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TRANSFORMATION AND ECONOMIC ASPECTS OF SOFTWARE ENGINEERING THROUGH THE IMPLEMENTATION OF THE EU AI ACT

ABSTRACT: The EU AI Act of 2024 represents the first comprehensive legal framework for regulating artificial intelligence, introducing a classification of AI systems based on risk levels and specific requirements for high-risk applications. This paper analyzes the transformative impact of this regulation on software engineering, focusing on economic aspects such as compliance costs, new opportunities for innovation, and changes in labor market dynamics. Special attention is given to the potential harmonization with the legislation of the Republic of Serbia, identifying key points of alignment and possible legal conflicts. The significance of this paper lies in its contribution to understanding how the EU AI Act shapes global AI regulation and provides a framework for adapting local legislation in Serbia, thereby fostering technological and legal advancement.

Keywords: EU AI Act, Software Engineering, Economic Impact, Artificial Intelligence Regulation.

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1. Introduction

Artificial intelligence (AI) has revolutionized nearly every domain of technological development, including software engineering. Traditional approaches to software development, grounded in well, defined principles, are becoming increasingly less relevant as AI takes a leading role in solving complex problems, automating processes, and facilitating decision, making (Mantaci & Yunès, 2024). However, the growing adoption of AI technologies also challenges fundamental principles of programming, such as determinism, modularity, and code readability. For example, while traditional programming relies on clear inputs and predictable outputs, AI models, such as neural networksm often produce results that cannot be fully explained or reconstructed, introducing an element of indeterminacy to processes that were once deterministic. The European Union, as a global leader in digital technology regulation, has recognized the need for a comprehensive legal framework to ensure the responsible use of artificial intelligence. With the adoption of the EU AI Act (2024/1689) (European Parliament, Artificial Intelligence Act: MEPs adopt landmark law, 2024), the EU has become the first jurisdiction in the world to enact legislation specifically aimed at regulating AI systems. This law establishes clear standards for the development, deployment, and use of AI technologies, taking into account the risks they pose to fundamental human rights, privacy, and social equity. One of the key challenges stemming from the implementation of this law concerns the economic aspects of software engineering. By introducing a strict classification of AI systems based on risk levels, from prohibited systems, such as manipulative technologies and social scoring, to high risk systems in sectors like healthcare and justice, the EU AI Act significantly alters how software companies design, test, and market their products. For software development companies, this entails not only adapting to technical standards but also restructuring business models to ensure compliance with the regulation.

These changes particularly affect small and medium sized enterprises (SMEs), which often lack the resources to implement complex mechanisms for transparency, risk assessment, and human oversight of AI systems. On the other hand, the regulation creates opportunities for innovation in the development of AI tools for compliance, as well as for specialized consulting services. At the global level, the EU AI Act lays the groundwork for harmonizing standards, which could lead to increased costs for companies seeking to operate in the European market but also foster fair market conditions for local players. The fundamental principle of programming,

determinism, also faces serious challenges in the era of artificial intelligence (Naganjaneyulu, 2022). AI systems not only disrupt this predictability but also introduce new complexities that traditional debugging and testing tools cannot manage. Modularity and code readability, which have been essential for sustainable software development, are now evolving to accommodate AI models that often function as "black boxes." This directly impacts the economic sustainability of software companies by increasing maintenance, training, and development costs. For instance, high risk AI systems, such as those used in healthcare or justice, are now subject to strict requirements for transparency and human oversight. This necessitates additional human resources, the implementation of complex algorithms for monitoring and evaluating performance, and compliance with legal procedures that were not previously part of traditional software engineering. While large companies can absorb these costs, smaller entities face significant barriers to market entry. Furthermore, the EU AI Act requires companies to provide tools for risk assessment, directly influencing software development costs. For example, AI systems used in education or employment must ensure high levels of transparency, which requires additional investments in employee training and the development of technologies for explaining AI driven decisions. This raises questions about the long term profitability of software companies and their capacity for innovation in a strictly regulated environment. Despite these economic challenges, the EU AI Act also offers significant opportunities. As the market adapts to the new rules, numerous possibilities emerge for companies developing tools for risk assessment, process automation, and human oversight of AI systems. For example, the development of specialized software solutions for risk data analysis and the implementation of transparent AI models could become a new market segment. Additionally, the regulation could encourage European companies to focus on the ethical development of AI technologies, potentially giving them an edge in the global race for innovation.

Given the transformative impact of artificial intelligence on software engineering and economics, as well as the significance of the EU AI Act in establishing a regulatory framework, it is crucial to investigate how these changes influence business models, development processes, and the global competitiveness of software companies. This paper aims to highlight the key economic challenges and opportunities arising from the implementation of this regulation, providing a foundation for further research and discussions on the sustainable development of software engineering in the age of artificial intelligence.

2. EU AI Act – Regulation (EU) 2024/1689

The Rationale Behind the Legislation

The European Parliament adopted the Artificial Intelligence Act (EU AI Act) on March 13, 2024 (European Parliament, Artificial Intelligence Act: MEPs adopt landmark law, 2024). Subsequently, the Act was published in the Official Journal of the European Union on July 12, 2024, and came into force on August 1, 2024 (Regulation (EU), 2024). However, due to the phased implementation process, most of the provisions of the Act will take effect on August 2, 2026. The EU AI Act represents the first comprehensive legal framework in the world dedicated to regulating artificial intelligence, aiming to address the growing challenges posed by AI technologies. The decision to enact this law stems from the need to protect fundamental human rights, privacy, and security at a time when AI is becoming increasingly prevalent in critical sectors such as healthcare, justice, employment, and education. In the absence of clear regulations, the irresponsible use of AI could lead to social inequalities, user manipulation, and violations of human rights. The Act not only establishes standards for the ethical development of AI technologies but also seeks to ensure fair market competition and foster innovation in line with the societal values of the European Union.

Key Risk Categories Defined by the Act

The EU AI Act categorizes artificial intelligence systems into four risk levels based on the threats they pose to individuals and society: prohibited AI systems, high risk systems, limited risk systems, and minimal risk systems. Each category is clearly defined, with specific regulatory requirements for their development, deployment, and use. This classification serves as a cornerstone of the legislation and directly correlates with the potential consequences these AI systems might cause.

1. Prohibited AI Systems

Prohibited AI systems represent the highest risk level and are outright banned under the EU AI Act due to their direct threat to fundamental human rights and freedoms. These technologies are deemed unacceptable as they violate ethical norms and disrupt social balance. Key areas within this category include:

– Biometric Surveillance in Public Spaces

This technology uses cameras and AI algorithms to identify and track individuals in real time. While potentially beneficial for public safety, the Act permits exceptions only in specific cases, such as law enforcement operations aimed at preventing serious criminal activities. The restriction arises from

concerns that such systems infringe on privacy rights, freedom of movement, and create a sense of mass surveillance, which could be abused in repressive regimes.

– Manipulative Techniques That Undermine Users' Free Will

Manipulative AI systems employ psychological techniques to control and influence user behavior without their awareness. For instance, "dark patterns" in digital interfaces are designed to coerce users into making decisions against their interests, such as purchasing unwanted products or agreeing to undesirable terms of service. This also includes emotional manipulation using biometric data (e.g., facial expressions, tone of voice) to provoke certain reactions, such as urgency during purchases. The Act identifies these practices as violations of users' right to autonomy.

– Social Scoring Systems

Prohibited systems include those that evaluate individuals based on their behavior or other personal characteristics, assigning a "score" that impacts their rights and opportunities. Inspired by the Chinese social credit system, the EU AI Act strictly bans such systems due to their potential to cause discrimination, social segregation, and violations of human dignity. For example, insurance companies are prohibited from using driving behavior data to increase policy prices.

2. High Risk AI Systems

High risk systems have significant potential to impact individuals and society, particularly in critical domains such as healthcare, employment, education, infrastructure, and justice. While these systems are not prohibited, they are subject to strict regulations and procedures to mitigate potential risks. Key requirements include risk assessments, human oversight, and system transparency. Examples include:

– AI in Healthcare

AI systems used for diagnostics, treatment, or medical evaluation are considered high risk because they directly impact human health and life. The EU AI Act mandates that such systems operate transparently and produce outputs that can be verified by professionals. For instance, an algorithm analyzing X-ray images must allow doctors to understand how decisions were reached.

– AI in Employment and Education

AI tools used for candidate selection, employee performance evaluation, or tailoring educational content are subject to strict rules. Concerns include potential biases favoring certain groups or individuals, thereby increasing discrimination. For example, recruitment algorithms must not favor male candidates over female candidates due to historically biased datasets.

– AI in Critical Infrastructure

Systems managing traffic, water supply, or energy grids are classified as high risk due to the severe consequences errors could cause, including safety threats and economic losses. The law requires the implementation of safety mechanisms and regular testing of such systems to prevent potential incidents.

– AI in Justice Systems

AI tools supporting legal document analysis, sentencing, or penalty recommendations are deemed high risk due to their direct impact on justice and human rights. The Act mandates human oversight to ensure impartiality and accuracy in these processes.

3. Limited Risk AI Systems

This category includes AI systems with a moderate impact on users and society. Although not banned or subject to the strict procedures applicable to high risk systems, the law imposes certain transparency obligations. For instance, users must be informed when interacting with an AI system rather than a human agent. Examples include AI chatbots or personalized product recommendation systems in e-commerce. The transparency requirement ensures that users are aware of when they are engaging with AI to prevent manipulation and deception. For example, if a virtual assistant schedules appointments, it must be clear that the interaction is with an AI system, not a human. While this category carries lower risks, the law allows for potential revision if significant negative consequences are identified over time.

4. Minimal Risk AI Systems

Minimal risk systems include tools such as spam filters, AI powered gaming applications, and content recommendation systems in entertainment platforms. These systems have negligible impact on individuals and society and are not subject to specific regulatory requirements. However, the Act acknowledges the possibility of misuse even in this category, particularly concerning algorithms designed to maximize user engagement or create addictive behaviors. For instance, infinite scrolling on social media platforms, powered by AI, can negatively affect mental health by encouraging excessive use. Although detailed risk assessments are not mandatory for these systems, the EU AI Act emphasizes the importance of adhering to ethical principles during their development. This allows companies to innovate in less critical domains while still aligning with basic legislative guidelines.

Implications for Software Engineering

The EU AI Act has a profound impact on software engineering by introducing new requirements for the development, testing, and deployment of AI systems. Traditional programming principles, such as determinism and modularity, face challenges as AI models often function as "black boxes." The legislation mandates risk assessments, the implementation of human oversight, and ensuring transparency, which significantly alters the software development paradigm. These changes require additional investments in team training, the development of specialized tools, and the adaptation of business models to ensure compliance with legal requirements. While the Act poses challenges, it also fosters innovation and provides companies with the opportunity to stand out by developing ethical and responsible AI technologies.

3. Phased Implementation

With the adoption of the Artificial Intelligence Act (AI Act), the European Union has laid the foundation for the world's first comprehensive legal framework aimed at regulating artificial intelligence (AI). As part of its digital strategy, this legislation represents a pioneering effort to address the risks associated with AI technologies while positioning Europe as a global leader in AI governance (European Digital Strategy, "AI Act", 2024). AI systems classified as high risk are permitted but must comply with strict requirements to ensure their safe and ethical use. These requirements include the implementation of risk management systems, the use of high quality data to mitigate risks and discriminatory outcomes, detailed documentation to ensure transparency, and oversight by human operators. Examples of high risk AI systems include those used in critical infrastructure, education, employment processes, essential public and private services, law enforcement, and border control (EU Artificial Intelligence Act, "The EU Artificial Intelligence Act: Up to date developments and analyses of the EU AI Act", 2024). Applications classified as low or minimal risk are not subject to stringent regulations under the Act. However, the legislation encourages the voluntary adoption of codes of conduct that promote transparency and ethical use of such systems. This multi layered regulatory approach aims to balance reducing risks associated with AI while fostering innovation and technological advancement in the EU (European Digital Strategy, "AI Act", 2024). The legislative process leading to the adoption of the AI Act began with the publication of the "White Paper on Artificial Intelligence – A European Approach to Excellence and Trust" by the European Commission in February 2020. Following extensive consultations

and debates, the Commission formally proposed the legislation on April 21, 2021. The European Parliament adopted the Act on March 13, 2024, and the Council of the European Union approved it on May 21, 2024. The law was published in the Official Journal of the European Union on July 12, 2024, and came into force on August 1, 2024. The implementation of specific provisions is planned in phases, ranging from six months to three years, depending on the requirements of each provision (European Digital Strategy, "AI Act", 2024). The AI Act establishes obligations for various stakeholders in the AI ecosystem, including suppliers, users, importers, distributors, and manufacturers of AI related products within the EU market. This broad scope ensures that AI systems developed or used outside the EU, but producing results within its jurisdiction, are also subject to the legislation (Hickman, 2024). Non-compliance with the AI Act carries significant penalties. Depending on the nature and severity of the infringement, fines range from €7.5 million or 1.5% of annual global turnover for minor offenses to €35 million or 7% of annual global turnover for the most severe violations (European Digital Strategy, "AI Act", 2024) (IBM, "What is the Artificial Intelligence Act of the European Union (EU AI Act)?", 2024). The adoption of the AI Act has elicited mixed reactions from stakeholders. While the law applies within the EU, experts predict it could have far-reaching consequences for international companies aiming to operate in the EU, potentially influencing global standards for managing AI technologies. On the one hand, some industry observers have expressed concerns that the Act's strict requirements could pose challenges for startups and smaller firms, potentially undermining their competitiveness compared to companies operating in regions with less stringent regulations. On the other hand, proponents of the legislation argue that it provides much-needed clarity and a harmonized framework that could foster trust and innovation in AI technologies (European Commission, "Proposal for a Regulation laying down harmonized rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union legislative acts", 2021). Human rights organizations have criticized the Act for not imposing a full ban on certain AI applications, such as real-time facial recognition technologies, citing potential risks to civil liberties and privacy. Additionally, concerns have been raised about the export of AI technologies to jurisdictions that may misuse them to violate human rights (Hupont, Fernández-Llorca, Baldassarri & Gómez, 2024, p. 2). The AI Act is envisioned as a potential model for global AI regulation. Its comprehensive approach to risk categorization and the establishment of corresponding obligations sets a precedent that other jurisdictions may consider when developing their own frameworks for AI governance. This extraterritorial influence underscores the

EU's role in shaping global standards for emerging technologies, akin to the impact of the General Data Protection Regulation (GDPR) in the domain of data privacy (IBM, "What is the Artificial Intelligence Act of the European Union (EU AI Act)?", 2024).

4. Economic Aspects of the New Regulation

The EU AI Act (2024) introduces significant changes to the economic landscape, particularly for industries utilizing artificial intelligence. The regulation seeks to balance rapid technological advancement with the protection of fundamental societal values such as privacy, security, and market fairness. This balance brings a range of economic implications, including increased compliance costs, shifts in labor market structures, higher innovation costs, and new opportunities for specialized services and technology development.

Compliance and Adaptation Costs

One of the primary economic impacts of the EU AI Act is the cost incurred by businesses in aligning their processes with the new requirements. Under the regulation, high risk AI systems must meet strict criteria related to risk assessment, transparency, and human oversight (Comunale & Manera, 2024). These requirements impose additional costs for implementing new tools and testing methods, hiring risk assessment experts, and training staff to comply with regulatory standards. Small and medium sized enterprises (SMEs), which often lack the resources needed for such adjustments, are particularly affected. According to a report by the International Monetary Fund (IMF), SMEs face challenges in securing financing and implementing the necessary standards for regulatory compliance (Comunale & Manera, 2024). For example, companies developing high risk systems, such as diagnostic tools for healthcare, must invest in complex verification processes, potentially leading to higher prices for their products and services.

Impact on the Labor Market

The EU AI Act significantly alters labor market dynamics. Studies suggest that artificial intelligence has the potential to replace many routine jobs while creating new opportunities in high skill areas such as data analysis and AI system development (Buijsman, 2024). However, these effects are not evenly distributed highly skilled workers are more likely to benefit from AI technologies, while lower-skilled workers face a higher risk of job displacement. For instance, employees in industries such as finance and administration, where AI can

automate tasks like data entry or basic analysis, face increased job insecurity. At the same time, compliance requirements for high risk systems drive demand for specialists in risk management and regulatory implementation (Tartaro, 2024). This asymmetry may further deepen social and economic inequalities.

Fostering Innovation and New Opportunities

While the regulation presents challenges, it also creates opportunities for innovation. The introduction of obligations for risk assessment, transparency, and the development of AI generated content detectors fosters a market for specialized tools and services (Knott, et al., 2024). Companies that focus on developing compliance technologies, such as data analysis and risk assessment tools, could gain a significant competitive advantage. Moreover, the EU AI Act promotes the development of ethical AI technologies, which could spur innovations addressing specific societal challenges. For example, AI systems in healthcare that meet regulatory requirements may offer greater reliability and safety, encouraging broader adoption in clinical practice. On a global level, the EU AI Act may serve as a model for other jurisdictions, providing European companies with an opportunity to position themselves as leaders in the development of responsible AI technologies.

Economic Harmonization and Global Competitiveness

The introduction of the EU AI Act could have a profound impact on the global competitiveness of European companies. Reports suggest that setting regulatory standards may increase costs for foreign companies seeking to operate in the European market, ensuring fair market competition ("Artificial Intelligence Act: MEPs adopt landmark law,", 2024). However, this harmonization of standards may also pressure global players to adopt similar regulations, raising costs across the industry. By positioning the EU as a leader in AI governance, the regulation encourages a level playing field while reinforcing Europe's role in shaping global AI standards. European companies, particularly those already aligned with the new regulatory requirements, could gain a competitive edge in the global marketplace.

5. Harmonization of the EU AI Act and the Legislation of the Republic of Serbia

The European Union, with the adoption of the Artificial Intelligence Act (EU AI Act), has established a comprehensive legal framework for regulating artificial intelligence, aiming to balance the promotion of innovation with the

protection of fundamental human rights, security, and societal values. This Act introduces a classification model for AI applications based on risk levels unacceptable, high, limited, and minimal and imposes specific obligations for each category, including outright bans, strict regulatory requirements, and voluntary guidelines for low risk systems. In the context of Serbia, which currently lacks a dedicated AI law but has relevant legislation such as the Law on Personal Data Protection (ZZPL), the Law on Electronic Government, and the Law on Consumer Protection, the question arises of how to harmonize its legal framework with the requirements of the EU AI Act and address potential points of conflict. Under the EU AI Act, unacceptable risk systems include practices such as social scoring and manipulative techniques targeting vulnerable groups. While Serbia does not explicitly prohibit these practices, the ZZPL provides restrictions on data processing that could lead to discrimination, and Article 3 of the ZZPL establishes rules to ensure privacy and protect personal data, indirectly implying a ban on social scoring (European Parliament, Artificial Intelligence Act: MEPs adopt landmark law, 2024; Law on Personal Data Protection, 2018). However, the lack of specificity in the current legal framework necessitates amendments to explicitly ban such systems and ensure harmonization with the EU AI Act. For high risk systems, the EU AI Act imposes stringent requirements on risk assessment, transparency, human oversight, and the use of high quality data to minimize discriminatory outcomes. These requirements apply particularly to critical sectors such as healthcare, education, employment, and critical infrastructure. In contrast, Serbian legislation does not provide explicit standards for high risk AI systems. However, provisions in the ZZPL governing data processing in the public sector offer a foundation for developing such rules (Law on Personal Data Protection 2018; Consumer Protection Act, 2021). For instance, Articles 10–15 of the ZZPL, which address the legality and purpose of data processing, could be expanded to include specific procedures for risk assessment and human oversight in AI development. Nonetheless, further normative precision is required to ensure full harmonization with the EU AI Act. Limited risk systems, such as chatbots and recommendation systems, are required by the EU AI Act to ensure basic transparency for users. In Serbia, the Law on Consumer Protection provides a general framework for protecting users from deceptive practices but lacks specific provisions related to AI systems (Consumer Protection Act, 2021; The law of contract and torts, 1978). This gap could be addressed through amendments to explicitly define requirements for informing users about the use of AI systems and their core functionalities. Minimal risk systems, such as spam filters and AI tools for

gaming, are not regulated under the EU AI Act but are encouraged to adopt voluntary codes of conduct. Serbia currently lacks a legal framework for voluntary codes of conduct for AI systems. However, such frameworks could be developed in collaboration with the IT sector and academic institutions (Law on Personal Data Protection, 2018). The EU AI Act clearly defines the responsibilities of various stakeholders in the AI ecosystem, including providers, users, and distributors. Serbian legislation, however, does not specify the roles and responsibilities of these actors. Existing laws, such as the Law on Obligations and the Law on Consumer Protection, provide a basis for liability in digital transactions but are not tailored to the specificities of the AI sector (The law of contract and torts, 1978; Comunale & Manera, 2024). Serbia should amend these laws to explicitly define the roles and responsibilities of all parties involved in the development and deployment of AI systems. The EU AI Act imposes strict penalties for non-compliance, reaching up to €35 million or 7% of a company's annual global revenue. In Serbia, there are no equivalent penalty provisions related to the misuse of AI technologies (European Parliament, Artificial Intelligence Act: MEPs adopt landmark law, 2024; Consumer Protection Act, 2021). Harmonization in this area would require the introduction of detailed sanctions for failing to meet legal standards in the AI domain. The EU AI Act mandates that AI systems be free from bias and discriminatory practices. Serbia's Law on Protection Against Discrimination provides a general framework for combating discrimination but does not include specific mechanisms for addressing bias in AI systems (Law on Personal Data Protection, 2018; Consumer Protection Act, 2021). Expanding this law to cover AI technologies would ensure compliance with European standards. The EU AI Act establishes detailed requirements for transparency and risk assessment, whereas Serbia's provisions in this area are significantly broader. Amendments to the Law on Electronic Government and the ZZPL would be necessary to include specific procedures for risk assessment and obligations to provide transparent information to users about the functioning of AI systems.

6. Conclusion

The European Union's Artificial Intelligence Act (EU AI Act) of 2024 represents a significant milestone in the regulation of artificial intelligence, setting global standards for the ethical and responsible application of AI technologies. Its risk based approach categorizing AI systems into prohibited, high risk, limited risk, and minimal risk levels has a profound impact on software engineering,

particularly in areas such as transparency, risk assessment, and human oversight. For software companies, the Act introduces increased compliance costs but also creates opportunities for innovation, especially in the development of compliance monitoring tools and ethical AI solutions. The economic impact of this regulation is particularly pronounced for small and medium-sized enterprises (SMEs), where stringent requirements for high risk systems may limit market access due to resource constraints. Conversely, larger companies have the opportunity to gain a competitive edge in the European market through compliance. Furthermore, the rising demand for AI specialists is creating new job opportunities in highly skilled sectors, though automation may threaten traditional roles in lower skilled areas. For Serbia, the EU AI Act offers a unique opportunity to enhance its legislative framework and improve its positioning in the global market. While the current legal framework through laws such as the Law on Personal Data Protection (ZZPL) and the Law on E-Government provides a foundation for AI regulation, amendments are required to better define responsibilities, risk assessment, and transparency for AI systems. Harmonization with European regulations would strengthen legal certainty, foster innovation, and boost the competitiveness of Serbia's software sector.

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TRANSFORMACIJA I EKONOMSKI ASPEKTI SOFTVERSKOG INŽENJERSTVA KROZ IMPLEMENTACIJU UREDBE EU O VEŠTAČKOJ INTELIGENCIJI

APSTRAKT: Uredba EU o veštačkoj inteligenciji iz 2024. predstavlja prvi sveobuhvatan pravni okvir za regulaciju veštačke inteligencije, uvodeći klasifikaciju sistema veštačke inteligencije prema nivou rizika i precizne zahteve za visokorizične aplikacije. Ovaj rukopis analizira transformativni uticaj regulative na softversko inženjerstvo, s fokusom na ekonomske aspekte, kao što su troškovi usklađivanja, nove mogućnosti za

inovacije i promena dinamike tržišta rada. Posebna pažnja posvećena je potencijalnoj harmonizaciji sa zakonodavstvom Republike Srbije, pri čemu su identifikovane ključne tačke potencijalnog usklađivanja i moguće pravne kolizije. Značaj ovog rukopisa leži u njegovom doprinosu razumevanju kako Uredba EU o veštačkoj inteligenciji oblikuje globalnu regulaciju veštačke inteligencije i pruža okvir za adaptaciju lokalnog zakonodavstva u Srbiji, čime se podstiče tehnološki i pravni napredak.

Ključne reči: *Uredba EU o veštačkoj inteligenciji, softversko inženjerstvo, ekonomski uticaj, regulacija veštačke inteligencije.*

References

1. Buijsman, S. (2024). Transparency for AI systems: a value-based approach. *Ethics and Information Technology*, *26*(2), p. 34. https://doi.org/10.1007/s10676-024-09770-w

2. Comunale, M., & Manera, A. (2024). The Economic Impacts and the Regulation of AI: A Review of the Academic Literature and Policy Actions. *IMF Working Paper WP/24/65*, Downloaded 2024, December 30 from https://www.imf.org/en/Publications/WP/Issues/2024/03/22/The-Economic-Impacts-and-the-Regulation-of-AI-A-Review-of-the-Academic-Literature-and-546645

3. EU Artificial Intelligence Act (2024). *The EU Artificial Intelligence Act: Up-to-date developments and analyses of the EU AI Act*, Downloaded 2024, December 30 from https://artificialintelligenceact.eu/

4. European Commission, (2024). *Proposal for a Regulation laying down harmonized rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, Apr. 2021.* European Parliament. EU guidelines on ethics in artificial intelligence: Context and implementation. Downloaded 2024, December 14 from https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/640163/EPRS_BRI(2019)640163_EN.pdf

5. European Digital Strategy, "AI Act". (2024). Downloaded 2024, December 14 from https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai

6. European Parliament, Artificial Intelligence Act: MEPs adopt landmark law, Press Room, Mar. 2024. Downloaded 2024, December 19 from https://www.europarl.europa.eu/news/en/press-room/20240308IPR19015/artificial-intelligence-act-meps-adopt-landmark-law

7. European Parliament. Artificial Intelligence Act: MEPs adopt landmark law. [Online]. Downloaded 2024, December 19 https://www.europarl.europa.eu/news/en/press-room/20240308IPR19015/artificial-intelligence-act-meps-adopt-landmark-law​:contentReference{index=20}

8. Hickman, T., Lorenz, S., Teetzmann, C., & Jha, A. (2024). Long awaited EU AI Act becomes law after publication in the EU's Official Journal, *White&Case*, Downloaded 2024, December 21 from https://www.whitecase.com/insight-alert/long-awaited-eu-ai-act-becomes-law-after-publication-eus-official-journal

9. Hupont, I., Fernández-Llorca, D., Baldassarri, S., & Gómez, E. (2024). Use case cards: a use case reporting framework inspired by the European AI Act. *Ethics Inf Technol*, *26*(2), p. 19. https://doi.org/10.1007/s10676-024-09757-7

10. IBM, (2024). What is the Artificial Intelligence Act of the European Union (EU AI Act)?, Downloaded 2024, December 30 from https://www.ibm.com/think/topics/eu-ai-act

11. Knott, A., et al. (2024). AI content detection in the emerging information ecosystem: new obligations for media and tech companies. *Ethics Inf Technol 26*(4), p. 63, https://doi.org/10.1007/s10676-024-09795-1

12. Mantaci, R., & Yunès, J-B. (2024). *Basics of Programming and Algorithms, Principles and Applications*. Compact Textbooks in Mathematics (CTM), Springer Nature Link

13. Naganjaneyulu, K. V. (2022). *Basic Principles of Programming Languages: Fundamental Concepts Of PPL*. United Kingdom: Lambert Academic Publishing

14. "2024/1689, Regulation (EU) 2024/1689 of the European Parliament and of the Council" *Official Journal of the European Union*, June 2024. Downloaded 2024, December 30 from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R1689

15. Tartaro, A. (2024). Value-laden challenges for technical standards supporting regulation in the field of AI. *Ethics Inf Technol*, *26*(4), p. 72. https://doi.org/10.1007/s10676-024-09809-y

16. Zakon o obligacionim odnosima [The law of contract and torts]. *Službeni list SFRJ*, br. 29/78, 39/85, 45/89 – odluka USJ i 57/89, *Službeni list SRJ*, br. 31/93, *Službeni list SCG*, br. 1/03 – *Ustavna povelja i Službeni glasnik RS*, br. 18/20

17. Zakon o zaštiti podataka o ličnosti [Law on Personal Data Protection]. *Službeni glasnik RS*, br. 87/18

18. Zakon o zaštiti potrošača [Consumer Protection Act]. *Službeni glasnik RS*, br. 88/21