

POLITICAL THOUGHT

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POLITICAL THOUGHT

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Contents

ARTIFICIAL INTELLIGENCE AND THE EFFICIENCY OF THE MACEDONIAN PUBLIC ADMINISTRATION	5
---	---

Stefan Andonovski

TECHNOLOGY-CAPABLE DEMOCRACY: HOW AI CAN CONTRIBUTE TO AN EFFICIENT STATE AND ADMINISTRATIVE STRUCTURE	11
---	----

Lars Zimmermann

AI AND JOURNALISM: RESPONSIBLE PARTNERS, NOT COMPETITORS	19
---	----

Dragan Sekulovski

LAW AND ALGORITHMS: FOUNDATIONS OF REGULATING ARTIFICIAL INTELLIGENCE	29
--	----

Aleksandar Spasenovski

TRANSFORMATION OF EMPLOYMENT RELATIONS: ADDRESSING THE CHALLENGES OF AI AND DIGITAL PLATFORM WORKERS	41
---	----

Aleksandar Kostadinov

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF THE LABOR MARKET	53
---	----

Biljana Chavkoska

AI AS A CATALYST FOR CREATIVITY IN EDUCATION: NAVIGATING FEAR AND UNLOCKING POTENTIAL	65
--	----

Perica Sardjoski

ARTIFICIAL INTELLIGENCE IN EDUCATION: WHEN OPPORTUNITIES LOOK LIKE THREATS?	73
--	----

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Stefan Andonovski

ARTIFICIAL INTELLIGENCE AND THE EFFICIENCY OF THE MACEDONIAN PUBLIC ADMINISTRATION

POLITICAL THOUGHT



An efficient public administration is at the core of the development of a successful and functional state. Efficiency implies accessible, fast, transparent and affordable services for citizens. Unfortunately, in recent years, the increase in the number of employees in the public sector and significant public spending has not led to improvements in administrative procedures, but rather their complication. Today, the state has more than 130,000 employees in the public sector, across over 1,000 institutions. With a population of fewer than 2 million people, these numbers result in inefficiency, bureaucracy, and low responsiveness to change. This results in a unclear distribution of responsibilities, weak coordination between institutions, long-term and inefficient bureaucratic decision-making processes, as well as policy creation without a basis in reliable and up-to-date data. This leads to unclear distribution of responsibilities, poor coordination between institutions, lengthy and inefficient bureaucratic decision-making processes, as well as the creation of policies without a basis in reliable and up-to-date data. This certainly impacts the erosion of public trust in institutions. Key public services in sectors such as education, the labor market, healthcare, and justice are facing systemic deficiencies that hinder the basic effective functioning of the state.

In an era of rapid technological progress, the ability of the state to adapt and respond effectively to challenges will play a central role in shaping future policies.

In general, artificial intelligence, particularly Large Language Models, is already being tested for tasks such as simplifying bureaucratic communication and streamlining administrative processes. Many analysts and practitioners predict that its use will grow, helping in areas such as finance, infrastructure and security.

If we understand the use of artificial intelligence (AI) as the application of advanced language models, inclusivity for people with disabilities, optimizing work with large data sets, reducing employee shortages, efficiently performing repetitive tasks, and computing data from different data sets, it is evident that its use is more than necessary. In this regard, artificial intelligence emerges as an essential tool for transforming public administration. AI-based systems enable the understanding and explanation of administrative notices to citizens with a high degree of accuracy and knowledge of legal frameworks and procedures. Additionally, AI can be applied to optimize processes, reduce employee shortages, and monitor the efficient implementation of regulations, thus increasing the efficiency and accessibility of public services.

It is already well-known globally that digitalization and the use of AI can enable faster, more efficient, and more cost-effective solutions for administrative processes. Whether it involves rapid processing of requests, allocation of financial support, subsidies,

or improving public services, the introduction of AI can assist in addressing these challenges through automation, data analysis, and process optimization.

THE EU ARTIFICIAL INTELLIGENCE ACT (AI ACT)

The European Artificial Intelligence Act represents a pioneering legal framework aimed at ensuring the safe and democratic use of artificial intelligence. However, the practical capabilities of individual states and the continuous evolution of technology are expected to pose challenges while also serving as key factors for long-term success.

Macedonian legislation still has a journey ahead to align itself with the trajectory of transposing the EU Artificial Intelligence Act, particularly in establishing a comprehensive legal framework that emphasizes risk management, transparency, and human oversight of AI-based systems. This includes defining national governance structures, such as establishing a state institution with legal authority over AI, tasked with monitoring compliance and fostering innovation.

For successful implementation, the country must first define clear ethical standards for the application, development, and implementation of AI within state institutions. It should also launch a public awareness campaign to engage citizens and stakeholders, explaining the limitations of these relatively untested systems in the development and deployment of AI.

THE ISSUE OF TRUST IN INSTITUTIONS

Despite efforts towards digitalization and modernization, it remains a fact that the Macedonian public administration is burdened by the perception of inefficiency in addressing citizens' needs. Complex bureaucratic procedures, insufficient coordination among different levels of government, and the frequent requirement to obtain and submit documents—often to the same institutions—during administrative processes contribute to a general lack of public trust in the administration.

In this context, the use of digital tools, and especially artificial intelligence, to accelerate processes must go hand in hand with a complete rethinking of decision-making procedures and administrative processes. This implies not only technical advancements but also legal and systemic reforms of laws and regulations, aimed at simplifying procedures, reducing bureaucracy, and streamlining administrative processes.

Such a systemic approach would not only improve the quality of services but also have a direct impact on increasing public trust in institutions.

SEVERAL FINAL DILEMMAS INSTEAD OF ANSWERS

Artificial intelligence (AI) presents unique opportunities for improving processes within the Macedonian public administration. It is clear that AI tools can address systemic inefficiencies, enhance transparency, and provide clear responses to citizens' needs. However, the successful application of AI must go beyond technical advancements, extending to strategic transformations in processes, legal frameworks, and the working culture of the administration. The rapid progress of artificial intelligence requires agility in the public sector.

Thus, a systemic priority should be simplifying bureaucratic procedures, automating repetitive tasks, and utilizing AI for efficient data management and monitoring the processes of public policy creation and implementation. However, the integration of AI must be accompanied by a broader transformation of administrative procedures to address the technological and societal challenges of the future.

In this regard, aligning national legislation with the EU Artificial Intelligence Act—including the establishment of permanent oversight mechanisms, defining ethical guidelines, and creating dedicated institutions to manage AI—is essential for guiding the ethical application of AI in institutional operations. Additionally, in collaboration with the private sector, institutions should invest in technical infrastructure, training for public servants, and fostering partnerships with private entities to leverage expertise effectively.

Governments, as well as institutions internally, must adopt and support innovations in the private sector to remain effective and relevant, particularly in strategic areas such as defence and infrastructure. The expanded role of private companies, especially in inherently public domains like digital infrastructure, cybersecurity, and defence, underscores the need for governments to strategically integrate artificial intelligence (AI) while carefully preserving autonomy.

The innovative application of AI must not, under any circumstances, overlook the needs, concerns, opinions, and skills of its most important user—the citizen. To this end, raising awareness through campaigns, educating young people about the benefits

and limitations of AI, and ensuring an inclusive and transparent AI implementation process are essential for achieving continuous citizen engagement in these processes.

The use of AI in public administration is not, and will not be, without challenges, particularly regarding citizens' and civil servants' trust, data security, and workforce adaptation. However, with a strategic focus on both technological and institutional reforms, it is possible to create a responsible, sustainable, and functional administration that uses new technological tools to effectively address citizens' needs. Through strategic investments in AI development, functionality, the quality of public services, and trust in public institutions can be significantly improved.



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TECHNOLOGY-CAPABLE DEMOCRACY

HOW AI CAN CONTRIBUTE TO AN EFFICIENT STATE AND ADMINISTRATIVE STRUCTURE

POLITICAL THOUGHT

69



Modern administrative structures with high digital and technological competence are increasingly becoming the foundation of functional democracies. This becomes especially evident in times of crisis. Whether it is the registration of hundreds of thousands of refugees, distributing economic aid during pandemics, or providing energy allowances to students, an efficient state and administrative structure that works seamlessly across municipal, state and federal levels would enable faster, more effective, and cost-efficient crisis responses and political actions.

This impacts trust in the political system. In Germany, nearly seven out of ten citizens perceive the state as generally overwhelmed, even though the public service has increased its staff in recent years and state expenditures have risen sharply. In reality, administrative structures that have developed over decades often get lost in complexity, a confusing landscape of stakeholders, lengthy bureaucratic decision-making processes, and political measures that are still developed without a reliable data basis, and despite the investment of enormous billions, often fail to deliver the expected impact.

This result is hardly surprising: Many administrative structures in the public services sector, as well as in education, social and labour markets, access to citizen services, and approval and administrative procedures, such as those for starting a business, exhibit significant weaknesses. These shortcomings hinder the state's ability to act effectively and erode the trust placed in it.

KEY TECHNOLOGY OF THE PUBLIC SECTOR

As a result, the call for a comprehensive administrative modernization is growing louder – across all political spectrums. “Administrative modernization” and “state modernization” are not marginal issues for political legal experts but are moving to the forefront of the political agenda.

The question of the state's ability to act effectively in times of rapid development progress, especially in new digital technologies, will shape future election campaigns. Artificial intelligence (AI) can become a decisive instrument for modernizing the state. AI has emerged as one of the key drivers of digitalization and holds enormous significance not only for the economy and society, but also for our democracy.

In fact, initial, relatively simple AI applications – thanks to the increasing performance of so-called Large Language Models (LLMs) – are already being tested

in administrations from the federal level down to municipalities, delivering tangible benefits. Germany's public administration is an active tester of AI technologies. For instance, in communication with citizens, a modern language model can, for example, explain official notices with a remarkable understanding of laws and procedures. Administrative organizations use LLMs to speed up processes and relieve staff. AI is being deployed to assist in implementing regulations with precision while maintaining efficiency and addressing staffing shortages.

It will not just be limited to seemingly simple use cases. From the use of AI in tax and financial authorities (financial intelligence) to process mining, the processing of untapped data and information in administrative organizations - AI will be used on a much larger scale in the future as a key technology by governments and public sector organizations.

FOUR TRENDS

The increased use of AI systems by the state will grow rapidly, especially in the application areas where social trends and technological developments increasingly converge. Here are a few examples:

First: growing staff shortages. Currently, the state is short of at least half a million employees in key areas, and this number is expected to rise sharply. All sectors of state public services are affected by the shortage of skilled workers, including education, healthcare, infrastructure, and both internal and external security. The constant increase in tasks for local authorities - often the result of federal political decisions - is also clearly reflected in growing staff gaps in administration. The result is obvious: "More staff" as a solution to address performance gaps in administration is hardly a solution anymore.

Second: high innovation dynamics. In the rapidly developing world of artificial intelligence, innovations and progress are happening on a daily basis. The pressure to innovate, driven almost exclusively by the tech scene, remains extremely high in many areas of government responsibility - especially in the areas of health, defense, security and finance. Administrations that fail to adequately respond to this pressure through adaptation will lose performance and acceptance among citizens.

Third: tighter financial constraints in budgets. Financial flexibility in budgets is becoming more limited at all levels, including municipalities. Geopolitical (crisis) developments, uncertain economic conditions, and growing social spending due to

aging societies, such as in Germany, are creating pressure for consolidation in the development and application of technological and digital innovations in the state and administration. The greater the potential efficiency gains from using AI solutions in administration, the more likely their implementation will be.

Fourth: growing competitive pressure. Administrations and forms of government – especially democracy – are under growing competitive pressure. Even today, more and more private actors are operating in fields of application that were long reserved for states alone. Example of defense: Ukraine's ability to defend itself in Russia's war of aggression would be unimaginable without the resources and expertise of private drone manufacturers and software developers. Example: (digital) infrastructure: In a world increasingly shaped by (information) technologies, powerful data centers have become core infrastructure. The most powerful data centers are no longer in the hands of states and administrations. For example, in early 2024, the Stargate project created a stir in expert circles, where Microsoft and OpenAI are planning an AI data center worth up to \$100 billion—an initiative far more expensive than some of the largest existing data centers.

For states such as the Federal Republic of Germany, whose political and administrative action patterns have been derived primarily from principles such as stability and security for decades, the trends outlined represent an unprecedented challenge. The central growth foundations of the Bonn Republic - economic, technological or security policy - are dissolving at a speed that requires a consistent, ambitious will to shape things. This is especially true when it comes to state actions concerning the development of artificial intelligence, whose rapid pace of advancement suggests that it will not lose relevance as a central influencing factor in the development of states and administrations any time soon.

MODERN, DYNAMIC REGULATION

For Germany, there are two key levers to address the growing importance of AI. AI applications in and for Germany must be designed and implemented in a way that ensures they are secure, contribute to supporting democracy, and process data (both government and citizens' data) transparently, securely, and reliably. The use of AI in the public sector requires the trust of citizens in the new technologies, as well as the trust of administrative staff in the added value and benefits the technology can bring to their everyday administrative tasks.

As part of the adopted European Artificial Intelligence Act (AI Act), a comprehensive regulatory framework for AI was developed for the first time in the world. If it proves successful in practice, the European law will set the decisive framework for the use of artificial intelligence in aiming to promote innovation while simultaneously strengthening trust in AI usage. . A first success is its global role as a model, which national regulations are unlikely to achieve.

Although the potential for the use of AI has been recognized and an initial AI regulatory framework has been developed, no miracles should be expected in the initial phase. . Politicians may overestimate the short-term possibilities of AI while underestimating its long-term effects. If exaggerated expectations are disappointed, the urgently needed structural changes for the widespread use of AI may not be addressed. Therefore, it is important to manage expectations realistically and continuously adapt the EU's AI Act to newer developments.

This requires a modern, dynamic regulatory approach, not a static, restrictive set of rules. Only in this way can technological breakthroughs and the resulting opportunities be continuously evaluated and, if necessary, regulated (or re-regulated). If the state and politics fail in this regard, there is a risk of losing trust in its regulatory competence— one of the last remaining central sovereign powers of states.

OPERATIONAL EXCELLENCE THROUGH THE TRANSFORMATION OF THE STATE AND ADMINISTRATION

Although AI applications hold great potential for use by the state and administration, they are not an ultimate cure-all. Their use will not make the state more capable of action, nor will it significantly reduce dissatisfaction with bureaucracy and administrative structures. It will not work without a fundamental restructuring of the organization within our administrative apparatus and long-term measures such as investments in the future (digital) - primarily cloud systems. The principle is to finally make the state and administration “platform-capable”. Digital platforms are essential for providing digital solutions based on common standards and development principles. So far, state actors have paid little attention to the proactive state use of platform principles. A bewildering number of state and semi-state actors still often operate in parallel structures, without coordination or collaboration across boundaries.

Changing this is the task of consistent, determined political leadership. Far too often attempts are made to build “the new” on the political operating system of the past.

Despite billions spent on administrative modernization, great success is still lacking. And that is not surprising, as the success factors of innovation and the future do not adhere to the administrative boundaries of federal states, nor do they follow the politically carefully balanced, closed ecosystems of the state IT era, which has long since ended.

The state and administration must, more than ever, build open ecosystems to make democracy technologically capable. Tech companies, startups, or research actors in new areas like machine learning or data science possess the expertise and skills that the state must leverage. Particularly in the AI field, state actors will realistically struggle to keep up. However, this must not lead to one-sided dependence. To operate on equal footing, administrations must develop the necessary competencies to effectively establish, manage, and assess partnerships between the state and AI companies. Only in this way can it be ensured that state institutions incorporate the AI expertise of companies in a goal- and application-oriented manner and are able to assess the design of AI applications and estimate their costs.

As with every new technology, artificial intelligence comes with significant opportunities, provided we accept the risks, do not exaggerate them, and contain them as effectively as possible. A constructive and ambitious examination of the possibilities AI offers is certainly worthwhile. The intelligent use of AI can significantly contribute to enabling a more efficient and technologically capable state, and by improving the quality of state services, it can also strengthen trust in democracy.

The use of AI alone will have little impact. Given the growing technological challenges and societal trends, Germany requires a true “state transformation”: a gradual but ambitious restructuring of the state’s and administrative structures that will address the technological demands and challenges from the federal level down to the municipalities in the long term.

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SHORT BIOGRAPHY



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AI AND JOURNALISM: RESPONSIBLE PARTNERS, NOT COMPETITORS

POLITICAL THOUGHT



INTRODUCTION

AI's role in journalism is similar to that of calculators in mathematics. While calculators speed up calculations and simplify complex equations, they do not replace the mathematician's deep understanding or creative problem-solving abilities. Similarly, AI assists journalists and all media creators by handling repetitive, time-consuming tasks, allowing them to focus on aspects of their work that demand human insight, critical thinking, and, most importantly, ethical judgment—areas where AI's capabilities remain uncertain.

Journalism around the world has been undergoing significant changes over the past decades, especially in recent years, due to the digital revolution reshaping how news is produced and shared. The rise of social media platforms has turned every smartphone user into a potential news source, flooding the internet with information at unprecedented speed. In North Macedonia, this shift is especially noticeable as journalists struggle with digitalisation while trying to maintain journalistic standards with limited resources, mostly due to the country's small market and financial challenges in practising traditional journalism. This has led to issues like the rapid spread of misinformation and increased competition for the audience's attention. In this fast-changing environment, the demand for timely, accurate reporting has never been higher, especially as global issues become more interconnected and complex.

However, limited resources can make it harder for journalists to investigate stories deeply or meet tight deadlines. Here, **AI has the potential to act as a highly efficient assistant, boosting a journalist's ability without taking away from their role.** With AI, journalists can more effectively organise large amounts of data, identify patterns within information, and even get suggestions on possible angles or interpretations for complex stories. This kind of partnership invites a mindset shift: instead of fearing AI as a replacement, journalists can view it as an advanced toolkit that expands their abilities, much like sophisticated equipment aids a craftsman. **In fact, AI has the potential to strengthen journalistic integrity by allowing reporters to work smarter, not harder.** With AI handling certain logistical tasks, journalists can devote more time to analysis, context, and connecting the dots—elements that require human intuition and cannot be automated.

Moreover, this collaboration between AI and journalists does not just benefit individual reporters; it ultimately benefits the public. When journalists are supported by AI, they are better equipped to deliver well-researched, insightful stories that resonate with and educate their audiences. By freeing up time, AI allows journalists to tackle the stories

that matter most, focusing on issues that affect the public interest and providing insights that only human investigation and empathy can reveal.

ENHANCING MEDIA CONTENT CREATION WITH AI

Imagine a journalist facing a tight deadline, tasked with covering a highly complex story involving vast amounts of data, such as government spending reports, detailed survey results, or public health statistics. Traditionally, handling these documents would require scrupulous hours—sorting through pages of data, searching for relevant information, and piecing together key insights. For many journalists, these repetitive tasks can become overwhelming, leaving less time to focus on the actual narrative or its significance to the public. Here, AI steps in as an invaluable partner, transforming the workflow by processing and summarising large datasets in seconds, making the task less daunting and more manageable. However, even when AI is utilised, fact-checking and editorial oversight remain essential to uphold ethical journalistic standards.

In practice, AI can quickly examine complex data to identify trends, anomalies, or patterns, presenting only the most relevant information for media research. For example, when analysing public institution reports, AI can detect correlations, pinpoint changes over time, or highlight unusual spending patterns. Similarly, when handling survey data, AI can group responses, identify common issues, and even gauge public sentiment. **For years, journalists have manually searched through large documents using keywords, a time-consuming and often imprecise process. With AI, this task can now be performed much more effectively and with greater precision, ensuring that no critical information is overlooked.** This automated processing allows the journalist to focus on analysing and contextualising the information rather than getting bogged down in raw data. AI's ability to handle this "heavy lifting" enables journalists to turn abstract figures and statistics into clear, compelling narratives that resonate with readers.

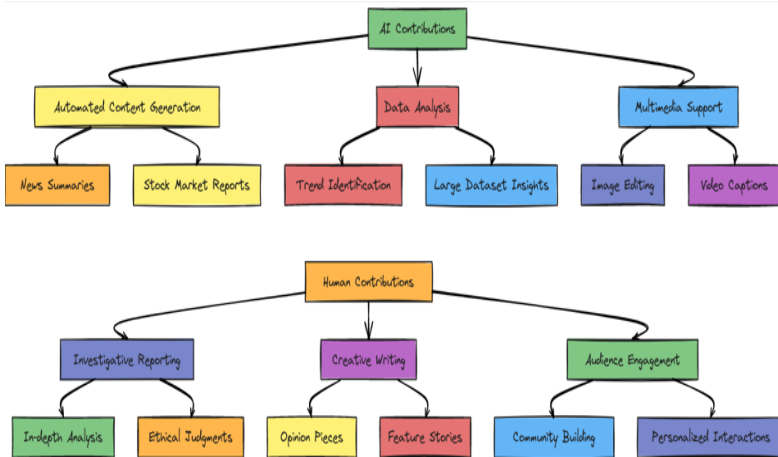
Moreover, AI is capable of summarising lengthy reports into concise insights. If a journalist faces a 100-page government document, AI can extract the core themes and significant data points, reducing it to an accessible summary that still captures the report's essence. This capability is invaluable in fast-paced news environments, where timing is crucial. When journalists need to report quickly, AI tools can rapidly condense information, providing essential facts while allowing journalists to add their own interpretation and human insight.



AI doesn't stop at data summarisation. **It can also assist in connecting the dots across different datasets, recognising relationships that may not be immediately apparent.** For instance, AI might help link patterns in healthcare data to socioeconomic factors or draw connections between environmental statistics and policy changes. This level of insight would typically require extensive research time; however, AI can make these connections more visible, helping journalists identify the broader implications of a story.

In essence, AI's role here is simple yet transformative: it enables journalists to manage tasks faster and with greater precision, making information more understandable and engaging for audiences. In the hands of journalists, AI becomes a powerful tool that translates raw data into impactful stories, giving the public access to valuable insights without the barriers of complexity. This synergy between AI and human expertise ensures that journalism remains relevant and accessible in an increasingly data-driven world.

1. Example of a Flowchart illustrating AI-assisted journalistic workflow – AI produced with support of BlocksAndArrows.com & Miro.com



AI IN VISUAL AND CREATIVE CONTENT DEVELOPMENT

In today's digital media landscape, visuals are as essential as the written word. Presenting data-heavy topics in an accessible and engaging way can be challenging, especially for journalists who may lack graphic design expertise or the time to develop complex visuals.

AI assists in creating compelling graphics, infographics, and preliminary design layouts that make complex data digestible and attractive.

Infographics, for example, have become a popular tool for effectively conveying complex information in a visually appealing format. Certain AI-driven applications now offer pre-designed infographic templates, allowing users to customise layouts, colours, and styles. These features save significant time, as they automate layout adjustments and provide colour suggestions. **However, the process is not entirely automatic. While AI can generate visual elements, such as charts and graphics, journalists must manually input data into these templates to ensure accuracy.** Despite this partial automation, the approach significantly reduces time spent on design and results in more vivid and clear visuals, enhancing the overall quality of media content.

One of AI's strengths is automating visual storytelling. It can transform raw data into polished visuals like charts, infographics, and maps. For example, a journalist covering environmental changes with extensive climate data can use AI to suggest suitable visual formats - such as line graphs to show trends over time or heat maps to illustrate regional differences. Additionally, AI assists in filling data into these designs, making the creation of infographics quicker and less time-consuming. This allows journalists to produce high-quality visual content without needing specialised graphic design skills, adding depth to their reporting and ensuring that stories are both seen and understood by audiences across all backgrounds.

2. Example: Sample Infographic created by AI on environmental changes with illustrative data with support of ChatGPT 4o extension of Diagrams: Flowcharts & Mindmaps



ETHICAL CHALLENGES AND RESPONSIBLE AI USE

While AI can be a powerful partner in journalism, it also brings significant ethical and practical challenges that must be carefully addressed. **AI systems are not inherently neutral; they operate on algorithms that are only as objective as the data used to train them. One primary concern is the potential for bias, as AI systems often reflect biased or partial perspectives present in their training data.** For example, if an AI model is trained on data that underrepresents certain communities or amplifies specific viewpoints, the resulting analysis may reinforce these biases. When applied to journalism, this can lead to biased outcomes, misrepresentation, or even the spread of misinformation if AI outputs aren't rigorously reviewed by human journalists.

Bias in AI can manifest in several ways. **It can affect which sources or stories are prioritised, how individuals or groups are depicted, or even the language used in AI-generated summaries.** If left unchecked, these biases risk undermining journalism's core principles of fairness, accuracy, and balance. The danger lies in AI's "black box" nature; algorithms often process data in ways that are difficult to interpret or question, making it challenging for journalists to fully understand or control the content that AI generates. Therefore, human oversight is essential to catch these biases and correct them before they reach the audience.

Another important issue is that relying too much on AI can weaken journalists' skills and instincts over time. AI is increasingly used to handle tasks like fact-checking or summarising content, but it lacks the human intuition and contextual awareness that journalists bring to their work. For instance, an AI-generated summary might miss subtle details in a complex story, leading to oversimplification or distortion of key points. In cases of breaking news or sensitive topics, an AI-generated report might overlook cultural contexts, historical significance, or social implications that are crucial for balanced understanding. Relying too heavily on AI tools without thorough verification risks compromising the integrity of a story and, over time, could erode public trust in media institutions.

AI's limitations highlight the importance of conscious and ethical use in journalism. Journalists must apply a high level of scrutiny to AI-generated content, ensuring that any automated assistance aligns with established journalistic standards. Ethical standards must be upheld rigorously, with journalists actively validating AI's contributions, double-checking facts, and ensuring accuracy, impartiality, and transparency in all content. **Engaging with AI as a tool - not a replacement**

A PERSONAL PERSPECTIVE

As we reflect on the growing role of AI in media, it becomes increasingly clear that suitable training and open discussions among journalists about the potential benefits of various AI platforms are crucial for understanding AI's full potential. It's essential to recognise that not all platforms are safe for journalists; personal data can be stolen, and sources can be revealed. **This is why comprehensive training is needed to navigate these risks effectively. Additionally, not all AI outputs are accurate, so editorial checks and fact-checking must be applied in accordance with the ethical rules of journalism.**

No technology, no matter how advanced, can truly replace the human touch that journalists bring to their content. AI may be a powerful tool, capable of processing vast amounts of data and handling logistical tasks at remarkable speeds, but it lacks the qualities that define meaningful journalism: intuition, ethical judgement, and a deep connection to the issues that affect our society. Journalism is more than a series of facts and figures; it is a voice for the public, a force for accountability, and a means of making sense of a complex world. **These responsibilities are human, requiring insight, empathy, and an unwavering commitment to the truth.**

At its best, journalism captures the depth of human experience, sheds light on injustices, and elevates the voices of those who might otherwise go unheard. This role cannot be fulfilled by algorithms alone. While AI can assist in uncovering patterns or summarising data, it is the journalist who interprets these findings, contextualises them within broader social or historical frameworks, and gives them meaning. It is the journalist who understands the weight of a story, the implications of a fact, and the need for accountability. **These elements make journalism a cornerstone of a democratic society, and they rest firmly on human shoulders - not on machines.**

Yet, if used ethically and thoughtfully, AI offers immense potential to improve the quality of media content and elevate journalism to new heights. By taking on repetitive, time-consuming tasks, such as sifting through data or organising large datasets - AI frees up time for journalists to focus on what they do best: investigative work, in-depth storytelling, and building meaningful connections with their audience. **This conscious use of AI does not weaken journalism's role; on the contrary, it enhances it by enabling journalists to dedicate more energy to stories that truly matter, those that serve the public interest and bring about positive change.**

The key to successfully integrating AI into journalism lies in making the balance. Journalists must maintain control over the narrative, guiding AI to support rather

than overshadow their work. When used in this balanced way, AI becomes an ally, allowing journalists to work more efficiently while upholding the core values of their profession. **Transparency and accountability are essential; by openly disclosing AI's role in content creation, media organisations can maintain the public's trust and demonstrate their commitment to ethical journalism.** Ultimately, it is the journalists, with their ethical compass and dedication to truth, who makes a story resonate.

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LAW AND ALGORITHMS: FOUNDATIONS OF REGULATING ARTIFICIAL INTELLIGENCE

POLITICAL THOUGHT



1. INTRODUCTION

Artificial intelligence (AI) is one of the most significant technological innovations of our time, with profound potential to transform the way societies, economies, and political systems function.¹

AI is not merely a tool for automating specific processes but serves as a key driver of new innovations and a solution to complex challenges across various fields such as healthcare, education, security, transportation, justice, politics, and more.²

The dynamic advancement of AI, supported by progress in related fields of information technology, including data processing, machine learning, and automation, creates new opportunities. Equally important, however, it raises critical questions about ethics, security, and the protection of human rights.³

Over the years, the application of AI has gained increasing significance in both the public and private sectors, challenging existing legal systems to adapt to a rapidly evolving technological reality.

From a legal perspective, the development of AI demands a clear and appropriate regulatory framework to ensure its ethical, transparent, and inclusive use. Without clear rules, risks such as discrimination, privacy breaches, or misuse of technology could significantly undermine AI's potential. In this context, regulation becomes particularly vital as international organizations, states, and the private sector compete to establish standards that will shape the future development of technology.⁴ Finally, and no less importantly, the growing number of cases of AI misuse—resulting in violations of human rights and freedoms, as well as challenges to the rule of law in democratic states—further underscores the urgent need for legal regulation of these emerging aspects of technological development in contemporary society.⁵

This text aims to explore the foundations of the legal regulation of AI, focusing on the principles that should guide its development and use, as well as on existing and potential future regulatory models. Through an analysis of global and regional initiatives, the objective is to identify the key challenges and opportunities for creating

1 McCarthy, John. "Artificial Intelligence." Stanford University, ai.stanford.edu, December 2024.

2 Amnesty International, *The Transformative Power of Artificial Intelligence: Addressing Complex Challenges Across Sectors*, amnesty.org, December 2024.

3 Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach*, 4th ed., Hoboken, NJ: Pearson, 2021, pp.: 5-7.

4 Лидија Поповска, *Законско регулирање на вештачка интелигенција во Европска унија и Република Северна Македонија*, Парламентарен институт, Собрание на Република Северна Македонија, sobranie.mk, December 2024.

5 European Policy Institute, *Регулативата на Европската унија за вештачка интелигенција: Влијание врз човековите права и слободи*, epi.org.mk, February 2023

a legal framework that safeguards citizens' interests while fostering progress and innovation.

REASONS FOR THE NEED FOR REGULATION

The legal regulation of AI is essential due to the complex challenges this technology presents and its significant impact on society⁶. First and foremost, regulation is necessary to protect human rights, which may be at risk from uncontrolled processing of personal data, discrimination and bias in computer algorithms, and behavioral manipulation through social surveillance systems or targeted content delivery.

Additionally, regulation promotes transparency and accountability in the operation of AI systems, which are often difficult to understand due to their complexity. Without a clear legal framework, it becomes challenging to provide logical explanations for the "decisions" made by these systems and to establish mechanisms of accountability for potential negative consequences arising from their operation or improper application.

Finally, the regulation of AI is crucial to prevent the misuse of the technology for illegal or unethical purposes, such as cybercrime, automation of attacks, or the spread of disinformation through the creation of fake news or deepfake videos.

2. ETHICAL FOUNDATIONS

Ethical frameworks for regulating the use of AI must ensure a balance between fostering continued innovation and safeguarding the fundamental values of society⁷. These two objectives should be directed toward promoting the responsible, transparent, and inclusive use of technology. In this context, the following principles serve as a foundation for such frameworks:

- Respect for Human Rights and Freedoms: Regulations must guarantee that AI systems do not infringe on individual rights, such as privacy, non-discrimination, and freedom of expression. This requires AI systems to be designed and implemented in ways that prevent practices causing harm to these fundamental rights.

⁶ Amnesty International, The Urgent but Difficult Task of Regulating Artificial Intelligence, amnesty.org, December 2024.

⁷ European Commission, Proposal for a Regulation Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act), ec.europa.eu, December 2024

- **Transparency and Explainability:** AI algorithms and the decisions they produce should be understandable and accessible to the public. Citizens need to be informed about how these systems function, the data they rely on, and the criteria influencing their decisions.
- **Promotion of Accountability:** Entities and individuals developing or utilizing AI must be held accountable for the outcomes of its use. This includes ensuring mechanisms for human intervention when an AI system produces incorrect or harmful decisions.
- **Fairness:** AI algorithms must be free from biases that could lead to discrimination or violations of human rights and freedoms. Systems should be designed to ensure equal treatment and access for all.
- **Ethical frameworks grounded in these principles** aim to ensure that AI is used for the benefit of society while upholding the values of justice, accountability, and human dignity.

3. CURRENT INTERNATIONAL DOCUMENTS

In light of the rapid development of AI, relevant international organizations have recently adopted significant documents to establish legal and ethical foundations for its use.

Among these, two international acts stand out:

- Regulation (EU) 2024/1689 – The Artificial Intelligence Act of the European Union⁸
- Council of Europe Convention on Artificial Intelligence (CAI)⁹

In addition to those mentioned, other documents that regulate the topic of artificial intelligence are the UNESCO Recommendation on the Ethics of Artificial Intelligence¹⁰, adopted in 2021, as well as the OECD Principles on Artificial Intelligence¹¹, adopted in 2019. The UNESCO Recommendation sets global standards for the ethical use of AI, with an emphasis on the protection of human rights, equality and sustainable development. The OECD Principles, on the other hand, focus on promoting the trustworthy and responsible development of AI, regulating issues such as transparency, non-discrimination and security of AI systems.

3.1. Regulation (EU) 2024/1689 – The Artificial Intelligence Act of the European Union

Regulation (EU) 2024/1689, also known as the EU Artificial Intelligence Act, was adopted on 13 June 2024 after a long process of consultation, debate and research in the EU

⁸ European Union, Regulation (EU) 2024/1689 – Artificial Intelligence Act, eur-lex.europa.eu, December 2024

⁹ Council of Europe, Framework Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, coe.int, December 2024

¹⁰ UNESCO, Recommendation on the Ethics of Artificial Intelligence, unesco.org, December 2024

¹¹ OECD, Principles on Artificial Intelligence, oecd.org, December 2024.

institutions¹². The adoption of this revolutionary document is driven by the need to establish a unified framework for regulating AI that will address the risks associated with this technology and encourage innovation. The development of the regulation takes place in the context of increased global competition for dominance in the technology sector, but also of growing concerns about the ethical and legal implications of the use of AI¹³.

The content of the regulation is based on a classification of AI systems according to their level of risk¹⁴. Systems with unacceptable risk, such as those that manipulate human behavior or enable social evaluation, are completely prohibited. For high-risk systems, used in critical areas such as health or security, strict regulatory requirements are introduced, including certification, human oversight and monitoring. Furthermore, systems with limited risk are subject to transparency measures, such as the obligation to inform users that they are interacting with AI. Finally, systems with minimal risk, such as spam filters or video games, are not subject to special obligations.

The regulation also establishes transparency obligations, in order for users to be informed about how AI systems work and what data is used in the process¹⁵. In addition, the principle of accountability is promoted by clearly defining responsibility for possible negative consequences of the use of AI.

As a legally binding act, the regulation is directly applicable in all EU Member States.

The effects of the regulation are far-reaching. It positions the Union as a global player in AI regulation, setting high standards for the ethical and responsible use of technology. In addition, this document provides legal certainty for companies developing and using AI, encouraging them to adapt their technologies to these standards. Finally, the Regulation strengthens users' trust in AI systems and creates the basis for the transparent, fair and safe use of this revolutionary technology.

3.2. Council of Europe Convention on Artificial Intelligence

The Council of Europe Convention on Artificial Intelligence was adopted in September 2024, as part of global efforts to create an international legal mechanism for regulating AI¹⁶. This document is a response to the oldest European intergovernmental

¹² The EU Artificial Intelligence Act has come into force, sdk.mk, December 2024

¹³ Narayan, Jayant. "Regulation of Artificial Intelligence: Global Trends, Implications, and the Road Ahead." Competition Policy International, 2022. competitionpolicyinternational.com, December 2024.

¹⁴ Regulation 2024/1689 on artificial intelligence Analysis of the AI Act, Cattaneo Zanetto Pomposo & Co, 2024.

¹⁵ Navigating the EU AI Act: Key Insights into Regulation (EU) 2024/1689, deltapcapita.com, December 2024

¹⁶ Советот на Европа усвои меѓународен договор за вештачка интелигенција, mia.mk, December 2024

organization for the protection of human rights, democracy and the rule of law in the context of the rapid development and application of technology¹⁷.

The Council of Europe, as a leading organization in the promotion of human rights, recognizes the urgency of regulating AI as a tool that can have both positive and negative impacts on society¹⁸.

The Convention was developed through a long process of consultations between Council of Europe member states, AI experts, civil society organizations and technology companies. The main objective of the document is to provide a legally binding framework that will harmonize existing national and regional regulations and set unified standards for the use of AI.

The Convention encompasses the basic principles that should guide the development and use of AI¹⁹. Primarily, it places emphasis on the protection of human rights, emphasizing that all AI systems must be designed and implemented in a manner that respects dignity, privacy and non-discrimination. The document, among other things, also establishes obligations for transparency and explainability of algorithms, to ensure that users and stakeholders understand how the systems work. Special attention in this important document is dedicated to high-risk AI applications that may have significant impacts on people's rights and freedoms. Finally, the convention calls for the implementation of mechanisms for human oversight and risk assessment, as well as the establishment of clear procedures for accountability in cases of misuse or unintended consequences²⁰. In this regard, the convention outlines mechanisms for cooperation between states to share best practices in tackling cross-border challenges in this field. Technologies with the potential for mass surveillance or manipulation are strictly limited.

As the first legally binding international document on AI, the Convention creates obligations for the states that sign and ratify it. Specifically, it requires the signatory states to align their national legislation with its provisions, and the Council of Europe is responsible for monitoring the implementation of the Convention through regular reports and evaluations.

17 Understanding the Scope of the Council of Europe Framework Convention on AI, opiniojuris.org, December 2024.

18 The European Commission signs historic Council of Europe Framework Convention on Artificial Intelligence and Human Rights, europa.eu, December 2024

19 Council of Europe, first artificial intelligence treaty drafted. Von der Leyen: EU law goes global, eunews.it, December 2024

20 Understanding the Scope of the Council of Europe Framework Convention on AI

The Convention has significant implications for global AI regulation. It sets high standards for the ethical and responsible use of technology, which have the potential to become globally accepted. Member states of the Council of Europe are committed to establishing clear and transparent processes that contribute to strengthening public trust in these systems. Additionally, the Convention encourages further innovation by establishing predictable and fair rules for the use of AI. By addressing the need to protect human rights, it also contributes to creating legal certainty and fostering cooperation between states.

The Committee on Artificial Intelligence of the Council of Europe is a product of the AI Convention. Established as an intergovernmental body, this committee is tasked with supporting the implementation of the Convention through the development of legal instruments, policies, and standards that ensure the design, development, and use of AI systems respect fundamental rights and democratic values. With a multidisciplinary approach and the inclusion of experts from various fields, the Committee serves as a mechanism for monitoring the application of the Convention and adapting its principles to global challenges in this field.

POSITION OF NORTH MACEDONIA IN THE CONTEXT OF INTERNATIONAL AI REGULATION

As a member of the Council of Europe and a candidate country for EU membership, North Macedonia is obligated to align its policies and legal framework with the latest international standards for artificial intelligence (AI). Considering recent documents such as the Council of Europe's AI Convention and EU Regulation 2024/1689, North Macedonia has an opportunity to position itself as a key partner in this dynamic field.

On September 5, 2024, during the signing ceremony of the Council of Europe's AI Framework Convention, the EU, the United States, and the United Kingdom were among the first signatories, but North Macedonia was not. Nevertheless, as a member state of the Council of Europe, North Macedonia is bound to adopt and implement the principles established in the AI Convention. This means the country must adapt its laws to ensure the protection of human rights, transparency, and accountability in the implementation of AI systems. Ratification of the Convention would be a significant step toward strengthening the legal framework and demonstrating commitment to the ethical use of new technologies.



Although North Macedonia is not yet an EU member, the adoption of EU Regulation 2024/1689 and the AI Act represents an important reference point for harmonizing Macedonian legislation with EU law. As part of the EU accession process, North Macedonia will need to adopt these AI standards, which lay the groundwork for a secure and innovative digital transformation. Early alignment with these regulations will demonstrate that North Macedonia not only respects but actively applies European values.

North Macedonia faces several challenges in implementing international AI standards, including limited resources, a shortage of technical expertise, and the need to modernize its legislation. However, these challenges also present an important opportunity to attract international support, particularly through EU pre-accession funds that can help build the country's capacity to address these issues.

Drawing from the experiences of other countries in this field, the first step for North Macedonia would likely be to create a national AI strategy that incorporates international standards while considering the country's specific needs. The second step would involve establishing a regulatory body for AI, responsible for monitoring and assessing the risks associated with different technological applications.

The benefits of aligning with international AI standards are numerous. On one hand, it would strengthen North Macedonia's position as a credible partner in international relations. On the other hand, it would stimulate the domestic digital economy by creating a secure and fair regulatory environment. This approach would also enhance trust in new technologies among citizens and investors, while ensuring continued protection of human rights and freedoms, as well as fostering inclusive economic growth.

CONCLUSION

AI is one of the most revolutionary technologies of our time, with the potential to transform how societies, economies, and political systems operate. However, along with its vast opportunities, AI also brings significant ethical, legal, and social challenges that require careful and responsible regulation. In this context, the adoption of international documents by the Council of Europe and the EU marks significant progress in establishing a global legal framework to manage this technology. These documents lay the foundation for the ethical and responsible application of AI while encouraging innovation and protecting human rights and freedoms.

As a member of the Council of Europe and an EU candidate country, North Macedonia has an obligation to use these initiatives to modernize its own legislation. Adopting international AI standards will not only strengthen the country's capacity to handle technological challenges but will also position North Macedonia as a partner in Europe and the global effort to regulate AI.

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TRANSFORMATION OF EMPLOYMENT RELATIONS: ADDRESSING THE CHALLENGES OF AI AND DIGITAL PLATFORM WORKERS

POLITICAL THOUGHT



INTRODUCTION

The world is facing new wave of technological changes that many argue it will greatly influence current employment relations and bring new forms of employment. Today's debate is vastly focused on how technological changes, especially the Artificial Intelligence (AI), will affect future of job and how new technological changes will shape employment relations among governments, companies, employees and social partners.

The COVID-19 pandemic has changed the way businesses operate. Notably, most of the companies had to adapt to new practices, such as remote working, hybrid work and had to introduce new types of regulations induced by the authorities.

Despite blurred opinions about the efficacy of remote/hybrid working, businesses are increasingly introducing digital tools in their workplaces and hiring platform workers in everyday work tasks, both on local (onsite¹) and global (remote²) digital platforms. These new developments offer more opportunities to platform workers in terms of flexibility, pay, and efficiency, but it also had raised questions about statutory social protection frameworks such as minimum wage requirements, health and social protection, as well as right to work and right to collective bargaining.

As elsewhere in the world, the use of algorithmic management systems, including AI systems has made its way to the digital labour platforms, and North Macedonia is not an exception of this trend. In following paper, we examine how AI systems deployed in digital labour platforms can affect fundamental human and worker's rights already granted in national legislative frameworks.

THE STATUS OF THE DIGITAL PLATFORM WORKERS³

The ongoing digitalization in the country has led to a growing demand for online freelance work in general, as an alternative to traditional work, or to compensate for periods of temporary unemployment. However, yet remain many question marks on how such employees are seen and treated by the institutions. The demarcation line

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- 1 Onsite digital platform workers in this paper are meant for workers who use digital platforms for matchmaking of tasks that require physical (onsite) presence, such as: delivery riders, drivers, postal services, cleaning services, repairs and similar.
 - 2 Global digital platform workers in this paper are meant for workers who use digital platforms for matchmaking of tasks that can be done remotely, without physical presence, such as: consultancies, programming tasks, artworks that can be done remotely, digital marketing and social media related works and similar.
 - 3 The definition for 'Digital Platform Worker' in this paper will be used from [EUROSTAT](#): 'a person who has worked for pay or profit in tasks or activities organized through an internet platform or a phone app, for at least one hour in at least one week, during the reference period'.

between employment and self-employment is very difficult to draw. Although there are persons labelled as self-employed, in reality, are employees. These bogus self-employed, of course, are to be included into the scope of application of labour law, even if it might often be very difficult to exactly identify their status (Sánchez, 2021), this becomes knotty when job tasks, payments and terms and conditions are managed by algorithm. At least in theory, the activities carried out by platforms may be classified as intermediation between the contracting parties, buyers (“requesters”) and workers (“sellers” or “providers”), according (De Stefano and Aloisi, 2018). Having observed the activities and the contracting parties aforementioned, there is no clear distinction among the categories and terms in the regulatory corpus that applies for most of the platform workers.

Informal employment practices, which are understood as a concept where workers are not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits (advance notice of dismissal, severance pay, paid annual or sick leave, etc.) are common in this type of business are recognized (OECD/International Labour Organization, 2019).

Macedonian Labour code applies only to the private sector, while the public sector or employees at state agencies fall under the Law on administrative workers and Law on employees in the public sector. Self-employed workers, which is the category that platform workers should fall into, are beyond the reach of the current labour law.

Lack of labour legislation creates ambiguity in contracting relations and keeps most of the platform workers in informality. Moreover, currently, there are no platform worker's representation bodies which can speak for platform worker's demands and needs. The reluctance to form such bodies, to some degree also comes from the fear of being under investigation by tax and labour authorities, as a significant part of the workers are working informally. Status of the representation bodies of platform workers, which could facilitate collective bargaining and improvement of working conditions, remains unclear in the country.

THE ADVENT OF THE ARTIFICIAL INTELLIGENCE ERA

There is a global consensus that Artificial Intelligence (AI) must be used responsibly if the societies wish to see the benefits of it and avoid risks that may arise from the use of AI systems. Various international entities and governments address the domain of AI, and try to provide definitions and normative reflections that may guide governments in dealing with the known and unknown impact of the AI systems.

For example, UNESCO in its Recommendation on the Ethics of Artificial Intelligence (2021), defines the Artificial Intelligence systems as ‘information-processing technologies that integrate models and algorithms that produce a capacity to learn and to perform cognitive tasks leading to outcomes such as prediction and decision-making in material and virtual environments.’ Meantime, the European Union is taking a significant step towards enacting comprehensive rules for trustworthy AI, through Artificial Intelligence Act⁴. In a broad sense, the AI refer to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals, COM (2018).

Digital labour platforms in its operations utilize AI tools and AI assisted algorithmic management systems that are used to monitor the performance of the so-called individual contractors/sellers/users registered on the platform. Such ‘contractors’ are subjected to tight supervision without enjoying the same labour protections as traditional employees, and their work is continuously evaluated⁵. Algorithmic management systems are also used to identify potential candidates for job interviews, allocation of work schedules, predicting the employee churn, evaluating contractor’s productivity, calculating the remuneration, ranking and comparing contractors against their peers and even terminating contracts.

Algorithmic management systems also use computer-programmed procedures for the coordination of labour input in an organisation, Baiocco et al (2022), and most recently, there are numerous reports about use of automated functions and AI assisted functions across many labour platforms. Other paper, proposes a classification of algorithmic management, based on the levels of automation when implementing management functions. The classifications vary from: No Automation to Full Automation, where algorithmic system direct, evaluate and discipline without the possibility of the humans to intervene, Wood (2021).

4 As part of EU digital strategy, the EU wants to regulate artificial intelligence (AI) to ensure better conditions for the development and use of this innovative technology. As of the end of January 2024, the AI Act was not enacted.

5 Journal articles find reports where workers performances were evaluated by algorithmic management systems, cases of failing to comply with the EU algorithmic transparency requirements, when onsite platform workers were fired through algorithmic decisions, also known as robo-firing.

Figure 1: Classification of levels of automation in algorithmic management

Level of automation	Narrative definition	Direction, Evaluation, Discipline	Review (in case of system failure)	Mode specific (human manager can ignore/overrule system)
No automation	Full-time performance by human manager of all aspects of direction, evaluation and discipline	Human manager	Human manager	n/a
Management Assistance	Assistance in either direction, evaluation or discipline with the expectation that human managers perform other management tasks and use own judgement to review, ignore and overrule system.	Human manager and algorithmic system	Human manager	Yes
Partial Automation	Mode specific execution of either direction, evaluation or discipline with the expectation that human managers perform remaining functions.	Algorithmic system or human manager	Human manager	Yes
Algorithmic management				
Conditional Automation	Mode specific execution of direction, evaluation and discipline with the expectation that human managers will respond appropriately to a request to intervene.	Algorithmic system	Human manager	Yes
High Automation	Full-time performance by an algorithmic system of direction, evaluation and discipline without the need for human managers to intervene.	Algorithmic system	Algorithmic system	Yes
Full Automation	Full-time performance by an algorithmic system of direction, evaluation and discipline without the possibility for human managers to intervene.	Algorithmic system	Algorithmic system	No

Source: Wood (2021)

Note: Adapted from the 2014 Classification of self-driving vehicles developed by the Society of Automotive Engineers. The management functions are grouped, in Wood's (2021).

Latest developments in the field of Artificial Intelligence where systems with high automation are in place, put pressure on international labour standards, including the one from the International Labour Organisation Conventions (ILO, 2022) signed by member states, where fundamental rights such as freedom of association and the effective recognition of the right to collective bargaining and safe and healthy working environment are challenged by those systems. Moreover, high automation in the

management of workers with the goal of optimised productivity can lead workers to compete against each other in order to climb higher on the rating lists, and work under unhealthy and unsafe conditions. Hence, the need for increased levels of transparency and oversight of AI systems by governments is needed to mitigate the threats and risks that may occur in the implementation of such systems within digital labour platforms.

A FRAMEWORK FOR ACTION

It is of great importance that governments oversee the implementation and enforcement of AI systems in order to ensure that human rights and freedoms, democracy, and 'the rule of law' are respected in line with the international declarations and national laws. One such is the Universal Declaration of Human Rights, where [Article 23](#) stipulates that 'everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment; everyone, without any discrimination, has the right to equal pay for equal work; everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection and everyone has the right to form and to join trade unions for the protection of his interests'. Moreover, many countries in its constitutions and national laws prescribes UN Declarations on workers fundamental rights and equal access to work and decent payment. Macedonian Constitution declares human rights in [article 32](#), and are aligned with the Universal Declaration of Human Rights. Having this in mind, deployment of algorithmic management systems on digital labour platforms without legal frameworks and guidelines, may damage fundamental human rights of the workers in the country and the right to social protection.

Nowadays, most of the digital labour platforms use algorithmic management systems, such as customer ratings, which turns customers feedback into algorithmic evaluation of worker's performance. The analysis done by Chan (2022) finds that the platform workers were anxious about metrics, primarily because of the disciplinary outcomes, that are, the threat of job loss.

By mid 2024, Macedonian policy makers haven't prepared policies or guidelines that guard digital platform workers and right to protection at work for those working on digital labour platforms. Additionally, there are no AI frameworks that can mitigate the risks of harms that can cause AI systems when deployed in algorithmic management labour platforms. The only legal framework in force that offers some degree of

protection is the Law on Personal Data Protection⁶, which has provisions and addresses 'data minimization' i.e. collect only adequate and relevant data, 'the existence of automated decision-making, including profiling' and article 26 of the law stipulates the right of the data subject not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects. The later, provides an option for platform workers a degree of protection, in a sense that they need to provide consent for decisions that will be made solely by algorithmic management systems.

STEPS FORWARD: PUBLIC PARTICIPATION AND MAKING OF LEGAL FRAMEWORKS

The role of public participation in law-making can be observed through many functions, and those can vary from providing knowledge, experience, information or even innovative process that can be used as basis for decision, partnership or dialogue among parties, ex-ante legal protection and similar mechanisms. In all cases, public participation is welcomed and considered as an additional tool of open and transparent public administration (PA) writes Rakar (2017). In order to tackle the issues with the AI and new forms of employment, PA needs to identify the forms and methods of public participation that can be used as tools to deliver effective legal adjustments necessary to ensure meaningful outcomes.

The Macedonian legal frameworks, particularly in the context of digital platform workers, do not adequately address the existence of this category of workers, nor do they offer public participation tools where this group of workers is recognized and represented.

As can be observed from scientific literature, there is a small number of studies that provide evidence on the use of algorithmic managerial systems in social protection for digital platform workers. One good example is the Spain's 'Rider's Law' which came into force in August 2021. The law was adopted through a *tripartite social dialogue* and introduced series of novelties such as 'algorithmic transparency', obligation to inform workers' legal representatives about the inner functioning of the algorithms that may affect working conditions, access to and maintenance of employment status, rules about profiling, and a legal presumption of a dependent employment relationship for digital platform workers in the delivery sector (EU-OSCHA, 2022).

⁶ As of 2022, the [Law on Personal Data Protection](#) is entirely aligned with the the General Data Protection Regulation (Regulation (EU) 2016/679, abbreviated [GDPR](#)).

Introducing social protection schemes that oversee the implementation of AI systems in digital labour platforms would require introduction of new structures within public administration, and redesign of series of legal, ethical and accountability frameworks.

Meanwhile, public administration in the country exhibits limited familiarity and expertise in the domain of artificial intelligence (AI), however it can rely on knowledge and experience from the citizens, businesses and other intermediary bodies such as CSOs, and Chambers of Commerce, actively involved in those activities, and who can take participation in the creation of the legal frameworks, such as laws, guidelines and policies.

CONCLUSION

Platform work is highly diverse and constantly evolving at a fast pace, which creates inconsistency in defining the term “platform work” and challenges traditional legislative frameworks. With the rapid penetration of the internet and digitalization over the last decade, Macedonian citizens are increasingly interested in benefiting from the development of the digital market, thus gaining access to a labor market that offers minimal or no social protection.

With the deployment of AI-assisted algorithmic management systems in the field of platform work, developments are becoming more intricate and may pose threats and risks to both current and future workers in digital labor platforms. Potential risks may include violations of fundamental human rights, workers’ rights, and the right to social protection.

As a response, many countries, especially developed countries, have developed legal frameworks, policies and guidelines in order to minimize the threats that may come from the AI systems. On other side, are the majority of countries, particularly developing countries, which lack capacities to prepare and implement legislative frameworks capable to monitor and oversight AI systems deployed in digital labour platforms. Additionally, there should be developed systems and mechanisms where workers can redress and ask for remedy when their rights are violated.

The literature and policy papers are quite limited in the area of social protection of digital platform workers, while mainly showcases good practices from authorities that oversight data protection laws, institutions in charge of labour, and intermediary bodies such as worker’s unions and chambers of commerce.

Policy makers in the country need to take significant steps in implementing AI frameworks and policy response adequate to ensure certain level of protection. Strengthening the data privacy and social protection systems are key instruments that can promote social protection and protection of worker's rights.

In the domain of digital platform work, it is also important to move towards higher levels of public participation and engagement in order to ensure that policies are not only effective, but also consider the basic fundamental rights and the well-being of the workers. Achieving higher levels of collaboration and empowerment can lead to more ethical deployment of AI tools and a fairer distribution of benefits and social protection in the era of digital economy and AI.

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SHORT BIOGRAPHY



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ARTIFICIAL INTELLIGENCE AND THE FUTURE OF THE LABOR MARKET

POLITICAL THOUGHT



ARTIFICIAL INTELLIGENCE - GENERAL REMARKS

Probably one of the most important questions nowadays is what artificial intelligence truly is and how to define the term to regulate its benefits and risks for society. In a world that is changing rapidly with new innovations and applications emerging almost every day, the key decision makers from United Nation, Council of Europe and European Union have come together and worked hard to regulate artificial intelligence (hereafter referred to as AI). Mostly the term “artificial intelligence” is used as a blanket term for various computer applications based on different techniques, that exhibit capabilities commonly and currently associated with human intelligence. The term “artificial intelligence” was first introduced at the Dartmouth Summer Research Project back in 1956.¹ Globally there is no single unified and accepted definition of artificial intelligence, which makes it harder for organizations to provide legal regulation. The Council of Europe and the European Union have adopted non-binding guidelines for the Member States, but currently, the most critical task is finally adopting obligatory legislation. The major reason for regulating AI stems from the fear of its negative impacts, such as interacting with the privacy data, systems control, filtering of data, labor market, decision making and many other daily activities. So far, the Recommendation of the Committee of Ministers to Member States on the impact of algorithmic systems on human rights² defines the notion of “algorithmic systems” as covering a broad range of AI applications. The Declaration of the Committee of Ministers on the Manipulation Capabilities of Algorithmic Processes³ does not include specific definitions but uses various terms such as “technologies”, “data-based systems” and “machine learning tools”, depending on the specific issues being considered.

Beside the risks, the benefits of using AI are numerous. AI systems can optimize agricultural processes, revolutionize transportation and urban living, help mitigate the effects of climate change or predict natural disasters and facilitate greater access to information and knowledge. Overall, AI systems can have a highly positive impact on society. As a key driver of socio-economic development globally, AI can contribute to alleviating some of the world’s problems and achieving the UN Sustainable

1 A Look Back on the Dartmouth Summer Research Project on Artificial Intelligence, Kent Friel, The Dartmouth, May 2023, available at <https://www.thedartmouth.com/article/2023/05/a-look-back-on-the-dartmouth-summer-research-project-on-artificial-intelligence>

2 Recommendation CM/Rec(2020)1 of the Committee of Ministers to member States on the human rights impacts of algorithmic systems, Adopted by the Committee of Ministers on 8 April 2020 at the 1373rd meeting of the Ministers’ Deputies.

3 Declaration by the Committee of Ministers on the manipulative capabilities of algorithmic processes (Adopted by the Committee of Ministers on 13 February 2019 at the 1337th meeting of the Ministers’ Deputies), Decl(13/02/2019)1

Development Goals.⁴ One of the most significant attributes of AI systems is their potential impact on human health and healthcare systems. Some opportunities provided by AI systems were also evident during the response to the COVID-19 pandemic. AI systems were deployed to study the virus, accelerate medical research, develop vaccines, detect and diagnose infections, predict the virus evolution, and rapidly facilitate the exchange of information.⁵

Since its emergence, artificial intelligence has gone through many cycles of development, but even for the biggest skeptics, the release of ChatGPT by OpenAI seems to represent a huge step forward and a turning point in its development. Meanwhile, experts and the global public have produced many analyses and theories regarding artificial intelligence, ranging from theologically optimistic and hopeful perspectives to those that predict negative scenarios. However, among all those interpretations and predictions, an interesting thesis is that the increased use of artificial intelligence will make humanity more humane, more useful, and more aware. The use of artificial intelligence to perform common or repetitive tasks in everyday life will allow humans to devote themselves to more creative applications and activities both in work and life.⁶

THE CHALLENGES OF REGULATING AI

Due to the fact that until now there has been no single accepted definition of AI, it has been very hard for the lawmakers to adopt legally binding regulation in this field. Despite that, international organizations have accepted that AI should be regulated with compulsory legislative framework. Policymakers encountered significant challenges balancing the need to safeguard citizens and governments from the potential risks posed by AI while also ensuring they can still benefit from emerging technologies. Regarding the European Union AI Act is the name of the forthcoming EU Regulation on Artificial Intelligence that has been discussed and negotiated since 2021. In 2022 all 27 Member States reached a compromise agreement under the Czech presidency of EU Council. In March 2024, the EU Parliament approved the final agreed version of the AI Act, with a view to protect fundamental rights, democracy, the rule of law and environmental

4 "The role of artificial intelligence in achieving the Sustainable Development Goals", Nature, <https://www.nature.com/articles/s41467-019-14108-y>

5 Feasibility study, AD HOC Committee on artificial intelligence CAHAI, Council of Europe, September, 2020

6 Igor Kambovski, Elena Stojanova, Research of the effect of new technologies, with special reference on artificial intelligence and human rights and developing ethical standards for the protection of human rights to the Internet in automatic decision-making, Fondacija za internet i opstestvo Metamorfozis, Skopje, 2024

sustainability from high risk AI, while boosting innovation and establishing Europe as a leader of the field.⁷ The AI Act chooses to regulate AI as a product. The act sets up horizontal rules applicable in both public and private sectors for all AI systems placed on the European Union Internal Market. Additionally, private actors, in line with the UN Guiding Principles on Business and Human Rights, have a corporate responsibility to respect human rights across their operations, products and service. A number of international instruments directly focus on the need for businesses to comply with human rights and ensure responsible technological research and innovation. Over the past years, private actors have shown a strong interest in advancing the responsible development and use of AI systems, acknowledging not only the opportunities but also the risks raised thereby. Private actors have not only contributed to the proliferation of AI ethics guidelines, but some also explicitly argued in favor of a regulatory framework to enhance legal certainty in this domain.⁸

The AI Act entered into force on August 1, 2024, and will be fully applicable two years later, with some exceptions: prohibitions will take effect after six months, the governance rules and the obligations for general-purpose AI models become applicable after 12 months and the rules for AI systems embedded into regulated products will apply after 36 months. To facilitate the transition to the new regulatory framework, the Commission has launched the AI Pact, a voluntary initiative that seeks to support the future implementation and invites AI developers from Europe and beyond to comply with the key obligations of the AI Act ahead of time. The European AI Office, established in February 2024 within the Commission, oversees the AI Act's enforcement and implementation in collaboration with the member states. It aims to create an environment where AI technologies respect human dignity, rights, and trust.⁹ In order to distinguish AI from simpler software systems, Article 3(1) EU AI Act defines an AI system as "a machine-based system that is 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". The EU AI Act establishes obligations for providers, importers, distributors, and product manufacturers of AI systems, with a link to the EU market.¹⁰

7 European Parliament legislative resolution of 13 March 2024 on the proposal for a regulation of the European Parliament and of the Council on laying down harmonized rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts (COM(2021)0206 – C9-0146/2021 – 2021/0106(COD)), available at https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138_EN.html

8 See UN Guiding Principles on Business and Human Rights, particularly principles 18 and 19. See also the OECD Due Diligence Guidelines for Multinational Enterprises and the OECD Due Diligence Guidelines for Responsible Business Conduct.

9 <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>

10 <https://www.whitecase.com/insight-alert/long-awaited-eu-ai-act-becomes-law-after-publication-eus-official-journal>

The AI Act classifies AI according to its risk:

- > Unacceptable risk is prohibited (e.g., social scoring systems and manipulative AI).
- > Most of the text addresses high-risk AI systems, which are regulated.
- > A smaller section handles limited-risk AI systems, subject to lighter transparency obligations
- > Minimal risk is unregulated

High risk AI providers must:

- > Establish a risk management system throughout the high-risk AI system's lifecycle.
- > Conduct data governance, ensuring that training, validation and testing datasets are relevant, sufficiently representative and, to the best extent possible, free of errors and complete according to the intended purpose.
- > Draw up technical documentation to demonstrate compliance and provide authorities with the information to assess that compliance.
- > Design their high-risk AI system for record-keeping to enable it to automatically record events relevant for identifying national level risks and substantial modifications throughout the system's lifecycle.
- > Provide instructions for use to downstream deployers to enable the latter's compliance.
- > Design their high-risk AI system to allow deployers to implement human oversight.
- > Design their high-risk AI system to achieve appropriate levels of accuracy, robustness, and cybersecurity.
- > Establish a quality management system to ensure compliance.¹¹

The Council of Europe also started the regulation process in 2021 with the ad hoc Committee on Artificial Intelligence. In March 2024 the Parliamentary Assembly adopted the proposal on AI Convention. The Convention is drafted on a risk-based approach. The Convention establishes general principles for States rather than for developers, manufacturers or users of AI systems like in the EU AI Act. The Convention is open for signing not just for the members of the Council of Europe, but also for non-members as well as to the European Union. The International Convention is a milestone for a harmonized AI regulation throughout the world. The *Council of Europe Framework Convention on artificial intelligence and human rights, democracy, and the rule of law* was adopted in Strasbourg during the annual ministerial meeting of the Council of Europe's Committee of Ministers, which brings together the Ministers for Foreign Affairs of the 46 Council of Europe Member States. In order to ensure its effective implementation, the convention establishes a follow-up mechanism in the form of a Conference of the Parties. Finally, the convention requires that each party establishes

¹¹ <https://artificialintelligenceact.eu/high-level-summary/>

an independent oversight mechanism to oversee compliance with the Convention, and raises awareness, stimulates an informed public debate, and carries out multi-stakeholder consultations on how AI technology should be used. The framework convention will be opened for signature in Vilnius (Lithuania) on September 5 on the occasion of a conference of Ministers of Justice.¹² Regarding the implementation of the Framework Convention activities within the lifecycle of AI systems must comply with the following fundamental principles: Human dignity and individual autonomy, equality and non-discrimination, respect for privacy and personal data protection, transparency and oversight, accountability and responsibility, reliability and safe innovation.

The European Court of Human Rights has not yet developed any specific case law on AI systems and at the moment there are no known relevant cases pending before the Court either. Existing case law in connection with this topic concerns algorithms in general and violations of Article 8 of the Convention (privacy) or Article 10 (freedom of expression) and, in a more indirect way, Article 14 (non-discrimination) on cases dealing with e.g., mass surveillance, the editorial responsibility of platforms and electoral interference. In *Sigurður Einarsson and others v. Iceland*¹³, a prosecuting authority used statistical data processing techniques to process large amounts of information and establish evidence in an economic and financial case. The question raised in this case concerned access by the defense to the data from which incriminating evidence was inferred. Other decisions of the Court have dealt with the consequences of algorithmic mechanisms used to prevent the commission of infringements. In 2006, the Court stated in its *Weber and Saravia v. Germany*¹⁴ judgment that any potential abuse of the state's supervisory powers was subject to adequate and effective safeguards and that, in any event, Germany had a relatively wide margin of appreciation in the matter.

AI AND THE FUTURE OF LABOR MARKET

The labor market in history has proved that it is changing category and workers are always in the process of lifelong learning. The most recent rapid change was seen during the COVID 19 pandemic when 90% of the organizations instituted a hybrid work model that allows employees to work from off-site locations at least for some period of time. The remote work and virtual meetings grew and the shift to e-commerce and other virtual

¹² Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law, Explanatory Report, 33rd Session of the Committee of Ministers (Strasbourg, 17 May 2024), CM(2024)52-final, available at <https://www.coe.int/en/web/portal/-/council-of-europe-adopts-first-international-treaty-on-artificial-intelligence>

¹³ <https://hudoc.echr.coe.int/eng#%7B%22itemid%22%3A%22001-178362%22%7D>

¹⁴ <https://hudoc.echr.coe.int/fre#%7B%22itemid%22%3A%22001-76586%22%7D>

transactions. Zoom Video Conferencing, or just Zoom, is one of the most unambiguous winners of the pandemic with the company's share price increasing by more than 500%.¹⁵ To adapt to the changes new legal acts were adopted for regulating the employment contract for work from home. Some countries made changes in labor laws, while others adopted new laws regulating remote work.¹⁶ During the pandemic, the US labor market saw 8.6 million occupational shifts, 50 percent more than in the previous three-year period. Most involved people leaving food services, in-person sales, and office support for different occupations.¹⁷ Also, the number of companies that closed increased due to the requirements of social distancing.

The use of artificial intelligence will again question the labor market's needs and the skills of the future workers. The wide adoption of AI systems in all domains of our lives also creates new risks to social and economic rights. AI systems are increasingly used to monitor and track workers, distribute work without human intervention and assess and predict worker potential and performance. In some situations, this can also have consequences for workers' rights to decent pay, as their pay can be determined by algorithms in a way that is irregular, inconsistent and insufficient. The discriminatory capacity of AI systems that assess and predict the performance of job applicants or workers can also undermine equality, including gender equality, in matters of employment and occupation. Martin Ford, author of *The Rule of the Robots: How Artificial Intelligence Will Transform Everything*, identifies three areas that are likely to be more resilient to job losses:

1. Jobs that involve genuine creativity, where individuals are tasked with generating new ideas and creating something innovative, like professions in science, medicine and law
2. Jobs that rely on sophisticated interpersonal relationships, such as business consultants and investigative journalists.
3. Jobs that demand high levels of mobility and problem-solving skills such as electricians, plumbers and welders.¹⁸

The technology-driven world means that the use of the AI will substitute work activities that were previously performed by the workers. It is expected that until 2030 they will be shift in work activities mostly in agriculture and manufacturing. The potential impact of automation on employment varies by occupation and sector. Activities most

¹⁵ <https://d3.harvard.edu/platform-digit/submission/how-zoom-won-the-pandemic/>

¹⁶ Biljana Chavkoska, *Work from home-challenges in the period of global pandemic*, published in *Journal of Law and Politics*, Faculty of Law, International Balkan University, Vol. 4, Issue 1, April 2023 p.13-20

¹⁷ <https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america#/>

¹⁸ Martin Ford, *Author of the Rule of the Robots: How artificial intelligence will transform everything*, Basic Books, First edition, 2021

susceptible to automation include physical ones in predictable environments, such as operating machinery and preparing fast food. Collecting and processing data are two other categories of activities that increasingly can be done better and faster with machines. This could displace large amounts of labor for instance, in work with mortgages, paralegal work, accounting, and back-office transaction processing. Jobs in unpredictable environments occupations such as gardeners, plumbers, or providers of child and eldercare will also generally see less automation by 2030, because they are technically difficult to automate and often command relatively lower wages, which makes automation a less attractive business proposition. The estimate is that between 400 million and 800 million individuals could be displaced by automation and need to find new jobs by 2030 around the world.¹⁹ With generative AI, 27 percent of the hours worked in Europe and 30 percent of hours worked in the United States today could be automated by 2030. By 2035, these figures could rise to 45 percent in Europe and 48 percent in the United States reflecting a continuing increase in automation potential in the coming decade.²⁰

China faces the largest number of workers needing to switch occupations - up to 100 million if automation is adopted rapidly, or 12 percent of the 2030 workforce. While that may seem like a large number, it is relatively small compared with the tens of millions of Chinese who have moved out of agriculture in the past 25 years. For advanced economies, the share of the workforce that may need to learn new skills and find work in new occupations is much higher: up to one-third of the 2030 workforce in the United States and Germany, and nearly half in Japan. The United States and Germany could also face significant workforce displacement from automation by 2030, but their projected future growth and, hence, new job creation is higher.²¹ One-third of new jobs created in the United States in the past 25 years were professions that did not exist in areas including IT development, hardware manufacturing, app creation, and IT systems management. Within technological skills, companies reported that their most significant shortages are in advanced IT skills and programming, advanced data analysis, and mathematical skills. Among higher cognitive skills, significant shortfalls are seen in critical thinking and problem structuring, and in complex information processing. The need for data science workers will be very high in United States and labor shortages are to be expected in this profession worldwide. Companies today expect a greater need for physical and manual skills in the future than they previously

¹⁹ <https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages>

²⁰ The economic potential of generative AI: The next productivity frontier," McKinsey, June 14, 2023

²¹ Ibid

anticipated. This trend is in line with the results of other recent skill-focused research led by the World Economic Forum.²²

The fastest-growing roles relative to their size today are driven by technology, digitalization and sustainability. The majority of the fastest-growing roles are technology-related roles. AI and Machine Learning Specialists top the list of fast-growing jobs, followed by Sustainability Specialists, Business Intelligence Analysts and Information Security Analysts. Renewable Energy Engineers, and Solar Energy Installation and System Engineers are relatively fast-growing roles, as economies shift towards renewable energy. Within technology adoption, big data, cloud computing and AI feature highly on the likelihood of adoption. More than 75% of companies are looking to adopt these technologies in the next five years. The data also shows the impact of the digitalization of commerce and trade. Digital platforms and apps are the technologies most likely to be adopted by the organizations surveyed, with 86% of companies expecting to incorporate them into their operations in the next five years. E-commerce and digital trade are expected to be adopted by 75% of businesses. The second-ranked technology encompasses education and workforce technologies, with 81% of companies looking to adopt these technologies by 2027. The adoption of robots, power storage technology and distributed ledger technologies rank lower on the list.²³ Workers in the middle-wage and low-wage payment groups are more likely to lose their jobs or to need to acquire new skills through retraining programs.

One of the major problems with the rising technologies is that more than four billion people, or over half of the world's population are still offline. About 75 percent of this offline population is concentrated in 20 countries, including Bangladesh, Ethiopia, Nigeria, Pakistan, and Tanzania, and is disproportionately rural, low-income, elderly, and illiterate.

The future major challenges for AI and the labor market are:

- > Adapting educational programs to the use of AI, including benefits and risks.
- > Developing in-house training programs, mostly in the IT sector, for online and remote learning of new skills.
- > Adapting the organizational culture of companies, including additional training for skills and new jobs.
- > Making strategic company plans for the effect of AI, including partnering with educational institutions and other shareholders.

²² The future of jobs report 2023, World Economic Forum, May 2023; see also Rui Costa, Christopher A. Pissarides, and Bertha Rohenkohl, "Old skills, new skills: What is changing in the UK labour market?," Centre for Economic Performance, London School of Economics and Political Science, February 21, 2024

²³ Ibid

- Creating strong managements and leaderships programs that can analyze the potential of AI, plan strategic workforce shifts, opening special HR offices for workforce transformation due to the use of AI and Gen AI.
- Developing government examples in public services as an important way to show the path toward human capital development. For example, the French government recently introduced “Albert,” a large language model assistant designed to help civil servants search for information and formulate specific responses.
- Implementing the new EU and Council of Europe regulations for AI to protect human rights, including labor rights, by 2026, and adopting new laws regulating AI and other technologies

CONCLUSIONS

This study has confirmed that AI systems can provide significant opportunities for individual and societal development, as well as for human rights, democracy, and the rule of law. At the same time, it has also confirmed that AI systems can have a negative impact on several human rights protected by the ECHR and other Council of Europe instruments. Due to the rapidly evolving technologies, there is no universally accepted definition of artificial intelligence, which increases the challenges faced by policymakers in adapting obligatory legislation. Recently, the Council of Europe adopted Framework Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law, and the European Union adopted the AI Act, thus for the very first time regulating mandatory use of AI. The Council of Europe’s Framework Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law is the first-ever international legally binding treaty in this field. This is enormous step forward in regulating AI across many sectors such as privacy, data collection, justice, non-discrimination and equality, the labor market and more. The rise of the use of artificial intelligence will again raise questions about the labor market needs and skills required for future workers. The most comprehensive study so far by the McKensey Global Institute estimates that between 400 million and 800 million individuals could be displaced by automation and need to find new jobs by 2030, across major economies such as China, the USA, Germany, and Japan. After the COVID 19 pandemic, this will be the next major challenge for the employees, workers, and labor organizations. With the use of AI and generative AI, it is expected that workers will need to shift jobs and learn new skills adapting to work in sectors such as IT, data science, coding, manufacturing, financial services, energy, and health system. In parallel, companies will face new challenges, such as partnering with educational institutions, offering new online programs and remote work opportunities, retraining employees, and opening special HR offices for AI development. This process will also depend on the strategic plans of company managers and leaders of the companies for automating work processes and integrating AI.

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Perica Sardjoski

AI AS A CATALYST FOR CREATIVITY IN EDUCATION: NAVIGATING FEAR AND UNLOCKING POTENTIAL

POLITICAL THOUGHT



FROM FEAR TO OPPORTUNITY

The integration of artificial intelligence (AI) into education is both exciting and challenging. Throughout history, new technologies have often been met with fear and resistance. As an educator, I sometimes ask my students to picture our ancestors huddled in a cold, dark cave, when suddenly, a bolt of lightning strikes a nearby tree, setting it ablaze. Some, fearful of the flames, see it as a threat and retreat. But others, curious and bold, approach the fire, recognising its potential as a source of warmth and a tool for cooking. By daring to engage with the unknown, this group unlocked the fire's transformative power, forever changing human life. I tell my students that, like fire, any new technology may seem daunting at first, but with an open mind, it can reveal incredible opportunities to enrich our lives and expand what's possible.

Today, we face a similar moment with AI, particularly in education, where it has the power to significantly enhance the learning experience. Rather than replacing creativity, AI can enable educators and students to delve into more meaningful and creative activities, reducing time spent on routine tasks and opening avenues for deeper engagement.

This article demonstrates how AI, when thoughtfully integrated into the classroom, can nurture students' creativity, adaptability, and critical thinking. Using real examples and reflective insights from diverse teaching practices, it showcases methodologies and balanced approaches that responsibly incorporate AI into learning environments, providing students with a powerful tool to navigate and succeed in the 21st century.

THE ROLE OF AI IN FACILITATING CREATIVITY: PRACTICAL CLASSROOM EXAMPLES

AI as a Classroom Assistant for Roleplays, Scenarios, and Interactive Discussions

One of the most engaging ways AI can be integrated into the classroom is through interactive roleplays, scenarios, and discussions. AI serves as a flexible classroom assistant, capable of simulating real-life contexts that allow students to practice communication and empathy. Educators can create historical or fictional scenarios where students interact with AI-powered personas. For instance, students might question an AI impersonation of Leonardo da Vinci about his inventions or converse with a virtual Cleopatra to explore her reign and influence. This interactive approach sparks curiosity and immerses students in the learning experience.

According to research by Stanford's Human-Centered AI (HAI), AI has the unique ability to foster these types of learning interactions, promoting engagement by encouraging students to ask follow-up questions and analyze responses based on historical context¹. By asking students to roleplay and interact in scenarios that mimic real-world situations, AI amplifies their capacity for critical thinking and encourages them to adopt different perspectives. This interactive setup allows students to go beyond memorizing facts and engage in collaborative problem-solving, one of the core skills emphasized in modern education.

AI as a Tool for Developing and Customising Teaching Resources

AI also enhances creativity by helping teachers develop and customise teaching materials. Educators can use AI tools to create up-to-date, personalised lesson plans, interactive worksheets, and visual aids that align with curriculum goals and address the specific needs of their students. This streamlining of resource creation saves hours of preparation time, which can then be reinvested into fostering meaningful interactions and one-on-one support for students.

For example, an AI tool can generate a series of language exercises tailored to different proficiency levels within a class. Rather than using generic exercises, AI enables teachers to target specific skills for each group, offering more focused and relevant learning opportunities. According to a report by the World Economic Forum, AI's ability to create personalised content contributes to more equitable learning experiences by catering to diverse learning styles and needs². This approach not only fosters a more inclusive environment but also allows educators to concentrate on creativity-driven activities that encourage students to express themselves and apply their knowledge practically.

AI in Project-Based Learning (PBL): Enhancing Engagement and Skill Development

Project-based learning (PBL) has gained popularity in modern education for its ability to encourage students to collaborate on complex, interdisciplinary tasks, fostering critical thinking and problem-solving skills. AI serves as a catalyst within this framework, broadening the range of skills involved in PBL and supporting both students and educators through various stages of the project. For instance, students conducting a research project on climate change might use AI to gather and synthesize data on

¹ Stanford University Human-Centered Artificial Intelligence. *AI Will Transform Teaching and Learning. Let's Get It Right.* (2023). Available at: <https://hai.stanford.edu/news/ai-will-transform-teaching-and-learning-lets-get-it-right>.

² World Economic Forum. *The Future of Learning: AI is Revolutionizing Education 4.0.* (2024). Available at: <https://www.weforum.org/stories/2024/04/future-learning-ai-revolutionizing-education-4-0/>.

CO-emissions across regions. This not only helps them develop data literacy but also reinforces their ability to critically analyze information.

AI also transforms the assessment process in PBL. Traditionally, assessments are summative—students submit a final project, which is graded by the teacher. However, AI enables formative assessment, allowing students to receive continuous feedback, often through peer evaluation. With AI tools, students can create digital outputs that are then evaluated by their peers using rubrics with clearly defined criteria. This process includes presenting their work to the class, which requires deep understanding and active engagement. Peer evaluation not only fosters a collaborative learning environment but also encourages students to reflect on their own progress, creating a richer and more meaningful learning experience. According to Microsoft’s research, AI in formative assessments enhances learning outcomes by providing real-time feedback, helping students identify their strengths and areas for improvement³.

This shift from a purely summative to a formative assessment process ensures that students remain engaged throughout the project lifecycle, rather than only at the end. It allows them to develop a sense of ownership over their learning, becoming more proactive in addressing feedback and refining their approach. Integrating AI into PBL can motivate students to move beyond superficial understanding, encouraging them to apply their knowledge creatively and make meaningful connections across subjects and real-world contexts.

A BALANCED APPROACH: TEACHING CREATIVITY AND SOFT SKILLS ALONGSIDE AI

While AI offers remarkable opportunities for enhancing creativity, a balanced approach in the classroom is essential. Creativity, according to Bloom’s taxonomy, is often seen as the culmination of lower-order thinking skills like understanding, applying, and analyzing. To truly develop creativity, students must first build a foundation of these essential skills, which AI alone cannot provide. In applying Bloom’s taxonomy to AI integration, it’s crucial to ensure that students have a solid grounding in foundational skills—such as comprehension and application—before moving into AI-driven tasks. For example, before introducing AI tools for a project, educators should focus on reinforcing students’ abilities to analyze information independently and grasp key concepts without digital assistance.

³ Microsoft Education. *Collaborating to Bring AI Innovation to Education*. (2023). Available at: <https://www.microsoft.com/en-us/education/blog/2023/06/collaborating-to-bring-ai-innovation-to-education/>.

This progression not only strengthens their foundational knowledge but also prepares them to engage more meaningfully with AI. By sequencing skill development in this way, AI can serve as an enhancement to students' abilities, rather than a crutch, allowing them to apply their knowledge creatively and critically once they begin working with AI technologies.

This idea echoes Sir Ken Robinson's renowned TED Talk, *Do Schools Kill Creativity?*⁴, where he argues that true creativity flourishes when students are equipped not just with tools, but with a strong foundation of skills and the freedom to explore ideas. AI, when used excessively or without structure, can potentially shortcut the learning process, bypassing the development of these core skills.

The goal of education, therefore, should be to use AI as a supplement, not a replacement, for established teaching practices that foster foundational skills. For example, before students begin using AI in PBL projects, teachers should ensure they have a strong understanding of research methodologies and basic analytical skills. This approach aligns with the *Harvard Business Review's* findings on how AI can help students develop emotional intelligence by freeing them from repetitive tasks, allowing more focus on interpersonal skills and critical thinking⁵.

The balance is crucial. AI should act as a facilitator for creativity, providing students with new tools and perspectives, but it should not replace the hands-on learning experiences that help them build foundational competencies. Educators should focus on teaching students to engage with AI thoughtfully and responsibly, an approach that can be shared with other educators through professional development and training sessions. Emphasizing skills like teamwork, empathy, and adaptability helps students develop the uniquely human qualities that will be essential in an increasingly automated world.

LOOKING AHEAD – PREPARING FOR A FUTURE WHERE CREATIVITY MATTERS MOST

The future job market will demand far more than merely technical skills; creativity, adaptability, and ethical decision-making will be crucial for students as they navigate

4 Robinson, Ken. *Do Schools Kill Creativity?* TED Talk (2006). Available at: https://www.ted.com/talks/sir_ken_robinson_do_schools_kill_creativity?subtitle=en.

5 Harvard Business Review. *Can AI Teach Us How to Become More Emotionally Intelligent?* (2022). Available at: <https://hbr.org/2022/01/can-ai-teach-us-how-to-become-more-emotionally-intelligent>.

careers influenced by AI and automation. The responsibility of educators extends beyond teaching content; it includes preparing students to think independently and use AI as a tool to enhance their capabilities, rather than as a crutch.

Both Microsoft and the World Economic Forum have highlighted the need for digital literacy alongside creative problem-solving skills to equip students for future roles⁶ ⁷. Students must learn to collaborate with AI, leveraging it for efficiency while also applying human judgement and critical thinking. By fostering a mindset of adaptability and creative exploration, educators can prepare students to thrive in a rapidly changing world.

To this end, teachers should gradually introduce AI into their teaching practice, allowing students to understand the technology's potential while learning the importance of ethical and responsible usage. In this way, they become not only consumers of technology but also empowered, critical thinkers who understand its implications.

While AI holds great potential to enhance learning, it's important to acknowledge the disparities in access to technology that exist across different schools and socio-economic contexts. Not all students and schools have equal access to AI tools, which can impact the ability of underserved communities to benefit fully from these advancements. Ensuring that AI integration is equitable requires investment in resources and training, as well as partnerships with technology providers to support low-cost or subsidized access to AI tools. The World Economic Forum emphasizes that AI should support equitable education for all learners, which means that educators, policymakers, and stakeholders must work collaboratively to bridge these gaps. By advocating for resource equity, educators and stakeholders can help create a more inclusive educational environment where all students have the opportunity to develop the skills needed to thrive in an AI-driven world.

AI AS A TOOL FOR CREATIVE GROWTH, NOT A REPLACEMENT

AI in education is at a crossroads. As with any powerful tool, its impact depends on how we choose to use it. Like fire, AI has the potential to illuminate new pathways in education, provided we adopt it with courage, responsibility, and foresight. AI is not a

⁶ Microsoft Education. *Explore Insights from the AI in Education Report*. (2024). Available at: <https://www.microsoft.com/en-us/education/blog/2024/04/explore-insights-from-the-ai-in-education-report/>.

⁷ World Economic Forum. *Shaping the Future of Learning: The Role of AI in Education 4.0*. (2024). Available at: <https://www.weforum.org/publications/shaping-the-future-of-learning-the-role-of-ai-in-education-4-0/>.

substitute for the human elements of teaching and learning; rather, it is a resource that can enhance creativity, facilitate engagement, and foster deeper understanding.

Thoughtful integration of AI into classrooms can empower students to move beyond routine tasks and explore the full spectrum of their creative potential. Educators play a crucial role in guiding students toward ethical and creative use, ensuring that AI becomes a positive force in shaping the learners of tomorrow. With balanced implementation, AI will serve as a catalyst for growth, helping students and teachers unlock new heights of imagination, curiosity, and innovation.



SHORT BIOGRAPHY



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ARTIFICIAL INTELLIGENCE IN EDUCATION: WHEN OPPORTUNITIES LOOK LIKE THREATS?

POLITICAL THOUGHT



INTRODUCTION

Artificial intelligence (AI, hereinafter referred to as AI) is a technological trend that has seen significant growth and impact on all aspects of human life in recent years. From basic assistance in performing everyday activities, through the automation of complex processes, to the transformation of entire industries, the scope of its application is constantly expanding. Forecasts indicate that this trend will not slow down, but on the contrary, its impact will continue to grow and penetrate new spheres of human activity.

One area that is not immune to this revolution is education, both formal and informal. Students, teachers, and professors globally are increasingly using AI as a tool to improve their work, access information, and facilitate the learning and teaching process.

But while the benefits of AI in education are undeniable, its application is not without controversy and challenges. With each new opportunity that AI offers, new questions and dilemmas arise that require attention. Some of them concern: How exactly is AI being used? Is its use ethical? Does the technology facilitate or encourage creative thinking? Does it disrupt the traditional relationship between teacher and student? When does the use of AI go from an advantage to a potential threat, and what long-term consequences might it cause?

These questions will be the main guiding principles of this text. By analysing the opportunities, threats, and ethical dilemmas associated with AI in education, I will try to offer answers. The intention is to show how this technology can be used in a responsible way to improve education, without jeopardizing traditional values and the human factor that remains crucial in the learning process.

In times of rapid technological change, it is essential to think about the long-term balance between innovation and responsibility. Through such a balance, AI can be not only a useful tool, but also a driver for creating a better and more accessible education system.

WHAT'S HAPPENING GLOBALLY?

Global trends show that AI has enormous potential to transform education, but they also point to the need for careful management of the technology to ensure that the benefits are available to all learners. Below is an overview of some of the most significant global trends in the use of AI in education.

1. Adaptive Learning Systems

AI-powered adaptive learning systems enable the creation of personalized learning paths that adapt to students' individual needs and learning styles. These systems collect and analyse data on students' progress, offering personalized assignments and recommendations that help them develop at their own pace. Companies like *Dream Box*, *Knewton*, and *Smart Sparrow* are leading the way in this sector, indicating the potential for applying such technologies to national education systems.

2. Virtual Tutors and Intelligent Assistants

Virtual tutors and intelligent assistants, such as *IBM Watson Tutor* and *Duolingo Bots*, help students learn through interactive questions and answers, adapting their methods to the student's level of knowledge. Virtual tutors are particularly popular in foreign language learning, but they also find application in subjects such as math and science, where complex concepts need to be explained.

3. Automation of administrative tasks

One of the significant contributions of AI to education is the automation of administrative tasks, such as marking tests, organizing classes, and monitoring attendance. For example, *Gradescope*, an AI-powered tool, automatically grades student work, saving teachers time and reducing the possibility of errors. This gives teachers more time to support students and prepare creative teaching activities.

4. Data Analytics to Improve Educational Outcomes

The use of AI-based analytics, known as *Learning Analytics*, identifies trends and challenges facing students. These tools analyse data from learning platforms to uncover each student's weaknesses and potential, offering additional resources or approaches to overcome them. For example, *Civitas Learning* and *Edmentum* use AI to predict risks to student success and recommend interventions.

5. Developing soft skills and critical thinking

Some AI education platforms focus on developing soft skills, such as teamwork, communication, and critical thinking, through simulations and scenarios that prepare students for real-world challenges. For example, apps like *Mursion* provide virtual simulations where students can tackle real-world situations, enabling the development of skills that are important for employment and personal development.



THE POTENTIAL OF NORTH MACEDONIA FOR IMPLEMENTING TRENDS IN AI

The first challenge that education in our country faces not only in terms of the use of AI, but also of information technology in general, is **technological infrastructure and accessibility**. Many schools in the country lack basic technological infrastructure, such as computers and stable internet connection.

Furthermore, **the expertise of teaching staff** is also a challenge. The COVID-19 pandemic has shown the unwillingness of the education system and teachers to quickly adapt to distance learning without a noticeable decrease in quality. Many teachers do not have sufficient experience and knowledge to effectively use new technologies.

Support in policies and strategies is something that should enable and facilitate the use of AI in education. The integration of AI requires well-defined regulations and guidelines that will ensure equitable access, protection of student data and ethical use of AI tools. Currently, there are countries in Europe and the world that are introducing pilot tests for AI, such as Italy where the use of AI will be introduced in 4 regions and 15 schools.¹

Currently, there is no policy or strategy for AI in education in North Macedonia. A draft document for a National ICT Strategy was developed in 2022², which unfortunately has not been adopted so far. It has a small section dedicated to the use and application of AI. However, in October 2024, the new government announced the process for starting the creation of the new National ICT Strategy³. Finally, in 2021, the Fund for Innovation and Technological Development established a working group to develop a National AI Strategy, but there is no information on the progress of the process.

CASE STUDY ON POLICY IMPLEMENTATION AND STRUCTURED APPROACH IN THE FIELD OF AI

There are several countries around the world that are at an advanced level of testing, using and investing in the use of AI. For this text, I will refer to the United Kingdom.

1 Italy pilots AI in schools looking to boost tech-based learning - <https://www.euronews.com/next/2024/09/26/italy-pilots-ai-in-schools-looking-to-boost-tech-based-learning>, accessed on 14.11.2024

2 Draft document of the [Национална ИКТ стратегија](#)

3 Почнува изработката на Национална ИКТ стратегија, како клучен документ за дигитална трансформација - <https://netpress.com.mk/pochnuva-izrabotkata-na-nacionalna-ikt-strategija-kako-kluchen-dokument-za-digitalna-transformacija/>, accessed on 14.11.2024

Immediately after the launch of ChatGPT and the LLM model, the United Kingdom has adopted a National AI Strategy whose main goal is for Britain to be a leader in the field of AI in the world in the next 10 years. There are several areas in it that are intended for education:

1. AI Skills and Talent Development

Programmes that aim to create a diverse AI-trained workforce, such as postgraduate courses for conversion to AI and data science including scholarships for underrepresented groups.

2. National Centre for Computer Science Education (NCCE)

To foster interest in AI at an early age, the NCCE offers accessible educational programmes in the fundamentals of computer science and AI for students, building a future-ready workforce. The government is also working with the NCCE to provide clear pathways to careers in AI, making AI education more engaging and inclusive.

3. AI Literacy for Educators and Businesses

The strategy recognises the growing interest in training that will enable non-technical employees and educators to understand and use AI tools effectively.

4. Government Support for AI in Research and Innovation

The National AI Research and Innovation Program encourages collaboration between academia, government, and industry to develop interdisciplinary research on AI applications. The strategy aims to translate this knowledge into real educational tools and frameworks that can improve the educational process, assessment methods, and access to resources.

In this regard, the British government announced in September 2024 that it would invest £4 million in a new project that would seek to integrate artificial intelligence into education.⁴ The goal of this investment is to reduce the administrative burden on teachers, allowing more time for face-to-face teaching. By providing high-quality teaching materials generated by artificial intelligence, teachers can better manage their time to improve educational outcomes.

⁴ UK Government invests 4 Million in AI in Education - <https://www.openaccessgovernment.org/uk-government-invests-4-million-in-ai-in-education/182156/>, accessed on 14.11.2024

One of the main features of the project is the development of a “content store” which will contain educational documents such as lesson plans and student assessments. This data will be available to artificial intelligence (AI) developers to train models capable of creating accurate, contextually appropriate teaching materials.

The main objectives of the content repository include:

- > **Marking and feedback:** AI tools will be developed to automate and enhance the grading process, freeing teachers from hours spent marking student work.
- > **Lesson creation:** AI-generated lesson plans and activities will be tailored to the specific needs of teachers, allowing for more creative and individualised instruction.
- > **Administrative support:** Teachers will benefit from tools designed to ease the burden of routine administrative tasks, allowing them to focus on student engagement.

AI OPPORTUNITIES IN THE EDUCATION SYSTEM OF NORTH MACEDONIA

Undoubtedly, Artificial Intelligence (AI) can have a significant impact in improving the education system in North Macedonia. Through various applications, AI can enable personalized learning, support for teachers, improved accessibility for vulnerable groups, and the development of skills that will be relevant for the future. #Here is how each of these aspects can contribute to better education:

1. Personalized learning

AI offers the ability to tailor teaching methods to the individual needs and abilities of each student. By analysing data on student performance, progress, and learning styles, AI can create personalized lesson plans and activities that motivate students and allow them to learn at their own pace. In this way, AI can identify students’ strengths and weaknesses, tailoring instruction to their specific needs, resulting in improved academic performance and higher levels of student confidence. However, this requires creating complex databases and collecting information about each student individually so that AI can generate solutions that are based on real data rather than assumptions.

2. Teacher Support

Teachers can significantly benefit from AI technologies, which automate routine tasks such as assessment, student data management, and the creation of teaching materials. By freeing themselves from these administrative responsibilities, teachers will be able to focus more on creative and interactive activities, as well as on direct work with

students. This is especially important for our country, since one of the greatest burdens on teachers is the administrative responsibilities they have. In addition, AI can offer tools for professional development for teachers, allowing them access to personalized training and feedback on their work, which will increase the quality of their teaching and improve student learning.

3. Improved accessibility to education for vulnerable groups

One of the most important opportunities of AI is to make education more accessible to vulnerable groups, such as students with disabilities or those from rural and underdeveloped areas. AI can offer support through tools such as translation of teaching materials, text explanations for students with hearing and visual disabilities, and online classrooms that are available in multiple languages. In addition, AI can help create virtual classrooms and distance learning resources that will enable students from rural areas to have equal access to quality education.

4. Developing skills for the future

As technology becomes increasingly important in various industries, the education system needs to prepare students with skills that will be relevant to the job market of the future. AI can be used to teach students the basics of programming languages, data analysis, and digital literacy, which will allow them to acquire skills that are crucial for the modern digital world. Through simulations, projects, and virtual practices, AI can offer learning based on solving real problems, preparing students for fast-growing industries and emerging professions.

THREATS AND ETHICAL DILEMMAS IN THE USE OF AI IN EDUCATION

While artificial intelligence (AI) has the potential to bring significant improvements to the education system, its use also raises serious threats and ethical dilemmas. It is these challenges, such as data privacy, technology dependency, and job loss, that require careful consideration and responsible management to ensure that AI benefits everyone in the educational process.

Data Privacy and Security

One of the biggest ethical dilemmas when using AI in education is the issue of protecting the privacy and security of student data. AI systems typically process and analyze large amounts of personal data to provide personalized learning, but this data

can be exposed to risks of unauthorized access and misuse. To protect students, strict security measures are needed, as well as clear rules and regulations that will govern the collection, processing and storage of data. If these measures are not respected, there is a real risk of violating student privacy and potentially impacting their safety.

Technology Dependence

With the widespread integration of AI into education, there is a risk that schools and teachers will become overly dependent on technology, which could diminish core educational values such as critical thinking and interpersonal skills. If the teaching process relies solely on AI, there is a risk that students will become dependent on algorithms and digital tools, rather than developing their own problem-solving and critical thinking skills. To avoid this, it is necessary to use AI as a complementary tool, not as a replacement for teachers and traditional education.

Job losses

The automation of certain teaching and administrative tasks through AI may lead to a reduction in the need for certain professions in education. For example, by automating the assessment process or lesson planning, it may create the impression that some teachers or administrative staff are less necessary. This can cause insecurity among employees and affect the education community. Therefore, it is important that the integration of AI is done carefully, emphasizing that AI should facilitate, not replace, human labour in the education system.

RECOMMENDATIONS

In light of the challenges, opportunities and ethical dilemmas associated with the integration of artificial intelligence (AI) in the education system, the following recommendations aim to ensure the responsible and effective application of AI in education in North Macedonia.

Establish clear policies and regulations for the protection of student data

To safeguard student privacy, it is essential to develop strict regulations and security standards for the collection, storage and processing of data. Additionally, transparency in how data is used is crucial to fostering trust among parents and students.

Integrate AI as an addition, not a replacement for the human factor

It is important that AI is used to support teachers, not to replace them. Teachers and AI should work together, where AI will enable the automation of routine tasks, while teachers will focus on interacting with students and creating creative educational activities. This recommendation implies training and development of teachers in the effective use of AI tools.

Providing continuous training and professional development for teachers

For the effective application of AI in education, teachers should have access to regular training that will help them acquire skills to work with new technologies. Professional development programs should include practical training in the use of AI tools in teaching, as well as an understanding of the ethical aspects related to AI.

Monitoring and evaluating the effects of AI in education

It is necessary to regularly monitor and evaluate the impact of AI on the educational process and student outcomes. This can be achieved by establishing independent bodies that will analyze whether AI contributes to improving educational outcomes and whether ethical dilemmas are effectively addressed.

