

DECODING THE INTERFACE: EXPLORING WOMEN'S PERSPECTIVES ON INTEGRATING AI IN PROFESSIONAL WORK

Beata Woźniak-Jęchorek
Poznan University of Economics and
Business
Poland
ORCID 0000-0002-5029-5885

Waldemar Rydzak
Poznan University of Economics and
Business
Poland
ORCID 0000-0001-5771-933X

Sławomir Kuźmar
Poznan University of Economics and Business,
Poland
ORCID 0000-0002-2458-0463

Abstract: *AI's impact on jobs varies by gender, with women facing higher replacement risks. This discrepancy is intensified by the digital divide, insufficient knowledge and skills, and a less open attitude towards AI among women, thereby limiting women's access to AI-driven opportunities. This paper's primary objective is to scrutinize women's self-assessment of digital competencies when utilizing AI in professional settings. Drawing from a survey conducted among Polish women, our findings reveal that the adoption of AI is linked to factors such as age, education, work experience, and location of residence. Women with higher levels of education residing in larger cities, as well as younger individuals with less work experience, are more likely to recognize the advantages of utilizing AI. Their concerns are less about the necessity for continuous development of digital skills, but rather about the potential impact of AI on their work-life balance and the possibility of a decrease in earnings, despite the anticipated improvements in productivity and time management efficiency.*

Keywords: *AI, women, future of work, technological change.*



INTRODUCTION

The rapid development of Artificial Intelligence (AI) is reshaping the landscape of technology and society at an unprecedented pace. Advances in machine learning, neural networks, and data processing have fueled an acceleration in AI capabilities. From revolutionizing industries with smart automation to enhancing personalized user experiences, the swift evolution of AI is fostering breakthroughs across various domains. As the technology continues to mature, its potential to drive innovation, solve complex problems, and augment human capabilities becomes increasingly profound, marking a transformative era in the digital age (Prieto-Gutierrez, 2023).

The current AI revolution, however, is marked by persistent challenges, including issues of gender-based discrimination (McNeilly, 2023), unequal compensation between men and women (WEF, 2023), and limited opportunities for women's career advancement. Digital literacy of the workforce and firms' digital literacy activities for their employees are some of the major concerns of the digitalization process (Krajčík et al., 2023). Stereotypes and societal expectations also contribute to the underrepresentation of women in specific industries and leadership positions, especially those requiring specific advanced digital skills (Woźniak-Jęchorek et al., 2023). In Europe, only 19% of ICT specialists and about one-third of science, technology, engineering, and mathematics graduates are female (Women in Digital, 2021). Moreover, the substantial challenge of balancing work and family responsibilities persists, often burdening women with caregiving duties (Bencsik & Juhasz, 2023; Ferrant et al., 2014). To break down these gender barriers, promote diversity, and create more equitable opportunities for women in the workforce, there is a need for an increased understanding and acceptance of generative AI (Gomes, 2022).

Previous research has shown, however, that support for developing AI varies greatly between demographic subgroups, with gender, education, income, and experience being key predictors (Karacsony et al., 2020; Zhang & Dafoe, 2019) as well as among managerial staff involved for the knowledge-based systems development (Bencsik, 2021). These issues often stem from leadership inadequacies and human resource management shortcomings (Plaikner et al., 2023). Although a majority supports AI development, the demographic largely in favor comprises primarily highly educated and affluent men. Additionally, gender disparities exist in the perception of AI, with women, as per self-awareness assessments, exhibiting a lower understanding of AI compared to men (Franken et al., 2020). Men, in contrast, see more opportunities in AI, rate their own AI competence higher than women, and trust more in AI. Developing one's own AI competence removes fears and promotes trust and acceptance towards AI – an important prerequisite for openness towards AI (Franken & Mauritz, 2021).

AI has the potential to transform the way work is conducted, making it more efficient, intelligent, and adaptable to the evolving demands of the modern workplace. However, a challenge arises in the acceptance of AI in professional work, potentially stemming from a lack of a thorough understanding of AI technologies and their implications, and the ethical implications of AI, including algorithmic bias, privacy concerns, and the potential for job displacement (Zirar et al., 2023).

Therefore, this paper aims to investigate women's self-assessment of digital competencies when utilizing AI in professional settings. To assess women's AI competencies, we adopted the European Commission's definition of digital competence outlined in the DigComp 2.2

framework. Digital competence encompasses the "confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It is defined as a combination of knowledge, skills, and attitudes" (DigComp 2.2, 2023). This approach is widely used for similar research of digital competences (Bilan et al., 2023). In the paper, we characterize women's AI competencies as the knowledge, skills, and capabilities that empower women to proficiently engage with and contribute to tasks related to artificial intelligence.

To explore women's perspectives on integrating AI in professional work, we surveyed Polish working women. The structure of this paper is as follows: we start by offering an overview of the recent studies presenting the implications of AI for the future of work, and then the impact of generative AI on women's jobs. The literature helps inform the design of our survey, described in the following section. Proceeding onward, we provide an account of the research findings and discussion with a summary of key takeaways.

Artificial Intelligence: Implications for the Future of Work

AI has become deeply integrated into various aspects of daily life and professional environments. Applications range from digital personal assistants and smart appliances to online shopping platforms and industrial robots. Despite concerns from some experts about the regulatory framework surrounding AI (EC, 2023), its pervasive use is undeniable, shaping the future of work.

The collaboration between AI and human workers is an evolving landscape, giving rise to two primary issues. First, AI's capacity to automate routine tasks raises concerns about potential job displacement and a reduced workforce. Nevertheless, existing research has not yet built a solid view of the definitive impact of AI on jobs. For instance, Big Tech layoffs claimed more than 150,000 jobs throughout 2022 alone, with Goldman Sachs predicting that 300 million jobs will ultimately be lost or degraded by artificial intelligence (Goldman Sachs, 2023). A Forbes Advisor survey indicates that 77% of individuals express apprehension about AI causing job losses (Haan & Watts, 2023), with McKinsey estimating that the evolution of AI could displace 400 million workers globally (Manyika & Sneider, 2018). The World Economic Forum's Future of Jobs Report (2023) predicts a negative impact on 25% of jobs over the next five years, particularly in administrative roles, legal services, architecture, engineering, business operations, management, sales, healthcare, and art and design. Past automation technologies had the most effect on low-skilled workers. But with generative AI, the more educated and highly skilled workers who previously were immune to automation are vulnerable. ILO suggests in turn that most jobs and industries are only partly exposed to automation and are more likely to be complemented rather than substituted by the latest wave of generative AI (Gmyrek et al. 2023).

The literature on automation and jobs, which primarily focuses on OECD countries, tries to identify job-level tasks that could be replaced by machines and then estimate the macro-level effects of such a replacement (Frey & Osborne 2017; Brynjolfsson et al., 2018; Felten et al., 2018; Acemoglu & Restrepo 2020, 2022; Fossen & Sorgner, 2022). According to the International Labor Organization, there are between 644 and 997 million knowledge workers

globally, between 20% and 30% of total global employment (Berg & Gmyrek, 2023). The labor market of these individuals may be somehow impacted by generative AI.

Despite fears of job displacement, projections indicate that automation will lead to the creation of numerous new jobs. In 2022, 39% of businesses hired software engineers, and 35% recruited data engineers for AI-related positions. AI is expected to generate approximately 97 million new jobs (Workplace, 2023). Importantly, AI is not automating all functions but primarily focuses on routine tasks, leaving room for human oversight and intervention (Mitchell & Brynjolfsson, 2017).

Rather than replacing humans, AI is envisioned to collaborate with them, enhancing efficiency and allowing workers to concentrate on more creative and fulfilling aspects of their roles (Zirar et al., 2023). The greatest impact of this technology is likely to be the potential changes to the quality of jobs, notably work intensity and autonomy (ILO, 2023). The advent of AI creates, however, a heightened demand for individuals with technical skills, including programmers, statisticians, data scientists, and analysts, as well as those possessing creative and emotional intelligence.

As organizations increasingly adopt AI, substantial changes in job functions necessitate strategies to showcase AI as a force for positive change. Emphasizing that AI is designed to complement human workers, not replace them, is crucial. Equally important is ensuring that the workforce possesses the necessary tech skills through upskilling and reskilling initiatives, enabling them to harness the full potential of AI opportunities.

Could Generative AI Have a Disproportionate Impact on Women's Employment?

The International Labor Organization (Gmyrek et al., 2023) states that the potential for AI to replace jobs is disproportionately higher for women worldwide, estimated at around 4%, compared to only 1% for men. The impact of artificial intelligence on working women is, however, multifaceted, with both opportunities and challenges. On one hand, AI has the potential to create more inclusive and flexible work environments, providing women with tools to enhance productivity and streamline tasks. However, concerns about the automation of certain job functions could also pose challenges, requiring a proactive approach to reskilling and upskilling to ensure women are well-equipped to navigate the evolving job market.

Women may exhibit a greater reluctance towards AI, primarily due to their increased vulnerability to automation by generative AI compared to men. According to McNeilly (2023), a significant majority of women in the U.S. workforce, accounting for eight out of ten (58.87 million), are engaged in occupations with high exposure to generative AI automation (involving more than 25% of occupational tasks). In contrast, six out of ten men (48.62 million) face similar exposure. Despite men outnumbering women in the workforce, the data reveals that women experience a 21% higher exposure to AI automation than their male counterparts. This discrepancy is even more pronounced in high-income countries, where 8% of female jobs face the threat of automation, contrasting with 3% of male jobs. Analyzing the U.S. labor market, nearly 80% of women in the workforce are in occupations exposed to automation via generative AI, whereas this figure stands at 58% for men (McNeilly, 2023). The primary reason for this gender disparity lies in the occupational distribution, with a higher percentage of

women engaged in white-collar jobs (approximately 70%) compared to blue-collar roles (around 30%), while the ratio for men is roughly 50/50.

Despite women constituting nearly half of the global population, a significant gender gap still exists in internet usage, with 259 million fewer women accessing the internet than men (ITU, 2022). This digital divide is particularly notable in lower-income nations, where only 21% of women are online compared to 32% of men. Cultural and social norms, unsafe access routes to public ICT facilities, and financial constraints contribute to this disparity. In Poland, as well as in Romania, Bulgaria, Hungary, and Italy, women also exhibit the lowest levels of participation in the digital economy and society (Women in Digital, 2021). Poland, known for strong female representation in STEM (Science, Technology, Engineering and Mathematics), faces challenges in gender diversity in the tech industry, with only 16.7% of women employed in the sector (globally, 29% of women are employed in STEM roles) (WEF, 2023). Despite having in Poland almost 43% of female STEM graduates, not all of them pursue careers in technology, as revealed by the Women in IT report by No Fluff Jobs (2023). Poland ranks 24th in AI intensity in the active workforce in the EU, with 13% of AI employees being women. The underrepresentation of women is evident in AI teams globally, with a third of companies having all-male teams. World Economic Forum estimates that in the AI workforce, women constituted only around 30% as of 2022, reflecting a modest four-percentage point increase since 2016 (WEF, 2023). Being a part of the tech industry is one challenge, but another one is to collaborate with AI, to enhance efficiency and allow women to concentrate on more creative and fulfilling aspects of their lives.

METHODS

To examine women's self-assessment of digital competencies when utilizing AI in professional settings, we surveyed Polish women. In pursuit of our goal, we address two primary research inquiries:

1. What is the perception of women regarding the potential for AI collaboration within a professional setting (RQ1)?
2. Given previous research shows male support of AI development, are women willing to accept such collaboration in their workplace (RQ2)?

Data collection was performed through a survey questionnaire, comprising three sections: 1) knowledge, 2) skills, and 3) attitudes, each containing a set of questions, and distributed to an online quota sample consisting of 630 full-time working women. These participants were drawn from the pool of respondents recruited online by Ariadna (the biggest independent nationwide research panel in Poland) in November 2023 (please refer to Appendix for additional details). A survey with 630 respondents is designed to achieve a confidence level of 95%, a maximum margin of error of 0.04%, and a fraction size of 0.5, considering the reported 7.1 million employed women in the national economy of Poland as of February 2023 (GUS, 2023).

In the first part of the questions, we inquired about women's perspectives on how the utilization of AI might influence various facets of their professional lives. We sought their opinions on the current deployment of AI in specific occupations, along with their insights into how AI could support them in their professional roles. Additionally, we formulated two

inquiries regarding the future, prompting women to identify the areas they deem most vital for AI application and those where they perceive no need for developing digital skills, anticipating the assumption that AI algorithms will assume control. Subsequent questions focused on evaluating women's proficiency in digital skills concerning basic and advanced professional activities, as well as their capabilities in decision-making and problem-solving contexts using AI. Lastly, two questions delved into women's attitudes, exploring aspects of acceptance and confidence in AI utilization, along with any apprehensions about its application in diverse contexts.

RESULTS

Initially, we explore women's perspectives on the potential impact of AI on different facets of their professional lives. Figure 1 illustrates that, concerning various work aspects, women believe that AI's influence is most pronounced in the areas of fostering digital skills and supporting ongoing education, while its impact appears to be less significant on their standing in the labor market (please refer to Appendix for additional details). The opinions expressed by women may be grounded in their educational background and workplace experiences, such as exposure to AI technologies, training programs, or changes in job responsibilities. Within our sample, a significant percentage holds advanced degrees 67.78%, while another substantial percentage is employed in industries with AI applicability (IT 5.87%, Finance and Banking 11.27%, Industry 12.54%, Education 13.33%, and Trade and Services 27.14%). The broader public viewpoint is additionally susceptible to the portrayal of AI in the media. The ongoing discourse concerning the necessity for both upskilling and deskilling can further shape these viewpoints.

Examining the domains in which women perceive AI as beneficial in their professional endeavors (Figure 2), they assert that AI has the potential to enhance the efficient use of working time, automate office activities, improve access to digital resources through faster information processing, and increase work productivity. Notably, women do not believe that AI significantly contributes to boosting self-confidence in executing professional duties or improving work-life balance through quicker and less engaging tasks. Interestingly, their average rating of self-confidence in decision-making and problem-solving in their professional context surpasses their overall confidence in using AI at work (Figure 3). Furthermore, an analysis of the flow of survey responses regarding overall confidence, acceptance of AI, and self-confidence (Figure 4) reveals that women with very high and high acceptance of AI at work often exhibit moderate overall confidence and self-confidence. Additionally, there are instances of women with high or moderate acceptance but with moderate overall confidence and high self-confidence.

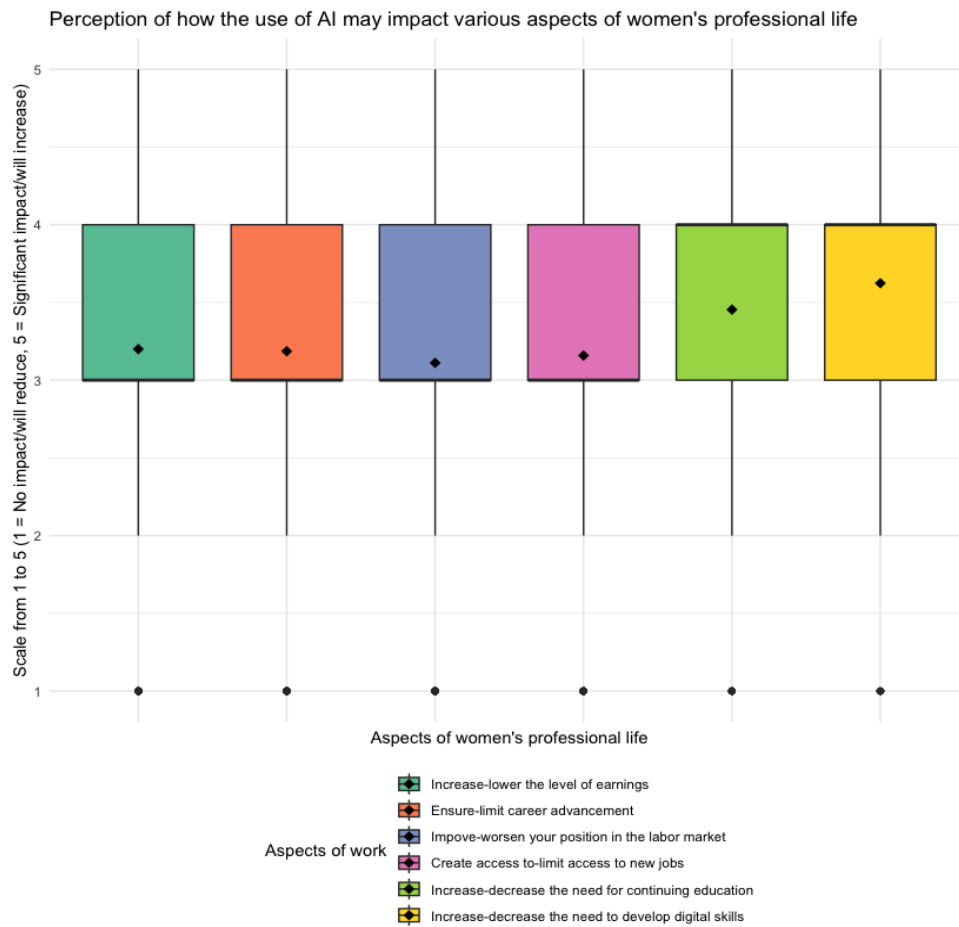


Figure 1. Perception of how the use of AI may impact various aspects of women's professional life.

Note: The box represents the interquartile range (IQR) of the data, which includes the middle 50% of the values. The bottom and top edges of the box represent the first (Q1) and third (Q3) quartiles, respectively.

The line inside the box represents the median (Q2) of the data, and the mean points represent the mean value of each group. Individual points outside the whiskers represent potential outliers – observations that fall significantly outside the typical range of values. The whiskers extend from the edges of the box to the minimum and maximum values within a certain range (usually 1.5 times the IQR).

Source: own elaboration.

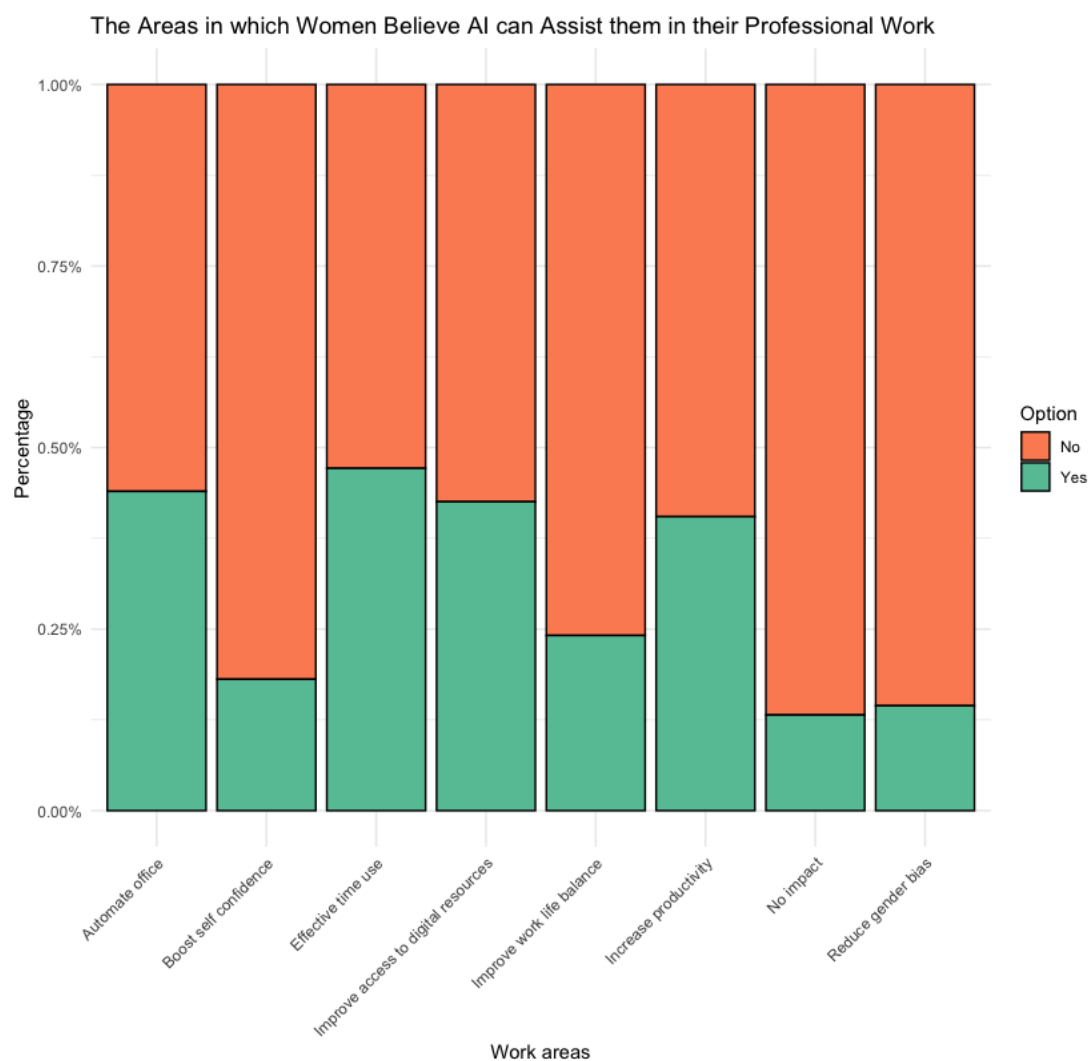


Figure 2. The areas in which women believe AI can assist them in their professional work.
Source: own elaboration.

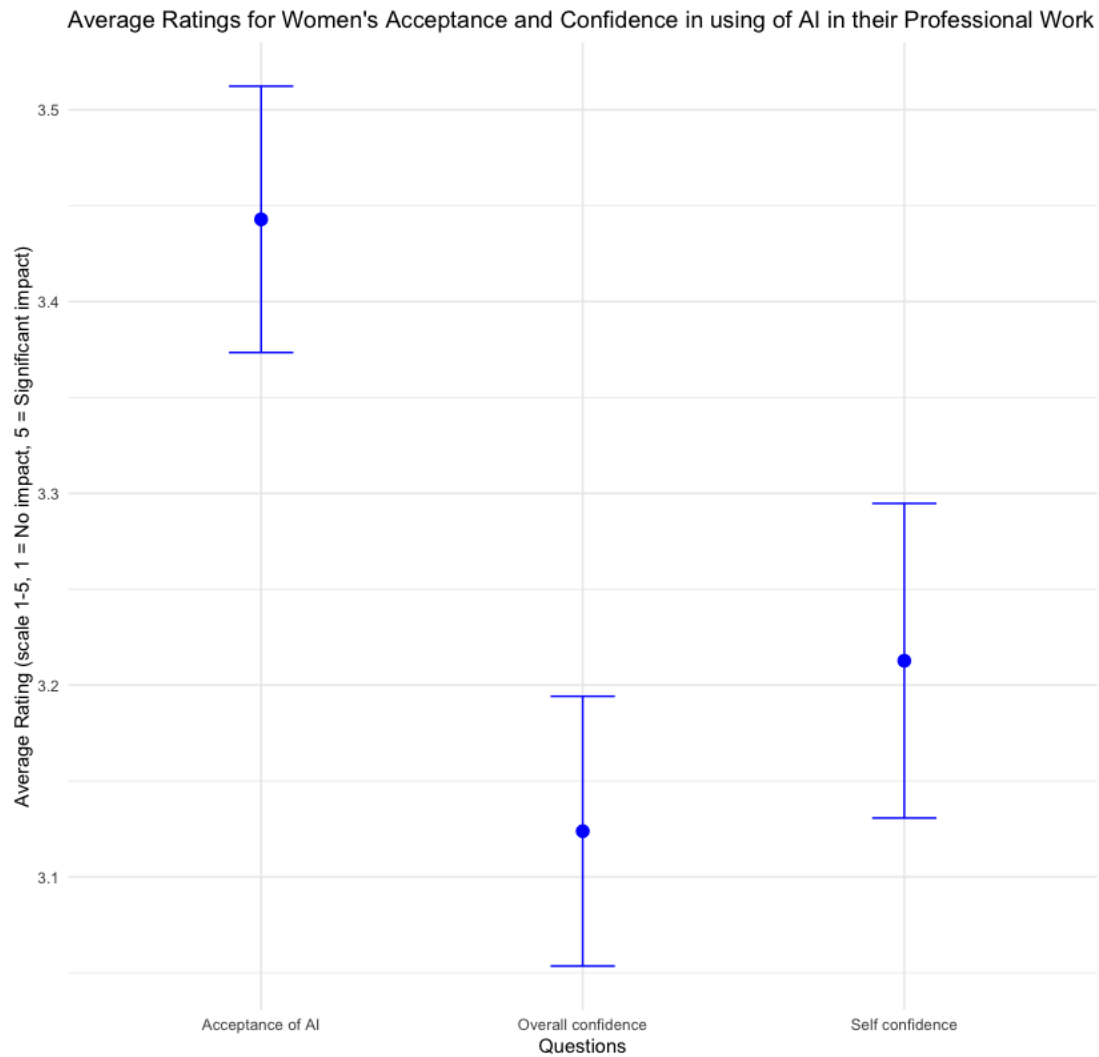


Figure 3. Average ratings for women's acceptance and confidence in using AI in their professional work.

Note: The information provided is derived from the evaluations of how the application of AI impacts women's self-confidence in decision-making and problem-solving within their professional sphere; the assessments of the degree of acceptance of AI in women's professional endeavors and evaluations of their overall confidence in utilizing AI in their professional activities.

Source: own elaboration.

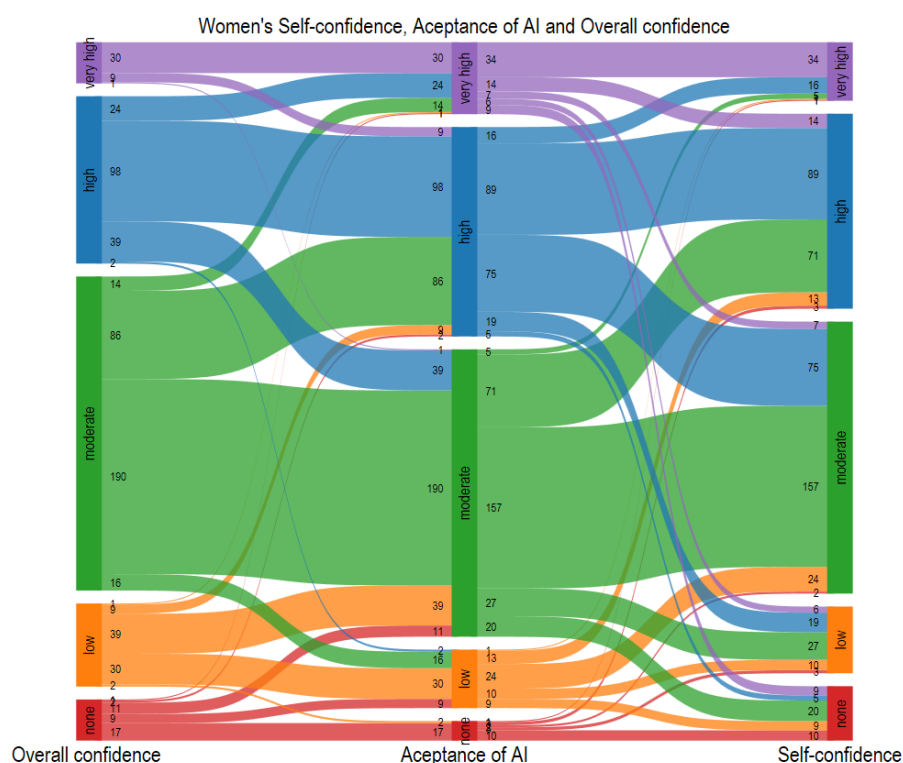


Figure 4. Alluvial plot of women's overall confidence, acceptance of AI, and self-confidence

Note: Based on three survey questions: rating of the impact of AI use on women's self-confidence in decision-making and problem-solving at work, rating of AI acceptance in their professional work, and rating of overall confidence in using AI in their professional work.

The alluvial diagram demonstrates the flow of survey responses between different questions and helps to understand the relationships between these categories. The three vertical axes represent Overall Confidence, Acceptance of AI, and Self-confidence. The labels on each axis indicate the levels within each axis. The flow of streams from one stratum to another shows the movement or transition of observations across different combinations of values.

Source: own elaboration.

The relationship between acceptance of AI, overall confidence, and self-confidence appears to be complex. Women who express very high or high acceptance of AI at work tend to demonstrate a moderate level of overall confidence and self-confidence. This could indicate that, despite embracing AI technologies in the workplace, these individuals may maintain a balanced or cautious level of overall confidence and self-assurance. Moreover, the correlation between high acceptance of AI and moderate confidence levels might suggest that the introduction or acceptance of AI in the workplace does not necessarily translate to an extreme boost in overall confidence or self-confidence. In turn, the instances of women with high or moderate acceptance but with moderate overall confidence and high self-confidence highlight individual variances. It suggests that acceptance of AI does not uniformly align with confidence levels. Factors such as personal experiences, job roles, or specific contexts may contribute to these individual differences. These findings could reflect a nuanced stance where women may be embracing AI for certain aspects of their work while maintaining a measured level of

confidence. There might be a balance between leveraging AI technologies and maintaining a level of self-assurance in specific professional domains. These observations suggest a need for further exploration and understanding of the interplay between acceptance of AI and confidence levels.

We have also explored the perspectives of women concerning their perceptions of which professions currently utilize AI. To evaluate these beliefs, we compared them with the predictions made by Goldman Sachs regarding the exposure of occupations and tasks to AI automation (refer to Table 1). It appears that Polish women do not perceive AI's role in occupations related to farming, fishing, and forestry (8.6% positive responses versus a predicted 28% employment at risk of automation by Goldman Sachs) and legal professions (19.5% versus 44%). Conversely, they do acknowledge the involvement of AI in business and financial operations (53.3% versus 35%) and education, instruction, and library-related roles (38.1% versus 27%).

Table 1. Occupations and Task Exposure to AI Automation – Goldman Sachs predictions and survey findings

	Goldman Sachs prediction	Survey findings
Office and Administrative Support	46%	50.5%
Legal	44%	19.5%*
Architecture and Engineering	37%	37.6%
Life, Physical, and Social Science	36%	-
Business and Financial Operations	35%	53.3%
Community and Social Service	33%	23.8%
Management	32%	28.6%
Sales and Related	31%	33.8%
Computer and Mathematical	29%	-
Farming, Fishing, and Forestry	28%	8.6%
Protective Service	28%	29.2%
Healthcare Practitioners and Technical	28%	21.7%
Educational Instruction and Library	27%	38.1%
Healthcare Support	26%	-
Arts, Design, Entertainment, Sports, and Media	26%	31.9%

Note: The proportion of affirmative responses in the query prompting women to specify the professions where they believe AI is currently utilized. Multiple options can be selected.

* The understated result may be due to the limited representation of female lawyers in our research sample.

Source: own elaboration based on Goldman Sachs (2023) and survey findings.

In another question, we have examined the concerns expressed by women regarding the utilization of generative AI. It appears that the primary concerns among Polish women revolve around the costs associated with implementing AI systems and new technologies within their companies, as well as the lack of transparency and challenges in comprehending AI algorithms (Figure 5). In contrast, there is relatively lesser apprehension about dependency on technology and the potential loss of the ability to engage in creative work. Notably, the larger size of the box associated with this latter concern implies a greater spread or variability of data within this specific category compared to others. This suggests that the opinions regarding the impact of AI on creative work vary more widely among the respondents compared to the concerns about other aspects of generative AI.

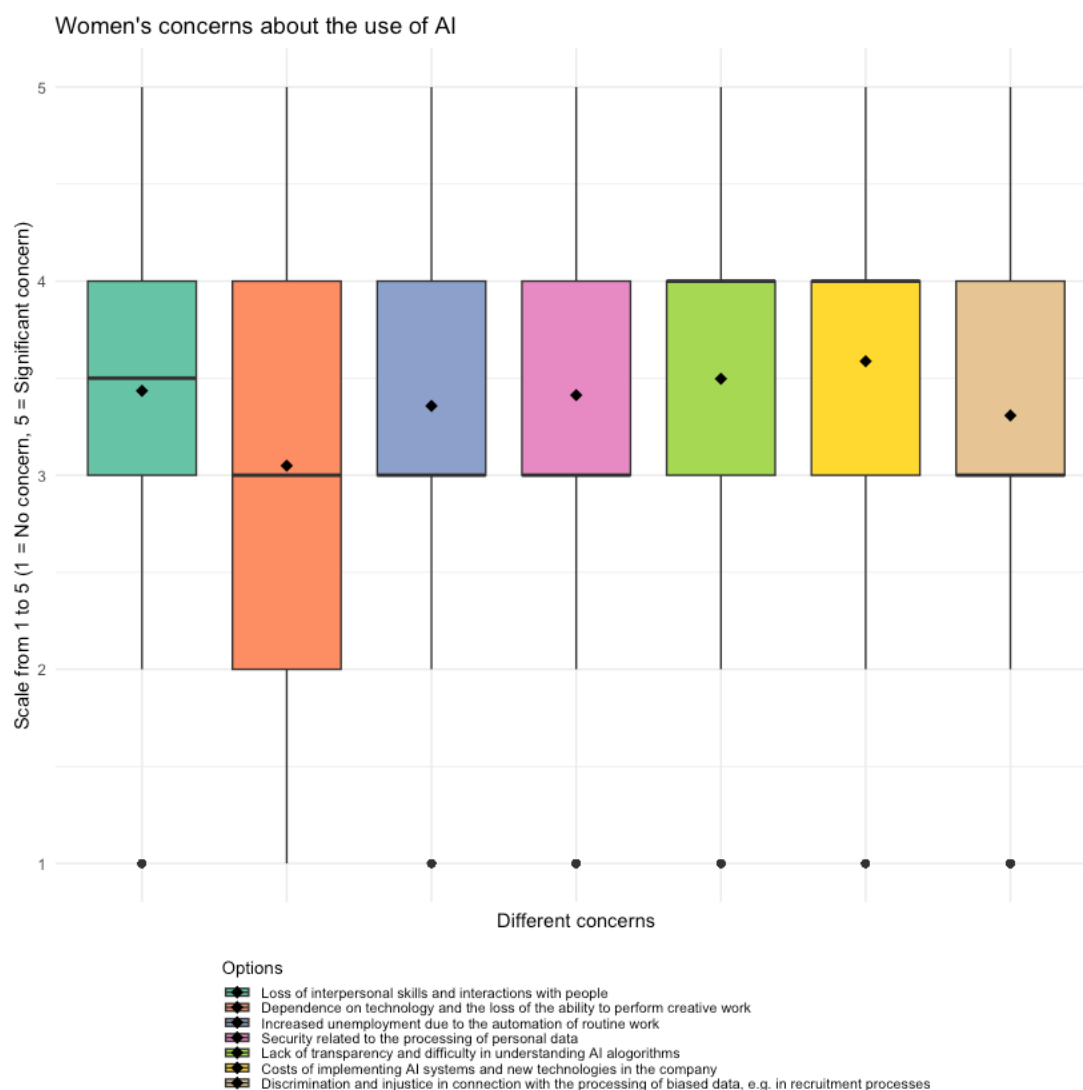


Figure 5. Women's concerns about the use of AI

Note: The box represents the interquartile range (IQR) of the data, which includes the middle 50% of the values. The bottom and top edges of the box represent the first (Q1) and third (Q3) quartiles, respectively.

The line inside the box represents the median (Q2) of the data, and the mean points represent the mean value of each group. Individual points outside the whiskers represent potential outliers—observations that fall significantly outside the typical range of values. The whiskers extend from the edges of the box to the minimum and maximum values within a certain range (usually 1.5 times the IQR).

Source: own elaboration.

Lastly, we have investigated the domains in which women perceive that developing digital skills is dispensable, as they anticipate AI algorithms to assume control. It appears that customer services, payment processing, artistic professions, and graphic design are the fields where the development of digital skills is deemed unnecessary (Figure 6). Notably, artistic professions, including Arts, Design, Entertainment, Sports, and Media occupations, are unexpectedly included in this category. Interestingly, Polish women also identified these occupations as being most impacted by AI, aligning with Goldman Sachs' prediction (31.9%

versus 26%) (Table 1). There may be a lack of clarity or understanding among women about how AI is implemented in creative fields. On the other hand, creative processes often involve complexity, unpredictability, and a high degree of personal expression. Women may perceive these elements as challenging for AI to replicate, leading to the belief that developing digital skills is unnecessary in these areas.

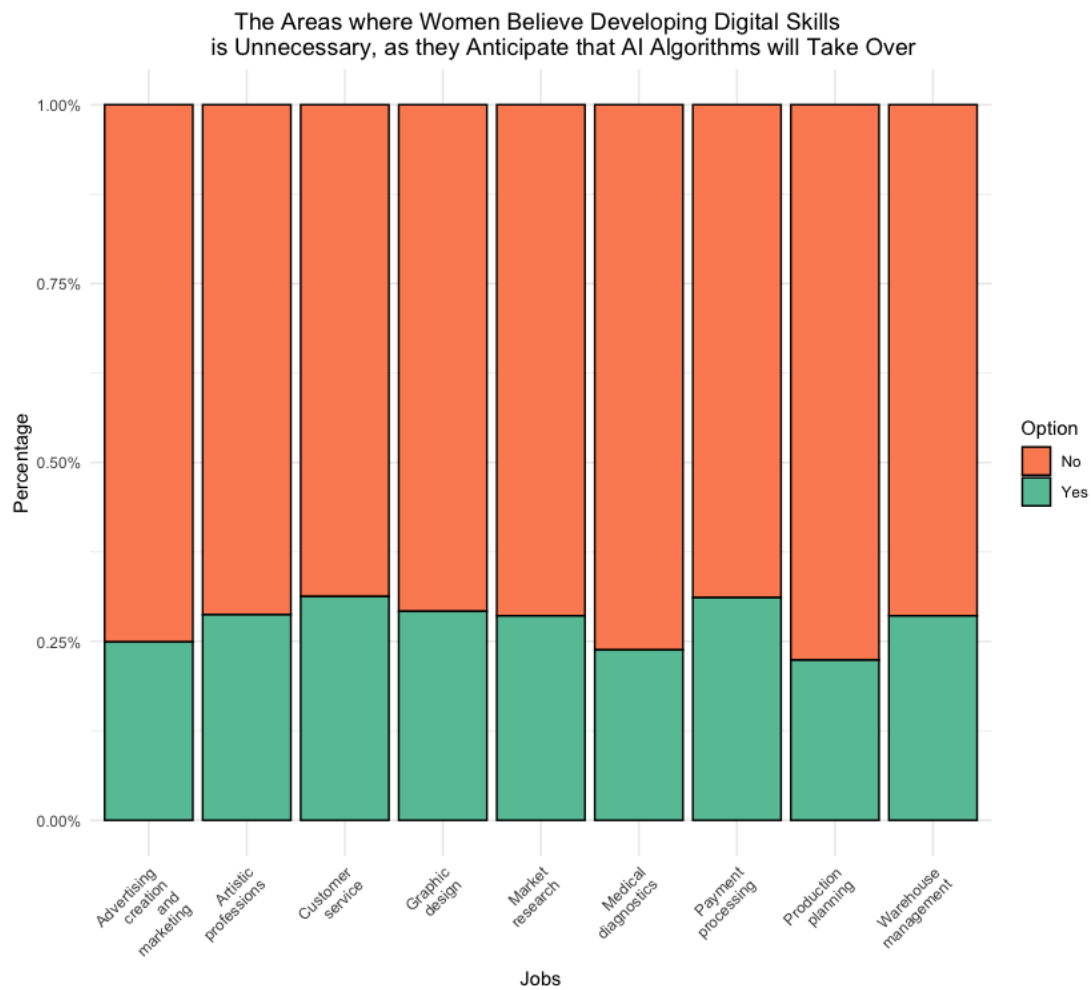


Figure 6. The areas where women believe developing digital skills is unnecessary, as they anticipate that AI algorithms will take over
Source: own elaboration.

DISCUSSION

In addressing the two research questions of this study about women's perception of AI collaboration within a professional setting (RQ1) and their acceptance of such collaboration (R2), it becomes evident that women encounter challenges in understanding how AI functions.

Nevertheless, an exploration of AI utilization reveals correlations with variables such as age, work experience, place of residence, and education. Younger individuals and those with less work experience are more likely to declare the use of AI. Additionally, there is a notable trend of increased AI usage in larger cities and among individuals with higher education. However, women with higher education express concerns that AI usage may lead to a decrease in earnings and necessitate the development of digital competencies.

Notably, a comparison between responses from women who have and have not previously used AI yields interesting conclusions. Women utilizing AI exhibit stronger convictions that its use can enhance promotion opportunities, necessitate continuous learning, and contribute to the development of digital skills. Furthermore, these women express higher confidence in AI's ability to increase productivity and improve the efficiency of working time. However, they express less optimism about its potential to improve work-life balance and harbor reservations about its contribution to equal opportunities. Surprisingly, women using AI are more likely to report experiencing a lack of transparency and difficulties in understanding AI algorithms. Additionally, they harbor fears that the use of AI may result in the loss of personal skills and interpersonal relationships.

The acceptance level of AI use in professional work is found to be correlated with the experience of using AI. Higher-earning women from larger cities exhibit slightly higher declared acceptance of AI, and individuals in higher positions tend to believe that AI has no impact on self-esteem.

Our findings yield three significant insights into the existing literature. First, women's comprehension of AI algorithms appears to be more intuitive than explicit. This observation aligns with Franken et al.'s (2020) identification of gender disparities in AI perception, wherein self-awareness assessments indicate that women tend to have a lower understanding of AI compared to men. This discrepancy may stem from the underrepresentation of women in technology-related fields, disparities in educational opportunities, and limited access to STEM education. In Poland, societal stereotypes and cultural expectations can contribute to shaping perceptions of gender roles (e.g., Mandal et al. 2012), impacting women's involvement in technology and AI. Implicit biases and gender stereotypes also influence how women's contributions to AI discussions are perceived. Additionally, the workplace environment, encompassing mentorship availability, skill development opportunities, and a supportive atmosphere, plays a crucial role in shaping women's understanding of AI. Addressing these issues necessitates concerted efforts to promote diversity and inclusion in education, workplaces, and AI development.

Secondly, despite AI's recognized weaknesses in areas such as creativity, innovation, emotional intelligence, adaptability, and moral judgment, women surprisingly do not perceive the advantages of AI for work-life balance. In the context of the ongoing technological revolution (Industry 5.0), which prioritizes worker well-being and adopts a human-centric approach to digital technologies (EC, 2023), it is crucial for women to understand that AI can automate routine tasks, allowing for more focus on meaningful and creative aspects of work. AI's strengths in efficiency, speed, storage, recall, and physical capabilities contribute to optimizing time management and facilitating remote work. However, it is essential to note that ethical AI use, privacy protection, and ongoing monitoring are critical for harnessing the full benefits of AI in creating a balanced and sustainable work environment (OECD, 2022; Radanliev & Santos, 2023; EUR-Lex, 2023).

Third, the relationship between the acceptance of AI and confidence is not always straightforward. Possible reasons for this ambiguity include concerns about AI's impact on job security, fear of job displacement due to automation, and varying levels of understanding among women. Additionally, inadequate communication and education about the benefits and limitations of AI contribute to misconceptions and uncertainty. Public messages from social partners and policymakers, particularly in Poland where AI is often portrayed as a risk to job stability (Gov, 2020), shape this perception. Women, who have different risk tolerance, openness to new experiences, and attitudes toward change compared to men (Holden & Mesfin, 2018), require targeted education about the benefits of AI.

CONCLUSIONS

Research focused on women's self-assessment of digital competencies when utilizing AI in professional settings suggests a lower understanding of AI among women compared to men, leading to reduced acceptance and confidence in the new technology. While previous studies have shed light on demographic predictors influencing support for AI development, such as gender, education, income, and experience, there is a relative scarcity of comprehensive efforts to delve into the factors driving women's support for AI integration in their professional work. This explanatory study simultaneously explores women's perspectives on AI by examining their knowledge, skills, and attitudes toward the technology.

The findings presented in this paper draw from short-term and country-specific data, reflecting the ongoing and dynamic trends in the AI revolution. These trends have the potential to shape women's perceptions in the future. To gain a deeper understanding of how AI development will evolve in the long term and across different countries, further analysis is warranted. As generative AI becomes more ingrained in contemporary organizational life, establishing a robust and context-specific research agenda becomes crucial for aiding practitioners in navigating this potential future.

REFERENCES

- Acemoglu, D. & Restrepo, P. (2022). Tasks, Automation, and the Rise in U.S. Wage Inequality. *Econometrica*, *Econometric Society*, 90(5), 1973-2016.
- Acemoglu, D., & Restrepo, P. (2020). Robots and Jobs: Evidence from US Labor Markets. *Journal of Political Economy*, 128(6), 2188-2244. <https://doi.org/10.1086/705716>
- Bencsik, A. (2021). The sixth generation of knowledge management – the headway of artificial intelligence. *Journal of International Studies*, 14(2), 84-101. <https://doi.org/10.14254/2071-8330.2021/14-2/6>
- Bencsik, A., & Juhasz, T. (2023). Impact of technostress on work-life balance. *Human Technology*, 19(1), 41–61. <https://doi.org/10.14254/1795-6889.2023.19-1.4>
- Berg, J., & Gmyrek, P. (2023). Automation hits the knowledge worker: ChatGPT and the future of work, International Labour Office, Available: <https://sdgs.un.org/sites/default/files/2023-05/B59%20-%20Berg%20-%20Automation%20hits%20the%20knowledge%20worker%20ChatGPT%20and%20the%20future%20of%20work.pdf>

- Bilan, Y., Mishchuk, H., & Samoliuk, N. (2023). Digital Skills of Civil Servants: Assessing Readiness for Successful Interaction in e-society. *Acta Polytechnica Hungarica*, 20(3), 155-174. <https://doi.org/10.12700/APH.20.3.2023.3.10>
- Brynjolfsson, E., Mitchell, T., & Rock, D. (2018). What Can Machines Learn, and What Does It Mean for Occupations and the Economy? *AEA Papers and Proceedings*, 108: 43-47. DOI: 10.1257/pandp.20181019
- EC (2023). Regulatory framework proposal on artificial intelligence, Shaping Europe's digital future, *European Commission*, Available: <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>
- EUR-Lex (2023). Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain union legislative acts, Available: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1623335154975&uri=CELEX%3A52021PC0206>
- Felten, E. W., Raj, M. & Seamans, R. (2018). A Method to Link Advances in Artificial Intelligence to Occupational Abilities. *Am Econ Assoc Papers Proc* 108.
- Ferrant, G., Pesando, L.M., & Nowacka, K. (2014). Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes, OECD Development Centre, December.
- Fossen, F.M., & Sorgner, A. (2022). New Digital Technologies and Heterogeneous Wage and Employment Dynamics in the United States: Evidence from Individual-Level Data. *Technological Forecasting and Social Change* 175 (February): 121381. <https://doi.org/10.1016/j.techfore.2021.121381>.
- Franken, S., & Mauritz, N. (2021). Gender and Artificial Intelligence – Differences Regarding the Perception, Competence Self-Assessment and Trust, Conference: 23RD GENERAL ONLINE RESEARCH CONFERENCE, DOI: 10.13140/RG.2.2.18755.68646
- Franken, S., Mauritz, N., & Wattenberg, M. (2020). Gender Differences Regarding the Perception of Artificial Intelligence, 22nd General Online Research Conference.
- Frey, C.B., & Osborne M.A. (2017). The Future of Employment: How Susceptible Are Jobs to Computerisation? *Technological Forecasting and Social Change* 114 (January): 254–80. <https://doi.org/10.1016/j.techfore.2016.08.019>.
- Gmyrek, P., Berg, J., & Bescond, D. (2023). Generative AI and jobs: A global analysis of potential effects on job quantity and quality. ILO Working Paper 96. Geneva: International Labour Office.
- Gomes, L.G. (2022). How AI can help women in the workforce, Let's talk about equality, IDB, Available: <https://blogs.iadb.org/igualdad/en/ai-women-in-the-workforce/>
- Gov (2020). Policy for the Development of Artificial Intelligence in Poland, Appendix to Resolution no. 196 of the Council of Ministers of 28 December 2020 (item 23), Available: <https://www.gov.pl/attachment/928200fa-b1a6-4c0c-b3a8-d1fbf1e1175a>
- Haan, K., & Watts, R. (2023). Over 75% Of Consumers Are Concerned About Misinformation From Artificial Intelligence, Forbes Advisor, Available: <https://www.forbes.com/advisor/business/artificial-intelligence-consumer-sentiment/>
- Holden, S.T. & Tilahun, M. (2018). Gender Differences in Risk Tolerance, Trust and Trustworthiness: Are They Related?, Centre for Land Tenure Studies Working Paper, No. 3/18, ISBN 978-82-7490-267-1, Norwegian University of Life Sciences (NMBU), Centre for Land Tenure Studies (CLTS).
- Karacsony, P., Izsák, T., & Vasa, L. (2020). Attitudes of Z generations to job searching through social media. *Economics and Sociology*, 13(4), 227-240. <https://doi.org/10.14254/2071-789X.2020/13-4/14>
- Krajčík, V., Novotný, O., Civelek, M., & Semrádová Zvolánková, S. (2023). Digital Literacy and Digital Transformation Activities of Service and Manufacturing SMEs. *Journal of Tourism and Services*, 14(26), 242–262. <https://doi.org/10.29036/jots.v14i26.551>

- Mandal E., Gawor A., & Buczny, J. (2012). The stereotypes of man and woman in Poland - content and factor structures in: E. Mandal (ed.), *Masculinity and femininity in everyday life*, Katowice: Wydawnictwo Uniwersytetu Śląskiego, pp. 11-32.
- Manyika, J., & Sneider, K., (2018). AI, automation, and the future of work: Ten things to solve for, McKinsey Global Institute, Available: <https://www.mckinsey.com/featured-insights/future-of-work/ai-automation-and-the-future-of-work-ten-things-to-solve-for>
- McNeilly, M. (2023). Will Generative AI Disproportionately Affect the Jobs of Women?, Kenan Institute of Private Enterprise, available: <https://kenaninstitute.unc.edu/kenan-insight/will-generative-ai-disproportionately-affect-the-jobs-of-women/>
- Mitchell, T., & Brynjolfsson, E. (2017). Track how technology is transforming work. *Nature* 544, 290–292. <https://doi.org/10.1038/544290a>
- Plaikner, A., Haid, M., Kallmuenzer, A., & Kraus, S. (2023). Employer Branding in Tourism: How to Recruit, Retain and Motivate Staff. *Journal of Tourism and Services*, 14(27), 1–21. <https://doi.org/10.29036/jots.v14i27.666>
- Prieto-Gutierrez, J.-J., Segado-Boj, F., & Da Silva França, F. (2023). Artificial intelligence in social science: A study based on bibliometrics analysis. *Human Technology*, 19(2), 149–162. <https://doi.org/10.14254/1795-6889.2023.19-2.1>
- Radanliev, P., & Santos, O. (2023). Ethics and Responsible AI Deployment, University of Oxford, CISCO, Available: <https://arxiv.org/pdf/2311.14705.pdf>
- Women in Digital Scoreboard (2021). European Commission, Available: <https://digital-strategy.ec.europa.eu/en/news/women-digital-scoreboard-2021>
- Workplace (2023). AI and the future of work: Four benefits you need to know, Available: <https://www.workplace.com/blog/ai-and-the-future-of-work>
- World Economic Forum (2023). Future of Jobs Report 2023, Available: https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf
- World Economic Forum (2023). Global Gender Gap Report 2023, Available: https://www3.weforum.org/docs/WEF_GGGR_2023.pdf
- Woźniak-Jęchorek, B., Kuźmar, S., Rydzak, W., Fazlagić, J., Jasiczak, J., Lis, K., Shelest-Szumilas, O., Szymkowiak, A., Trąpczyński, P. (2023). Impact of digitisation processes on people aged 50+, women, people with disabilities, and people from areas distant from urban centres. Possibilities for support mechanisms for equalisation of opportunities in the labour market. Warszawa: Konfederacja Lewiatan
- Zhang, B., & Dafoe, A. (2019). Artificial Intelligence: American Attitudes and Trends, Available: <https://governanceai.github.io/US-Public-Opinion-Report-Jan-2019/general-attitudes-toward-ai.html>
- Zirar, A., Syed I.A., & Nazrul I. (2023). Worker and workplace Artificial Intelligence (AI) coexistence: Emerging themes and research agenda, *Technovation*, Volume 124, <https://doi.org/10.1016/j.technovation.2023.102747>.

Authors' Note

All correspondence should be addressed to
 Beata Woźniak-Jęchorek
 Poznań University of Economics and Business
 Al. Niepodległości 10, 61-875 Poznań, Poland
beata.wozniak-jechorek@ue.poznan.pl

Appendix

Respondent's socio-demographic characteristics

The data presented herein were gathered through Poland's Adriadna research panel, the largest independent nationwide research panel in the country. The online survey took place in November 2023 and yielded 630 valid responses. Respondents' basic socio-demographic characteristics included age, education level, place of residence, income, industry, position, experience in their current role, and sector of employment. An examination of the socio-demographic distribution among the 630 women partaking in the study unveils intriguing insights.

The study highlights a diverse age distribution, with a notable percentage falling within the 25-34 age range (40.48%). A significant portion of women holds higher education degrees (67.78%), while a smaller percentage completed secondary education (31.90%). Participants with primary education make up only a marginal percentage (0.32%). Residence categories vary, with a substantial portion residing in cities with populations ranging from 100,000 to 500,000 inhabitants (24.76%). Notably, 19.05% of women live in villages, reflecting a blend of urban and rural representation.

Income distribution reveals that the largest group earns between PLN 3501 to PLN 4500 net (33.81%), while 9.68% earn over PLN 7001. In terms of sectoral engagement, the trade and services sector attracts the highest participation (27.14%), followed by education (13.33%) and finance and banking (11.27%). Concerning positions, the majority of women hold office administrative roles (36.67%) or specialist positions (37.46%). A smaller percentage occupies managerial or directorial positions, and 13.65% fall under the category of "Other."

Experience distribution is fairly balanced, with significant percentages across various experience brackets. In terms of experience in their current position, a substantial portion of women (26.83%) report having more than 10 years of experience. Notably, a significant percentage of women work in the private sector (63.81%), while 36.19% are employed in the public sector.

Table A1. Tabulation of age

	Freq.	Percent	Cum.
18-24 years	23	3.65	3.65
25-34 years	255	40.48	44.13
35-44 years	184	29.21	73.33
45-54 years	110	17.46	90.79
55-60 years	43	6.83	97.62
61-65 years	13	2.06	99.68
66+	2	0.32	100.00
Total	630	100.00	

Table A2. Tabulation of the place of residence

	Freq.	Percent	Cum.
Village	120	19.05	19.05
City up to 50,000 inhabitants	133	21.11	40.16
City from 50,000 to 100,000 inhabitants	82	13.02	53.17
City from 100,000 to 500,000 inhabitants	156	24.76	77.94
City over 500,000 inhabitants	139	22.06	100.00
Total	630	100.00	

Table A3. Tabulation of income

	Freq.	Percent	Cum.
below 3500 net	151	23.97	23.97
from 3501 to 4500 net	213	33.81	57.78
from 4501 to 5500 net	122	19.37	77.14
from 5501 to 7000 net	83	13.17	90.32
over 7001	61	9.68	100.00
Total	630	100.00	

Table A4. Tabulation of industry

	Freq.	Percent	Cum.
Agriculture and breeding	11	1.75	1.75
Industry	79	12.54	14.29
Technology and computer science	37	5.87	20.16
Finance and banking	71	11.27	31.43
Education	84	13.33	44.76
Healthcare	53	8.41	53.17
Trade and services	171	27.14	80.32
Transport and logistics	28	4.44	84.76
Media and entertainment	21	3.33	88.10
Other	75	11.90	100.00
Total	630	100.00	

Table A5. Tabulation of position

	Freq.	Percent	Cum.
Office administrative employee	231	36.67	36.67
Specialist (e.g., marketing, finance, sales, etc.)	236	37.46	74.13
Director/Manager	44	6.98	81.11
Company owner	33	5.24	86.35
Other	86	13.65	100.00
Total	630	100.00	

Table A6. Tabulation of experience in a given position

	Freq.	Percent	Cum.
Less than a year	56	8.89	8.89
1-3 years	173	27.46	36.35
4-7 years	174	27.62	63.97
8-10 years	58	9.21	73.17
More than 10 years	169	26.83	100.00
Total	630	100.00	

Table A7. Tabulation of sector

	Freq.	Percent	Cum.
public	228	36.19	36.19
private	402	63.81	100.00
Total	630	100.00	

Table A8. Tabulation of AI using

Have you used AI before in your professional work or personal life?	Freq.	Percent	Cum.
Yes, at work	93	14.76	14.76
Yes, at work and in my personal life	141	22.38	37.14
I haven't used it, but I intend to use it	396	62.86	100.00
Total	630	100.00	

Increase/Lower the level of earnings



Ensure/Limit career advancement



Improve/Worsen your position in the labor market



Create access to/Limit access to new jobs



Increase/Decrease the need for continuing education



Increase/Decrease the need to develop digital skills



■ No impact/will reduce
 ■ 2
 ■ 3
 ■ 4
 ■ Significant impact/will increase

Figure A1. On a scale from 1 to 5, kindly rate your perception of how the use of AI may impact various aspects of your professional life (1 = No impact/will reduce, 5 = Significant impact/will increase)

Source: own elaboration.

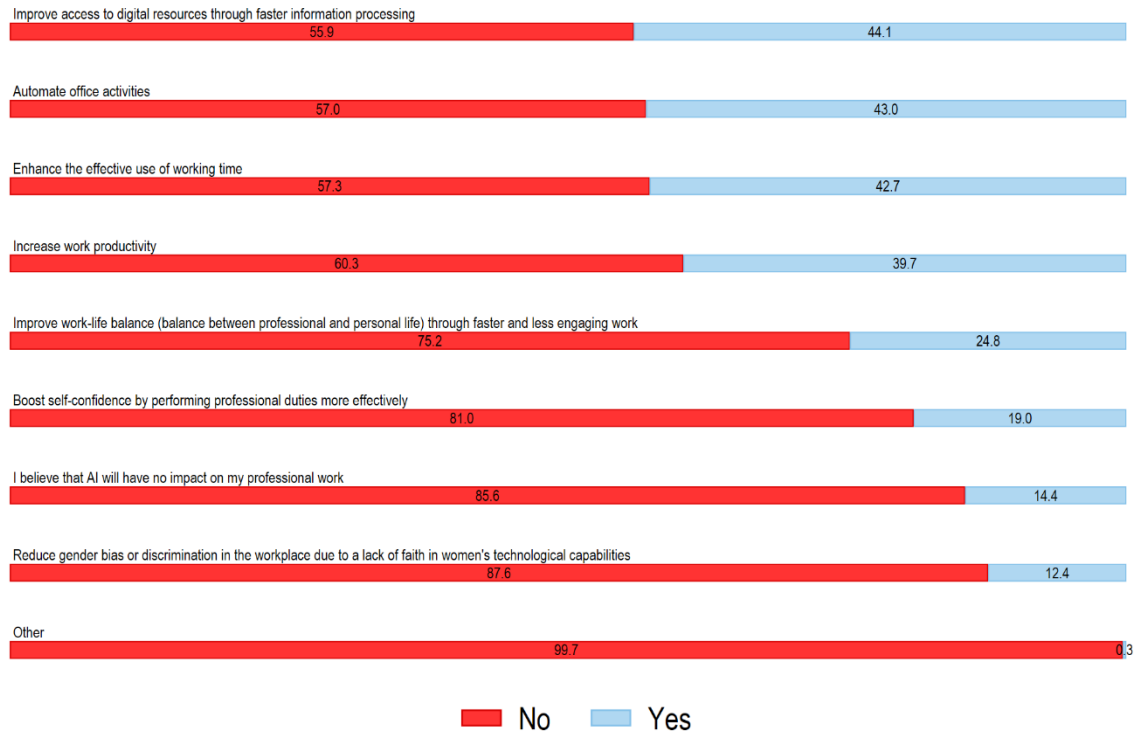


Figure A2. Please choose the areas in which you believe AI can assist you in your professional work
Source: own elaboration.



Figure A3. Please assess your concerns about the use of AI on a scale of 1 to 5 (1 = No concern, 5 = Significant concern)

Source: own elaboration.

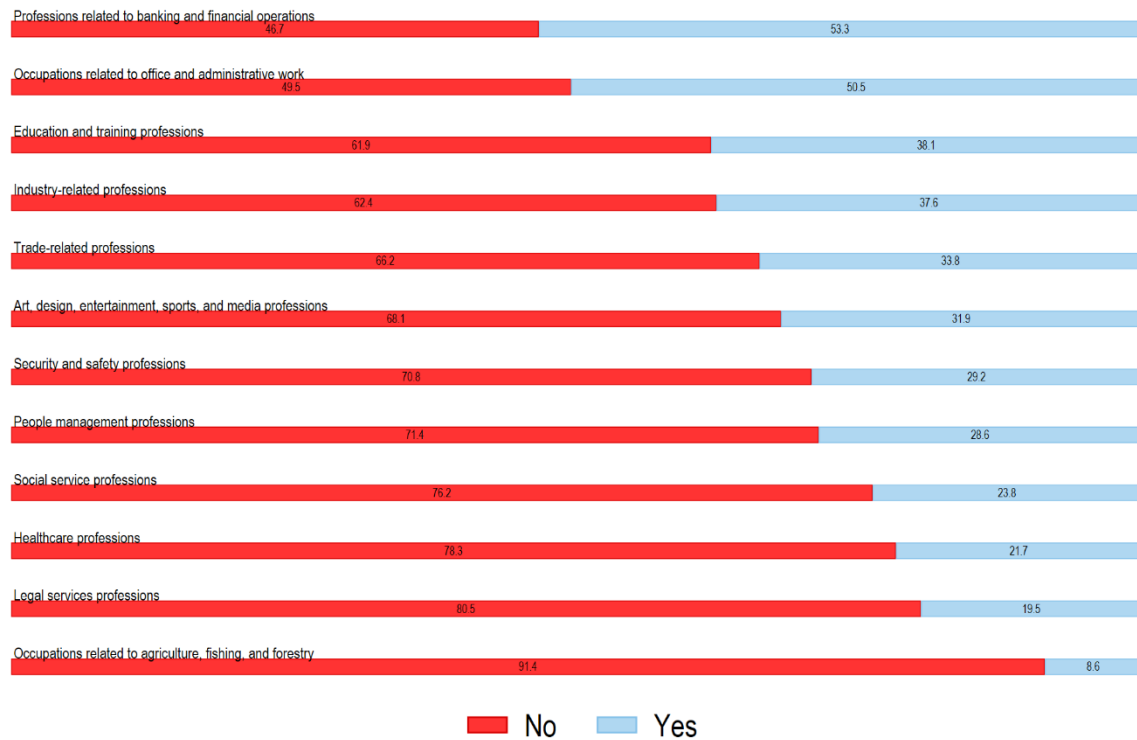


Figure A4. Please specify the professions where you believe AI is presently employed. You can select multiple options

Source: own elaboration.

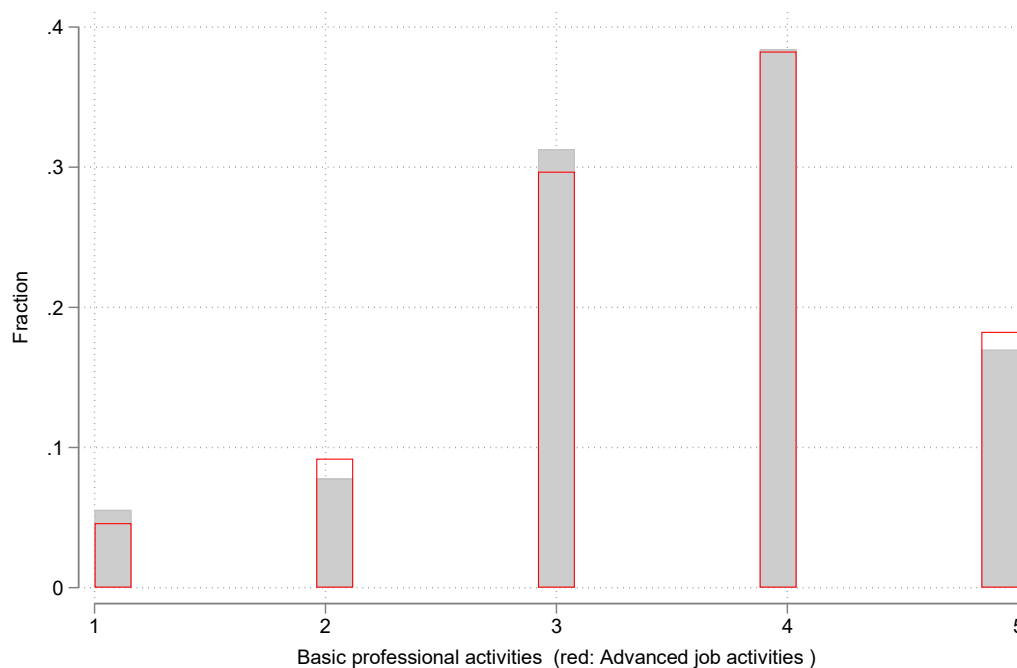


Figure A5. Please assess, on a scale from 1 to 5, where 1 signifies "Very low" and 5 signifies "Very high," the extent to which you incorporate AI into basic/advanced professional activities in your job.
Source: own elaboration.

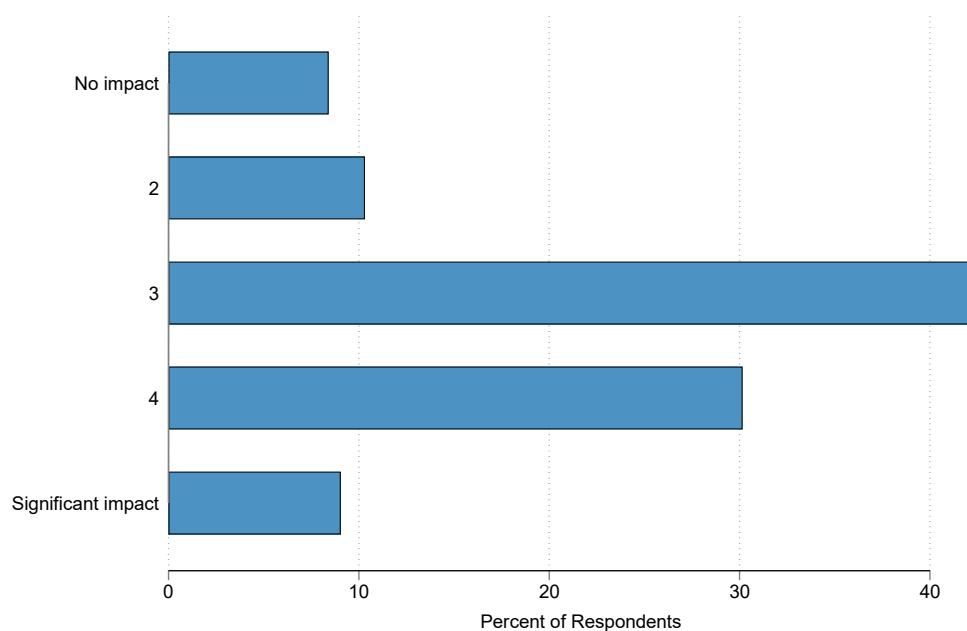


Figure A6. Please rate, on a scale of 1 to 5, how the utilization of AI influences your self-confidence in decision-making and problem-solving in your professional context (1 = No impact, 5 = Significant impact)
Source: own elaboration.

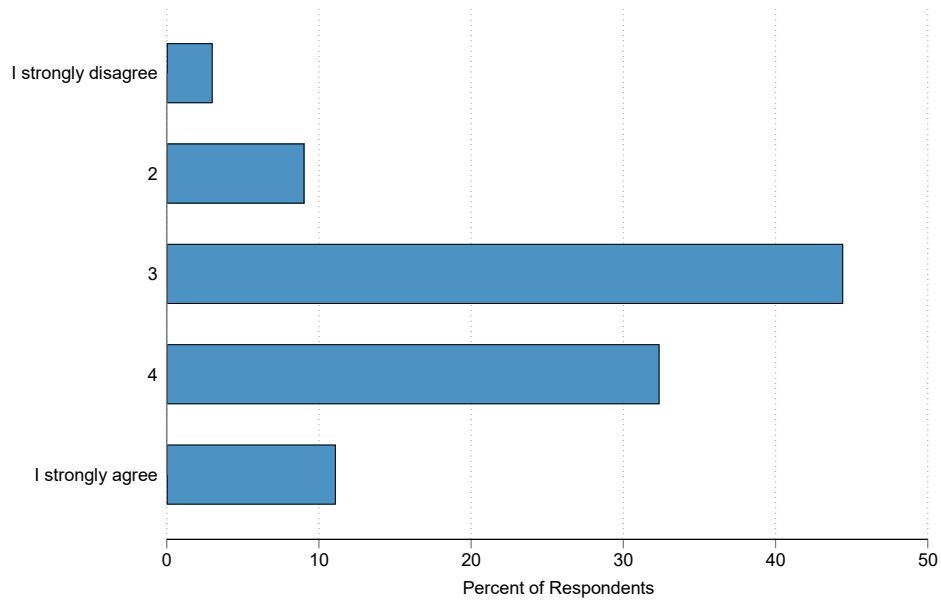


Figure A7. Indicate your level of acceptance of AI in your professional work on a scale of 1 to 5, where 1 signifies "I strongly disagree," and 5 signifies "I strongly agree"

Source: own elaboration.

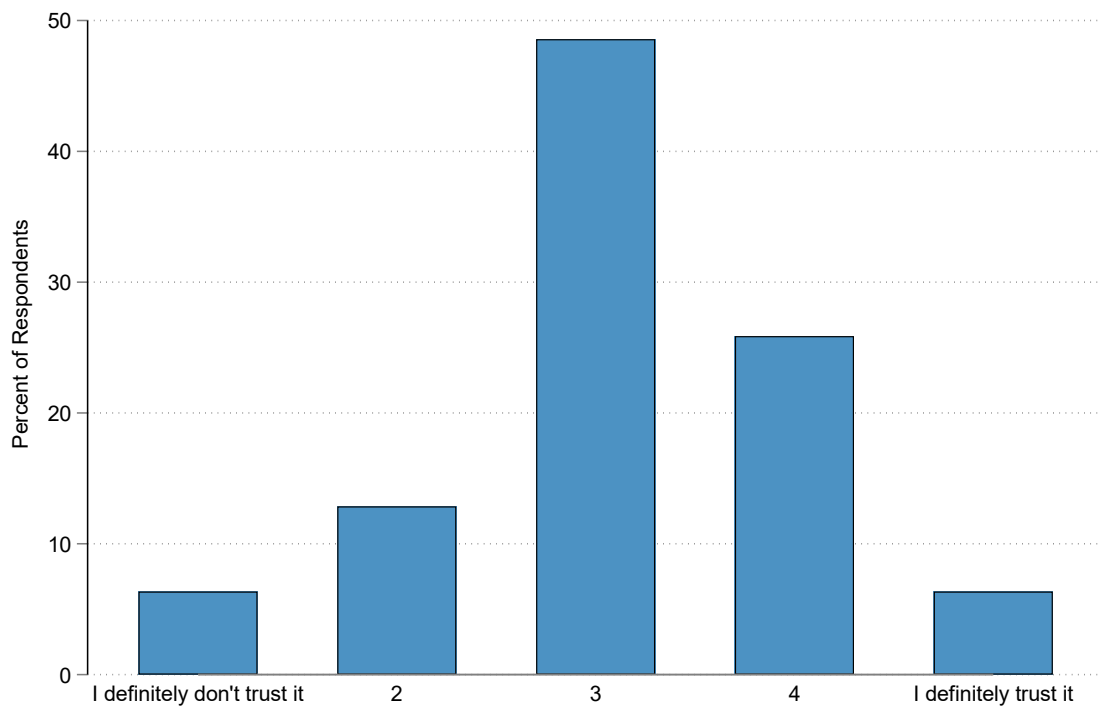


Figure A8. Rate your overall confidence in using AI in your professional work on a scale of 1 to 5, where 1 denotes "I definitely don't trust it," and 5 denotes "I definitely trust it."

Source: own elaboration.

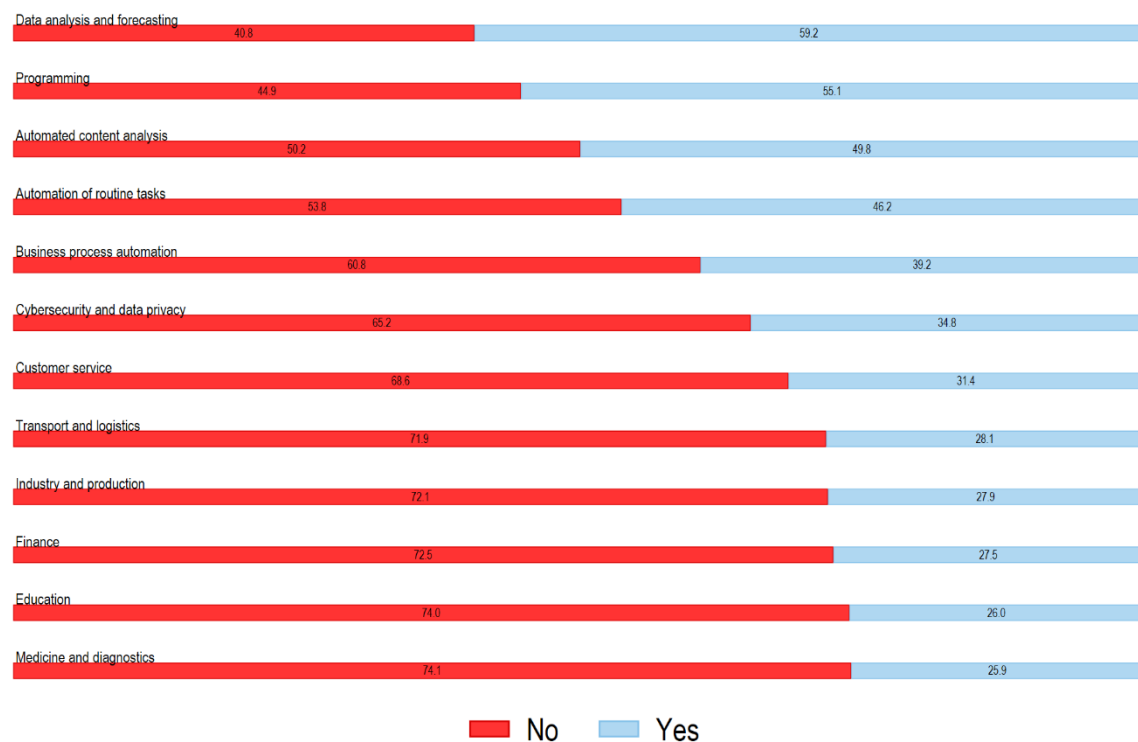


Figure A9. In envisioning the future, kindly specify the areas you deem most crucial for the application of AI. You can select multiple options
Source: own elaboration.

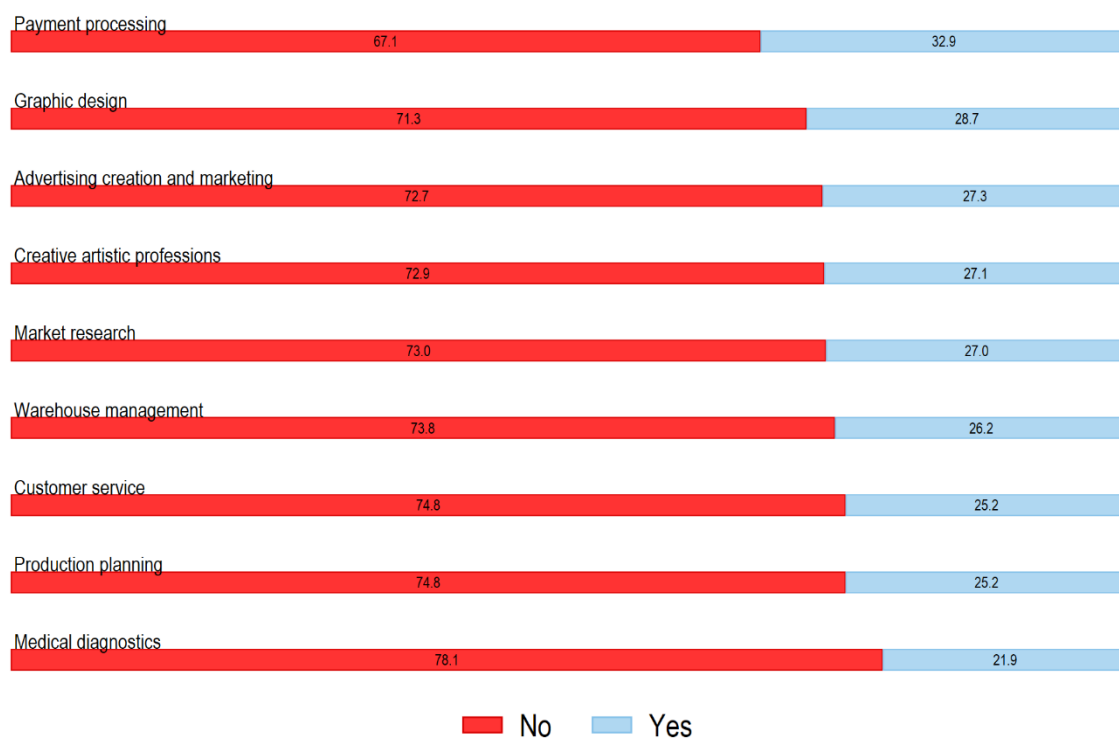


Figure A10. Select the areas where you believe developing digital skills is unnecessary, as you anticipate that AI algorithms will take over
Source: own elaboration.