THE IMPACT OF USING AI AND CHATGPT IN ORGANIZATIONS

Cătălin TUDOSE[1], Costin Anton BOIANGIU[2], Jasmyna Cristina ANTAL[3], Cristiana BĂNĂŢEANU[3], Laura BREAZU[3], Mihai PIELE[3]

This article investigates the impact of Artificial Intelligence (AI) and ChatGPT in the business sector. It highlights the evolution of AI, focusing on the integration and applications of technologies like machine learning, natural language processing, and ChatGPT in various business areas. A central aspect of the study is a survey that reflects professionals' views on AI's effectiveness, data security concerns, and its influence on workplace dynamics across multiple industries. The research reveals both the benefits, such as improved efficiency and innovation, and challenges, including data security risks and potential overreliance on technology. Concluding, the article emphasizes the need for a balanced approach to AI adoption in businesses, advocating for a combination of technological and human expertise for optimal results. This study provides key insights for companies looking to leverage AI for sustainable growth and competitive advantage.

Keywords: Artificial Intelligence, Machine Learning, Natural Language Processing, ChatGPT

1. Introduction

The impact of using AI and ChatGPT in companies is a multifaceted and significant topic. In recent years, artificial Intelligence, particularly ChatGPT, has become a vital tool for businesses, offering new and efficient ways of interacting with customers and optimizing internal processes.

ChatGPT, built on advanced machine learning and natural language processing, enables companies to conduct fluid and personalized conversations with customers, providing contextually relevant and adaptive responses. This is particularly valuable in areas like customer support and marketing, where personalization and efficiency are key to success [1]. ChatGPT is remarkable for its

[1] Lecturer, PhD, Computer Science and Engineering Department, National University of Science and Technology POLITEHNICA Bucharest, Romania, e-mail: catalin.tudose@gmail.com
[2] Prof., PhD, Computer Science and Engineering Department, National University of Science and Technology POLITEHNICA Bucharest, Romania, e-mail: costin.boiangiu@cs.pub.ro
[3] Student, Computer Science and Engineering Department, National University of Science and Technology POLITEHNICA Bucharest, Romania, e-mail: cristina.antal@stud.acs.upb.ro, cristiana.banateanu@stud.acs.upb.ro, laura.breazu@stud.acs.upb.ro, mihai_teodor.piele@stud.acs.upb.ro

capability to understand natural language and generate tasks in the form of a conversation [2]. Such a powerful instrument may naturally generate both enthusiasm and concern about its future influence [3].

There are numerous benefits to using ChatGPT in business, including cost efficiency, scalability, 24/7 availability, and the ability to collect important customer data. These advantages can lead to significant improvements in customer service and cost savings for companies [4]. In the realm of eCommerce, ChatGPT, and other AI solutions can be used to enhance communication with customers, create more effective product descriptions, and provide personalized product recommendations. However, it's important to consider the need for verification and adaptation of the data provided by AI [5]. Relying heavily on the support of ChatGPT involves risky consequences, especially for high-stakes decision-making contexts [6].

Furthermore, digital marketing can greatly benefit from AI and ChatGPT through SEO automation, personalizing user experiences, and tailoring to the specific needs of each customer. This can lead to increased website traffic and optimized sales strategies [7]. However, there are also challenges and limitations associated with using ChatGPT. These include the lack of a "human touch" in responses, limited context understanding, potential for bias, and the need for technical expertise to set up and maintain the system. Additionally, there are concerns about the spread of misinformation, personal data collection, and the impact on jobs [8], and about the potential benefits and drawbacks in different sectors of the economy, democracy, society, and environment [9].

2. History of Artificial Intelligence and ChatGPT

We'll briefly review the most important steps in the history of Artificial Intelligence, from its dawns until the rise of ChatGPT.

- Early AI Developments (1950s - 1970s)

AI began in the 1950s with foundational work in symbolic methods and problem-solving. The 1956 Dartmouth workshop is often cited as the birth of AI as a distinct field. However, progress was slow due to computational limitations [10], [11].

- Rise of Machine Learning and Deep Learning (1980s - 2000s)

The 1980s witnessed a revival in AI interest, with the development of expert systems and machine learning techniques. Deep learning, a subset of machine learning involving neural networks, gained prominence in the 2000s, enabling significant advancements in image and speech recognition [12], [13].

- Modern AI: Expansion and Integration (2010s - Present)

The 2010s saw AI becoming more integrated into various sectors, thanks to advancements in natural language processing (NLP) and neural networks. AI's capabilities expanded, impacting industries ranging from healthcare to finance.

- ChatGPT: A Milestone in Conversational AI

Developed by OpenAI, ChatGPT represents a significant leap in conversational AI. It utilizes the GPT-3 model, capable of generating human-like text responses. This advancement allowed for more sophisticated and versatile applications in business contexts.

- Impact of AI and ChatGPT on Companies

AI, particularly ChatGPT, has transformed how companies interact with customers, offering personalized and efficient customer service through AI-driven chatbots.

In content creation, ChatGPT aids in generating reports, articles, and even creative writing, streamlining the content development process. ChatGPT proved its abilities in medical articles and peer review [14], and in writing case reports [15]. Human involvement must support original ChatGPT reports, and every professional may form a personal stance toward the use of the AI tool [16].

ChatGPT's role in education and training within companies is notable, providing interactive learning experiences and support [17]. ChatGPT can be evaluated under aspects such as ease of use, accuracy, and completeness of responses, and its effectiveness in enhancing understanding knowledge [18]. Its capabilities in data analysis and interpretation help businesses make informed decisions based on complex data sets. Experiments indicate that artificial intelligence may well have the power to disrupt the coding of data segments as a dominant paradigm for qualitative data analysis [19]. With ongoing advancements, AI technologies may soon offer more substantial support in enhancing qualitative research capabilities, an area that deserves more investigation [20].

For software development, ChatGPT assists in coding, debugging, and explaining programming concepts, enhancing productivity. New tools recently developed, such as JAIG (Java Artificial Intelligence Generator), may speed up the implementation of the programming tasks even 5-10 times, depending on their nature [21].

In conclusion, the evolution of AI, culminating in the development of ChatGPT, has had a profound impact on business operations, enhancing efficiency, customer engagement, and decision-making processes.

3. Artificial Intelligence Technologies and Tools Used in the Business Environment

The integration of Artificial Intelligence (AI) technologies in the business environment has witnessed unprecedented growth in recent years, revolutionizing

the way organizations operate and make decisions. From machine learning algorithms to natural language processing (NLP) tools, businesses are leveraging AI to gain a competitive edge in an increasingly digital world [22].

Machine Learning (ML) is a core component of AI, enabling systems to learn from data and improve their performance over time. In the business environment, ML is applied to tasks such as predictive analytics, customer segmentation, fraud detection, and recommendation systems. Organizations leverage supervised learning, unsupervised learning, and reinforcement learning algorithms to extract patterns and predictions from diverse datasets, ultimately enhancing decision-making processes [23].

NLP is a subset of AI that focuses on the interaction between computers and human language [24]. Businesses are utilizing NLP tools to process and understand human language [25], enabling applications such as chatbots, sentiment analysis, and language translation services. These applications enhance customer communication, automate customer support, and provide valuable insights into consumer behavior and preferences.

Robotic Process Automation [26] involves the use of software robots to automate repetitive, rule-based tasks. In the business environment, RPA is employed for automating routine processes such as data entry, invoice processing, and customer onboarding. This not only reduces human errors but also frees up human resources to focus on more strategic and complex tasks.

Computer vision [27] enables machines to interpret, analyze, and enhance visual information from the world. In the business realm, this technology is employed for image and video analysis, object recognition, and quality control in manufacturing. Retailers utilize computer vision for facial recognition in stores, while healthcare organizations leverage it for medical image analysis and diagnostics.

The integration of AI into analytics tools [28] empowers organizations to derive meaningful insights from vast datasets. AI-driven analytics enable real-time data processing, pattern recognition, and trend analysis. Businesses leverage these insights for data-driven strategic decision-making, market forecasting, and identifying growth opportunities.

As cyber threats become more sophisticated, businesses are increasingly turning to AI-driven cybersecurity solutions [29]. AI algorithms can detect anomalies in network behavior, identify potential security breaches, and respond in real-time to mitigate risks. This proactive approach to cybersecurity is crucial in safeguarding sensitive business data and maintaining customer trust.

4. The survey

The following section presents a summary and an analysis of the survey responses, shedding light on the prevailing feelings and experiences of professionals immersed in the contemporary AI-driven work environment. The data not only reveals the extent of familiarity with AI tools but also delves into the nuanced perspectives regarding the perceived impact of these technologies. The study encompasses a wide range of participants, offering a holistic view of how individuals from different backgrounds and roles within organizations perceive and engage with AI.

4.1. Structure of participants

A total of 147 responses were received, with 52.7% of the respondents being male and 47.3% being female.

Table 1

Structure of participants by working domain

Working domain	Number of participants	Percent of participants
IT (software)	37	25.2%
IT (hardware)	18	12.2%
Engineering	15	10.2%
Management	14	9.5%
Human Resources	13	8.8%
Marketing	11	7.5%
Education	10	6.8%
Medicine	7	4.8%
Students	7	4.8%
Law	4	2.7%
Media	4	2.7%
PR	2	1.4%
Police Force	2	1.4%
Customer Support	2	1.4%
Tourism	1	0.7%

As shown, a lot of respondents work in fields connected with technology, such as IT (software and hardware), engineering, management, education, and medicine.

The survey reveals that the majority of respondents are familiar with AI tools like Chat GPT, Copilot, or Bing, with a significant proportion being very familiar or somewhat familiar (70%). There is a minority who either have little or no familiarity with these tools (30%). The findings suggest widespread awareness and substantial usage of these AI tools within the surveyed group.

Chart 1

Are you familiar with AI Tools such as ChatGPT, Copilot, or Bing?

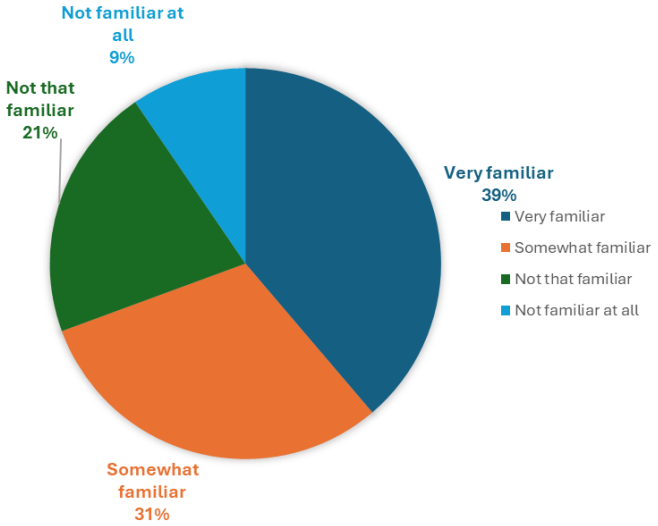


Table 2

How impactful are AI tools/AI technologies on the efficiency and productivity of the workers within the organization you work for?

The Impact	Number of participants	Percent of participants
Very impactful	23	15.6%
Impactful	31	21.1%
Somewhat impactful	11	7.5%
Not that impactful	15	10.2%
Not impactful at all	22	15%
Do not know	45	30.6%

These results are very interesting, concentrating most of the responses on the extreme parts: 36.7% of the participants appreciate the usage of AI tools and technologies as impactful and very impactful, while 45.6% consider them as not impactful at all or that they cannot be estimated. This means that many people either do not have an overall image of the usage of the AI tools and technologies inside the organization they work for or, if they still use them, they mostly do it for personal activities.

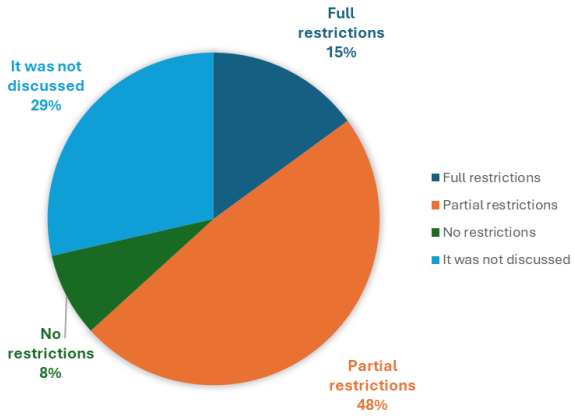
From the respondents who positively appreciated the contribution of AI to efficiency and productivity, specific comments indicated the use of AI for automating repetitive tasks and improving processes. Respondents highlight various domains and types of tasks that would benefit the most from automation through AI in their organizations: text generation, brainstorming ideas, adapting code for new projects, writing tasks (descriptions, content, ads), automatic task

allocation based on employees' capabilities, objective performance evaluation, and managing repetitive and bureaucratic tasks.

The positions of the organizations concerning the usage of AI for solving regular tasks vary, a majority (63.2%) still expresses reserves regarding it.

Chart 2

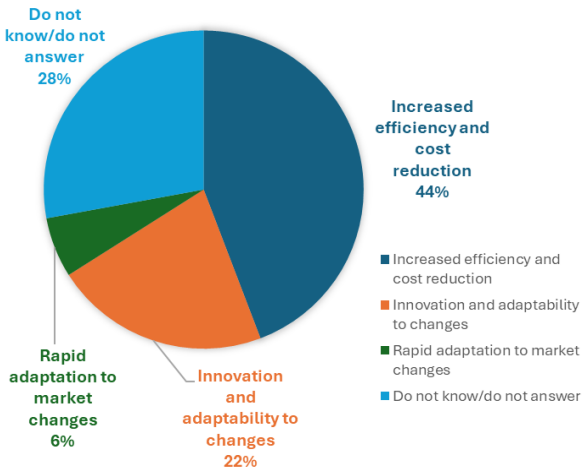
What is the position of the organization you work for regarding the usage of AI for regular tasks?



The respondents highly appreciate the possible positive impact of using AI for their daily work, especially considering the increased efficiency and cost reduction. However, more than a quarter of the participants are unable to provide an answer, mainly due to the lack of familiarity with the AI tools/AI technologies or to the restrictions inside their organizations.

Chart 3

What is the main advantage you consider for the usage of AI tools/AI technologies within the organization you work for?



Even if, generally, participants perceive the impact of using AI as beneficial or with a partially positive influence in accomplishing daily tasks, there are also mentions of a negative or partially negative influence, indicating concerns about AI's impact on daily tasks among respondents.

Table 3

What is the main disadvantage you consider for the usage of AI tools/AI technologies within the organization you work for?

Main disadvantage	Number of participants	Percent of participants
Lack of data security	83	56.5%
Receiving inaccurate information	18	12.2%
Excessive dependence on technology	11	7.5%
Diminished learning motivation	7	4.8%
Potential time loss	5	3.4%
Reduced creativity	3	2%
Loss of authentic human interaction	3	2%
Do not know/do not answer	17	11.6%

A large majority of respondents (56.5%) express a lack of trust in the protection and security of data provided to ChatGPT. Other participants express worries about receiving inaccurate information, excessive dependence on technology, diminished learning motivation, potential time loss, reduced creativity, and the loss of authentic human interaction. Overall, the responses suggest a need for careful consideration of the implications of AI use in companies, highlighting both the advantages and potential drawbacks to ensure optimal benefits while managing possible challenges.

Concerning the abilities one must have to use ChatGPT efficiently, there was a diverse set of skills deemed necessary. The most notable ones mentioned include insightfulness, intellectual skills, efficient question formulation, digital and linguistic competence, creativity, prompt engineering competence, and adaptability.

To conclude the survey, the respondents were asked whether investing in these types of tools for development is better than investing in people. There are some positive answers (37.5%), but 36.7% still cannot provide a firm opinion, do not know, or do not answer.

The survey we ran provides some key insights that we would summarize as “the world is in movement”. The distribution of the responses to important questions about familiarity, efficiency, and restrictions suggests that the usage of AI is gaining popularity and impact, being gradually adopted, but there is still a

degree of reluctance and lack of trust and knowledge concerning the novelty of the technology.

Table 4

How do you assess investing in AI tools/AI technologies compared to investing in people?

Is it worth rather investing in AI than investing in people?	Number of participants	Percent of participants
Fully agree	12	8.2%
Partially agree	43	29.3%
Neither agree nor disagree	15	10.2%
Partially disagree	20	13.6%
Fully disagree	18	12.2%
Do not know/do not answer	39	26.5%

Consequently, there are no options that clearly dominate the answers to the questions. Also significant is the high percentage of the options "Do not know/do not answer" regarding the disadvantages of relying on AI or the opportunity to invest in it.

5. Conclusions

To conclude the main benefits and opportunities of using AI tools and AI technologies in organizations, as they resulted from the survey:

Increased efficiency and cost reduction

AI can automate repetitive and time-consuming processes, allowing employees to focus on more valuable tasks. It can also improve decision-making through predictive analysis and real-time data analysis, leading to increased operational efficiency and cost reduction.

Innovation and adaptability to changes

AI opens new possibilities for innovation, enabling companies to develop new products and services and enhance existing ones. It also facilitates rapid adaptation to market changes and consumer behavior, providing a significant competitive advantage.

Rapid adaptation to market changes

The ability to rapidly analyze data is a crucial advantage in the business environment, enabling companies to efficiently adapt to market changes. By leveraging AI technology, these companies can gain a deeper and quicker understanding of emerging trends, consumer behavior, and other impactful factors. This agility in data analysis facilitates informed decision-making and swift adjustment of strategies to dynamically respond to market demands.

On the other hand, examining the challenges and risks of using AI tools and AI technologies in organizations, as revealed from the survey:

Lack of data security

The utilization of AI often entails extensive data collection and analysis, raising substantial concerns regarding the security and confidentiality of data. This includes vulnerabilities to cyberattacks, potential data leaks, and challenges in preserving the privacy of personal information. Companies must reduce the data provided, invest in strong security solutions, and adhere to data protection regulations like GDPR.

Receiving inaccurate information

AI algorithms are error-prone and biased in the decision-making process. These shortcomings can appear for various reasons: inadequate algorithm training, use of datasets that do not accurately reflect the diversity and complexity of real-world situations. Errors can range from inaccurate interpretations of information to the adoption of discriminatory or biased thinking patterns.

Excessive dependence on technology

Excessive reliance on AI can lead to the reduction of human skills and the ability to make critical decisions in unexpected situations. Additionally, AI systems can be susceptible to errors or biases, especially when trained on incomplete or inaccurate datasets. Organizations must maintain a balance between technology and human expertise and develop strategies to mitigate risks.

In conclusion, this article provides a comprehensive perspective on how artificial intelligence (AI), and especially ChatGPT, is revolutionizing the business environment. The impact of AI and ChatGPT in the business world is deep and multi-dimensional. It represents a fundamental transformation in the way organizations interact with customers, innovate their products and services, and shape their future. In this era of advanced technology, the adaptation and intelligent integration of AI is essential for sustainable growth and long-term success in the business world. With careful planning and implementation, human control, and decisions, organizations can leverage technologies to turn challenges into opportunities and navigate effectively in the modern business landscape.

R E F E R E N C E S

[1]. *KaseMobile,* ChatGPT: Viitorul inteligentei artificiale conversationale si impactul acestora in companii, https://www.kasemobile.ro/blog/stiri/chatgpt-viitorul-inteligentei-artificiale-conversationale-si-impactul 9.07.2023

[2]. *T.Y. Wu, S.Z. He, J.P. Liu, S.Q. Sun, K. Liu, Q.L. Han, Y. Tang,* A Brief Overview of ChatGPT: The History, Status Quo and Potential Future Development, IEEE-CAA Journal of Automatica Sinica, Vol. 10, Issue 5, pp. 1122-1136

[3]. *M.A. Peters, L. Jackson, M. Papastephanou, P. Jandric, G. Lazaroiu, C.W. Evers, B. Cope, M. Kalantzis, D. Araya, M. Tesar, C. Mika, L. Chen, C.B. Wang, S. Sturm, S. Rider, S. Fuller,* AI and the Future of Humanity: ChatGPT-4, Philosophy and Education - Critical Responses, Educational Philosophy and Theory, 2023, DOI: 10.1080/00131857.2023.2213437

[4]. *TCITech,* ChatGPT/AI - How can it impact your business?, https://www.tcitech.io/about/blog/chatgpt-ai-how-can-it-impact-your-business 2024

[5]. *MerchantPRO*, ChatGPT şi inteligenţa artificială: cum pot influenţa industria eCommerce, https://www.merchantpro.ro/blog/tendinte/chatgpt-si-inteligenta-artificiala-cum-pot-influenta-industria-ecommerce 9.03.2023
[6]. *A. Choudhury, H. Shamszare*, Investigating the Impact of User Trust on the Adoption and Use of ChatGPT: Survey Analysis, Journal of Medical Internet Research, Vol. 25, 2023, DOI: 10.2196/47184
[7]. *DWF Talks*, Impactul AI & ChatGPT în Digital Marketing, https://dwf.ro/blog/dwf-talks-impactul-ai-chatgpt-in-digital-marketing 17.02.2023
[8]. *Raul Neţoiu*, Efectul ChatGPT: 300 de milioane de locuri de munca din toata lumea vor fi automatizate https://www.digi24.ro/stiri/sci-tech/fenomenul-chatgpt-300-de-milioane-de-locuri-de-munca-din-toata-lumea-vor-fi-automatizate-sua-si-europa-cele-mai-afectate-2300099 31.03.2023
[9]. *P. Budhwar, S. Chowdhury, G. Wood, H. Aguinis, G.J. Bamber, J.R. Beltran, P. Boselie, F.L. Cooke, S. Decker, A. DeNisi, P.K. Dey, D. Guest, A.J. Knoblich, A. Malik, J. Paauwe, S. Papagiannidis, C. Patel, V. Pereira, S. Ren, S. Rogelberg, M.N.K. Saunders, R.L. Tung, A. Varma*, Human Resource Management in the Age of Generative Artificial Intelligence: Perspectives and Research Directions on ChatGPT, Human Resource Management Journal, Vol. 33, Issue 3, pp. 606-659, Special Issue: SI, 2023, DOI:10.1111/1748-8583.1252
[10]. *N. Muthukrishnan, F. Maleki, K. Ovens, C. Reinhold, B. Forghani, R. Forghani*, Brief History of Artificial Intelligence, Neuroimaging Clinics of North America, Vol. 30, Issue 4, pp. 393-+, 2020, DOI: 10.1016/j.nic.2020.07.004
[11]. *G.F. Luger*, A Brief History and Foundations for Modern Artificial Intelligence, International Journal of Semantic Computing, Vol. 17, Issue 01, pp. 143-170, 2023, DOI: 10.1142/S1793351X22500076
[12]. *Stanford University*, One Hundred Year Study on Artificial Intelligence, Appendix I: A Short History of AI, https://ai100.stanford.edu/2016-report/appendix-i-short-history-ai
[13]. *Edem Gold*, The History of Artificial Intelligence from the 1950s to Today, 2023, https://www.freecodecamp.org/news/the-history-of-ai/
[14]. *G. Kadi, M.A. Aslaner*, Exploring ChatGPT's abilities in medical article writing and peer review, Croatian Medical Journal, Vol. 65, Issue 2, pp. 93-100, 2024, DOI: 10.3325/cmj.2024.65.93
[15]. *W.L.J. Ho, B. Koussayer, J. Sujka*, ChatGPT: Friend or foe in medical writing? An example of how ChatGPT can be utilized in writing case reports, Surgery In Practice And Science, Vol. 14, 2023, DOI:10.1016/j.sipas.2023.100185
[16]. *S. Matsubara*, Humans-written versus ChatGPT-generated case reports, Journal Of Obstetrics And Gynaecology Research, Vol. 50, Issue 10, pp. 1995-1999, 2024, DOI: 10.1111/jog.16078
[17]. *V. Sonkin, C. Tudose, B. Ţigănoaia*, Estimation of the Effects of Using ChatGPT for Education Purposes in the Software Field, The 19th International Scientific Conference eLearning and Software for Education Bucharest, April 27-28, 2023
[18]. *L.X. Shang, R. Li, M.Y. Xue, Q.L. Guo, Y.L. Hou*, Evaluating the application of ChatGPT in China's residency training education: An exploratory study, Medical Teacher, DOI: 10.1080/0142159X.2024.2377808, 2024
[19]. *D.L. Morgan*, Exploring the Use of Artificial Intelligence for Qualitative Data Analysis: The Case of ChatGPT, International Journal Of Qualitative Methods, Vol. 22, 2023, DOI: 10.1177/16094069231211248
[20]. *M.S. Jalali, A. Akhavan*, Integrating AI language models in qualitative research: Replicating interview data analysis with ChatGPT, System Dynamics Review, Vol. 40, Issue 3, 2024, DOI: 10.1002/sdr.1772
[21]. Java Artificial Intelligence Generator, JAIG, https://jaig.pro/

[22]. *S.-L. Wamba-Taguimdje, S. Fosso Wamba, J.R. Kala Kamdjoug, C.E. Tchatchouang Wanko,* Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects, Business Process Management Journal, Vol. 26 No. 7, 2020, pp. 1893-1924, ISSN 1463-7154

[23]. *A.I. Canhoto, F. Clear*, Artificial intelligence and machine learning as business tools: A framework for diagnosing value destruction potential, Business Horizons, Volume 63, Issue 2, 2020, pp. 183-193, ISSN 0007-6813

[24]. *L. Zhao, F. Li,* Statistical Machine Learning in Natural Language Understanding: Object Constraint Language Translator for Business Process, 2008 IEEE International Symposium on Knowledge Acquisition and Modeling Workshop Proceedings, Vols. 1 and 2, pp. 1056-+

[25]. *S. Malik, I.S. Bajwa,* Back to Origin: Transformation of Business Process Models to Business Rules, Business Process Management Workshops (BPM), Vol. 132, 2013, pp. 611-622

[26]. *A. Sobczak,* Robotic Process Automation Implementation, Deployment Approaches and Success Factors - an Empirical Study, Entrepreneurship and Sustainability Issues, Vol. 8, Issue 4, 2021, pp. 122-147

[27]. *P.C. Wei, Y. Zou,* Image Feature Extraction and Object Recognition Based on Vision Neural Mechanism, International Journal of Pattern Recognition and Artificial Intelligence, Vol. 34, Issue 6, 2020

[28]. *S.E. Mohsen, A. Hamdan, H.M. Shoaib,* Digital Transformation and Integration of Artificial Intelligence in Financial Institutions, Journal of Financial Reporting and Accounting, 2024

[29]. *R. Trifonov, O. Nakov, V. Mladenov,* Artificial Intelligence in Cyber Threats Intelligence, 2018 International Conference on Intelligent and Innovative Computing Applications (Iconic), pp. 49-52