

Изворни научни чланак*
doi: 10.56461/rrsp2402_04

Radoje Brković**, Ph.D.

Full Professor at the Faculty of Law, University of Kragujevac

Rajko Raonić***

Administrative Court of Montenegro

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON LABOR RELATIONS

„Although it can help combat disease and poverty, we must be aware of the dangers that artificial intelligence brings. Otherwise, we will face dangerous autonomous weapons and a new way in which the few can overpower the many.“¹

Stephen Hawking

Abstract: *With the rapid development of technologies, particularly artificial intelligence, which poses a threat to all humanity, questions arise regarding its boundaries and its perspective on labor relations. Given the breadth of its impact, the potential influence on labor relations is unknown. The scope of labor law issues that this phenomenon brings is multifaceted and remains an enigma in our labor law area, and the legislator in the Republic of Serbia has*

* *Рад њримљен: 23. 7. 2024.*

Рад њрихваћен: 10. 8. 2024.

** Email: rbrkovic@jura.kg.ac.rs, ORCID: 0000-0002-3470-2655.

*** Email: rajkoraonic@gmail.com, ORCID:0009-0009-6887-535X.

1 Evidence supporting these claims suggests that once artificial intelligence achieves intelligence equal to or greater than that of humans, inevitable political and social changes will occur, in which AI has all the advantages it can gain if it realizes that it does not need humans for the colonization of the universe. J. E. Swain, P. Kim, J. Spicer, S. Ho, C. J. Dayton, A. Elmadih, and K. Abel, “Approaching the biology of human parental attachment: Brain imaging, oxytocin and coordinated assessments of mothers and fathers,” *Brain Research*, vol. 1580, 2014, pp. 78–101; M. Abadi, A. Agarwal, P. Barham, E. Brevdo, Z. Chen, C. Citro, G. S. Corrado, A. Davis, J. Dean, M. Devin et al., “TensorFlow: Large-scale machine learning on heterogeneous distributed systems,” arXiv preprint arXiv:1603.04467, 2016; G. E. Hinton, S. Osindero, and Y.-W. Teh, “A fast learning algorithm for deep belief nets,” *Neural Computation*, vol. 18, no. 7, 2006, pp. 1527–1554; C. Szegedy, V. Vanhoucke, S. Ioffe, J. Shlens, and Z. Wojna, “Rethinking the Inception Architecture for Computer Vision,” in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2016, pp. 2818–2826.

not prepared a response in line with European trends. The potential impact on labor relations, and later through some basic labor law procedures that accompany labor relations, has given the impression in the professional public of undermining employees and eroding their fundamental rights (individual and collective). Artificial intelligence accumulates its full impact on labor relations at the expense of the quality of labor relations. Many world economies rely on and see the benefits of the market offered by artificial intelligence. The rights derived from labor relations in the future will be subject to revision and reconsideration. Individual and collective labor law, the result of centuries of struggle by humanity, will be tested for maturity and adaptability in the 21st century.

The authors aim to elucidate the impact of artificial intelligence and how it affects labor relations in the 21st century, as well as to identify the elements—institutes of labor law most affected by this “tool” or “weapon,” as some experts call it.

Keywords: employees, artificial intelligence, online platforms, technologies, digitalization, labor relations.

1. INTRODUCTORY CONSIDERATIONS

Artificial intelligence (AI) represents a new era in industrial development, and we can confidently define its emergence as a new historical moment in human civilization.² For more than two centuries, there hasn't been anything as epochal in modern history as this type of “tool” – “weapon.” Human civilization has long awaited tectonic changes in the field of industry, and AI, having achieved this, has influenced every aspect of social relations and events, including labor relations. In the past, industrial revolutions brought more social security and higher employment, but this is not the case with the fourth industrial revolution.³

According to Andonović, AI increases work efficiency, accelerates social processes, and improves the utilization of the vast amount of information and data collected daily.⁴ Many jobs involving data collection and storage employed a large

2 Stuart Russell states that the eventual emergence of artificial general intelligence (AGI) will be the biggest event in human history. J. Manyika, “Getting AI Right: Introductory Notes on AI & Society,” *Daedalus*, Vol. 151, No. 2, *AI & Society*, 2022, pp. 5-27. In brief, artificial intelligence is an advanced computer system that aims to simulate the functioning of human intelligence in such a way that machines are capable of replacing human roles and work in various activities, ranging from simple to complex. S. Andonović, “Strategic Legal Framework of Artificial Intelligence in Comparative Law,” *Foreign Legal Life* No. 3/2020, pp. 111-112; S. Branković, “Artificial Intelligence and Society,” *Serbian Political Thought* No. 2/2017, vol. 24, vol. 56, p. 26; AI scientists can create a machine that learns as a child learns. Such ideas and their remnants are often embedded in the foundations of today's artificial intelligence concepts, which increasingly permeate people's daily lives. M.B. Bajac, Ž. Bjelajac, “Artificial Intelligence (AI) in the Function of Recognizing Emotions and Violent Mentalities,” *Culture of Polis* 19(2), 2022, p. 280.

3 B. Urdarević, A. Antić, “Platform Work and New Forms of Labor in the Digital Economy,” *Serbian Political Thought* No. 2/2021, vol. 28, vol. 72, p. 154.

4 S. Andonović, “Normative Aspects of Artificial Intelligence in the Work of Administrative Bodies in the Republic of Serbia,” *Proceedings of the Conference “Aligning the Legal System of Serbia with*

workforce responsible for tasks now handled and completed by this tool in the hands of employers. Interestingly, the private sector is not the only one interested in artificial intelligence⁵ (a logical goal); the state apparatus is also increasingly interested, seeking methods to respond to the challenges of the 21st century.⁶ This tool today is reflected in various forms of modernization and digitalization of work tasks and conditions. AI consists of software that generates output results based on a set of goals determined by humans.⁷ Artificial intelligence is a challenge facing every branch of law, but it will have the most impact on labor law. Many legal theorists advocate that AI is used as a tool that accelerates social processes⁸, but the fact at whose expense is often overlooked.⁹ This is the situation feared by labor law science, which has encountered this legally undefined “tool” unprepared and out of step. The response of labor law science to its emergence will greatly influence the fate of labor relations and certain labor law institutions that accompany them. Mass unemployment, widespread poverty, and social distortions are also possible scenarios for a new world of work, a world where robots, intelligent systems, and algorithms play an increasingly central role.¹⁰

EU Standards,” Kragujevac, 2020, p.142; W. Burgard, “Artificial Intelligence: Key Technologies and Opportunities,” in *The Cambridge Handbook of Responsible Artificial Intelligence*, edited by Silja Voenekey, Philipp Kellmeyer, Oliver Mueller, and Wolfram Burgard, 2022, p.12; Successful implementations of AI are all around us, from email filters and personalized retail recommendations to cars that avoid collisions by automatically braking in emergencies. F. F. Li, R. Krishna, “Searching for Computer Vision North Stars,” *Dædalus, the Journal of the American Academy of Arts & Sciences*, 2022, p. 85.

- 5 Google, Meta, and Tesla direct their development and vision towards artificial intelligence. D. Prlja, G. Gasmı, V. Korać, *Human Rights and Artificial Intelligence*, Institute of Comparative Law, Belgrade, 2022, p. 8.
- 6 Not all AI applications in the public sector pose a risk to the enjoyment of human rights, the rule of law, or democracy. Therefore, it is important to differentiate between AI systems managed by public authorities that present such risks and those that do not. A. Mantelero, F. Fanucci, “Great Ambitions: The International Debate on AI Regulation and Human Rights in the Prism of the Council of Europe’s CAHAL” in Philip Czech et al. (eds.), *European Yearbook on Human Rights*, 2022, pp. 225-252; Professor Jacobs also offers an interesting perspective, stating in one of his studies that “Artificial intelligence corresponds to political polarization and the differences between winning and losing groups.” J. Jacobs, “The Artificial Intelligence Shock and Socio-Political Polarization,” *Technological Forecasting & Social Change*, vol. 199, 2024, <https://doi.org/10.1016/j.techfore.2023.123006>.
- 7 These results can take the form of predictive content, recommendations, or decisions that impact the environment with which the system interacts, whether in a physical or digital dimension. D. Prlja, G. Gasmı, V. Korać, *Human Rights and Artificial Intelligence*, op. cit., p. 7.
- 8 According to many legal theorists, the primary impact is on the economy, politics, culture, and education.
- 9 According to Professor Fei-Fei Li, it is time for AI to assist other vertical industries such as healthcare, agriculture, and manufacturing to transform and advance. Y. Zeng, L. Wang, “Artificial Intelligence is on Its Way to Reshape the World—Interview,” *National Science Review*, vol. 4, 2017, p. 490.
- 10 G. Wisskirchen, “How Artificial Intelligence Impacts Labour and Management,” CEC Seminar: *Management in the Age of Artificial Intelligence - Employment, Economics, and Ethics*, Mainz, 2018, p. 3; If society wishes to avoid mass unemployment and enjoy the benefits of more skilled

The European Union is gradually preparing an institutional response to potential problems, where the future of work plays a central role. Significant investments related to the future of work and economic and social protection measures do not surprise legal theorists.¹¹ According to Professor Čulibrk, we should not fear that machines will replace workers because, on the contrary, the goal of technological development is to make life easier for people. The nature of technological development is to find ways to free people from dangerous and strenuous jobs.¹²

2. 2. IMPACT OF ARTIFICIAL INTELLIGENCE ON THE LABOR MARKET

In 1967, Drucker described the computer as follows: “A computer doesn’t make decisions; it just executes commands. It’s a total moron, and that’s its strength. It forces us to think, to set criteria. The dumber the tool, the smarter the craftsman must be, and this is the dumbest tool we have ever had.”¹³ The effects of robotization on employment can be observed at the factory, enterprise, and macroeconomic levels. At the factory level, robots are generally a direct replacement for human labor.¹⁴ There is no doubt that innovation and creativity are essential for a sustainable and competitive social market economy, but their application requires achieving a balance between promoting economic and social benefits from these new developments.¹⁵ Therefore,

and enriched work along with more free time, it will need to find ways to manage artificial intelligence effectively. D. Spancer, “AI, Automation, and the Lightning of Work,” *AI & Society*, 2024, <https://doi.org/10.1007/s00146-024-01959-3>; See also: D. Acemoglu, P. Restrepo, “The Wrong Kind of AI? Artificial Intelligence and the Future of Labour Demand,” *Cambridge Journal of Regions, Economy and Society*, 2020, p. 28, , <https://doi.org/10.1093/cjres/rsz022>.

- 11 T. Lynn, et.al, Introducing the Future of Work: Key Trends, Concepts, Technologies and Avenues for Future Research, in: Theo Lynn, Pierangelo Rosati, Edel Conway , Lisa van der Werff , *The Future of Work*, Cham, 2023, p.2;
- 12 Dubravko Čulibrk, “*Unjustified Fear That Technology Will Replace Humans*,” accessed March 10, 2024, <https://nezavisnost.org/dubravko-culibrk-neopravdan-je-strah-da-ce-tehnologija-zameniti-coveka/>; See also: M. Furendal, K. Jebari, “The Future of Work: Augmentation or Stunting?” *Philosophy & Technology*, 2023,, p. 9, <https://doi.org/10.1007/s13347-023-00631-w>.
- 13 P. F. Drucker, “*The Manager and the Moron*,” *McKinsey Quarterly*, 3(4), 1967, p. 8. Europe and its social partners have a crucial role in ensuring that this process leads to positive, fair, and sustainable outcomes, and in addressing issues related to the gray areas of rights and protection. EESC, *The Changing Nature of Employment Relationships and Its Impact on Maintaining a Living Wage* (exploratory opinion requested by the Dutch presidency), 2016.
- 14 H. K. Ebel, The impact of industrial robots on the world of work, In: *Robotics*. [online]. Vol. 3, No. 1, 1987, pp. 65-72;
- 15 Weeb presents an interesting perspective: as machine productivity increases, the demand for human labor per unit of output will unambiguously decrease. Workers will be completely displaced from automated tasks; to the extent that these two tasks are substitutes, fewer human workers will be required for non-automated tasks as well. However, automation lowers the cost of the final good, and thus its price, leading consumers to demand more of it. This increase in final demand offsets the reduction in labor demand per unit and could even lead to a net increase in labor demand. M. Weeb, *The Impact of Artificial Intelligence on the Labor Market*, 2019, p.8; <https://ssrn.com/abstract=3482150>.

workers should be prepared for the future of the labor market, as well as the quality of employment and labor relations, which will depend exclusively on their readiness to work in a knowledge economy, including technology and computing.¹⁶ As the image of today's accelerated development and modern scientific approaches is driven by the use of technology, it also substitutes for human workers. Consequently, the labor market is polarized, with robots replacing low and medium-skilled workers.¹⁷ A particular issue for AI implementation will be procurement, as it is not financially accessible or cost-effective for small and medium-sized enterprises, indicating that AI will directly replace workers in "large factories."¹⁸ While some legal theorists argue that the entry of AI into the service sector requires additional analysis of reliability and ease of use, AI is most present and tangible in this sector.

For a certain period, AI will become an additional factor enhancing employee performance and a tool for their work, rather than a reason and means for (un) employment.¹⁹ Maintenance, repair, management, and later the "harvesting of fruits" will represent additional reasons and advantages for the survival of physical persons (employees).²⁰ According to Balliester and Elsheikhi, the future of

-
- 16 K. Joamets, A. Chochia, Artificial Intelligence and Its Impact on Labour Relations in Estonia, *Slovak Journal of Political Sciences*, Volume 20, No. 2, 2020, p. 258; Technologies such as automation, digitization, platformization, and AI are creating new forms of work and enabling flexible work arrangements (hybrid, remote work). M. Santana, J. M. Cobo, What is the Future of Work? A Science Mapping Analysis, *European Management Journal*, 38(6), 2020, pp. 846–862; It is therefore not surprising that some are calling for employees to be prepared for the future, advocating for a "pipeline from the classroom to the workplace" to ensure that the skills taught today match those needed tomorrow. S. Caplan, Closing the Skills Gap Could Be as Simple as ABC, *Strategy & Business*, 2018; N. Krishnan, *Our Education System is Losing Relevance. Here's How to Unleash Its Potential*, World Economic Forum, 2020. Available at <https://www.weforum.org/agenda/2020/04/our-education-system-is-losing-relevance-heres-how-to-update-it/>. Accessed on March 10, 2024. Krishnan emphasizes the need to update education to be job-ready, highlighting the ability to compete with smart machines while creating long-term economic value.
- 17 K. Joamets, A. Chochia, *ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON LABOUR RELATIONS IN ESTONIA*, op.cit, p.258;
- 18 More than "1,000 large companies" are already using or testing AI systems for machine learning and have identified the emergence of entire categories of new jobs. These are new positions. More specifically, research reveals the emergence of three new categories of business and technological jobs driven by AI: trainers, explainers, and maintainers. H. J. Wilson, P. R. Daugherty, N. Morini-Bianzino, The Jobs That Artificial Intelligence Will Create: A global study finds several new categories of human jobs emerging, requiring skills and training that will take many companies by surprise, *Sloan Management Review*, 2017, p. 14; Companies adopting AI use it to minimize labor costs and intensify work. D. Spancer, *AI, Automation and the Lightening of Work*, op. cit.; Available at <https://doi.org/10.1007/s00146-024-01959-3>;
- 19 The use of AI in employment relations does not always have to eliminate people from their jobs; rather, it can improve the quality of their work, for example, by allowing them to work less or under better conditions. R. Viola, Artificial Intelligence, Real Benefits. In: *Blog*, 2018. [online]. Available at: <https://ec.europa.eu/digital-single-market/en/blogposts/artificial-intelligence-real-benefits>, pp. 5-6
- 20 However, Russell and Norvig have defined four directions of action that represent the goals of AI. These are systems that think and behave like humans, as well as systems that think and act rationally. S. Russell, P. Norvig, *Artificial Intelligence: A Modern Approach* (3rd ed.). University of California, 2010.

work extends into five dimensions influenced by megatrends (technology, climate change, globalization, and demographics) affecting the world of work, including job quality, income inequality, social protection systems, and social dialogue and industrial relations.²¹ These are some of the areas where the impact of AI will be most felt. Defining the problems and finding solutions related to the subject and potential workforce affected by automation and AI requires a detailed and rational approach to the issue.²² National frameworks must support workers impacted by this “tool” in the hands of employers.²³ According to expert opinion, AI will most affect low-wage workers and those without advanced skills, and national frameworks will face the challenge of finding ways to mitigate or prevent these impacts.²⁴ The solution lies in guiding the future potential workforce toward skills that are synergistic with AI.²⁵ The situation remains stable as long as AI cannot replace certain professions and serve as a substitute; however, many professions will be questioned in the future. Human-AI symbiosis, meaning interaction between humans and AI, can make both parties smarter over time. Most AI algorithms can learn and enhance the utility of both sides with greater data exposure and interaction with human partners.²⁶

-
- 21 T. Balliester, A. Elsheikhi, *The future of work: A literature review*. ILO Research Department Working Paper, 29, 2018, pp.1–54
- 22 Policymakers are focused on predicting how automation will transform industries, the workforce, and existing social and economic organizations. C. Kavanagh, *New Tech, New Threats, and New Governance Challenges: An Opportunity to Craft Smarter Responses*, *Carnegie Endowment for International Peace*, 2019, p.13.
- 23 Labor market policies also need to protect and enable the acquisition of new skills and the upgrading of existing ones for individuals affected by digitalization. EESC. *The changing nature of employment relationships and its impact on maintaining a living wage* (exploratory opinion requested by the Dutch presidency), 2016; *Trust is vital for enabling effective interactions in the workplace*. A.C. Fulmer, J. M. Gelfand, *At what level (and in whom) we trust: Trust across multiple organizational levels*. *Journal of Management*, 38(4), 2012, pp. 1167–1230.
- 24 Concerns about job displacement and the future of work have sparked discussions about reskilling the workforce and creating new jobs that complement AI-driven technologies. S. Rawas, *AI: the future of humanity*, *Discover Artificial Intelligence*, 2024 | <https://doi.org/10.1007/s44163-024-00118-3>.
- 25 Although computerization is likely to increase global welfare, it is far from certain how these gains will be distributed across countries. Whether technology outpaces workers' ability to re-employ their old skills and acquire new ones, computerization is one of the forces driving labor market polarization, against which greater emphasis on education and training is needed. M. Pajarinen, P. Rouvinen, *Computerization Threatens One Third of Finnish Employment*. In: *ETLA Brief*. [online]. No. 22, 2014, p.5; consequently, the partnership between decision-makers and AI can unfold in two ways: 1) humans and AI technology can collaborate to address different aspects of decision-making. AI is likely to be well-positioned to handle more complex issues. Humans can focus more on uncertainty and ambiguity, using more creative and intuitive approaches. 2) Even the most complex decisions, where AI has a comparative advantage, will likely require elements of uncertainty and ambiguity, necessitating human involvement. Thus, humans and AI will play a combined role in almost all complex decisions. H. M. Jarrahi, *Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making*. In: *Business Horizons*. [online]. Vol. 61, No. 4, 2018, pp.582–583.
- 26 H. M. Jarrahi, *Artificial intelligence and the future of work*, op.cit, p. 583;

3. THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE QUALITY AND TYPES OF EMPLOYMENT RELATIONSHIPS

Employment relationships before the advent of AI in the spheres of economy and law consisted of two subjects, with a third occasionally appearing in exceptional situations. It can be freely stated that the former principle of establishing employment relationships (due to the predominantly physical nature of employers' needs) is fading with the emergence of AI. Today's principle, and the future principle by which the process of establishing employment relationships will occur, will depend exclusively on skills and knowledge that can stimulate and support AI, while the standardized workforce will be marginalized. This marginalization is one of the complications that legal theorists predict AI's emergence and usage will bring about.

The advent of AI will lead to the establishment of employment relationships that are undesirable in quality for employees and the protection of their rights through these relationships, as it will not be as functional as it was in the period before the entry of artificial intelligence (security, stability).²⁷ New forms of employment may hinder the creation of job opportunities. Therefore, some recommendations would be to enable labor markets to function better and provide greater flexibility for workers and employers, increase employee autonomy, adapt workplaces, promote skill development, and offer a broader framework for achieving a positive work-life balance.²⁸ Wright and Schultz have indicated that there are three variables that will directly influence and the likelihood that automation will draw particular attention to the profession. They concluded that "lower-skilled labor markets that require less social interaction and where routine prevails, where care for others is less important" will be less reduced by automation.²⁹ Middle-skilled jobs (such as clerical jobs and manufacturing) are declining, while low- and high-skilled jobs

27 The ILO has determined that the shift from traditional employment relationships to non-standard forms of employment that has occurred over the past decade will have significant social and state consequences. The current transformation of employment relationships contributes to the growing inequality between income from labor and productivity and may cause income inequality. EESC. The changing nature of employment relationships and its impact on maintaining a living wage (exploratory opinion requested by the Dutch presidency), 2016.

28 New employment relationships include "zero hours work," "on-call work," "fly-time only work," "mini-jobs," "portfolio work," and "voucher-based work." EESC. The changing nature of employment relationships and its impact on maintaining a living wage (exploratory opinion requested by the Dutch presidency), 2016.

29 Numerous entrepreneurs and companies have considered that one of the responses to job displacement caused by automation should be the introduction of UBI to mitigate the social impact of mass technological unemployment. J. Sadowski, "Why Silicon Valley is embracing universal basic income," *The Guardian*, 2016; <https://www.theguardian.com/technology/2016/jun/22/silicon-valley-universal-basic-income-y-combinaton> accessed on 10.03.2024; see also: V. De Stefano, "Negotiating the Algorithm: Automation, Artificial Intelligence, and Labour Protection," *Comparative Labor Law & Policy Journal*, Vol. 41, No. 1, 2019, p. 21.

are increasing. Moreover, middle-skilled workers will move to less skilled service-oriented positions, leading to further wage erosion.³⁰

As the entire legal community is focused on the installation of AI in employment relationships and law in general, many forget how it will impact the very core of employment relationships, namely individual and collective employee rights. From what has been established so far, something that AI will certainly impact is one of the fundamental rights to earnings and later the establishment of “safer” forms of employment relationships. The question arises about the impact on working hours³¹, vacations, discrimination³², and later through the decline in employment rates based on “safer” forms of employment relationships, how it will affect collective labor rights.³³ This primarily refers to collective bargaining, the conclusion of collective agreements, union organizing³⁴, and collective industrial actions.³⁵ This is especially important considering whether, due to the tectonic shifts in employment relationships, employees will be able to, and whether the rate of interest in protecting rights will be adequate and of quality to the erosion of those rights.

-
- 30 A. S. Wright, E. A. Schultz, The rising tide of artificial intelligence and business automation: Developing an ethical framework. In: *Business Horizons*. [online]. Vol. 61, No. 6, 2018, pp. 823–832
- 31 The development of technologies brings changes in terms of working hours, with an increasing presence of flexible working hours. This trend in the future could be more suitable for women. D. Howcroft, J. Rubery, “Bias in, Bias out: Gender equality and the future of work debate.” *Labour and Industry: A Journal of the Social and Economic Relations of Work*, 29(2), 2019, pp.213–227.
- 32 Age discrimination, for example, may increase as jobs require the use of more complex technologies. As technology radically transforms the nature of work, organizations have the opportunity to reassess their definitions of what constitutes success and what individuals need to do to help the organization succeed. J. McCarthy, et al., “Diversity and Inclusion, The future of work,” in Theo Lynn, Pierangelo Rosati, Edel Conway, Lisa van der Werff, *The Future of Work*, Cham, p.104; The risks to fundamental rights are linked to the social dimension of AI. These include discrimination, exploitation, manipulation, humiliation, oppression, and similar adverse effects. See: C. Wendehorst, “Liability for Artificial Intelligence: The Need to Address Both Safety Risks and Fundamental Rights Risks,” in *Responsible AI Liability Schemes*, ed. Silja Voenekey, Philipp Kellmeyer, Oliver Mueller, and Wolfram Burgard, 2022, p.190.
- 33 Some solutions concerning AI and employees related to data collection include that worker representatives, where they exist, in accordance with national law and practice, should be informed and consulted: (a) regarding the introduction or modification of automated systems that process workers’ personal data; (b) before the introduction of any electronic monitoring of worker behavior in the workplace; (c) about the purpose, content, and method of administering and interpreting questionnaire and tests related to workers’ personal data. In the context of employment, invoking collective rights can be relevant from various perspectives. F. Hendrickx, *Protection of workers’ personal data: General principles*, ILO, 2022, p.40; A key feature of digital labor platforms is that they attempt to minimize external regulation of the relationship between employer and employee. V. Lehdonvirta, Algorithms that divide and unite: delocalization, identity, and collective action in ‘microwork’. In: Flecker J (ed.) *Space, Place and Global Digital Work*. London: Palgrave-Macmillan, 2016, pp. 53–80.
- 34 For more on the union organization of platform workers, see: K. Vandaele, A. Piasna, W. Zwysen. *Are platform workers willing to unionize? Exploring survey evidence from 14 European countries*. ILO Working Paper 106. Geneva: International Labour Office, 2024.
- 35 S. P. Choudary, *The architecture of digital labour platforms: Policy recommendations on platform design for worker well-being*, International Labour Office – Geneva: ILO, 2018, p.24;

What we can confirm with certainty is that on the already unstable ground of union organizing (affected by flexibilization and deregulation) and its activities, AI will have a negative impact, and may even challenge the scope and effectiveness of these activities in the future (unless modifications are made through the conduct of social dialogues).

4. ARTIFICIAL INTELLIGENCE AND EMPLOYEES

As previously mentioned, a key characteristic of the employment relationship, which can be found in all countries and legal traditions, is the hierarchical power–or control–of the employer over the employees. This authority primarily consists of three main prerogatives: the authority to assign tasks and issue unilateral orders and instructions to employees; the authority to monitor the performance of such tasks as well as compliance with these orders and directives; and the authority to sanction improper or negligent execution of assigned tasks and any disobedience to legally issued orders and directives.³⁶ Employees and AI, as tools in the hands of employers and dependent on their needs, will be the subject of detailed analysis in the future and their mutual impact. Many legal theorists argue that, in addition to the disrupted labor rights we have outlined, this relationship will also impact the dehumanization of working conditions.³⁷ Information technologies and AI will enable the implementation of monitoring and oversight of worker activities on a scale unimaginable in the past, the collection and processing of vast amounts of data about these activities³⁸,

36 V. De Stefano, "Negotiating the algorithm": Automation, artificial intelligence and labour protection, *Employment Policy Department EMPLOYMENT Working Paper No. 246*, 2018;

37 Such a state, caused by the emergence of new technologies, must lead to updating labor regulations aimed at protecting workers from the abuses of surveillance practices in light of the expansion of monitoring systems enhanced by AI technology. F. Hendrickx, *Privacy, Data Protection, and Measuring Employee Performance: The Triggers from Technology and Smart Work, Regulating for Globalization. Trade, Labor and EU Law Perspectives*, 2018, available at: <http://regulatingforglobalization.com/2018/03/21/privacy-data-protection-and-measuring-employee-performance-the-triggers-from-technology-and-smart-work/>, accessed on: 10.03.2024. On the complexity of the relationship between AI, genders, and jobs, see: T. Carstensen, K. Ganz, *Gendered AI: German News Media Discourse on the Future of Work, AI & SOCIETY*, 2023, <https://doi.org/10.1007/s00146-023-01747-5>; Without significant direct attention, gender inequality would expand, creating free time for some and persistent inequality for others, increasing the gender pay gap, and creating a complete gender gap in work. J. A. Jones, *Expanding Understandings of 'Work' in Response to AI*, *Humanistic Management Journal*, 2023, <https://doi.org/10.1007/s41463-023-00163-7382>.

38 In line with the previous points, we could equate that "a good education saves expensive control institutions." W. Thieme, *Verwaltungslehre*, Carl Heymans Verlag, Cologne-Berlin-Bonn-Munich, 1984, p.331; E. Dagnino, "People Analytics: lavoro e tutele al tempo del management tramite big data", *Labour & Law Issues*, Vol. 3, No. 1, 2017. Therefore, constant attention must be devoted to this development, and control is needed to prevent abuses that threaten human dignity. Protection of labor by limiting the exercise of managerial prerogatives is also crucial to ensure that the employer's powers are not exercised in a manner that endangers the human rights of workers. V. De Stefano, *Negotiating the Algorithm: Automation, Artificial Intelligence, and Labour Protection*, op.cit, 17. The European Court of Human Rights has, for example, interpreted the right

and the reduction of individual autonomy.³⁹ It is also important to point out the third option available to employers: the right to sanction. The question arises of the potential misuse of AI and whether it may become the cornerstone of control, thereby serving as a tool to detect breaches of work obligations and duties.⁴⁰ This is one of the potential problems to which the future of labor relations must provide a valid response. In such a relationship, AI itself should be subject to control and possible review of decisions, parameters, suggestions, etc.⁴¹ Many experts from the IT field,

to private life under Article 8 of the European Convention on Human Rights to reinforce the privacy protection of individuals at the workplace. In a recent case concerning the dismissal of an employee for using the internet at work for private purposes, where the employer had access to the content of the employee's communications through IT tools, the Court determined that monitoring online activities by employers, while in principle acceptable, must be conducted in a proportional manner to ensure that arbitrariness and abuse are avoided. The permissible protective measures that member states must consider to determine whether monitoring is legitimate in practice were outlined by the Court: the circumstance that employees were duly informed about the possibility that the employer could monitor correspondence and other communications; the presence of legitimate reasons to justify the monitoring of communications and access to their content; and the possibility of establishing less intrusive monitoring practices. The Court also mandated consideration, in general, of the extent of monitoring and the degree of intrusion into the worker's privacy, also making a distinction between access to metadata covering the flow of communication and access to the content of communication. Ibid, 18. Thus, according to Professor Stojiljković, privacy is on the way to being sacrificed for the sake of surveillance capitalism. Z. Stojiljković, *Digitalization and the Future of Work: Political Diary* 17, 2023, available at: <https://nezavisnost.org/politicki-dnevnik-17-digitalizacija-i-buducnost-rada/>, accessed on 10.03.2024.

- 39 See: S. Bankins, P. Formosa, *The Ethical Implications of Artificial Intelligence (AI) for Meaningful Work*, *J Bus Ethics*. 2023, p.733, <https://doi.org/10.1007/s10551-023-05339-7>. The loss of skills and knowledge for independent decision-making in the work process brought by AI threatens employee autonomy. Autonomy in the workplace is important because it increases the meaning and motivation at work, resulting in work performance, proactivity, and a reduction in job turnover. Z. Hosseini, S. Nyholm, P. M. Le Blanc, P. T. Y. Preenen, E. Demerouti, *Assessing the Artificially Intelligent Workplace: An Ethical Framework for Evaluating Experimental Technologies in Workplace Settings*, *AI and Ethics*, 2024, p.290, <https://doi.org/10.1007/s43681-023-00265-w>.
- 40 This issue of explainability highlights the idea that data subjects must have the right to "meaningful explanations to understand the given decision, reasons to challenge it, and advice on how the data subject can change their behavior or situation to possibly receive the desired decision." S. Wachter, B. Mittelstadt, C. Russell, "Counterfactual Explanations Without Opening the Black Box: Automated Decisions and the GDPR." *Harvard Journal of Law and Technology*: 31(2) 2018, p.844.
- 41 What makes this promising as a means to promote fairness in algorithmic decision-making is the right to appropriate oversight of individual decision-making. C. Wendehorst, "The Proposal for an Artificial Intelligence Act COM(2021) 206 from a Consumer Policy Perspective", Federal Ministry Republic of Austria for Social Affairs, Health, Care and Consumer Protection, 2021, p.140. Additionally, Andonović points out the potential problems that AI can cause. According to him, artificial intelligence can be of great benefit in the application of law by authorities, while simultaneously creating numerous risks to fundamental rights and freedoms. In this sense, it can also promote the spread of fake news and misinformation, lead to inaccurate data through the manipulation of photographs and videos, which can call into question the legality of evidence and proceedings before authorities. Therefore, he suggests that both national and international states should cooperate in finding solutions to control the functioning of artificial intelligence. S. Andonović, "Strategic Legal Framework for Artificial Intelligence in Comparative Law," p. 117.

such as Stephen Hawking and Fei-Fei Li, warn that the only problem AI may cause is the procedure of its control. Therefore, the current employment relationship, characterized by the presence of “three subjects”⁴²—i.e., the employer-employee-artificial intelligence relationship—should exclusively be based on the humanization of working conditions and climate. People who are equal to or replaced by artificial intelligence in interaction with non-human entities that enjoy legal status risk being considered merely cogs in the business process, which could lead to serious commodification of their work and produce undesirable dehumanizing consequences.⁴³ Workers must be involved in the development of AI to ensure that the systems are usable and that the worker remains autonomous over AI. To achieve this goal, it is crucial that every managerial decision aligns with the decision of the EC and primarily be subject to review by human beings who remain legally responsible, along with their organization, for the decision and its repercussions.⁴⁴

CONCLUSION

From the above, we conclude that labor law, and especially employment relationships and their definitions in the future, face immense risks and pressures from technology, digitization, and artificial intelligence. How labor law and its defenders will address these challenges will determine the future development of employment relations and the fate of many employees whose jobs depend on AI. What is encouraging are the announcements and positions taken by the international legal establishment, which indirectly shape legal realities.

According to Professor Stojiljković, in 2022 artificial intelligence (AI) gained street credibility. The release of ChatGPT has raised numerous questions. If AI is capable of, for example, passing the bar exam, is there any reason why it cannot write a legal report or provide good legal advice? Z. Stojiljković, “*Digitalization and the Future of Work: Political Diary 17*,” 2023, <https://nezavisnost.org/politicki-dnevnik-17-digitalizacija-i-buducnost-rada/> accessed on 10.03.2024. Similarly, Professors Avramović and Jovanov question the independence of the judiciary as a branch of government if artificial intelligence replaces human judges. D. S. Avramović, I. D. Jovanov, “Judicial (Im)Partiality and Artificial Intelligence,” *Strani pravni život*, Vol. LXVII, No. 2/2023, p.171. Professor De Stefano also addresses decisions made by artificial intelligence, see: V. De Stefano, “Negotiating the Algorithm: Automation, Artificial Intelligence, and Labour Protection,” *Comparative Labor Law & Policy Journal*, Vol. 41, No. 1, 2019, p.29. For the impact of artificial intelligence on education, see: O. Ali, P. A. Murray, M. Momin, Y. K. Dwivedi, T. Malik, “The Effects of Artificial Intelligence Applications in Educational Settings: Challenges and Strategies,” *Technological Forecasting & Social Change*, 2024, p.199, <https://doi.org/10.1016/j.techfore.2023.123076>.

42 This is especially pertinent when considering the fact that the European Parliament has discussed the possibility of granting robots “electronic personhood,” or creating a specific legal status for robots, so that at least the most sophisticated autonomous robots could be recognized as having the status of electronic persons with specific rights and obligations. See: V. De Stefano, “Negotiating the Algorithm: Automation, Artificial Intelligence, and Labour Protection,” *Comparative Labor Law & Policy Journal*, Vol. 41, No. 1, 2019, p.5.

43 Ibid. 8;

44 Ibid, 30;

These actors are divided on the impact of AI on employment. Some argue that AI will lead to massive unemployment, while others claim that the advent of AI will increase employment through a decrease in the prices of final products, which will in turn create a greater need for labor. The labor market, after such tectonic shifts influenced by AI, will never be the same. Many see education and preparing future generations (from the classroom to the workplace) for “jobs of the future” as a solution. In addition, the issue of the dehumanization of working conditions is concerning. There are questions about whether employees will receive “dignified work” in the future or if they will become mere numbers or cogs in the achievement of neoliberal capitalist goals. Fundamental labor rights are undoubtedly at risk, and special attention must be paid to their preservation and revitalization in the era of expanding artificial intelligence.

LITERATURE AND SOURCES

- Abadi, M., Agarwal, A., Barham, P., Brevdo, E., Chen, Z., Citro, C., Corrado, S. G., Davis, A., Dean, J., Devin, M., et al. (2016). “Tensorflow: Large-scale machine learning on heterogeneous distributed systems.”
- Ali, O., Murray, A. P., Momin, M., Dwivedi, K. Y., Malik, T. (2024). The effects of artificial intelligence applications in educational settings: Challenges and strategies, *Technological Forecasting & Social Change*, 199. <https://doi.org/10.1016/j.techfore.2023.123076>
- Acemoglu, D., Restrepo, P. (2020). The wrong kind of AI? Artificial intelligence and the future of labour demand. *Cambridge Journal of Regions, Economy and Society*. <https://doi.org/10.1093/cjres/rsz022>
- Avramović, S. D., Jovanov, D. I. (2023). Sudijska (ne)pristrasnost i veštačka inteligencija, *Strani pravni život, god LXVII*, br. 2
- Andonović, S. (2020). Strateško pravni okvir veštačke inteligencije u uporednom pravu, *Strani pravni život* br. 3
- Andonović, S. (2020). Normativni aspekti veštačke inteligencije u radu organa uprave u Republici Srbiji, *Zbornik radova “Usklađivanje pravnog sistema Srbije sa standardima EU”*, Kragujevac
- Bajac, B. M., Bjelajac, Ž. (2022). Vještačka inteligencija (AI) u funkciji prepoznavanja emocija i nasilničkog mentaliteta, *Kultura polisa*, 19(2)
- Bankins, S., Formosa, P. (2023). The ethical implications of artificial intelligence (AI) for meaningful work. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-023-05339-7>
- Branković, S. (2017). Veštačka inteligencija i društvo, *Srpska politička misao*, br. 2, god. 24, vol. 56
- Burgard, W. (2022). Artificial Intelligence Key Technologies and Opportunities, In: *The Cambridge Handbook of Responsible Artificial Intelligence*, Voenekey, S., Kellmeyer, P., Mueller, O., Burgard, W. (eds.)
- Balliester, T., Elsheikhi, A. (2018). The future of work: A literature review. ILO Research Department Working Paper, 29

- Caplan, S. (2018). Closing the skills gap could be as simple as ABC. *Strategy & Business*
- Choudary, P. S. (2018). The architecture of digital labour platforms: Policy recommendations on platform design for worker well-being, International Labour Office – Geneva: ILO
- Carstensen, T., Ganz, K. (2023). Gendered AI: German news media discourse on the future of work, *AI & SOCIETY*. <https://doi.org/10.1007/s00146-023-01747-5>
- Dagnino, E. (2017). People Analytics: lavoro e tutele al tempo del management tramite big data, *Labour & Law Issues*, Vol. 3, No. 1
- Drucker, F. P. (1967). The manager and the moron. *McKinsey Quarterly*, 3(4)
- De Stefano, V. (2018). Negotiating the algorithm: Automation, artificial intelligence and labour protection, Employment Policy Department EMPLOYMENT Working Paper No. 246
- De Stefano, V. (2019). Negotiating the Algorithm: Automation, Artificial Intelligence and Labour Protection, *Comparative Labor Law & Policy Journal*, Vol. 41, No. 1
- EESC (2016). The changing nature of employment relationships and its impact on maintaining a living wage (exploratory opinion requested by the Dutch presidency)
- Ebel, K. H. (1987). The impact of industrial robots on the world of work. In: *Robotics*, Vol. 3, No. 1
- Fulmer, C. A., Gelfand, M. J. (2012). At what level (and in whom) we trust: Trust across multiple organizational levels. *Journal of Management*, 38(4)
- Furendal, M., Jebari, K. (2023). The Future of Work: Augmentation or Stunting?, *Philosophy & Technology*. <https://doi.org/10.1007/s13347-023-00631-w>
- Hinton, E. G., Osindero, S., Teh, W-Y. (2006). A fast learning algorithm for deep belief nets, *Neural Computation*, vol. 18, no. 7
- Hendrickx, F. (2022). Protection of workers' personal data: General principles, ILO
- Howcroft, D., Rubery, J. (2019). 'Bias in, Bias out': Gender equality and the future of work debate. *Labour and Industry: A Journal of the Social and Economic Relations of Work*, 29(2)
- Hosseini, Z., Nyholm, S., Le Blanc, M. P., Preenen, Y. T. P., Demerouti, E. (2024). Assessing the artificially intelligent workplace: an ethical framework for evaluating experimental technologies in workplace settings, *AI and Ethics*. <https://doi.org/10.1007/s43681-023-00265-w>
- Hendrickx, F. (2018). Privacy, data protection and measuring employee performance. The triggers from technology and smart work, *Regulating for Globalization. Trade, Labor and EU Law Perspectives*. <http://regulatingforglobalization.com/2018/03/21/privacy-data-protection-and-measuring-employee-performance-the-triggers-from-technology-and-smart-work/>
- Jarrahi, M. J. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, Vol. 61, No. 4
- Joamets, K., Chochia, A. (2020). Artificial Intelligence and its Impact on Labour Relations in Estonia, *Slovak Journal of Political Sciences*, Volume 20, No. 2

- Jacobs, J. (2024). The artificial intelligence shock and socio-political polarization, *Technological Forecasting & Social Change*, 199. <https://doi.org/10.1016/j.techfore.2023.123006>
- Jones, A. J. (2023). Expanding Understandings of 'Work' in Response to AI, *Humanistic Management Journal*. <https://doi.org/10.1007/s41463-023-00163-7382>
- Krishnan, N. (2020). Our education system is losing relevance. Here's how to unleash its potential, *World Economic Forum*. Available at: <https://www.weforum.org/agenda/2020/04/our-education-system-is-losing-relevance-heres-how-to-update-it/>
- Kavanagh, C. (2019). *New Tech, New Threats, and New Governance Challenges: An Opportunity to Craft Smarter Responses*, Carnegie Endowment for International Peace
- Lehdonvirta, V. (2016). Algorithms that divide and unite: delocalization, identity, and collective action in 'microwork'. In: Flecker, J. (ed.) *Space, Place and Global Digital Work*. London: Palgrave-Macmillan
- Li, F. F., Krishna, R. (2022). Searching for Computer Vision North Stars, *Dædalus, the Journal of the American Academy of Arts & Sciences*
- Lynn, T., et al. (2023). *Introducing the Future of Work: Key Trends, Concepts, Technologies and Avenues for Future Research*, in: Lynn, T., Rosati, P., Conway, E., van der Werff, L. (eds.) *The Future of Work*, Cham
- Manyika, J. (2022). *Getting AI Right Introductory Notes on AI & Society*, *Daedalus*, Vol. 151, No. 2
- Mantelero, A., Fanucci, F. (2022). Great ambitions the international debate on AI regulation and the human rights in the prism of the Council of Europe's CAHAI. In: Czech, P., et al. (eds.) *European Yearbook on Human Rights*
- McCarthy, J., et al. (2023). Diversity and Inclusion, *The future of work*. In: Lynn, T., Rosati, P., Conway, E., van der Werff, L. (eds.) *The Future of Work*, Cham
- Pajarinen, M., Rouvinen, P. (2014). Computerization Threatens One Third of Finnish Employment. In: *ETLA Brief*, No. 22
- Prlja, D., Gasmi, G., Korać, V. (2022). *Ljudska prava i veštačka inteligencija*, Institut za uporedno pravo, Beograd
- Russell, S., Norvig, P. (2010). *Artificial Intelligence: A Modern Approach* (3rd ed.), University of California
- Rawas, S. (2024). AI: the future of humanity, *Discover Artificial Intelligence*. <https://doi.org/10.1007/s44163-024-00118-3>
- Santana, M., Cobo, M. J. (2020). What is the future of work? A science mapping analysis, *European Management Journal*, 38(6)
- Sadowski, J. (2016). Why Silicon Valley is embracing universal basic income, *The Guardian*. <https://www.theguardian.com/technology/2016/jun/22/silicon-valley-universal-basic-income-y-combinator>
- Spancer, D. (2024). AI, automation and the lightening of work, *AI & SOCIETY*. <https://doi.org/10.1007/s00146-024-01959-3>
- Szegedy, C., Vanhoucke, V., Ioffe, S., Shlens, J., Wojna, Z. (2016). Rethinking the inception architecture for computer vision, in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*

- Swain, E. J., Kim, P., Spicer, J., Ho, S., Dayton, J. C., Elmadih, A., Abel, K. (2014). Approaching the biology of human parental attachment: Brain imaging, oxytocin and coordinated assessments of mothers and fathers, *Brain Research*, vol. 1580
- Stojiljković, Z. (2023). Digitalizacija i budućnost rada: Politički dnevnik 17. <https://nezavisnost.org/politicki-dnevnik-17-digitalizacija-i-buducnost-rada/>
- Thieme, W. (1984). *Verwaltungslehre*, Carl Heymans Verlag, Köln-Berlin-Bonn-München
- Urdarević, B., Antić, A. (2021). Rad preko platformi i novi oblici rada u digitalnoj ekonomiji, *Srpska Politička misao*, br. 2, god. 28, Vol. 72
- Viola, R. (2018). Artificial intelligence, real benefits. In: Blog. <https://ec.europa.eu/digital-single-market/en/blogposts/artificial-intelligence-real-benefits>
- Vandaele, K., Piasna, A., Zwysen, W. (2024). Are platform workers willing to unionize? Exploring survey evidence from 14 European countries. ILO Working Paper 106. Geneva: International Labour Office
- Zeng, Y., Wang, L. (2017). Artificial Intelligence is on its way to reshape the world-interview, *National Science Review*, 4
- Wisskirchen, G. (2018). How Artificial Intelligence impacts labour and management, CEC Seminar Management in the age of Artificial Intelligence Employment, economics and ethics, Mainz
- Weeb, M. (2019). The Impact of Artificial Intelligence on the Labor Market. <https://ssrn.com/abstract=3482150>
- Wendehorst, C. (2022). Liability for Artificial Intelligence: The Need to Address Both Safety Risks and Fundamental Rights Risks, *Responsible AI Liability Schemes*, ed: Voeneky, S., Kellmeyer, P., Mueller, O., Burgard, W.
- Wendehorst, C. (2021). 'The Proposal for an Artificial Intelligence Act COM (2021) 206 from a Consumer Policy Perspective', Federal Ministry Republic of Austria for Social Affairs, Health, Care and Consumer Protection
- Wilson, J. H., Daugherty, R. P., Morini-Bianzino, N. (2017). The Jobs That Artificial Intelligence Will Create: A global study finds several new categories of human jobs emerging, requiring skills and training that will take many companies by surprise, *Sloan Management Review*
- Wright, S. A., Schultz, A. E. (2018). The rising tide of artificial intelligence and business automation: Developing an ethical framework. In: *Business Horizons*, Vol. 61, No. 6
- Wachter, S., Mittelstadt, B., Russell, C. (2018). Counterfactual Explanations Without Opening the Black Box: Automated Decisions and the GDPR. *Harvard Journal of Law and Technology*, 31(2)

Проф. др Радоје Брковић

Редовни професор Правног факултета Универзитета у Крагујевцу

Рајко Раонић

Управни суд Црне Горе

УТИЦАЈ ВЈЕШТАЧКЕ ИНТЕЛИГЕНЦИЈЕ НА РАДНЕ ОДНОСЕ

Сажетак

С убрзаним развојем технологија, а посебно вјештачке интелигенције која пријети цјелокупном човечанству, поставља се питање које су њене границе и каква је њена перспектива у радним односима. С обзиром на ширину њеног дјеловања, њен моћни потенцијални утицај на радне односе је неизвесност. Ширина радноправне проблематике коју носи ова појава је вишеструка и неизвесност је на нашем радноправном подручју, а законодавац у Републици Србији није припремио одговор на њену појаву у складу са европским трендовима. Моћне дјеловање вјештачке интелигенције на радне односе, а касније и преко неких основних радноправних института који прате радне односе у стручној јавности стекао се дојам о изиравању зајослености и ерозију његових основних права (индивидуалних и колективних). Вјештачка интелигенција своју постојећу дјеловања у радним односима акумулира на највишем квалитетном радном односу. Многе свјетске економије се ослањају и виде постојећу стабилност која нуди вјештачка интелигенција. Права која се црпе из радних односа у будућности биће предмет ревизије и преиспитивања. Индивидуално и колективно радно право, тековина вишевековне борбе човечанства у XXI вијеку, биће на ипину зрелости и дораслости времену.

Аутори у раду желе да приближе утицај вјештачке интелигенције и начин на који дјелује на радне односе у XXI вијеку, те који су то елементи, инстинктивни радног права јонајвише појачани овим „алатом“ или „оружјем“, како то поједини стручњаци називају, ујоређују.

Кључне ријечи: зајослени, вјештачка интелигенција, онлајн платформа, технологије, дигитализација, радни односи.