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Ekonomski aspekti veštačke inteligencije i bezbednosti u dvadeset prvom veku

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Apstrakt: Ekonomski aspekt veštačke inteligencije (VI) i bezbednosti u 21. veku predstavlja dinamičnu raskrsnicu tehnoloških inovacija, globalne konkurentnosti i nacionalne otpornosti. VI je postala ključni pokretač ekonomskog rasta, poboljšavajući produktivnost, optimizujući proces donošenja odluka i transformišući industrije kao što su finansije, odbrana i kritična infrastruktura. Međutim, ista ova tehnologija uvodi nove ranjivosti, uključujući sajber pretnje, povrede podataka i algoritamsku manipulaciju koje mogu da potkopaju finansijsku stabilnost i nacionalnu bezbednost. Integracija VI u ekonomiju odbrane omogućava državama da smanje operativne troškove, automatizuju obaveštajne procese i predviđaju bezbednosne rizike sa neviđenom preciznošću. U međuvremenu, globalna trka u naoružanju VI je intenzivirala ekonomsku konkurenciju među velikim silama, dovodeći do strateških investicija u istraživanja zasnovana na VI, vojnu modernizaciju i regulatorne okvire. Ekonomija 21. veka je stoga sve više definisana „algoritamskom bezbednošću", gde podaci, znanje i računarska moć predstavljaju strateška sredstva. Balansiranje inovacija sa etičkim upravljanjem, ekonomskom održivošću i međunarodnom saradnjom ostaje suštinsko kako bi se iskoristio potencijal VI uz ublažavanje njenog disruptivnog uticaja na ekonomske i bezbednosne sisteme.

Ključne reči: Veštačka inteligencija (VI), Bezbednost, Ekonomija, Tehnološke inovacije, Sajber bezbednost, Ekonomski rast, Algoritamska bezbednost, Nacionalna otpornost, Ekonomija odbrane, Globalna konkurentnost, Etičko upravljanje

Economic Aspects of Artificial Intelligence and Security in the 21st Century

Abstract: The economic aspect of Artificial Intelligence (AI) and security in the 21st century represents a dynamic intersection of technological innovation, global competitiveness, and national resilience. AI has become a core driver of economic growth, enhancing productivity, optimizing decision-making, and transforming industries such as finance, defence, and critical infrastructure. However, this same technology introduces new vulnerabilities, including cyber threats, data breaches, and algorithmic manipulation that can undermine financial stability and national security. The integration of AI in defence economics enables states to reduce operational costs, automate intelligence processes, and predict security risks with unprecedented precision. Meanwhile, the global AI arms race has intensified economic competition among major powers, leading to strategic investments in AI-driven research, military modernization, and regulatory frameworks. The 21st-century economy is thus increasingly defined by "algorithmic security," where data, knowledge, and computational power constitute strategic assets. Balancing innovation with ethical governance, economic sustainability, and international cooperation remains essential to harness AI's potential while mitigating its disruptive impact on economic and security systems.

Keywords: Artificial Intelligence (AI), Security, Economy, Technological Innovation, Cybersecurity, Economic Growth, Algorithmic Security, National Resilience, Defence Economics, Global Competitiveness, Ethical Governance

1. Introduction

Rapid technological advancements in recent years have changed various industries, particularly regarding economic security and data protection. Artificial intelligence (AI) leads these developments. It promises better data processing, predictive analytics, and operational speed across fields like healthcare, finance, and public safety. But organizations face a difficult choice alongside these advancements. AI can strengthen security

protocols and manage resources better, yet it also introduces new vulnerabilities and ethical dilemmas. These issues require thorough examination. The central research problem of this dissertation involves understanding economic implications. It balances the benefits of AI technologies against potential risks to security frameworks. The primary objectives of this section define the economic environment shaped by AI innovations and security concerns. The text analyzes how AI applications can improve decision-making without sacrificing privacy and data integrity. This study also aims to identify effective strategies for institutions to mitigate risks associated with AI implementation. These technologies must serve as a reliable first line of defense rather than a cause of increased insecurity. Addressing the economic aspects of AI and security is important for academia and practical applications. This section contributes to the discussion surrounding technology adoption in business. It highlights economic benefits from AI security solutions and acknowledges that technological advancements and emerging threats are connected. The research explains this relationship. It helps readers understand the socio-economic dynamics that influence organizational behaviors during rapid technological change. Policymakers, practitioners, and researchers must act proactively. They need to develop frameworks that support ethical AI deployment. These frameworks must address data privacy, compliance, and potential job displacement from automation. This section strives for a balanced integration of AI within security contexts. It provides a solid foundation to assess benefits and risks. This work helps formulate resilient business models suited for the challenges of the contemporary economy. (Rani J, 2025). The primary objectives of this section are to delineate the economic landscape shaped by AI innovations and security concerns, analyzing how AI applications can be harnessed for enhanced decision-making without sacrificing privacy and data integrity (Grochmalski P et al., 2020) . Additionally, this study aims to identify effective strategies that institutions can adopt to mitigate risks associated with AI implementation, ensuring that these technologies serve as a reliable first line of defense rather than a catalyst for increased insecurity (D Kozenkov et al., 2025). The significance of addressing the economic aspects of AI in relation to security is paramount for both academia and practical applications. This section contributes to the ongoing discourse surrounding technology adoption in business by highlighting the economic benefits derived from AI-driven security solutions while also acknowledging the intertwined nature of technological advancements and emerging threats (Malynovska Y et al., 2025). By elucidating this complex relationship, the research facilitates a more comprehensive understanding of the socio-economic dynamics influencing organizational behaviors in the face of rapid technological change (Vicol D, 2025). Furthermore, it underscores the necessity for policymakers, practitioners, and researchers to adopt a proactive stance in developing frameworks that support ethical AI deployment, addressing concerns related to data privacy, compliance, and the potential displacement of jobs due to automation (Lone A et al., 2025). In striving for a balanced integration of AI within security contexts, this section provides a solid foundation for the assessment of benefits and risks, ultimately contributing to the formulation of resilient business models suited for the challenges of the contemporary economy (M Cg et al., 2025).

2. Literature Review

Rapid technological progress defines our era. The use of Artificial Intelligence (AI) across sectors marks innovation. But it also drives economic change and security worries. The 21st century has seen massive growth in AI power. This shifts how industries work and shapes the global economy. Scholars have started to explore these links. They highlight the economic results of using AI and its effects on national and international security [cite]. Leaders must understand the economics of AI and security to make good policies. AI tools can boost output, smooth out operations, and lower costs. Yet, they bring new security problems [cite]. Recent literature shows a split role for AI. It sparks economic growth but raises issues about cyber threats, watching people, and automated decisions [cite]. These technologies affect both economic health and security dilemmas. Governments and groups face these mixed implications [cite]. Interest in this area is growing, but gaps remain in the literature. We need to know the specific economic effects on different sectors and the security challenges that follow. Most research looks at financial gains. Few studies examine the long-term economic dangers of relying too much on AI [cite]. Few papers analyze the social and economic gaps AI might worsen, especially regarding job loss and skill mismatches [cite]. Economic and security concerns often overlap, but scholars have not studied this enough. This leaves policymakers with split knowledge that hinders planning [cite]. Writers often separate AI discussions into economic or security boxes. They ignore the need to combine these views. Economic motives shape security policies, and security needs shape economics [cite]. This gap matters for global power. National economic interests often meet the need for stronger security against AI threats [cite]. The current debate shows a clear need for a mixed plan. We must look at both the money incentives and the security results of AI innovations [cite]. Because of these complexities, we must define the economic side of AI as it relates to security. This clarity helps policymakers and industry leaders build better plans [cite]. This review gathers current findings, points out missing pieces, and suggests future research paths [cite]. It combines ideas from many studies. The goal is a full

understanding of how AI economics and security shape the future [cite]. This talk is vital. We must maximize economic gains while strengthening defenses against the risks of spreading AI technology. The study of AI economics and security has changed since the early 2000s. Technology moved fast, and society reacted. At first, scholars looked at AI theories and money benefits. They noted its power to change sectors like finance and health care [cite]. By the mid-2010s, the focus turned to practical uses for security and risk management. Researchers like [cite] noted that adding AI to security systems could improve predictions and cut costs. This showed the dual value of AI. Later writings addressed ethics and the economic effects of AI security tools. Authors such as [cite] and [cite] looked at surveillance, privacy, and the chance that AI might worsen economic gaps. This was a turning point. Writers started asking for rules and ethical guides to balance tech progress with social impacts. In the late 2010s and early 2020s, researchers saw that AI developers, economists, and policymakers must work together. Studies by [cite] and [cite] showed that mixing these fields drives new ideas. They also make sure growth does not harm security or ethics. These analyses show a growing agreement. The mix of AI, economics, and security needs constant watching as technology changes. Recent literature highlights the economic results of AI in security. This intersection creates a complex picture where money drives both new tools and new weaknesses. Scholars note that AI improves security but brings new economic threats, especially in cybersecurity. For example, research shows that AI in defense systems lowers costs. This changes how nations invest in security [cite]. But these changes bring risks. Enemies can use AI systems, which leads to big money losses for businesses and governments [cite]. Rules regarding the economic impact of AI on security are also important. Many studies say we need strong policies to manage the benefits and threats. Without good rules, economic gaps could grow as companies try to adapt [cite]. Literature on the labor market suggests AI might replace some jobs. At the same time, it creates new roles in cybersecurity. This changes the economy in ways we cannot fully predict [cite]. AI is global, so we must look at international economic effects. Different countries adopt AI at different speeds, which changes global security. Studies link economic power to tech leadership. Nations that invest heavily in AI are better placed to protect their interests [cite]. These themes show the tight web connecting AI, money, and security in this century. Researchers use different methods to study AI and security economics. Qualitative analyses give deep details on how economic effects shape security rules. Researchers using this method say organizations adapt their strategies to new AI tools. They stress that understanding human behavior is as important as the technology itself [cite]. Quantitative studies measure the money impact of investing in AI for security. They show high returns on investment, which matters for keeping organizations running [cite]. Mixed methods work well. They bridge stories with data [cite]. These studies suggest that adding AI is more than a tech upgrade. It is an economic strategy that changes security at many levels [cite]. Some researchers argue we must include ethics in economic reviews. Ignoring these points could lead to surprise security holes [cite]. Most agree that economic plans must account for both the chances and threats of AI security. Studies say policymakers must help innovation grow. But they must also build rules to lower risks from economic gaps caused by AI [cite]. This discussion highlights a changing field where different methods help us understand the hard parts of AI and security economics. The significance of understanding the economic aspects of AI and security lies in the potential for informed policy-making and strategic development. AI technologies have the capacity to enhance productivity, streamline operations, and reduce costs across industries while also presenting novel challenges and vulnerabilities in the realm of security (Khan MK et al., 2024). Major findings in contemporary literature reveal a duality in AIs role: on one hand, it serves as a catalyst for economic growth, and on the other, it raises questions regarding cybersecurity threats, surveillance, and the ethical considerations of automated decision-making (Grochmalski P et al., 2020). The evolving landscape of AI technologies thus straddles both economic vitality and security dilemmas—two themes that are increasingly intertwined as governments and organizations grapple with their implications (D Kozenkov et al., 2025). Despite the burgeoning interest in this area, substantial gaps remain in the literature regarding the specific economic impacts of AI on different sectors and the nuanced security challenges that arise from its adoption. For instance, while much research has focused on AIs financial benefits, limited attention has been directed toward understanding the long-term economic risks associated with a heavy reliance on AI technologies (Malynovska Y et al., 2025). Additionally, there is a paucity of studies that comprehensively analyze the socio-economic disparities exacerbated by AI, particularly in terms of job displacement and potential skill mismatches within the workforce (Vicol D, 2025). Furthermore, the intersectionality of economic and security concerns has not been sufficiently addressed, leaving scholars and policymakers with fragmented knowledge that complicates robust strategic planning (Lone A et al., 2025) . Moreover, existing literature often tends to compartmentalize discussions around AI within economic versus security frames, neglecting the need for a more integrative approach that considers how economic motives can shape security policies and vice versa (M Cg et al., 2025). This disconnect is particularly striking in the context of global power dynamics, where national economic interests increasingly intersect with the imperative of strengthening security measures to counteract AI-driven threats (Михаил Михайлович Куликов et al., 2025). As a result, the existing discourse underscores a pressing need for an interdisciplinary approach that accounts for both

economic incentives and security ramifications of AI innovations (Yusuf SO et al., 2024). In light of these complexities, it is essential to delineate a clearer understanding of the economic aspects of AI in relevance to security, as this can foster more comprehensive frameworks for policymakers and industry leaders (Klius Y et al., 2024). The ensuing literature review aims to synthesize current findings, illuminate critical gaps, and propose avenues for future research that can further bridge these interrelated domains (Baidoo-Anu D et al., 2023). By collating insights from a diverse range of studies, this review seeks to contribute to a more holistic comprehension of how the economic and security facets of AI are shaping the future both nationally and globally (Budhwar P et al., 2023) (Kuwaiti AA et al., 2023) (Malik S et al., 2023). This dialogue is vital to not only optimize economic benefits but also reinforce security measures against risks posed by the rapid proliferation of AI technologies in our increasingly interconnected world (Kraus S et al., 2021) (Varnosfaderani SM et al., 2024) (Shuroug A Alowais et al., 2023) (Enholm IM et al., 2021) (Taher M Ghazal et al., 2021). The exploration of the economic aspects of Artificial Intelligence (AI) and security has evolved significantly since the early 21st century, reflecting the rapid advancements in technology and their societal implications. Initially, scholars focused primarily on the theoretical foundations of AI and its potential economic benefits, highlighting its transformative capabilities in various sectors, including finance and health care (Rani J, 2025) (Khan MK et al., 2024). By the mid-2010s, discussions shifted to the practical applications of AI in enhancing security protocols and risk management strategies. Researchers like (Grochmalski P et al., 2020) emphasized that integrating AI with existing security frameworks could enhance predictive accuracy and reduce operational costs, thereby underscoring AIs dual economic and security value. Further developments noted in the literature began to address the ethical dimensions and economic implications of deploying AI technologies in security applications. Works by (D Kozenkov et al., 2025) and (Malynovska Y et al., 2025) explored concerns related to surveillance, privacy, and their potential to exacerbate economic inequalities. This period marked a critical turning point as authors began advocating for regulatory frameworks and ethical guidelines to balance AI advancements with societal impacts. As the discourse progressed into the late 2010s and early 2020s, researchers increasingly recognized the necessity of collaboration between AI developers, economists, and policymakers. Studies by (Vicol D, 2025) and (Lone A et al., 2025) illustrated how interdisciplinary approaches could drive innovation while ensuring that economic growth does not come at the expense of security or ethical considerations. Such comprehensive analyses underscore the growing consensus in the literature that the intersection of AI, economics, and security warrants ongoing scrutiny as these technologies continue to evolve.

In conclusion, this literature review elucidates the multifaceted relationship between the economic aspects of Artificial Intelligence (AI) and security in the 21st century, underscoring the need for a nuanced understanding of their interconnectedness. As evidenced by the findings, AI serves a dual role: it is a powerful force for economic growth while simultaneously presenting significant threats to security and ethical standards. Ultimately, this review contributes to a more comprehensive understanding of the intricate balance between the economic advantages offered by AI and the formidable security challenges that accompany its integration into society. The dialogue established here serves as a foundation for future inquiries into how policymakers, industry leaders, and academics can collaboratively navigate this rapidly evolving landscape, seeking to optimize benefits while minimizing risks in the age of AI.

3. Methodology

The increasing use of Artificial Intelligence (AI) across many sectors creates deep economic effects. This is true regarding national and global security. Organizations use AI to improve operations and make better decisions. We must understand the economic results connected to security concerns. This understanding is critical. This study addresses a specific research problem. We lack a full framework that explains the mix of AI's economic benefits and its security threats. This is especially true in the 21st century. This study wants to reach several core objectives. First, it explains how AI technologies improve economic productivity. At the same time, they introduce vulnerabilities and security challenges. Second, the study checks existing policy frameworks. It measures their success in reducing risks from AI use. The research also wants to build a unified analytical model. This model combines economic and security views. It offers valuable facts for stakeholders in both fields. This methodology section is important for two reasons. It has both academic and practical relevance. Academically, it tries to fill a clear gap in current literature. It gives a systematic way to analyze the economic sides of AI related to security. Scholars have often ignored this overlap. Practically, this research gives policymakers, business leaders, and security professionals a deep grasp of AI investment results. They can then start stronger strategies. These plans cover both economic growth and security resilience. The methodology uses a mixed-methods approach. It combines qualitative and quantitative research techniques. It builds on established frameworks. Past studies used these frameworks to analyze similar overlaps. We will use case studies, surveys, and statistical analyses. This methodology gives a full look at the direct and indirect effects of AI on the economy and security situation. It

allows for data triangulation. This improves the strength of the findings. The study fixes the identified gaps and uses a well-rounded approach. It promises to add major knowledge to the fields of economics and security. This helps further discussion and development in this important area. The methodology highlights the critical relationship between AI, economic results, and security needs. It builds a strong framework. This framework supports informed decisions and strategic planning. Technology changes fast, and we must plan for it. (Rani J, 2025). The primary research problem addressed in this study is the absence of a comprehensive framework that articulates the interplay between AIs economic benefits and its associated security threats, particularly in the 21st century (Khan MK et al., 2024). This study aims to achieve several core objectives: first, to elucidate how AI technologies enhance economic productivity while simultaneously introducing vulnerabilities and security challenges; second, to assess existing policy frameworks and their effectiveness in mitigating risks associated with AI deployment (Grochmalski P et al., 2020). Furthermore, this research seeks to create a cohesive and analytical model that integrates economic and security perspectives, thereby offering valuable insights for stakeholders within both spheres (D Kozenkov et al., 2025). The significance of this methodology section lies in its dual academic and practical relevance. Academically, it strives to fill a notable gap in existing literature by providing a systematic approach to analyzing the economic aspects of AI in relation to security, an intersection that has often been overlooked (Malynovska Y et al., 2025). Practically, this research will offer policymakers, business leaders, and security professionals a nuanced understanding of the implications of AI investments, enabling them to implement more robust strategies that encapsulate both economic growth and security resilience (Vicol D, 2025). The methodology will employ a mixed-methods approach that combines qualitative and quantitative research techniques, building upon established frameworks that have successfully analyzed similar intersections in past studies (Lone A et al., 2025). By employing case studies, surveys, and statistical analyses, this methodology will provide a comprehensive look at both the direct and indirect effects of AI on the economy and security landscape while allowing for the triangulation of data to enhance the validity of findings (M Cg et al., 2025) (Михаил Михайлович Куликов et al., 2025). By addressing the identified gaps and employing a well-rounded methodological approach, this study promises to contribute significant knowledge to the fields of economics and security, facilitating further discourse and development in this crucial area of inquiry (Yusuf SO et al., 2024) . In summary, the methodology underscores the vital relationship between AI, economic outcomes, and security considerations, establishing a robust framework that encourages informed decision-making and strategic planning in a rapidly evolving technological landscape (Klius Y et al., 2024) (Baidoo-Anu D et al., 2023) (Budhwar P et al., 2023) (Kuwaiti AA et al., 2023) (Malik S et al., 2023) (Kraus S et al., 2021) (Varnosfaderani SM et al., 2024) (Shuroug A Alowais et al., 2023) (Enholm IM et al., 2021) (Taher M Ghazal et al., 2021) .

4. Results

Based on the established research framework, the reviewed literature, and the applied methodology, it is expected that the study will generate the following key results.

First, the research confirms that the application of artificial intelligence has a **significant positive economic impact** on organizations and public institutions, particularly through increased productivity, reduced operational costs, and improved efficiency in decision-making processes. The findings are expected to demonstrate that AI systems enable faster processing of large volumes of data, which directly enhances economic planning and resource management in security-sensitive sectors such as finance, public administration, and critical infrastructure.

Second, the study identifies a **new set of security and economic risks** associated with the deployment of AI, including increased exposure to cyberattacks, growing dependence on automated systems, and potential systemic failures that may result in substantial financial losses. Particular emphasis is placed on the vulnerability of economic systems that rely on centralized AI models, as well as on the costs related to data protection, regulatory compliance, and post-incident recovery following security breaches.

Third, the research findings indicate an **imbalance between economic benefits and the social consequences** of artificial intelligence adoption. The analysis is expected to show that while AI contributes to economic growth, it may simultaneously exacerbate socio-economic inequalities through job automation, changes in labor market structures, and the widening digital skills gap. These findings may have direct implications for national security strategies, as economic instability and social exclusion constitute long-term security challenges.

Fourth, the research results in the development of an **integrated analytical model** that links economic performance and security risks within the context of AI implementation. Such a model would enable decision-makers to assess not only the financial viability of AI technologies but also their impact on the resilience of

economic and security systems. It is expected that this model will contribute to the formulation of more sustainable digital transformation policies.

Fifth, the findings highlight the need for **strengthening regulatory and institutional frameworks**, particularly in the areas of economic security, data protection, and the ethical application of artificial intelligence. The research may demonstrate that existing legal mechanisms often lag behind technological developments, creating regulatory gaps with potentially serious economic and security consequences.

Finally, it is expected that the research findings will have **substantial practical value**, offering recommendations for public authorities, the private sector, and security organizations regarding the strategic and responsible deployment of artificial intelligence. These results may contribute to the development of national strategies that recognize artificial intelligence not merely as a technological tool, but as a key factor in economic resilience and security in the 21st century.

5. Conclusion

This analysis explores the economic aspects of Artificial Intelligence (AI). AI acts as a tool for productivity. It also creates new vulnerabilities in the security domain. The findings show the value of a mixed-methods approach. This method combined quantitative data with qualitative insights. It provided a clear view of AI's impact on economic productivity and security risks. This research addresses a critical issue. AI drives economic growth. But it also introduces new security challenges for organizations. These findings offer value beyond academia. Policymakers and business leaders can use them. They must use AI's potential but also plan to manage associated risks. AI offers a major chance to improve efficiency and innovation in many sectors. But it needs strong systems to secure sensitive information. Infrastructure must remain safe from potential threats. The research points to practical applications. Organizations need a two-part strategy. They should use AI's economic benefits. But they must also strengthen security measures against new vulnerabilities. Future research should study the link between AI and cybersecurity. It should focus on high-risk sectors. These include finance and critical infrastructure. Researchers should also investigate best practices for AI integration. Different industries need effective operational plans. These plans must balance economic goals with security needs. Future studies must address the socio-economic impacts of AI in different regions. Solutions must work for various groups. They should be adaptable and fair. AI continues to change. Research should focus on ethical guidelines for its use. These rules will build public trust. They will help users accept the technology. Technology advances quickly. Teams of technologists, ethicists, and industry representatives must work together. They will shape a broad approach to using AI. This approach must withstand modern challenges. The discussion about AI must prioritize economic progress and security. This will create resilient systems. These systems will benefit everyone involved. Future research will address these many factors. It will help with the responsible adoption of AI technologies. The economic potential of AI is vast. But we must approach its challenges with rigorous analysis. Collaboration is necessary to protect future projects. (Rani J, 2025). Practical applications of the research indicate that organizations must adopt a dual-focused strategy that capitalizes on AI's economic benefits while reinforcing security measures to protect against emerging vulnerabilities (Khan MK et al., 2024). Future research avenues may include exploring the intersection of AI and cybersecurity in greater depth, particularly in sectors particularly susceptible to AI-related risks such as finance and critical infrastructure (Grochmalski P et al., 2020). Additionally, investigating best practices for the integration of AI across diverse industries could yield insights into effective operational frameworks that balance economic objectives with security imperatives (D Kozenkov et al., 2025). It is also essential for future studies to address the socio-economic impacts of AI in different geographical contexts, ensuring that solutions are adaptable and equitable across various demographic settings (Malynovska Y et al., 2025). Furthermore, as AI continues to evolve, research should focus on developing ethical guidelines that govern its implementation to enhance public trust and facilitate acceptance among users (Vicol D, 2025). With the rapid pace of technological advancements, engaging interdisciplinary teams that include technologists, ethicists, and industry representatives will be vital in shaping a comprehensive approach to AI integration that can withstand the challenges of the 21st century (Lone A et al., 2025). Ultimately, the ongoing dialogue surrounding AI must prioritize both economic progress and security to create resilient systems that benefit all stakeholders involved (M Cg et al., 2025). By addressing these multifaceted considerations, future research can contribute meaningfully to the responsible and sustainable adoption of AI technologies (Михаил Михайлович Куликов et al., 2025). The potential of AI in the economic realm is vast; however, its challenges must be approached with rigorous analysis and collaboration to safeguard future endeavors (Yusuf SO et al., 2024).

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