

The Impact of Artificial Intelligence on the Labor Market in Romania

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Abstract. *In our time, the artificial intelligence is the newest digital distrupctor which can have an impact concerning how economics work. Automation and tech-driven layoffs have instilled a feeling of nervousness in some people, the possibility of being replaced with a robot slowly becoming a reality, thing who can impacted the employees. Therefore, this article wants to highlight the labour market and its defining characteristics in the context in which technology is constantly evolving, faster and faster, making people's work easier.*

Attitudes and behaviors of employees have been monitored, with a focus on their stance towards AI tools and the future of these tools within their respective fields of activity. Employees seem to be optimistic of AI's place in the workplace, viewing it more like a help than a threat, but they do believe regulations should be set in place in order to keep it under control. Few romanians are nervous about losing their job because of AI, some do not even believe they will ever use it in their field of work. Younger people seem to have higher awareness of the AI revolution, but they are not scared, they seem to be confident about their future in the workplace.

Keywords: artificial intelligence, digitalization, labor force, unemployment, salaries

Introduction

From an economic point of view, the analysis of the labor market is an essential element. Alongside GDP and the inflation rate, the unemployment rate is one of the most crucial macroeconomic indicators. In classical conception, the labor market operates similarly to other markets. Smith (2011, p.143) argues that, in the long term, any imbalance between the demand and supply of labor will be rectified through the mechanism of prices and the free market. It has been subsequently proven that the labor market is not ordinary, exhibiting many distinctive characteristics.

In recent years, technology has greatly influenced the labor market due to the advancement of digitalization and artificial intelligence. This aspect has created several opinions that the world has: some people believe that they are helped by artificial intelligence, making their work easier, but others feel threatened and think that they may lose their jobs. The only ones who are not at all affected by technological changes are teenagers.

Literature review

Government Intervention in the Labor Market

In periods of economic crisis, when the unemployment rate is high, the classical model tends to advocate for passivity, under the belief that the market will restore equilibrium in the long run. In contrast to this notion, Keynesian theory emerges, advocating for political intervention. According to Keynes (2009, pp.227-228), the cause of the imbalance is the absence of demand in the market, which can be artificially corrected through state-initiated investments. Many economic and fiscal regulation were changed by world leaders, thanks to Keynes's ideas.

Another way in which the state intervenes in the labor market is by imposing a minimum wage. In this regard, Friedman (2002, pp.180-181) argues that, despite good intentions, the result is disastrous, as restricting price freedom leads to an increase in market imbalance. Additionally, the minimum wage fosters an increase in tax evasion, which, in the long run, negatively affects workers as well (Tonin, 2011, pp.1635-1636).

In addition, people who do not have a job were helped by the state through increasing demand during downturns and imposing a minimum wage. Solidarity with those in need is beneficial for society; however, political regulations regarding social assistance must be very stringent, as otherwise, a vicious cycle may ensue where poorly paid workers opt for social assistance, the number of assisted individuals increases, along with the social contributions paid by employees, leading a new class of workers to prefer social assistance, and the cycle repeats (Ricardo, 1819, p.107).

Other Characteristics of the Labor Market

Government regulations are not the sole imperfections in the labor market. Contrary to the classical model, buyers and sellers do not possess complete information regarding the prices of other market players, and they do not easily find each other. There are search frictions, and Stigler (1961, pp.215-216) emphasizes that there is a positive relationship between search costs and wage margins. The classic concept of a uniform wage does not exist in real markets. Due to informational gaps, firms should offer slightly higher wages than those known in the market, motivating workers and thereby increasing productivity. The efficiency wage concept is beneficial for both parties (Stiglitz and Shapiro, 1984, p.433).

Another peculiarity of wages is their rigidity, which have much involvement in the era of globalization. Remunerations tend to remain fairly stable in the face of changing market conditions, with causes including contractual obligations of employers, state intervention, union pressures, and employees' aversion to instability (Taylor, 1979, p.109). Wage rigidity has many socio-economic implications, especially in the era of globalization. A contemporary issue faced by many affluent states is the increase in unemployment in commercial sectors, accompanying the outsourcing of work to developing countries where wages are lower (Keuschnigg and Ribi, 2009, pp.168-169).

The Impact of AI-based Tools on the Labor Market

Demand and supply have been strongly affected by the impact of digitalization in recent years, which is unprecedented. The most recent widespread disruptor in the digital realm is artificial intelligence and programs based on machine learning algorithms, which can be involved in many fields of activity and help people. On the other hand, artificial intelligence can also cause less pleasant effects, such as structural and technological unemployment and mass layoffs (Nissim and Simon, 2021).

The demand for labor is beginning to feel the influence of AI through the necessity for employees to acquire skills in the development and, especially, the use of AI-based programs, with the most targeted sectors being IT, architecture, and science (Alekseeva et al, 2021). Specialized human capital is one of the main requirements for digital transformation (Gofman and Jin, 2019). However, the specialization of human capital is not easy, as the pace of change in the labor market surpasses the adaptability of the educational system, widening the gap between the two year by year (Tavakoli et al, 2022). In this regard, AI can be helpful as well. Several authors (Colombo, Mercorio, and Mezzanzanica, 2019) highlight how, based on the information available online, a meta-analysis of skills sought by employers and available job positions can be conducted.

Methodology

The information gathering tool used in this research was an online questionnaire administered to 253 respondents using the snowball sampling technique. The survey was conducted between January 10th and February 20th, 2024. The response rate was around 14%, with a 6% margin of error at a 95% confidence level. The research method is probabilistic, which can affect the accumulation of information.

Results and discussions

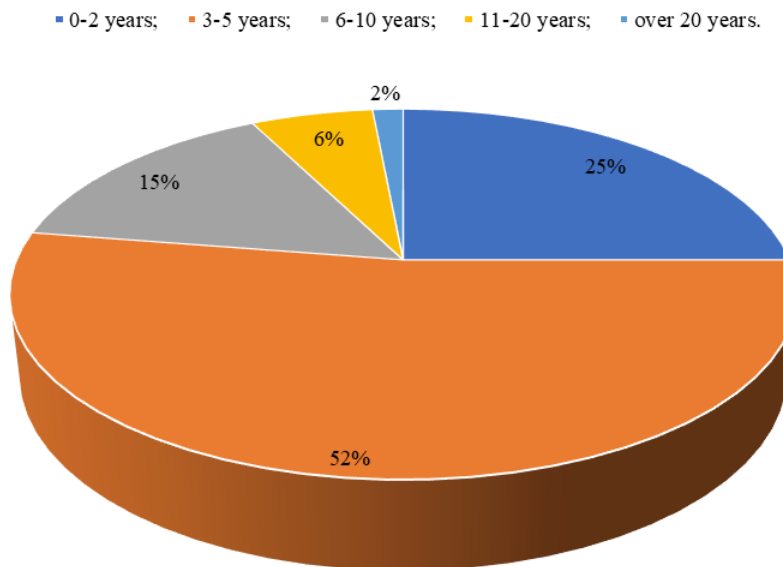


Figure 1. Professional Experience in Current Field

Source: Authors' own research.

The survey provides insights into the distribution of professional experience within the current field among respondents. A significant proportion, 52.5%, reports having accumulated 3-5 years of experience, indicating a substantial mid-level segment within the surveyed population. Those with 0-2 years of experience constitute 25.0%, while 15.0% have 6-10 years of experience. Respondents with 11-20 years of experience account for 6.0%, and a minor percentage of 1.5% boasts over 20 years of professional engagement in their respective fields. This specific and detailed data provides a good understanding of the workforce that addresses all categories, from the most experienced to those with very little experience.

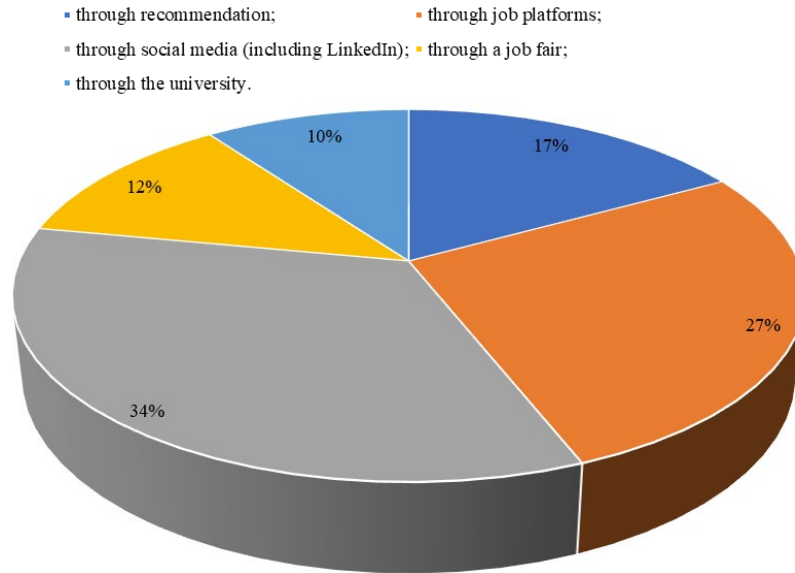


Figure 2. Job Acquisition Channels

Source: Authors' own research.

This study explains how people found their jobs. A notable 34.0% attribute their job discovery to social media platforms, including LinkedIn, emphasizing the increasing role of digital networking in contemporary job searches. Job platforms contribute significantly, representing 27.0% of respondents, while recommendations from personal networks account for 17.0%. Job fairs and university channels also play roles, with respective percentages of 12.0% and 10.0%. This multitude of ways to find a job is important to be well known by hiring companies to make the hiring process more efficient and for their company to be visible to those looking for a job.

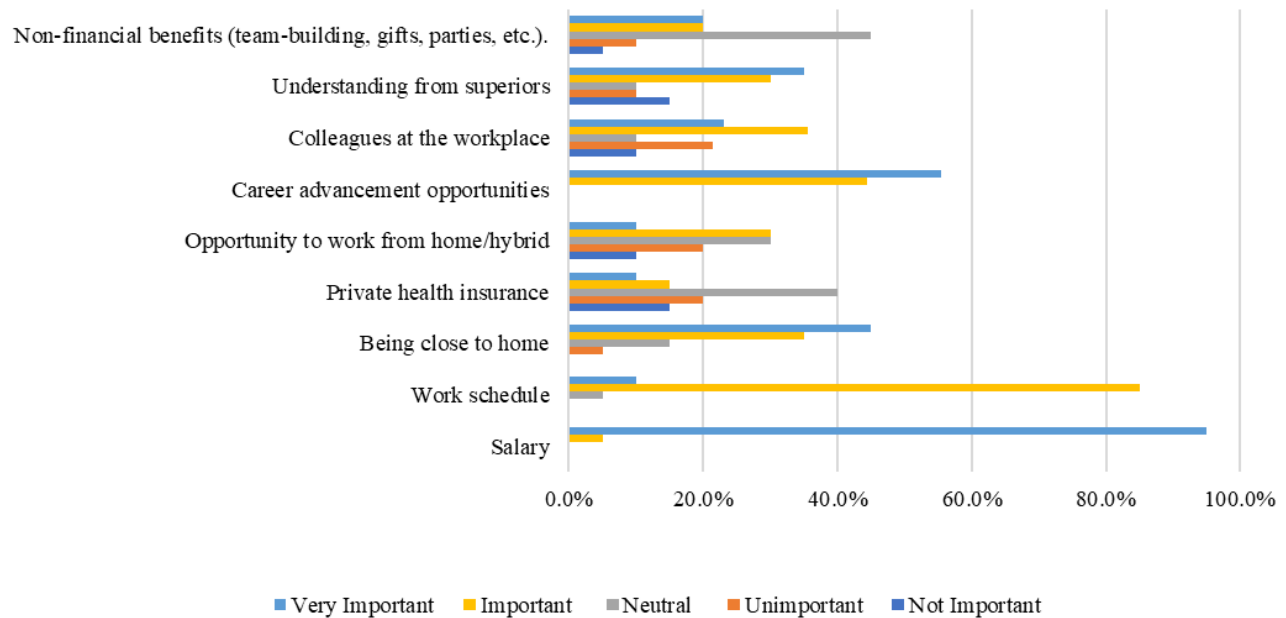


Figure 3. Importance Ratings for Job Aspects

Source: Authors' own research.

This study lists the factors that are considered for employment. Salary emerges as a highly significant factor, with an overwhelming 95.0% of respondents rating it as very important. Work schedule is predominantly considered important (85.0%), and being close to home is notably crucial, with 45.0% rating it as very important.

Private health insurance and the opportunity to work from home/hybrid are perceived as moderately important, with varying degrees of importance. Career advancement opportunities stand out prominently, with 55.50% indicating it as very important, highlighting the significance of professional growth in job satisfaction.

Colleagues at the workplace and understanding from superiors are valued, with a mix of importance ratings. Non-financial benefits, including team-building and parties, are considered neutrally to fairly important.

Employers understanding of workplace priorities contributes to a much more productive and satisfying work environment for employees.

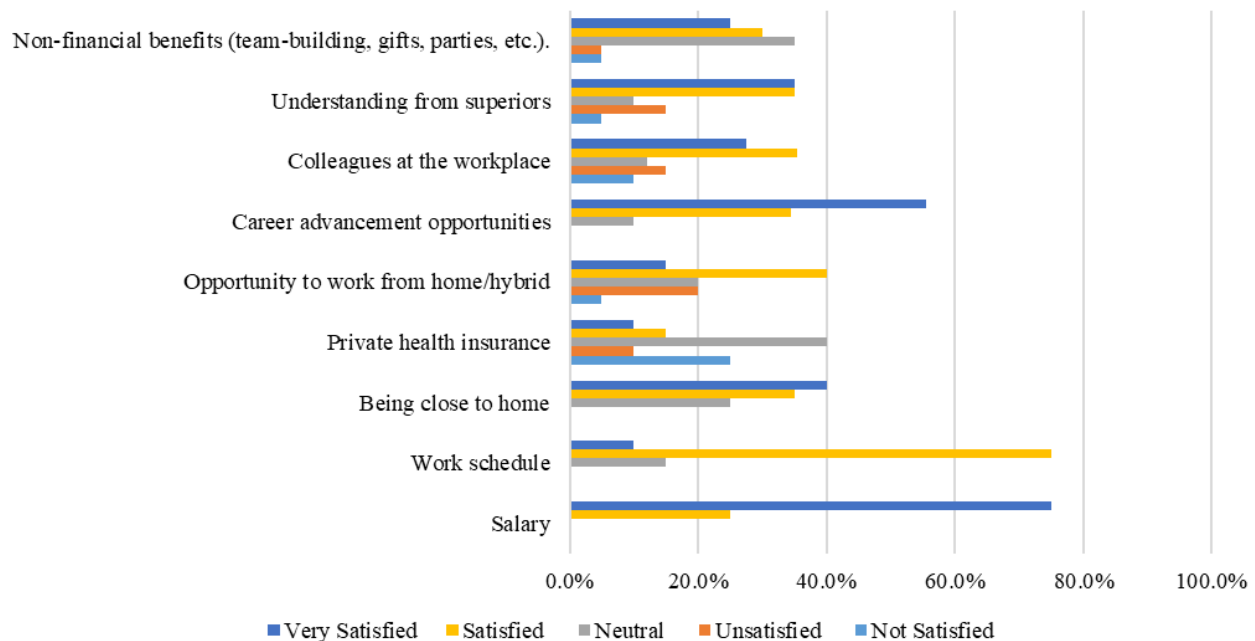


Figure 4. Job Satisfaction Ratings

Source: Authors' own research.

The survey reflects the diverse spectrum of satisfaction levels among respondents regarding different aspects of their current jobs. Salary and career advancement opportunities garner notably high satisfaction, with 75.0% and 55.50% respectively indicating very high satisfaction. Work schedule and being close to home also receive positive satisfaction ratings, demonstrating contentment in these areas.

Private health insurance, the opportunity to work from home/hybrid, and understanding from superiors exhibit varying satisfaction levels, indicating a nuanced range of sentiments. Colleagues at the workplace and non-financial benefits receive mixed satisfaction ratings, highlighting diverse perspectives on these aspects.

This detailed analysis of job satisfaction is important for employers and organizational leaders to know in order to fix existing problems and add positive aspects.

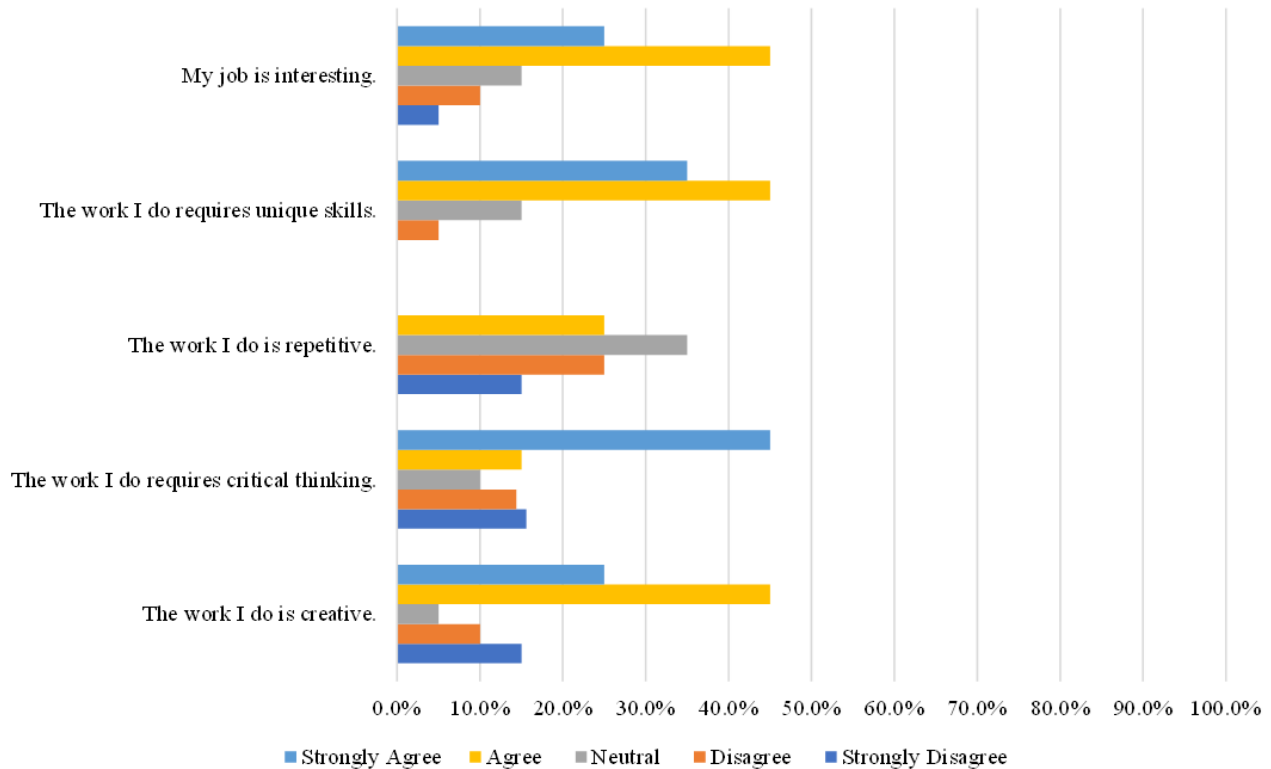


Figure 5. Agreement Ratings for Job Statements

Source: Authors' own research.

Respondents provided nuanced perspectives on various aspects of their jobs. A notable 45.0% agree that the work they do is creative, showcasing a considerable degree of perceived creativity in job roles. Another 45.0% claim that the skills needed for their job are critical thinking and intellectual engagement.

The perception of job repetitiveness is diverse, with 35.0% expressing neutrality, 25.0% agreement, and a notable 25.0% disagreement, suggesting varied experiences within the workforce regarding the repetitive nature of tasks.

The need for unique skills is highlighted, with 45.0% agreeing and 35.0% strongly agreeing. This aspect gives the respondents the feeling that their role is important and it requires specialized skills.

Interestingly, 45.0% agree that their job is interesting, emphasizing a positive overall sentiment toward the level of interest derived from their professional engagements.

This analysis is important because it offers perspectives on the employees skills, contributing to the understanding of job satisfaction and fulfillment.

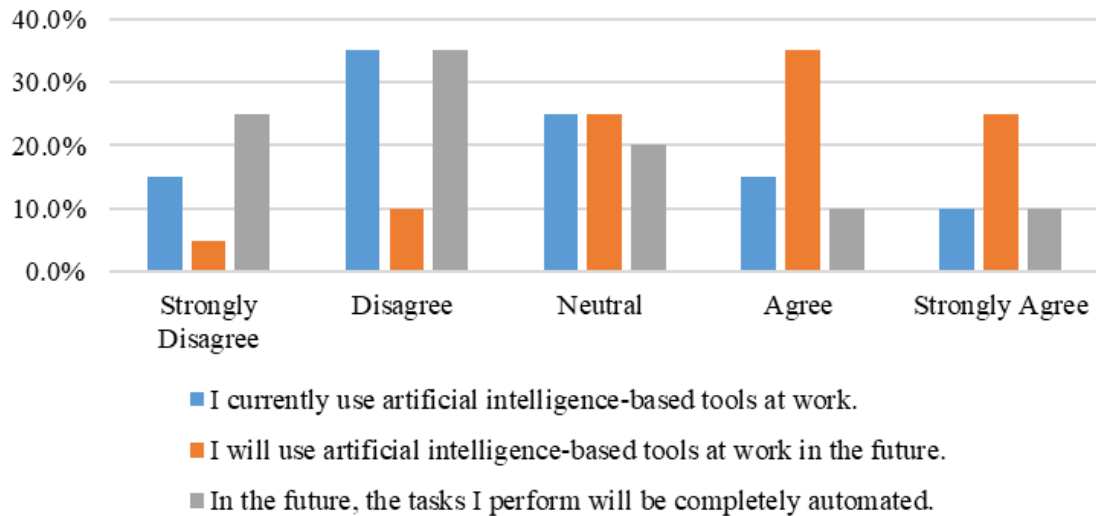


Figure 6. Agreement Ratings for AI-Related Statements

Source: Authors' own research.

Respondents provided diverse perspectives on the integration and impact of artificial intelligence (AI) in their professional spheres.

Regarding current usage, 35.0% express disagreement, indicating a significant portion of respondents not currently utilizing AI-based tools. Concurrently, 25.0% are neutral, and 25.0% foresee future utilization, emphasizing a potential upward trend in AI tool adoption.

When considering the future, only 10.0% strongly agree that the tasks they perform will be completely automated, while 35.0% express disagreement, suggesting a measured stance on the extent of automation in their roles.

This nuanced understanding of respondents' current and future interactions with AI-based tools provides valuable insights for organizations and policymakers aiming to gauge workforce readiness and perceptions regarding the integration of AI technologies.

Some age differences stand out here as well, the 26-35 group scoring the highest, around half of them using AI-based tools at work already. The correlation coefficient shows a weak link between age and AI usage at the workplace, but this could be investigated further.

Table 1. Correlation between age level and the use of AI in the workplace

	Age	I currently use AI tools at work.
Age	1	-0.25
I currently use AI tools at work.	-0.25	1

Source: Authors' own research.

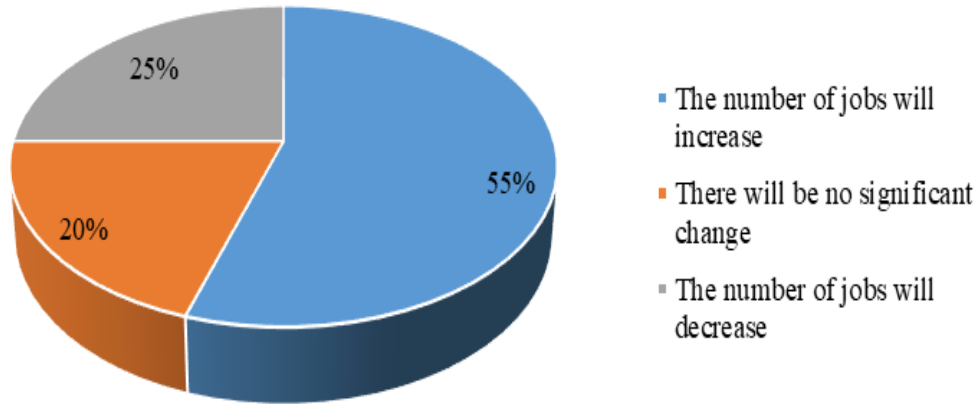


Figure 7. Agreement Ratings for AI-Related Statements

Source: Authors' own research.

Respondents' perspectives on the impact of artificial intelligence (AI) on the job market in Romania reveal a predominantly optimistic outlook. A substantial 55.0% anticipate that the implementation of AI will lead to an increase in the number of jobs. Concurrently, 20.0% believe there will be no significant change, suggesting a level of stability in the job market. A cautious 25.0% express the expectation that the number of jobs will decrease, highlighting a recognition of potential challenges or shifts in the employment landscape due to AI integration. This diversity of viewpoints underscores the need for comprehensive strategies and policies to navigate the evolving intersection of technology and the job market in Romania.

When asked if they are concerned that AI will replace them in the future, 6 in 10 respondents were in disagreement. It is interesting to see a correlation between this concern and age, the younger respondents scoring higher on this affirmation.

The Pearson coefficient has a value of $r = -0.49$ which indicates a medium reverse correlation between the 2. As age increases, concern of being replaced by AI decreases.

Table 2. Correlation between age level and AI replacement in the workplace

	Age	Concern of replacement
Age	1	-0.49
Concern of replacement	-0.49	1

Source: Authors' own research.

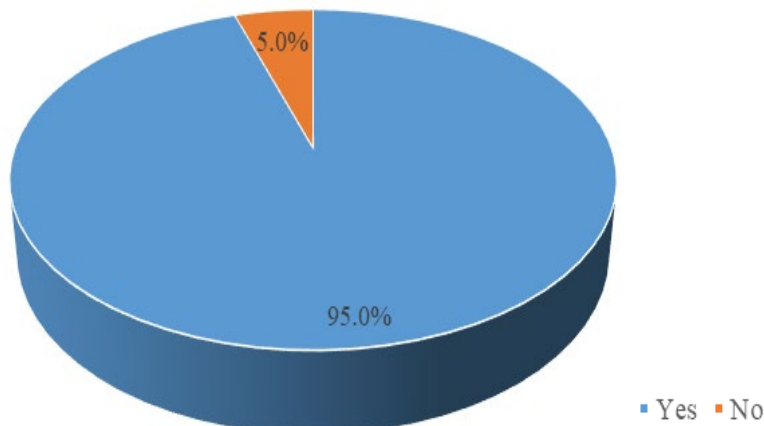


Figure 8. Opinions on Government Regulation of AI in the Workplace

Source: Authors' own research.

A striking majority of respondents, constituting 95.0%, believe that should be certain laws regarding artificial intelligence in the workplace. This overwhelming support for regulation indicates a strong consensus among the surveyed individuals regarding the necessity of guidelines and oversight to ensure responsible and ethical deployment of AI technologies in professional settings. The minority, at 5.0%, holds the opinion that government intervention is not required, suggesting a divergence of perspectives on the extent of regulatory involvement in managing AI in the workplace. This significant endorsement for regulation underscores the importance of establishing clear frameworks to address the challenges and opportunities presented by AI in the employment landscape.

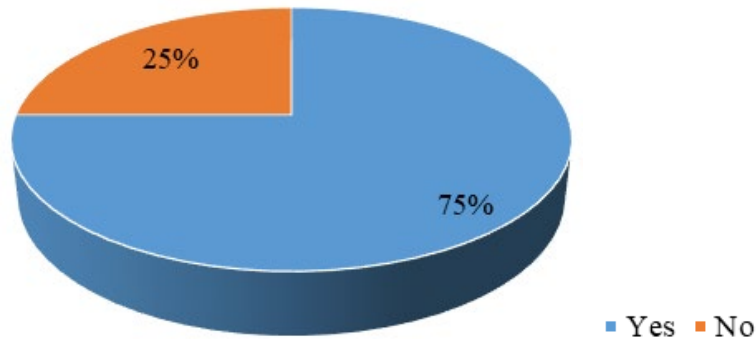


Figure 9. Opinions on Companies Investing in AI Training for Employees

Source: Autors' own research.

A substantial majority of respondents, comprising 75.0%, believe that companies in Romania understood the importance of artificial intelligence and want to increase the investment in employee training. Another 25.0% don't agree with the investment in the training of employees for the use of AI suggesting a diversity of perspectives on the role of companies in facilitating AI skill development among their workforce.

Conclusion

This quantitative research aimed to find out the perception of the employees and understand the impact of AI in labor market in Romania.

The majority of respondents, comprising 55.0%, express optimism regarding the influence of AI on the job market, anticipating an increase in the number of jobs. These positive figures show people's decision regarding the digitalization of the workplace.

Responsibility and ethical supervision are demonstrated by the large number of respondents (95%) who consider that government regulations regarding artificial intelligence are necessary at work.

A substantial 75.0% of respondents believe that companies in Romania should invest more in training employees in the field of AI. This high number of respondents who felt that investment is needed for employee training reflects or acknowledges the importance of digitization and artificial intelligence.

Despite concerns about potential job displacement, as indicated by 25.0% anticipating a decrease in jobs, the workforce appears balanced, with 20.0% foreseeing no significant change. This suggests a cautious optimism, acknowledging both the potential benefits and challenges posed by AI.

Gender-wise, a gender-diverse representation of 65.0% feminine and 35.0% masculine respondents ensures a comprehensive understanding of AI perceptions across diverse gender identities.

Demographic variations were also taken into account in the study, which highlights a balanced representation between urban (60.0%) and rural (40.0%) respondents.

Educational diversity is evident, with 75.0% having graduated from a university faculty. This majority with higher education underscores the importance of well-informed perspectives when addressing the integration of AI in professional domains.

The workforce's anticipation of AI's future role, with 35.0% expecting to use AI-based tools and 25.0% foreseeing tasks becoming completely automated, underscores a cautious optimism regarding the evolving nature of job responsibilities.

Respondents overwhelmingly recognize the need for AI education, as 75.0% believe that companies should invest more in training employees in AI. This collective stance advocates for proactive measures in preparing the workforce for AI integration.

75% of the respondents expressed satisfaction with the salary, reflecting a strong satisfaction with workforce at work.

The workforce's emphasis on career advancement, as indicated by 55.5% prioritizing this aspect, signals a collective aspiration for professional growth, aligning with the dynamic nature of the evolving job market influenced by AI.

The perceived importance of non-financial benefits, with 45.0% valuing team-building, gifts, and parties, emphasizes the multifaceted nature of job satisfaction beyond monetary considerations.

A discerning 95.0% agreeing with government regulation of AI in the workplace suggests a collective awareness of the potential ethical and societal implications of AI deployment, emphasizing the need for responsible governance.

The workforce's preference for AI as an aid but not a replacement, with 45.0% endorsing this view, indicates a balanced understanding of the symbiotic relationship between human expertise and AI technologies.

The varied distribution in responses regarding the expected influence of AI on jobs, with 20.0% foreseeing no significant change, demonstrates a diverse set of perspectives within the workforce, reflecting a complexity of attitudes towards technological advancements.

In conclusion, the study illuminates the intricate interplay between the evolving digital landscape, the workforce's perceptions, and the imperative for informed policies to navigate the integration of AI into the labor market in Romania.

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