

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF WORK IN SLOVENIA: AN EXPERT SURVEY ON COMPETENCES, EDUCATION AND PERCEIVED IMPACTS OF AI

Petra Cajnko¹, Robert Repnik¹, Eva Klemenčič^{1,2}, & Matej Mencinger³

¹*Faculty of Natural Sciences and Mathematics, University of Maribor (Slovenia)*

²*Faculty of Energy Technology, University of Maribor (Slovenia)*

³*Faculty of Civil Engineering, Transportation Engineering and Architecture,
University of Maribor (Slovenia)*

Abstract

The rapid development of Artificial Intelligence (AI) is transforming organisations, labour markets and the skills required for the future workforce. This paper presents the results of a pilot empirical study examining expert perceptions of AI competences, organisational adoption, productivity impacts, risks, and the role of education and public policy in Slovenia. The study is based on a survey of 19 experts from academia, industry and the public sector. Data were collected using a structured questionnaire and analysed using descriptive statistics on a five-point Likert scale, including comparison across thematic dimensions. Results indicate high levels of self-assessed AI expertise and increasing integration of AI tools into professional practice. Experts perceive AI as a strong driver of productivity and innovation, while simultaneously expressing concerns regarding data protection, interpretability and regulatory preparedness. The highest levels of agreement were observed in the areas of productivity and education, whereas organisational readiness and governance were identified as key challenges. Although limited by sample size, the study offers exploratory empirical insights and provides a foundation for future research on AI-driven workforce transformation in Slovenia.

Keywords: *Artificial Intelligence, future of work, AI competences, lifelong learning, workforce transformation, expert survey.*

1. Introduction

Artificial Intelligence (AI) is rapidly transforming organisations, labour markets and the skills required for the future workforce. Advances in machine learning and automation enable organisations to optimise processes, improve decision-making and increase productivity (OECD, 2023). At the same time, AI is reshaping job tasks and accelerating the need for upskilling and reskilling across sectors (World Economic Forum, 2025). Rather than replacing entire occupations, AI is increasingly automating specific tasks and contributing to the emergence of hybrid human–AI roles. This shift highlights the growing importance of lifelong learning and continuous professional development (OECD, 2023). However, AI adoption also raises concerns related to job displacement, skills gaps, data protection and ethical governance (Gmyrek et al., 2025). In response, policymakers have introduced regulatory and strategic frameworks to support responsible AI deployment. The European Union’s Artificial Intelligence Act promotes a risk-based regulatory approach (European Union, 2024), while UNESCO (2021) emphasises transparency, fairness and human oversight. Education systems are also expected to play a key role in developing AI-related competences and supporting workforce transformation (European Commission, 2021; n.d.). Within this context, understanding expert perspectives is particularly valuable, especially in smaller national environments such as Slovenia. This study therefore examines expert perceptions of AI competences, organisational adoption, productivity impacts, risks, education and policy support in order to better understand the role of AI in shaping the future of work.

2. Research design and objectives

The purpose of this study is to explore expert perceptions of Artificial Intelligence (AI) and its implications for the future of work in Slovenia. Given the limited national empirical evidence, the research adopts an exploratory approach focusing on key dimensions of AI adoption and workforce transformation. The study examines AI competences, organisational integration, productivity impacts, perceived risks, and the role of education and public policy. By analysing these dimensions, the research aims to provide an integrated overview of how AI is currently perceived by experts and how these perceptions relate to broader labour market and educational challenges.

The study addresses the following research objectives:

1. To analyse self-perceived AI competences among experts.
2. To examine the level of AI adoption in organisations.
3. To evaluate perceived impacts of AI on productivity and work processes.
4. To identify perceived risks and ethical challenges associated with AI.
5. To assess readiness for education, training and policy support.

These objectives structure the empirical analysis presented in the following sections.

3. Methodology

This study adopts a quantitative, exploratory research design based on a structured online survey aimed at capturing expert perceptions of Artificial Intelligence and its implications for the future of work in Slovenia.

Data were collected using a questionnaire specifically developed for this study. The survey included 13 questions and 51 variables covering key thematic dimensions: demographic and professional background, AI competences, organisational use of AI, perceived productivity impacts, risks and ethical challenges, education and training readiness, future labour market expectations, and support for public policy and regulation. All attitudinal items were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), enabling consistent measurement and comparison across dimensions. The questionnaire was administered online to ensure efficient data collection.

The study used a purposive sample of professionals with experience in artificial intelligence. The final sample included 19 AI experts from academia, industry and the public sector, working in roles such as researchers, developers, managers and consultants. Although limited in size, the sample provides relevant exploratory insights from knowledgeable participants.

Data were analysed using descriptive statistics, including mean values and frequency distributions. In addition, individual Likert-scale items were grouped into thematic dimensions representing key areas of analysis: AI competences, organisational adoption, productivity impacts, risks and ethical concerns, education and training readiness, future labour market expectations and policy support. Mean values were interpreted both at the item level and at the dimension level, enabling comparison of overall trends across key thematic areas.

4. Results

This section summarises the main findings of the expert survey in line with the research objectives.

Respondents reported high levels of self-perceived AI expertise. Most agreed that they possess strong knowledge of AI and machine learning, are capable of designing AI projects and regularly follow developments in the field. This confirms that the study reflects informed expert perspectives. AI is already actively used in professional practice. Participants frequently reported the use of advanced AI tools and involvement in AI-driven projects and decision-making. However, the level of organisational integration varies, indicating uneven adoption across sectors.

Experts expressed a strongly positive view of AI's impact on productivity. Most respondents agreed that AI improves efficiency, enhances project outcomes and enables more flexible work processes. The perceived benefits of AI were generally considered to outweigh implementation costs.

Despite the positive outlook, respondents highlighted important risks and ethical challenges. The most prominent concerns include data privacy and security, limited transparency and interpretability of AI systems, insufficient legal and ethical frameworks and the potential risk of job displacement. These findings reflect a dual perception of AI as both an opportunity and a source of uncertainty.

Strong agreement was observed regarding the importance of education and lifelong learning. Experts emphasised the need for systematic training programmes, subsidised education and stronger collaboration between academia and industry. Respondents also expect significant labour market changes in the coming years, including increased automation, the growth of hybrid human–AI roles and the need

for organisational adaptation. Finally, there was strong support for public policy measures, particularly government funding of AI research, development of ethical guidelines and partnerships between education, industry and policymakers.

When comparing results across thematic dimensions, the highest levels of agreement were observed in the areas of productivity impacts and education and training readiness, indicating strong optimism regarding the benefits of AI and the importance of upskilling. Lower levels of agreement were observed in the areas of organisational readiness and regulatory frameworks, suggesting that experts perceive governance and implementation challenges as key barriers to broader AI adoption. This comparison highlights the coexistence of strong optimism regarding AI benefits and persistent concerns regarding organisational and regulatory preparedness.

5. Discussion and conclusions

This pilot study provides insight into expert perspectives on the role of Artificial Intelligence in shaping the future of work in Slovenia. The findings indicate high levels of AI competence and increasing integration of AI tools into professional practice, with experts recognising AI as an important driver of productivity and organisational performance (OECD, 2023). The comparison across thematic dimensions further reveals that experts are most optimistic about productivity and education, while governance and organisational readiness remain key areas of concern.

At the same time, respondents highlighted significant concerns regarding data protection, transparency and the interpretability of AI systems. These concerns align with international governance frameworks emphasising responsible and human-centred AI deployment (European Union, 2024; UNESCO, 2021). Education and lifelong learning emerged as a key priority. Experts strongly supported systematic training programmes, subsidised professional education and closer collaboration between academia and industry, reflecting broader European initiatives promoting AI skills and digital competences (European Commission, 2021; n.d.). Experts also anticipate increased automation, the growth of hybrid human–AI roles and the need for organisational adaptation, consistent with global labour market trends (World Economic Forum, 2025; Gmyrek et al., 2025).

Overall, the findings highlight that AI adoption represents not only a technological change but also an educational, organisational and policy challenge requiring coordinated action. This confirms that AI transformation is multidimensional and requires integrated responses at organisational, educational and policy levels.

The study is limited by a small expert sample; future research should include larger and more diverse populations. Nevertheless, the results provide an initial empirical basis for understanding AI-related workforce transformation in Slovenia and offer guidance for policymakers, educators and organisations.

References

- European Commission. (2021). *Digital Education Action Plan 2021–2027: Actions in digital education*. Brussels: European Commission.
- European Commission. (n.d.). *AI talent, skills and literacy: Policies to support AI-related competences and education*. Retrieved February 19, 2026, from <https://digital-strategy.ec.europa.eu/en/policies/ai-talent-skills-and-literacy>
- European Union. (2024). *Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*. Luxembourg: Publications Office of the European Union.
- Gmyrek, P., Berg, J., Kamiński, K., Konopczyński, F., Ładna, A., Nafradi, B., Rosłanec, K., & Troszyński, M. (2025). *Generative AI and jobs: A refined global index of occupational exposure (ILO Working Paper No. 140)*. Geneva: International Labour Organization.
- OECD. (2023). *OECD Employment Outlook 2023: Artificial intelligence and the labour market*. OECD Publishing.
- UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. Paris: UNESCO.
- World Economic Forum. (2025). *The Future of Jobs Report 2025*. Geneva: World Economic Forum. <https://www.weforum.org/publications/the-future-of-jobs-report-2025/>