelligence* [objava na blogu]. Available 05. September 2025 https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/
5. Better Business Blog. (2017). *Artificial Intelligence and ERP*. Available 12. September 2025 betterbusiness.deskera.com: https://betterbusiness.deskera.com/artificial-intelligence- and-erp/.
6. Choi, R. Y., Coyner, A. S., Kalpathy-Cramer, J., Chiang, M. F. in Campbell, J. P. (2020). Introduction to machine learning, neural networks, and deep learning. Translational Vision Science & Technology, 9(2), 14. https://pubmed.ncbi.nlm.nih.gov/32704420/
7. Chowdhary, K. R. (2020). Fundamentals of Artificial Intelligence. Springer. https://link.springer.com/book/10.1007/978-81-322-3972-7
8. Das, R. (2021). Practical AI for Cybersecurity (1st ed.). Auerbach Publications. https://doi.org/10.1201/9781003005230
9. Denić, N., Stojanović,K.,Stojanović, J.„Possibilities of applying IoT in the municipality of Gračanica" The Book of Abstracts International Scientific and ProfessionalConference "ALFATECH"Smart Cities and modern technologies March 15, 2024, Belgrade, Serbia, 20 –20, ISBN 978-86-6461-070-4, COBISS.SR-ID 139964169, DOI: 10.5281 / zenodo.10802515
10. Denić, N., Baščarević ,A., Milić,M., Mihajlović, S and Milić S. "Artificial Intelligence and Blockchain Technologies for Sustainable Development " 4th International Conference on Scientific and Innovative Studies April 29-30, 2025: pp 27-32 Konya, Turkey, https://as-proceeding.com/index.php/icsis/home
11. Denić, N.**,** Milosevic, M., Kamiš, A., Mihajlović, S., and Milić, S "New possibilities and paradigms of applying artificial intelligence in electronic business" 7th International Conference on Applied Engineering and Natural Sciences May 15-16, 2025: pp Konya, Turkey
12. Denić, N., Stojanović,K., Stojanović, J: Justification and specificity of application of business intelligence - Vol. 1 No. 1 (2025): AlfaTech, 2025, pp.1-4 22.04.2025, April 2025 DOI: 10.46793/AlfaTech1.1.01D

13. Evropska komisija. (2018). A DEFINITION OF AI: MAIN CAPABILITIES AND SCIENTIFIC DISCIPLINES. https://ec.europa.eu/futurium/en/system/files/ged/ai_hleg_definition_of_ai_18_ december_1.pdf
14. Frankenfield, J. (2020). *Artificial intelligence*. Available 25. September 2025 https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp
15. Joyce, L. (2018, 29. maj). *Artificial intelligence and the banking industry's $1 trillion opportunity*. Available 22. September 2025 https://thefinancialbrand.com/ 72653/ artificial-intelligence-trends-banking-industry/
16. Kumari, M. in Dhawal, K. (2021). Application of Artificial Intelligence (AI) in Animal Husbandry. Vigyan Varta 2(2), 27–29.
17. Mai, T. (2022). Take a Deep Look at The History of Digital Transformation. Available 22. September 2025 https://magenest.com/en/history-of-digital-transformation/
18. Marr, B. (2019). Artificial intelligence in practice: how 50 successful companies used AI and machine learning to solve problems. John Wiley & Sons.
19. Plastino, E. in Purdy, M. (2018). *Game changing value from artificial intelligence: eight strategies*. Emerald publishing limited.
20. Radovanović, B. (2020) *Prilozi metodologiji i filozofiji nauke*, Izdavački centar Filozofski fakultet Univerzitet u Nišu, pp. 1-173, Niš 2020. ISBN 978-86-7379-538-6
21. Riedl, M. O. (2019). Human-centered artificial intelligence and machine learning. Human behavior and emerging technologies, 1(1), 33–36.
22. Sohrabi, M. (2023). Artificial Intelligence in Logistic Industry. Implementation of disruptive technologies in supply chain management, 73–86.
23. Stahl, A. (2021). How AI will impact the future of work and life. *Forbes*.Available 22. September 2025 https://www.forbes.com/sites/ashleystahl/2021/03/10/how-ai-will-impact-the-future-of-work-and-life/?sh=19ebbf179a30
24. Stojanović, K., Denić,N., Stojanović, J. "Paradigms of application of business data analysis and business intelligence in public administration and local self-government" "The Book of Abstracts International Scientific and Professional Conference "ALFATECH" Smart Cities and modern technologies March 15, 2024, Belgrade, Serbia, 20 – 20, ISBN 978-86-6461-070-4, COBISS.SR-ID 139964169, DOI: 10.5281/zenodo.10802515
25. Wang, X., Han, Y., Leung, V. C. M., Niyato, D., Yan, X. in Chen, X. (2020). Fundamentals of artificial intelligence. V Edge AI (str. 33-47). Springer. https://doi.org/10.1007/978-981-15-6186-3_3