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Labor Protection in the Perspective of Artificial Intelligence: New Challenges for the EU and the ILO

Abstract: The introduction of artificial intelligence (hereinafter referred to as AI) is an active process and today touches almost all areas of human life. Labor relations are no exception. However, the current legislation on many labor relations issues is not ready for such innovations and needs to be updated. This is a particular challenge for such participants in international relations as the ILO and the EU, as they implement national standards that are unified by many countries. The purpose of the article is to study the current challenges for the ILO and the EU with regard to AI implementation in labor relations, to classify them and to find legal solutions. The authors propose new legislative initiatives, including standardization, establishing the right to appeal against AI decisions, ensuring transparency of algorithms, enshrining the right to discon-

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nect, and amendments to the GDPR. The practical significance of the article lies in its recommendations for improving the current legislation as guidelines for the ILO, the EU and the United States.

Keywords: labor rights, artificial intelligence, labor protection, labor automation, protection of workers' rights

Introduction

Any technological innovation proves stressful in the implementation process. Though many such innovations encountered resistance in society, they were eventually effectively introduced. Scientists have been discussing artificial intelligence since the last century. In general, the second half of the 20th century, called the Information Age, has slowly but surely replaced the Industrial Age. It has significantly reduced the demand for unskilled labor, while highly skilled labor, on the contrary, is in far greater demand. Thus, while the Information Age has profoundly facilitated people's lives, it has also added new challenges, which have led to corresponding changes in legal regulations.⁶ As the need for hard and exhausting labor has decreased, labor law has also evolved, prioritizing the interests and rights of employees.

Despite the milestones and instability of AI development, it has achieved significant results and can profoundly influence many processes in business and everyday life. Some researchers even talk about a Fourth Industrial Revolution involving AI, as the boundaries of its use are expanding.⁷ AI is used in manufacturing, services, agriculture, medicine, trade, and other industries that employ hired labor. This highlights the fact that we are already facing the need to make fundamental changes in the foundations of labor

6 D. Hrytsai, "Development of Artificial Intelligence as a New Challenge for Humanity in the Field of Employment," *Legal Bulletin* 3, 2018: 97–102.

7 Leonid Ostapenko et al., "Artificial Intelligence in Labour Relations: A Threat to Human Rights or New Opportunities?" *Financial and Credit Activity: Problems of Theory and Practice* 4, no. 57(2024): 531–45, <https://doi.org/10.55643/fcaptp.4.57.2024.4421>.

law. Employers and HR teams must be mindful of ethical and privacy risks that arise from the use of AI in recruitment and employment processes and management.⁸

Most European Union countries are already implementing AI departments, experimental laboratories, and research centers at universities, which allow students to acquire new skills and prepare future highly specialized specialists that meet the requirements of the modern labor market.⁹ Its importance has been recognised by the European Parliament and the European Commission, as reflected in the legislation prepared at the European Union level.¹⁰ Nevertheless, legislative regulation is still superficial and the issue is not properly raised. Traditional approaches to workplace safety may not be sufficient to address the challenges posed by the introduction of new algorithms and robotization.¹¹

It should be noted that any legal evolution usually starts with key players and then moves horizontally to other members of the international community. Today, such a key player in Europe is the EU. Accordingly, it should take the lead in creating legal regulation of the role of AI in labor relations. The distinctive feature of EU labor law is that it embodies the legal experience of all member states, allowing it to incorporate the best examples of legal solutions to certain problems.¹²

8 Russell Bennett and Mark Chiu, "AI in the Workplace: Employment Law Risks from Using AI," Tanner De Witt, published September 12, 2024, <https://www.tannerdewitt.com/ai-in-the-workplace-employment-law-risks-from-using-ai/>.

9 Iryna Rossomakha et al., "The Impact of Artificial Intelligence on the Labor Market in the World and Particularly in Ukraine," *Economics. Finances. Law* 2, 2024: 27–30. <https://doi.org/10.37634/efp.2024.2.6>.

10 Maciej Jarota, "Artificial Intelligence in the Work Process: A Reflection on the Proposed European Union Regulations on Artificial Intelligence from an Occupational Health and Safety Perspective," *Computer Law & Security Review* 49, 2023: article 105825, <https://doi.org/10.1016/j.clsr.2023.105825>.

11 Sergiy Vavzhynchuk and Vladyslav Zhmaka, "Problems of Protection of Labor Rights During Hiring with the Use of Artificial Intelligence Algorithms," *Problems of Legality* 164, 2024: 19–38, <https://doi.org/10.21564/2414-990X.164.288964>.

12 S.I. Tyimenko, "Concept and Essence of European Labor Law," *Southern Ukrainian Legal Journal* 4, no. 3(2022): 148–51, <https://doi.org/10.32850/sulj.2022.4.3.24>.

The task for the ILO, as the leading international organization for global labor protection, is similar. For these organizations, the issue of adapting the new legal framework is extremely important. After all, it is their responsibility to create appropriate legal regulation that will ensure an adequate level of labor protection, on the one hand, and will support economic innovation on the other. In light of the development of AI and its growing influence in labor relations, the EU and the ILO should improve international legal acts to include proper regulation of AI. Such steps are necessary to unify the relevant legal norms among member states and create decent working conditions for workers around the world.

Literature Review

Despite numerous studies of the legal support for the development and penetration of artificial intelligence into various spheres of human life, its impact on employment is the least covered. In our research, we paid special attention to the scientific work of Jarota.¹³ In the paper, the author explores the growing use of AI in the work environment and its impact on occupational safety and health. The author focuses on analyzing the changes in EU legislation relating to the general principles of labor law, as well as legislation on labor protection and industrial safety.

The article also discusses the issues of monitoring labor protection. The author proposes to introduce a mechanism of responsible regulation, where employers should cooperate with regulatory authorities to achieve the regulatory objectives, and the authorities themselves should assess compliance with occupational health and safety standards and intervene in case of non-compliance. We are very impressed by this idea, and have also highlighted this in our article.¹⁴

13 Jarota, "Artificial Intelligence in the Work Process."

14 Jarota, "Artificial Intelligence in the Work Process."

Other important scientific findings appear in Ostapenko, Pasternak, Kropyvnytskyi, Chystokletov, Khytra.¹⁵ These researchers study the possibility of using artificial intelligence in the field of labor relations, examining how modern technologies create new opportunities, but also raise complex issues regarding the right to work. The authors' main idea regards the need to modernize labor legislation, expand the circle of stakeholders in labor relations, and revise the concept of the employee. We relied on the analysis conducted by these authors when designing our own study on the challenges associated with introducing AI, as well as in finding ways to improve the legal situation.

Costantino, Falegnami, Fedele, Bernabei, Stabile, Bentivenga¹⁶ classified and analyzed various risks associated with the introduction of AI in labor relations. Their scientific work focuses on new threats to the life and health of workers that arise from introducing various new 4.0 technologies into modern production systems, including AI. The article emphasizes the need to develop new safety standards to ensure the protection of workers during the rapid digitalization of production processes.

Ethical issues were covered in Bennett and Chiu¹⁷ and De Stefano.¹⁸ In particular, they focus on the need to implement the principle of transparency and the possibility of appealing decisions. These studies point to the relevance of ethical standards, such as the Ethics Guidelines for Trustworthy AI, which have an important impact on the regulation of AI in the context of labor protection.

Kim, Soh, Kadkol, Solomon, Yeh, Srivatsa, Nahass, Choi, Lee, Ajilore¹⁹ analyze the legal implications of AI decisions without human intervention and

15 Ostapenko et al., "Artificial Intelligence in Labour Relations."

16 Francesco Costantino et al., "New and Emerging Hazards for Health and Safety within Digitalized Manufacturing Systems," *Sustainability* 13, no. 19(2021): article 10948, <https://doi.org/10.3390/su131910948>.

17 Bennett and Chiu, "AI in the Workplace."

18 Valerio De Stefano, "'Negotiating the Algorithm': Automation, Artificial Intelligence and Labour Protection," *Comparative Labor Law & Policy Journal* 41, no. 1(2018), <http://dx.doi.org/10.2139/ssrn.3178233>.

19 Jeff Kim et al., "AI Anxiety: A Comprehensive Analysis of Psychological Factors and Interventions," *SSRN Electronic Journal*, 2023, <http://dx.doi.org/10.2139/ssrn.4573394>.

propose to integrate into the legislation a rule on mandatory human supervision of critical decisions. The findings of these researchers confirm the relevance of legal regulation to ensure transparency and fairness.

Thus, the literature covers many aspects of AI labor protection with regard to artificial intelligence. However, many scientific papers omit the issue of improving legal regulation, which we explore in our work. In addition, the rapid pace of changes and technological advancements is driving constant innovations in labor relations related to the use of AI. This requires consistent research and updating of scientific sources.

Methodology

The main scientific method used by the authors of this article is analysis and synthesis. Its use ensured the comprehensiveness of the results and the formulation of clear conclusions in the paper. The analysis of the scientific literature helped to identify and systematize existing works in this area. Based on their analysis, the risks of using AI were identified and recommendations for overcoming these were developed. The synthesis method was used to combine disparate information to produce a holistic, in-depth view of the problem. Synthesis was also used at the stage of developing recommendations for standardization, creating mechanisms for appealing AI decisions, limiting monitoring, transparency, and other initiatives. This approach allowed us to produce a holistic picture of the necessary legal measures.

The authors applied a systematic method to identify three main categories of risks: physical, psychological, and ethical. In addition, based on the application of this scientific method, subcategories of each risk were identified.

The legalistic approach was used for a comprehensive and in-depth analysis of the legal acts adopted within the ILO, the EU and, in some cases, member states. This method was used to analyze the legislation regulating the use of AI in general and in labor relations in particular. This method was also applied

to other legal acts directly related to AI risks with regard to labor protection. It helped to identify the main gaps in the current legislation and areas where regulatory improvements are needed. The authors then formulated their own legal norms aimed at eliminating these gaps and inaccuracies. In addition, this method provided an in-depth understanding of the legal limitations and opportunities existing in international legislation to protect workers' rights from the risks associated with the use of AI in the workplace.

Moreover, the authors used the method of induction and deduction. Induction was used to analyze cases of AI's possible use in labor relations and its impact on both psychological and physical risks. Studying specific examples facilitated general conclusions about the potential risks of using AI in the labor sphere. This approach also allowed us to identify the patterns that provide the basis for proposals on legal regulation and protection of workers' rights, as well as pinpointing the prospects for AI-related legislative changes. In turn, deduction allowed general legal principles to be applied to specific situations in labor relations, which in turn made it possible to construct a coherent legal model for regulating the risks caused by AI systems.

In general, this combination of research methods provided a comprehensive analysis of the research topic, identified risks and suggested ways to overcome them through the adoption of specific legislative steps. In addition, this allowed the authors to analyze trends and identify potential areas in which AI legislation might develop in the future.

Results

Modern Approaches of the EU and the ILO to Occupational Safety and Health in the Context of AI

Considering that the topic of AI has long been studied in academic circles, it is logical that the EU and the ILO have also responded to the growing trend by creating relevant legal acts. However, it is important to determine whether

the current legislative proposals of the European legislator are sufficient in protecting workers' health and ensuring proper working conditions and work ethics. Thus, in 2021, the European Commission submitted a draft Artificial Intelligence Act regulating the use of AI in the territory of the Member States. It should be noted that AI regulation is a part of the broader EU digital strategy aimed at establishing the best conditions for the use and development of innovative technologies.²⁰

The relevant act was adopted in 2024 and is the first attempt to regulate the use of AI at the international level in such a way as to protect the rights of citizens, ensure security, transparency, and ethics in its application. It is important to emphasize that Art. 3 of the regulation in question defines AI as a system, which means a machine-based system designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments.²¹

An important point introduced by this Regulation is its classification of AIs according to the level of risk they may pose to humans: unacceptable, high, limited, and minimal. The first type of AI includes all systems that pose significant threats to European values: these are subject to a complete ban. An example of this is AI systems designed to manipulate people.²² The second

20 "EU AI Act: First Regulation on Artificial Intelligence," European Parliament, last updated June 18, 2024, <https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence#ai-act-different-rules-for-different-risk-levels-0>.

21 Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (Text with EEA relevance), OJ L, 2024/1689, 12.7.2024, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R1689>.

22 Rostam J. Neuwirth, "Prohibited Artificial Intelligence Practices in the Proposed EU Artificial Intelligence Act (AIA)," *Computer Law & Security Review* 48, 2023: article 105798, <https://doi.org/10.1016/j.clsr.2023.105798>; Michael Veale et al., "AI and Global Gover-

type of AI, namely high-risk systems, is the focus of the Regulation. These are subject to strict control, including conformity assessment before being put into operation. Examples include AI systems used in critical infrastructures (energy, transportation), healthcare, education, justice, and human resources.

The AI systems studied in this article fall precisely under the definition of high-risk, because they are used in labor relations. The Regulation sets out clear, structured requirements for the developers of such systems, which include transparency, accountability, testing, regular monitoring and auditing. In addition, the Regulation emphasizes the need to establish a central supervisory authority with the power to monitor the relevant systems both at the EU level and at the national level of the Member States.

Low-risk systems are not subject to strict regulation, because they do not pose a threat to fundamental human rights. But their developers must follow basic requirements for transparency, ethics, and personal data protection.²³ In addition, such systems are required to inform individuals that they are interacting with an AI, not a human.²⁴ An example of such systems is chatbots, email spam filters or games, which have been operating successfully for many years

The Regulation is the first important step towards establishing comprehensive oversight of AI in various areas of human activity. Although it regulates the general features of AI implementation and supervision, it is also of importance in protecting labor relations. AI-enabled systems that can be implemented in the workplace fall into the high-risk category, and therefore require detailed regulation and accountability, the main purpose of which is to avoid possible abuse by employers and minimize the negative impact on the health and feelings of employees.

nance: Modalities, Rationales, Tensions,” *Annual Review of Law and Social Science* 19, no. 1(2023): 255–75, <https://doi.org/10.1146/annurev-lawsocsci-020223-040749>.

23 Jonas Schuett, “Risk Management in the Artificial Intelligence Act,” *European Journal of Risk Regulation* 15, no. 2(2023): 367–85, <https://doi.org/10.1017/err.2023.1>.

24 Johann Laux et al., “Three Pathways for Standardisation and Ethical Disclosure by Default under the European Union Artificial Intelligence Act,” *Computer Law & Security Review* 53, 2024: article 105957, <https://doi.org/10.1016/j.clsr.2024.105957>.

In other words, the Regulation establishes a foundational legal framework for governing labor relations involving AI, which will be gradually expanded and improved, thus creating a comprehensive legal framework. However, the above regulation is insufficient to protect employees properly when interacting with AI. The legal framework should be significantly broader and address possible challenges generated by the use of AI.

The EU Strategic Framework for Occupational Safety and Health 2021–2027 seems to be an equally important act in the context of our study. The Framework is a key document in the context of modernizing approaches to the protection of labor rights, especially with regard to the innovative development and implementation of AI technologies. The Framework recognizes the need not only to control traditional threats in the workplace, but also to anticipate and manage risks associated with digital technologies. In addition, it emphasizes that Member States must ensure that AI does not pose threats to health and safety and prevent deterioration of working conditions.²⁵

It is also important to emphasize that an important part of the Strategic Framework is to revise and update existing occupational health and safety legislation to meet the current challenges posed by digitalization and the use of AI. This new strategy focuses on three cross-cutting objectives, namely: anticipating and managing change in the context of green, digital and demographic transformation; improving the prevention of work-related accidents and diseases and striving for a Vision Zero approach to workplace fatalities; and enhancing preparedness to respond to current and future health crises.²⁶

25 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions EU Strategic Framework on Health and Safety at Work 2021–2027 Occupational Safety and Health in a Changing World of Work, COM/2021/323 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0323&qid=1626089672913#PP1Contents>.

26 Delfina Ramos et al., “Frontiers in Occupational Health and Safety Management,” *International Journal of Environmental Research and Public Health* 19, no. 7(2022): article 10759, <https://doi.org/10.3390/ijerph191710759>.

The last document we will consider is the EU Ethical Guidelines for Trustworthy AI.²⁷ The aim of the Guidelines is to promote Trustworthy AI. Although this document tangentially relates to labor relations, we could not omit it from our analysis, as it sets out important Union-wide recommendations on AI. For example, it states that in order for AI to be recognized as trustworthy, it must meet three criteria: legality, ethics, and technical reliability.²⁸

The Ethics Guidelines have identified seven key requirements for AI ethics: transparency, human control, security, privacy, non-discrimination, and fairness, environmental well-being, accountability.²⁹ The Ethics Guidelines for Trustworthy AI also offer practical tools, which include the Assessment List for Trustworthy AI, which helps to check whether AI systems are ethically compliant.³⁰

Given the EU's typically advanced approach to legislation, it is unsurprising that the Union has taken appropriate legal measures to regulate this area of AI. The EU has classified such systems as high-risk, subject to strict control by both those who implemented them and the relevant regulatory authorities. We can state that the EU is clearly aware of the possible risks to occupational health and safety, and takes preventive measures against this.

As for ILO, we have been unable to find any important legislative initiatives or legal acts to regulate labor protection in the context of AI. We have only noted some efforts to conduct relevant research, which are compiled in relevant reports, one such report being the Global Commission on the Future of

27 European Commission: Directorate-General for Communications Networks, Content and Technology, *Ethics Guidelines for Trustworthy AI* (Publications Office, 2019), <https://data.europa.eu/doi/10.2759/346720>.

28 European Commission: Directorate-General for Communications Networks, Content and Technology, *Ethics Guidelines for Trustworthy AI*.

29 Eleanore Hickman and Martin Petrin, "Trustworthy AI and Corporate Governance: The EU's Ethics Guidelines for Trustworthy Artificial Intelligence from a Company Law Perspective," *European Business Organization Law Review* 22, 2021: 593–625, <https://doi.org/10.1007/s40804-021-00224-0>.

30 Kristine Børøe et al., "How to Achieve Trustworthy Artificial Intelligence for Health," *Bulletin of the World Health Organization* 98, no. 4(2020): 257–62, <https://doi.org/10.2471/BLT.19.237289>.

Work Report.³¹ This report includes a number of issues related to labor relations, with one being the need to regulate new technologies to ensure decent working conditions. In the same year, at the 108th session, the ILO Centennial Declaration for the Future of Work was adopted, dealing with such issues as the need to develop new approaches to labor regulation in the context of digital changes.

The Role of Digital Labour Platforms in Transforming the World of Work³² is a report analyzing the impact of digital platforms on labor relations. In particular, the report looks at the issue of automated worker management and its potential implications for working conditions, workers' rights and social protection. Globally, the report represents an extensive study, offering a comprehensive overview of the experiences of workers and businesses, based on surveys and interviews with approximately 12,000 workers and representatives of 85 companies from around the world, operating in various sectors.³³ However, AI is still not sufficiently described within the report.

In view of the above, we can observe a certain lag in the ILO's efforts to regulate AI in work processes. This once again allows us to demonstrate the EU's leadership in regulating current global challenges. It is evident that in this field challenges remain that can pose serious threats to all parties to labor relations. Below, we consider such challenges and the ways to regulate them.

Physical Risks in Work Environments with AI

Although the EU's legal initiatives are extremely progressive, they are still at an early stage of development and do not cover many relevant issues. The first problem was identified by Vagaš,³⁴ among other researchers, and concerns the physical

31 International Labour Organization, *Work For A Brighter Future: Global Commission on the Future of Work Report* (International Labour Organization, 2019), <https://webapps.ilo.org/digitalguides/en-gb/story/global-commission#people>.

32 International Labour Office, *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work* (International Labour Office, 2021).

33 International Labour Office, *World Employment and Social Outlook 2021*.

34 Marek Vagaš, "Safety and Risk Assessment at Automated Workplace," *Technical Sciences and Technologies* 4, no. 14(2018): 78–84.

risks of working next to automated systems. He notes that the goal of automation is to retain skilled workers with representative expert and analytical knowledge in companies who have the potential to create added value at their automated jobs. At the same time, such workplaces can only be fully safe under the proper supervision of a qualified person, as they can only be considered safe after risks have been assessed and minimized. This message of the author is highly correlated with that of the principles of the Ethics Guidelines for Trustworthy AI, which stipulates the need for human participation in AI-controlled processes.³⁵

Industrial automated systems designed to operate at a distance from humans often lack sufficient sensory capabilities to detect people in the vicinity, which can lead to potential risks. In addition, the proliferation of collaborative robots, which are designed to interact directly with humans and share workspaces, may also pose additional safety risks. First of all, there is a higher probability of technical failure due to improper system functioning. Such shortcomings can arise from both software errors and technical malfunctions and can lead to emergencies that threaten the physical safety of employees. Risks can also appear in situations where employees do not have time to respond to the behavior of automated systems. This would entail a risk of disrupting the interaction between people and systems.³⁶

Of course, the most important step in mitigating this risk is to ensure that AI-automated mechanisms are properly equipped and that employees are highly competent. Moreover, we believe it is advisable to introduce uniform standards for the introduction of AI in production in those industries where doing so can directly cause physical harm to employees. A similar opinion can be seen in the works of various scholars studying the impact of AI on labor protection.³⁷

35 European Commission: Directorate-General for Communications Networks, Content and Technology, *Ethics Guidelines for Trustworthy AI*.

36 Timo Malm et al., "Safety Risk Sources of Autonomous Mobile Machines," *Open Engineering* 12, no. 1(2022): 977–90, <https://doi.org/10.1515/eng-2022-0377>.

37 Carlos Faria et al., "Safety Requirements for the Design of Collaborative Robotic Workstations in Europe: A Review," in *Advances in Intelligent Systems and Computing. Proceedings of the AHFE 2020 Virtual Conferences on Safety Management and Human Factors, and Hu-*

For our part, we would like to add that the importance of standardization lies in the fact that the competent authority establishes clear rules and requirements to minimise the risk of errors. Uniform standards also create a doctrinal basis for employee training, which is important for avoiding physical injury.

Standardization should be carried out at three levels:

- 1) universal – ILO and ISO. These organizations bear the main responsibility for creating global standards for interactions with AI. It should be noted that ISO 10218 (Safety Standards for Robotics) already regulates some aspects of the safe use of robots.³⁸ However, this standard focuses more on industrial robots and their safe operation.

As AI allows robots to make autonomous decisions, this requires updating standards to ensure human control and safety in the event of unpredictable robot actions. The same applies to the collaborative robots previously mentioned. These work alongside humans, and thus require enhanced requirements for sensors and perception systems that will more accurately detect human presence. It is important to include cybersecurity requirements, as networked AI systems are at risk of cyberattacks. In addition, the standards should provide for transparency of AI solutions, enabling employees to understand the systems' logic and interact with them effectively.

- 2) Regional – the main role of the EU here. Analyzing the current situation, we can assume that an EU Regulation standardizing the safety of automated systems and artificial intelligence at work would be appropriate. It should include uniform standards for implementing AI in automated production systems. It will include clear requirements for sensor systems, AI decision-making algorithms, and human control. In addition,

man Error, Reliability, Resilience, and Performance, July 16–20, 2020, USA (Springer, 2020), 225–32, https://doi.org/10.1007/978-3-030-50946-0_31; Costantino et al., “New and Emerging Hazards for Health and Safety within Digitalized Manufacturing Systems.”

³⁸ International Organization for Standardization, *ISO 10218–1:2011: Robots and Robotic Devices – Safety Requirements for Industrial Robots* (International Organization for Standardization, 2011), <https://www.iso.org/standard/51330.html>.

the Regulation should establish the limits of state responsibility for implementing the standards, and also identify authorized bodies.

- 3) National – each state should implement international standards into its national legislation, ensuring compliance with local working conditions and production standards. National labor protection regulators should update safety regulations. Given the progressive nature of EU legislation, we believe that the relevant standardization can be used as a basis not only in the member states but also in other countries.

In addition, we can highlight the need to update the existing labor legislation on labor protection of employees involved in AI. The legislation should require employers to conduct mandatory training for employees working with AI-based automated systems. Such training should cover safety rules, risk management, and understanding possible threats. In our opinion, these steps will help to ensure greater protection of employees in their interaction with automated AI systems.

Addressing Psychological Risks Caused by AI

However, the risk of physical injury is not the only threat existing today. The second problem highlighted by the scientific community concerns psychological risks.³⁹ Introducing artificial intelligence in the workplace can be a source of significant psychological stress for employees. As an additional stress factor Trivedi and Alqahtani⁴⁰ indicate workers' insecurity and fearfulness of losing their jobs as automation and AI may replace humans in some areas. This prompts concerns about future careers and stability. The emergence of flexible

39 Rania Gihleb et al., "Industrial Robots, Workers' Safety, and Health," *Labour Economics* 78, 2022: article 102205, <https://doi.org/10.1016/j.labeco.2022.102205>; Daron Acemoglu et al., "Artificial Intelligence and Jobs: Evidence from Online Vacancies," *Journal of Labor Economics* 40, no. S1(2022): 293–340, <https://doi.org/10.1086/718327>.

40 Priyank Trivedi and Fahad M. Alqahtani, "The Advancement of Artificial Intelligence (AI) in Occupational Health and Safety (OHS) Across High-Risk Industries," *Journal of Infrastructure Policy and Development* 8, no. 10(2024): 1–26, <https://doi.org/10.24294/jipd.v8i10.6889>.

AI systems capable of performing complex cognitive tasks once thought to be exclusively human has significantly raised the stakes.

Dastin,⁴¹ Vavzhenchuk and Zhmaka⁴² highlight possible discrimination by AI as a cause of mental health issues. Dastin⁴³ cites the example of Amazon using an experimental AI-based hiring tool to give candidates ratings from one to five stars, similar to how customers rate products on Amazon. The company realized that its new system was not evaluating candidates for software development and other technical positions in a gender-neutral way. Amazon's system had learned that male candidates were better, and rejected resumes that contained the word female, such as captain of the women's chess club. This clearly highlights the problem of possible bias in AI systems and the importance of considering gender equality and non-discrimination in developing and applying them in labor law.

Discrimination can be direct and indirect. Direct discrimination occurs when AI algorithms explicitly use discriminatory criteria, such as race, gender, nationality or age to select or ignore candidates for a position. In turn, indirect discrimination is a subtler type of discrimination, where AI algorithms apply neutral criteria but this still results in unequal opportunities for different groups of job applicants. This issue becomes particularly acute due to AI's inherent ability to learn and adapt. In the course of their development, AI algorithms can go beyond the established criteria or bypass them, which poses a threat of indirect discrimination in the field of labor and beyond.⁴⁴

There is also a risk of increased workload due to the need to adapt new technologies. This situation often creates psychological pressure, as employees may feel a lingering sense of incompetence and can result in professional burn-

41 Jeffrey Dastin, "Amazon Scraps Secret AI Recruiting Tool That Showed Bias Against Women," Reuters, published October 11, 2018, <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCN1MK08G>.

42 Vavzhenchuk and Zhmaka, "Problems of Protection of Labor Rights During Hiring with the Use of Artificial Intelligence Algorithms."

43 Dastin, "Amazon Scraps Secret AI Recruiting Tool That Showed Bias Against Women."

44 Vavzhenchuk and Zhmaka, "Problems of Protection of Labor Rights During Hiring with the Use of Artificial Intelligence Algorithms."

out.⁴⁵ In this regard, some researchers also highlight the frustration that arises from the great differences between the employee's expectations and the reality they experience.⁴⁶

Automated performance monitoring and evaluation systems can create constant pressure, increasing stress levels due to the feeling of constantly being monitored and evaluated. As a result, interaction with artificial intelligence can not only affect employees' physical health but also their mental state, impairing their quality of life and productivity.

Thus, the study allows us to identify psychological risks of interacting with AI in labor relations, which includes subcategories such as the following: fear of being replaced by AI; discrimination; overload and burnout; pressure from constant supervision. Molino et al.⁴⁷ emphasizes the need to train and inform workers to adopt new technologies, as this can help them to overcome the fear of technology and find positive aspects of interacting with AI.

The high rate of possible stress requires the ILO and the EU to take legal steps to improve the situation of workers. We recognize the inevitability of AI integration due to its economic advantages. Accordingly, we propose a number of legislative initiatives that, in our view, could contribute significantly to improving the current regulatory framework.

The ILO, the EU as a whole, and its individual member states already dispose of specific legal acts on non-discrimination of employees. For example, the Discrimination (Employment and Occupation) Convention⁴⁸ prohibits

45 Ana Pinto et al., "Relationship Between New Technologies and Burnout: A Systematic Literature Review," in *International Conference on Lifelong Education and Leadership for All* (Atlantis Press, 2024), 254–65, https://doi.org/10.2991/978-94-6463-380-1_25.

46 Daniel S. Tawfik et al. "Frustration with Technology and Its Relation to Emotional Exhaustion Among Health Care Workers: Cross-Sectional Observational Study," *Journal of Medical Internet Research* 23, no. 7(2021): article e26817, <https://doi.org/10.2196/26817>.

47 Monica Molino et al., "Technology Acceptance and Leadership 4.0: A Quali-Quantitative Study," *International Journal of Environmental Research and Public Health* 18, no. 20(2021): article10845, <https://doi.org/10.3390/ijerph182010845>.

48 International Labour Organization, Discrimination, Employment and Occupation) Convention, https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C111.

any form of discrimination in labor and employment, including discrimination based on race, sex, religion, political opinion, etc. However, in the context of AI, it is important to extend the concept of discrimination to decisions made by automated systems, as algorithms may exhibit bias due to flawed data or imperfect programming. In particular, we propose adding the following wording to Article 1(1): c) any distinction, exclusion or preference arising from automated or algorithmic decisions which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation.

We believe that the following additions will provide an impetus for states to similarly improve their respective legislation in the field of AI labor protection.

As for the EU, we note that Council Directive 2000/78/EC⁴⁹ establishing a general framework for equal treatment in employment and occupation is in force. This legal act aims to combat discrimination on various grounds. However, in the context of AI implementation, it is advisable to finalize its provisions. We have reviewed the current version and proposed a number of changes in line with the psychological threats of discrimination identified above (Table 1).

Offer	Description of the measure
Include provisions about algorithmic discrimination	Expand the existing definition of discrimination to include decisions made on the basis of AI that may be biased or unbiased.
Introduce mandatory transparency of algorithms	Require that employers disclose the principles of AI in labor relations (disclose the criteria used by AI in decision-making)
Guaranteeing the right to explain and appeal AI decisions	Enshrine the right of employees to receive explanations of AI decisions and the possibility to appeal such decisions.

⁴⁹ Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation, OJ L 303, 2.12.2000, 16–22, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32000L0078>.

Mechanisms for regular audits of algorithms	Include a requirement for companies to conduct regular independent audits of AI systems to assess their impact on equality of opportunity and avoidance of discrimination.
Obligation to conduct a preliminary assessment of the impact of AI	Oblige employers to conduct a preliminary assessment of the impact of AI systems on equality of opportunity before their implementation.

Table 1. Suggestions for improving the Council Directive 2000/78/EC

Thus, the relevant changes will help to strengthen the protection of employees from possible discrimination by AI algorithms.

Legal ways to mitigate other risks also exist. For example, regarding the fear of being replaced by AI, we propose to create a legislative requirement at the EU level for Member States to create a national retraining program for workers, as well as to introduce social benefits and state support for relevant workers.

Regarding burnout and overwork, we believe that effective good initiatives to counteract this are already in place. After all, these risks can be caused not only by AI, but also by general disruption to the life-work balance. In this context, both the EU and Member States are already taking steps to improve the situation. In particular, they are ensuring the right to disconnect. The big drawback today is that not all EU countries have enshrined the right in their legislation.⁵⁰ However, this reveals a high level of interest among countries in ensuring that employees can avoid burnout and overwork. In our opinion, this approach will work for AI as well. Therefore, to reduce the relevant risk, it is advisable to enshrine in national legislation the right to disconnect an employee and to introduce sanctions against employers who violate this right.

The ILO recognizes the right to disconnect, especially in view of the introduction of digital platforms and remote work. The ILO has long supported decent working conditions and emphasized work-life balance as a key element

⁵⁰ Stine Lomborg and Brita Ytre-Arne, “Advancing Digital Disconnection Research: Introduction to the Special Issue,” *Convergence* 27, no. 6(2021): 1529–35, <https://doi.org/10.1177/13548565211057518>.

of workers' well-being. The right to disconnect is becoming an integral of this concept. Nevertheless, the ILO has not yet enshrined this right at the regulatory level. We believe that it is advisable to develop recommendations for national governments to include the right to disconnect in labor legislation.

Psychological pressure from constant AI monitoring is another problem we have identified. To address this, it is proposed to restrict employers' ability to monitor employees' activities continuously using AI. The regulations should provide for the use of such systems only in justified cases and with respect for employees' privacy rights. In addition, employees should have the right to be informed about how and in what scope their activities are being monitored by AI, as well as to consent to the use of such technologies. This provision is in line with the previous thesis on the need to introduce mandatory transparency of algorithms, which we have already announced in the context of improving the Council Directive 2000/78/EC⁵¹ establishing a general framework for equal treatment in employment and occupation.

Thus, addressing psychological issues caused by AI in the workplace is a rather complex matter. Most people differ in how they perceive these issues due to their own level of mental health and perception. However, properly implemented legislative changes will help safeguard people against possible threats and pressure from AI systems and, as a result, reduce the negative impact on employees' psychological health.

Ethical Risks of AI in Labor Relations

The third major layer of modern risks caused by integrating AI into labor relations relates to ethical issues. Human dignity should be considered not only in terms of the law but also with regard to work ethics.⁵² One of the important

⁵¹ Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation, OJ L 303, 2.12.2000, 16–22.

⁵² Andreas Cebulla et al., "Applying Ethics to AI in the Workplace: The Design of a Scorecard for Australian Workplace Health and Safety," *AI & Society* 38, 2022: 919–35, <https://doi.org/10.1007/s00146-022-01460-9>.

aspects of this issue is the confidentiality of employee data and AI's access to it. As the digital age progresses, the integration of artificial intelligence into various digital services raises significant concerns about the erosion of personal privacy.⁵³ There exists a risk that AI systems may collect more data than is actually necessary to ensure their operation. In turn, this can lead to a violation of employees' right to privacy. Even when data is collected legally, employees may not know how their data will be used, including whether it will be limited to internal purposes or shared with third parties.

Moreover, AI systems use advanced algorithms to analyze data about people, predicting their future behavior, preferences, and even emotional state. Such profiling often leads to targeted advertising, personalized content, and automated decision-making. AI can combine and correlate data from different platforms and devices, creating detailed profiles that provide a complete picture of people's lives. This integration can expose private data and connections that people may wish to keep private, increasing their sense of vulnerability.⁵⁴ AI's predictive capabilities can also lead to a perceived loss of autonomy, as people may feel that their choices are influenced by inferred data rather than their own explicit intentions.⁵⁵

In our opinion, a key problem concerns the complexity of the algorithms AI uses in decision-making. Such algorithms are not always clear even to developers, especially in view of AI's self-learning capability. Cadario et al.⁵⁶ note that the preference for human decision-making over AI systems suggests that

53 Doha Kim et al., "How Should the Results of Artificial Intelligence Be Explained to Users? Research on Consumer Preferences in User-Centered Explainable Artificial Intelligence," *Technological Forecasting and Social Change* 188, 2023: article 122343, <https://doi.org/10.1016/j.techfore.2023.122343>.

54 Nishtha Madaan et al., "Data Integration in IoT Ecosystem: Information Linkage as a Privacy Threat," *Computer Law & Security Review* 34, no. 1(2018): 125–33. <https://doi.org/10.1016/j.clsr.2017.06.007>.

55 Kim et al., "How Should the Results of Artificial Intelligence Be Explained to Users?"

56 Romain Cadario et al., "Understanding, Explaining and Utilizing Medical Artificial Intelligence," *Nature Human Behaviour* 5, 2021: 1636–42, <https://doi.org/10.1038/s41562-021-01146-0>.

people regard human decision-making as more observable and understandable. Such transparency is most likely also illusory, since human decision-making is not transparent either.⁵⁷ Nevertheless, this does not exclude the factor of creating ethical challenges.

There is a practical example of how a human can be trained to trust AI's decisions, as evidenced by research in the field of medical AI. Participants in an experiment preferred a human worker to AI, partly because they overestimate how accurately and deeply they understand doctors' medical decisions. After the experiment, participants were asked to explain how they understood the decision-making process between humans and AI using the example of cancer diagnosis. After discussing this matter, participants noted a decrease in their subjective understanding of the human element compared to the AI tool. Measures that reduce the difference in subjective understanding of decisions made by humans and AI improve attitudes toward AI tools were noted by Cadario et al.⁵⁸ and Kim.⁵⁹ Thus, the relevant risk can be mitigated by informing humans about AI decision-making algorithms. This also actively aligns with the transparency and accountability thesis of the previously mentioned Ethical Guidelines for Trustworthy AI.

The third category of risks concerns ethical risks, which include data privacy and decision-making without human intervention. In order to mitigate the relevant risks, certain steps should be taken in the field of legal regulation. The first important step at the EU level might be to introduce certain changes to the General Data Protection Regulation (hereinafter: GDPR). Currently, the GDPR already contains Art. 22, which regulates the issue of automated decision-making. However, in view of the rapidly expanding use of AI in labor relations, it is necessary to expand the relevant provision, in particular, to add a requirement to inform employees about how AI affects their work decisions

57 Julian De Freitas et al., "Psychological Factors Underlying Attitudes Toward AI Tools," *Nature Human Behavior* 7, 2023: 1845–54, <https://doi.org/10.1038/s41562-023-01734-2>.

58 Cadario et al., "Understanding, Explaining and Utilizing Medical Artificial Intelligence."

59 Kim et al., "AI Anxiety."

(hiring, firing, performance evaluation), as well as to ensure their right to human control over these processes.⁶⁰

In the context of employment relations (other areas may also be added, given the comprehensive nature of the legal act), decisions may not be made solely on the basis of automated processing, including profiling, without the active participation of a human being in the decision-making process. Employers should ensure that such decisions are reviewed by a human to ensure fairness and objectivity.

Note that GDPR gives data subjects the right to access their data. However, if we consider this issue through the prism of our problem, we note that employees should have expanded rights to receive explanations about the logic, criteria and consequences of decisions made with the help of AI systems. In our opinion, this approach would help avoid possible opacity.

Finally, attention should be drawn to the GDPR's data minimization requirements. In the context of AI use, this principle requires clarification for labor relations. In order to avoid excessive collection of personal data of employees, it is important to clearly regulate which data are relevant and necessary for performing work functions. The GDPR already contains many useful provisions on data privacy protection, but regarding the application of AI in the field of employment, its provisions need to be clarified and strengthened.

We also note the importance of introducing rules for member states at the legislative level of the ILO and the EU, which will be implemented in national legislation and reflect the right to appeal decisions made by AI. First of all, it is necessary to consolidate the mechanism of appeal of the relevant decisions. This right will give employees the opportunity to protect their interests if an automated decision unfairly or prejudicially affects their employment or

60 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance), OJ L 119, 4.5.2016, 1–88, <https://eur-lex.europa.eu/eli/reg/2016/679/oj>.

working conditions. Such a provision would promote greater accountability of AI systems and provide workers with protection from potential discrimination or erroneous decisions. In addition, the ILO and the EU could create special bodies or commissions to oversee the implementation and use of AI in labor relations. Such bodies could also consider employee complaints about automated decisions and take steps to prevent abuse.

Discussion

Our research allowed us to identify three main categories of risks arising from the introduction of AI in the workplace: physical, psychological, and ethical. We have identified legal measures to counteract the respective risks. Nevertheless, we would also like to emphasize the need to supervise the use of AI in labor relations. Monitoring the technical condition can significantly prevent physical injuries.⁶¹ In addition, monitoring the operation of AI systems is important to ensure the transparency and fairness of automated decisions. Such systems should be subject to regular checks for objectivity, lack of bias, and compliance with workers' rights. Reviewing algorithms for compliance with ethical standards, as well as having mechanisms for employees to appeal decisions, can mitigate the risk of discrimination and ensure rights are protected. It is important to check the privacy context, namely the limits and ways of using employees' personal information.

In general, the monitoring of AI systems should include two principal components: a technical audit to maintain their functionality and security, and an evaluation of their solutions to comply with ethical standards and thus protect the rights of employees. This will not only allow technical risks to be reduced, but also minimization of psychological and ethical threats that may arise from the use of AI in labor relations.

61 Fatema Mustansir Dawoodbhoy et al., "AI in Patient Flow: Applications of Artificial Intelligence to Improve Patient Flow in NHS Acute Mental Health Inpatient Units," *Heliyon* 7, no. 5(2021): article e06993, <https://doi.org/10.1016/j.heliyon.2021.e06993>.

We should also note that for the implementation of AI in the workplace to be effective and safe, employers must cooperate closely with the competent state authorities. Regular audits and inspections involving the state will also help to check whether employers comply with safety standards and AI systems with ethical standards. At the same time, the state can provide support, for example, in the form of consultations, guidelines, and, if necessary, training programs for employees involved in interacting with automated systems.⁶²

In general, the development of AI in the workplace also requires improvements in the relevant legal regulation.⁶³ In this regard, the legislative integration of the right to transparency and explanation of AI decisions appears to be a promising direction in which legislation may develop. This means that the right of employees to request explanation of decisions made by AI should be enshrined in the legislation. In particular, this includes the mandatory informing of employees about the criteria automated systems employ in evaluating their performance. In general, transparency in the use of AI will promote trust in automated systems and help avoid feelings of unfairness and discrimination.⁶⁴

Improvements will be required by legal acts related to the protection of personal data, such as GDPR. Future legislation is expected to contain stricter requirements on the scope and purpose of data collection, including a ban on excessive monitoring, and granting employees enhanced rights to control and protect their personal information.

Finally, the changes will also impact the safety standards of interacting AI systems. Legislation should establish clear requirements for regular monitoring, maintenance, and technical auditing of workplace AI systems. Such regulations are necessary for the timely detection of technical flaws. Employee training is also required, since the introduction of AI requires im-

62 Vavzhenchuk and Zhmaka, "Problems of Protection of Labor Rights During Hiring with the Use of Artificial Intelligence Algorithms."

63 Roksolana Yaroslavivna Butynska, "Artificial Intelligence in the Field of Work: Problems and Prospects of Legal Regulation," *Analytical and Comparative Jurisprudence*, no. 2(2024): 301–08, <https://doi.org/10.24144/2788-6018.2024.02.52>.

64 Hickman and Petrin, "Trustworthy AI and Corporate Governance."

proving employees' skills. We expect relevant changes in the legislation of the Member States.

If automation or AI implementation leads to job losses, the legislation should provide for appropriate social protection measures. These may include retraining programs, financial support during the transition to new positions, or incentives to create alternative jobs.

Thus, developing labor relations legislation regarding implementation of AI will foster a safer, more ethical and transparent work environment and strike a balance between technological progress and employee rights.

Conclusion

Taking into account the rapid development of AI and its integration into labor relations, international organizations face new challenges that must be overcome by creating appropriate legal regulation. The EU has adopted the Artificial Intelligence Act, whose purpose is to establish clear rules on the use of AI in various areas, including labor relations. An important innovation is the classification of AI systems according to the level of risk: from minimal to high, where high-risk covers systems that directly affect the rights of employees, their productivity and working conditions. This ensures closer control of the use of such systems in workplaces.

In addition, the EU constantly updates strategic documents such as the Strategic Framework for Occupational Safety and Health 2021–2027, which adapt to new challenges. The strategy focuses on psychosocial risks, ergonomics, and the mental health of employees. Its provisions emphasize the need to create a safe working environment in the digital world. Currently, the ILO does not have such progressive legislation on this issue: it has only created general guidelines and remains at the research stage. Today, however, the EU is significantly ahead of the ILO in terms of AI regulation in the field of labor

relations, creating a solid legal framework and prioritizing the protection of workers' rights.

The study identifies three main categories of risks arising from the introduction of AI in the workplace. Physical risks are associated with technical failures and disruption to interaction between humans and automated systems, which can lead to dangerous situations in the workplace. Psychological risks encompass emotional and psychosocial aspects, such as employees' fear of being replaced by AI, discrimination, overwork, burnout, and constant surveillance. Finally, ethical risks relate to data privacy and decision-making without human intervention, which can create a sense of a loss of control, therefore exacerbating employee vulnerability.

Each of these risks requires the adoption of its own legislative initiatives. The article proposes the following: to standardize, update the existing labor legislation with regard to enshrining the obligation of employers to train employees; expand the concept of discrimination at the ILO and EU levels; enshrine at the EU level the requirements for Member States to create a national retraining gap for employees; introduce the right to disconnect; limit the ability of employers to continuously monitor employees' activities using AI; expand the provisions of the GDPR and implement the right to appeal against the decision of the court. Additionally, it is proposed to establish independent supervisory bodies that will be able to monitor the implementation of AI systems in labor relations and ensure that their work meets the established standards of security, transparency and ethics.

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