

LABOR MARKET CHALLENGES IN BUSINESS TRANSFORMATION BY AI: EMPIRICAL EXPERIENCE OF SELECTED EUROPEAN COUNTRIES

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ABSTRACT

Technological transformation, changes in the structure of workplaces, economic and environmental pressures shape business models and the behavior of participants in the labor market in all European countries. This paper explores the impact of artificial intelligence (AI) on the labor market in Europe, which can still be assessed as uncertain. Focusing on the transformation of business models, the paper identifies key challenges: job polarization, the growing digital skills gap and the need for urgent reskilling initiatives. Analyzing empirical data, it explores how AI is redefining labor demand by pushing certain workers out of the market and creating a need for workers with specific technological competencies. The results reveal considerable disparities in AI adoption across European countries, with Scandinavian economies demonstrating significantly higher levels of enterprise AI usage than Southeastern and Eastern European countries. The findings further indicate that skills shortages, demographic pressures, and limited technological readiness represent major barriers to successful business transformation. Scenario analysis suggests that the future resilience and competitiveness of European labor markets will depend on technological sovereignty, continuous workforce adaptation, and effective public policies supporting innovation and social inclusion. Sectoral evidence confirms that the effects of AI differ substantially across industries, requiring tailored approaches to workforce development and digital transformation. The results indicate the necessity of synergy between business strategies and public policies in order to mitigate structural disruptions in the labor market and preserve the well-being, safety and protection of those who suffer the negative effects of artificial intelligence on wages and employment.

Keywords: *artificial intelligence adoption, labor market structure, technological sovereignty, circularity, adaptability and reskilling*

1. INTRODUCTION

According to the [World Economic Forum \(2025\)](#), technological progress, led by the spread of digital access, artificial intelligence and automation, is the most powerful driver of change in the global labor market until 2030. These trends will lead to the opening of about 170 million new technology jobs such as experts in artificial intelligence, big data analysis and software, but also to the closing of about 92 million stable administrative and clerical positions. Rapid change also brings high volatility of skills, with analytical

thinking, technological literacy and security becoming the fastest growing and most in-demand competencies. In addition to technology, economic and environmental pressures such as rising costs of living and environmental protection are shaping modern business models and polarizing the labor market by forcing companies to develop resilience and agility, while valuing flexibility and creative thinking. Demographic differences, the aging of the population in developed countries and the growth of the working population in developing countries are further transforming the labor market (Nguyen et al., 2026). Since there is a gap between required and offered skills, mass additional training and reskilling of employees has become the norm. In this regard, companies are increasingly focusing on preserving the welfare of workers and setting wages in line with productivity growth.

Radukic et al. (2019) determine that countries with higher efficiency in the goods market achieve more favorable indicators in the labor market, indicating that competitiveness is key to technological transformation. The findings highlight significant regional differences and the problem of brain drain, which is a primary challenge for adapting the workforce in the context of the introduction of artificial intelligence.

The impact of the business transformation caused by the development of artificial intelligence on changes in labor markets in Europe is huge and covers areas from education to competition and innovation and even inequality (Agrawal et al., 2026). European public policies must promote the adaptation of the educational system to artificial intelligence, to manage the costs arising from the possible disappearance of jobs through active employment policies, to provide infrastructure that supports the development of artificial intelligence, to develop a regulatory framework that provides legal certainty and protects those workers who suffer the negative effects of artificial intelligence on wages and employment.

While the literature review synthesizes existing evidence on the relationship between artificial intelligence and labor market transformation, the original contribution of this study lies in its comparative empirical analysis of selected European countries, identifying regional disparities in AI adoption, sector-specific patterns of business transformation, and policy implications for workforce adaptation and digital skills development. The cumulative impact of artificial intelligence on the labor market will depend on a number of factors, among which can be distinguished: the relationship between the jobs that artificial intelligence complements and those that are replaced, productivity increases, income levels, increased demand for goods and services that will require workers and new occupations that arise as a result of artificial intelligence, either directly or due to the emergence of new products, services or business models (Hunady et al., 2025). Therefore, the paper will examine the hypotheses:

- In countries with higher levels of economic development and employment, there are greater possibilities of adopting AI technology.
- AI will significantly affect the transformation of business and the labor market.

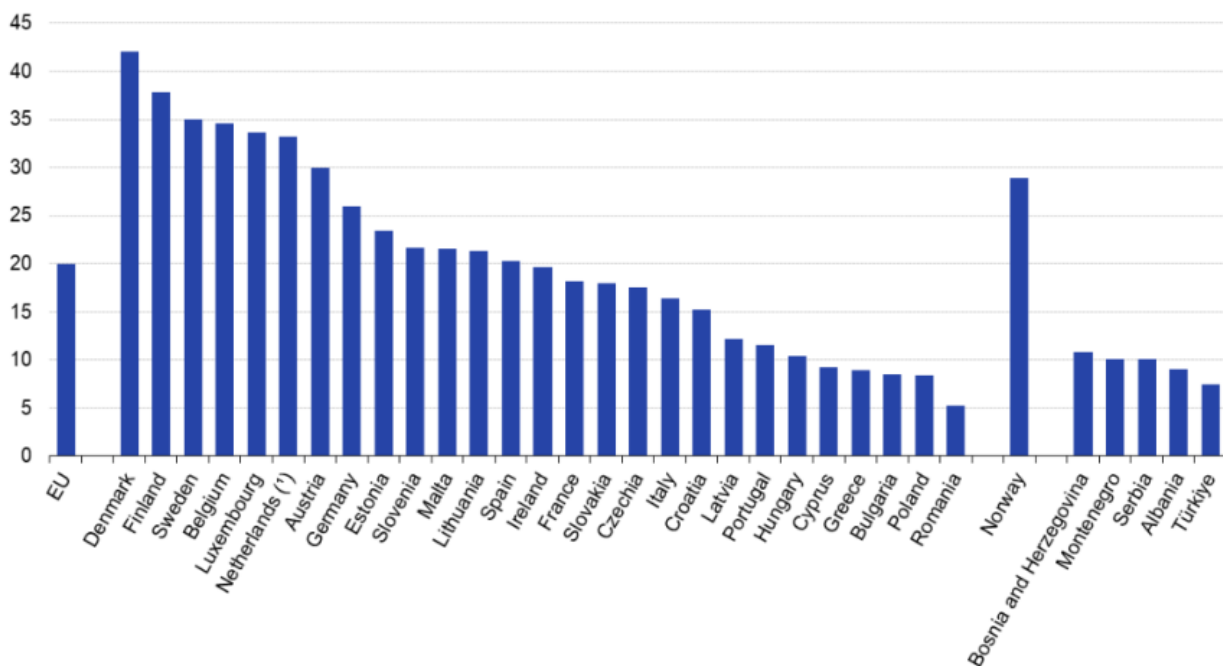
The paper is organized as follows. Section 1 presents theoretical background in favor of labor market structure and generative artificial intelligence. Section 2 explains labor market scenarios for the next decade. Section 3 deals with the research results and discussion. Last Section concludes the paper with implications derived from the findings.

2. LABOR MARKET STRUCTURE AND GENERATIVE ARTIFICIAL INTELLIGENCE

The current state of the OECD labor market provides a key empirical basis for understanding the conditions under which business transformation takes place. Record high rates of employment (72.1% in the first quarter of 2025) and labor force participation

(76.6%), with historically low unemployment at 4.9%, show that businesses in Europe and the rest of the OECD are driving the AI transformation in an extremely tight labor market. However, early signs of a slowdown and a decline in employment growth (from 0.20 to 0.12 percentage points) indicate that macroeconomic pressures, geopolitical uncertainties and announced tariffs may limit the resources companies have available to invest in advanced technologies and retraining. Structural changes in worker preferences and wage dynamics further shape the space for implementing AI solutions in European countries. AI can serve as a tool to optimize processes where specific personnel are still lacking. At the same time, the stability of real wage growth (an average of 2.5% in 33 out of 37 countries) and the growth of unit labor costs in relation to profits create a strong economic incentive for companies to raise productivity through automation and AI transformation. The flexibility workers demand, reflected in the rise of voluntary part-time work, also coincides with the need for digitally transformed workplaces that support new work models (OECD, 2025).

Figure 1. Percentage of enterprises in Europe using AI technologies in 2025



Source: Eurostat

Based on the Figure 1, the enterprises in Scandinavian countries are leading in the use of AI technologies (Denmark 42.03%, Finland 37.82%, Sweden 35.04%, Norway 28.89%). However, in countries such as Cyprus, Greece, Bulgaria, Poland and Romania, less than 10% of enterprises use AI technologies. In non-EU countries, such as Bosnia and Herzegovina, Montenegro, Serbia, Albania and Turkey, at most about 10% of enterprises use these technologies.

The latest studies confirm that changes in the labor market are conditioned by the adoption of artificial intelligence technologies in large companies in Europe. Based on panel data econometrics and supervised machine learning techniques, it was determined how public health expenditures, credit access, export activity, inflation, capital formation, openness to trade, and labor market structure affect the intensity with which companies adopt at least one artificial intelligence technology. The adoption of AI tools has been shown to be associated with higher GDP per capita, health care spending, inflation and openness to trade, but lower levels of credit, exports and capital formation. Labor markets with high unemployment are characterized by reduced adoption of AI. Cluster analysis identified

groups of European Union member states with a similar level of AI adoption that are most often accompanied by higher economic and institutional development. Namely, the spread of artificial intelligence is shaped by technological readiness and opportunities for investment, but also by macroeconomic conditions and fair labor institutions. Targeted public policies can accelerate the equitable adoption of AI technologies within the European labor market (Drago et al., 2025).

Research by Borissov & Hristozov (2024) indicates that the application of artificial intelligence, primarily through software solutions for automation, will lead to a transformation of the structure of jobs in Europe and an increase in productivity between 11% and 37% by 2035. Although focused on the public sector, the paper highlights key challenges for the labor market in the context of business transformation, which include the necessity of process optimization and rapid adaptation of the workforce to new technological demands.

However, the impact of artificial intelligence on the labor market can still be assessed as uncertain. On the one hand, the overall effect on existing occupations must be considered, which will depend, among other things, on the degree of overlap between the possibilities of artificial intelligence applications and the tasks performed by the worker, as well as the degree of workplace protection due to technical, legal or ethical reasons. In this regard, three types of occupations can be distinguished (CaixaBank Research, 2024):

- a) High exposure to AI and high workplace protection. The technical potential of artificial intelligence is high, but the degree of workplace protection is also high. In these professions, artificial intelligence can improve the skills of workers (doctors, lawyers).
- b) High exposure to AI and low workplace protection. The technical potential of artificial intelligence is high and the level of workplace protection is low. In these jobs, artificial intelligence could improve the skills of workers and replace them (call center operators).
- c) Low exposure to AI and low technical potential of artificial intelligence. These occupations would not be greatly affected by the development of artificial intelligence (artists).

Generative artificial intelligence is one of the most revolutionary technologies of the modern age. It creates, imitates, and enhances content of all kinds, making it a general-purpose technology with the potential for business, economic, and ultimately social transformation. Generative AI impacts productivity as it accumulates business value and shapes the workforce (McKinsey & Company, 2023).

Empirical studies, which mostly have a microeconomic character and refer to certain occupations, show that artificial intelligence has a very high potential to increase the productivity of workers. For example, in a controlled experiment, it was found that the time spent on a task involving writing text was reduced by about 40% for workers who used ChatGPT (Noy & Zhang, 2023). It was also estimated that contact center productivity, as measured by the number of issues resolved per hour, increased by 14% due to the impact of artificial intelligence on less experienced workers, although the impact was not significant for more experienced workers. One conclusion that emerges from these studies is that AI improves the productivity of workers who start out with lower productivity levels because it accelerates their skills and allows them to overcome the learning curve more quickly (Brynjolfsson & Raymond, 2025).

A big challenge for European countries is to exploit the full potential of AI. The transformative capacity of generative artificial intelligence stems from its multi-purpose nature and impact on different sectors and activities. It represents the basis for continuous growth

and development of other technologies and processes. Moreover, its specificity is reflected in its great accessibility and adaptability because its use does not require much knowledge, and the infrastructure it needs already exists. So, while in Europe before ChatGPT only 10% of companies used artificial intelligence, this percentage is expected to increase dramatically in the coming years (the goal is to reach 75% by 2030, according to the [European Commission, n.d.](#)). This implies that the impact of artificial intelligence on productivity could materialize in a much shorter time frame, that is, within a few years, not decades.

It is difficult to predict precisely what the effect of artificial intelligence on employment in a particular occupation might be. It is estimated that in occupations with high exposure to artificial intelligence and high protection, an increase in worker productivity would reduce the number of employees needed for a certain level of production. However, if demand for the goods or services produced by these types of workers increases sufficiently, then the number of employees in these categories may increase (the costs of these goods and services would decrease due to increased productivity).

Digitization and new technologies are expected to bring only a slight acceleration of productivity, while explosive growth is unlikely. The net effect of digitization on employment is likely to be negative, but it is uncertain how much this will be offset by greater availability and the creation of new types of goods and services. Employment itself will depend on the speed of adaptation of the educational system to technological changes and the needs of the labor market, as well as opportunities for professional education and retraining, while the additional reduction of working hours represents an important reserve for mitigating the decline in employment and increasing the well-being of citizens. In the long run, the slowdown and transition to negative world population growth will lead to a reduction in the labor force, so full employment will be achieved even with a reduction in the number of jobs ([Arsić, 2020](#)).

3. LABOUR MARKET SCENARIOS FOR THE NEXT DECADE

Figure 2 shows that digitalization is expected to reshape the structure of employment across European Union member states over the next decade. According to [Teigland & Wiberg \(2025\)](#), there are four scenarios for the labor market in EU in 2035:

- Scenario 1: *Race to the Bottom: China in EU's Driver's Seat*,
- Scenario 2: *The Wild West: EU in Total Disarray*,
- Scenario 3: *Circularity: The EU as a Sustainable, Resilient Island*,
- Scenario 4: *A Transformed World: The Sky Is the Limit*.

In the context of analyzing the impact of artificial intelligence on business transformation, the presented scenario matrix clearly illustrates that labor market challenges in Europe directly depend on the intersection of political integration and the direction of technological development. The most favorable conditions for workforce adaptation are achieved in Scenario 4 ("A Transformed World"), where high political will and a focus on technology for exploration enable a synergy between innovation and worker retraining. Conversely, Scenario 1 ("Race to the Bottom") and Scenario 2 ("The Wild West"), which rely on technology solely for exploitation, pose the greatest risks to the workforce. Within these frameworks, a lack of coordinated policy or a loss of technological sovereignty to global competitors, such as China, could lead to mass technological unemployment, a widening digital divide, and structural disarray in the European labor market.

Figure 2. Four alternative futures for the EU in 2035

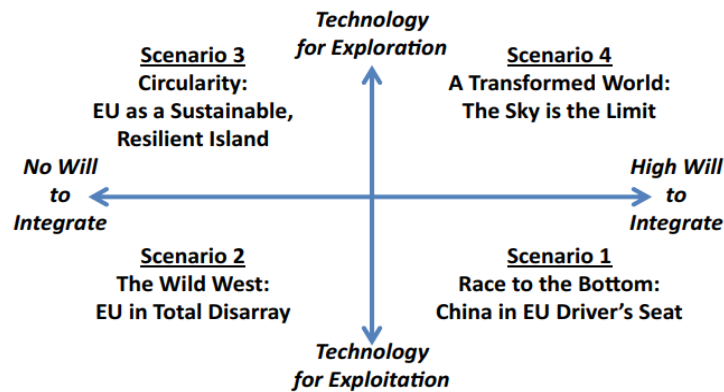


Fig. 10.1 The year 2035: Four alternative futures for the EU

Source: Teigland & Wiberg, 2025

Within the scenario “Race to the bottom: China in EU Driver’s Seat”, projected for the labor market of the European Union until 2035, global efficiency becomes primarily dictated by the synergy of digital technologies and quantum computers, whereby Chinese and American technology corporations assume an absolute leadership position and external coordination of European labor flows. This asymmetric influence of external technology giants results in a deep polarization of jobs and the generation of dramatically different work profiles. Namely, while highly skilled technological and AI jobs are concentrated in the north of Europe in the sectors of mining, advanced manufacturing and autonomous vehicles, the geographical areas of central and southern Europe are reserved for high-tech, but primarily precision agriculture; at the same time, the entire continent is being flooded with low-skilled service jobs in the local, labor-intensive health and care sectors. This profound structural divergence devalues internal cohesion, reducing its labor market to a fragmented platform subordinated to the profit optimization of extraterrestrial technological monopolists.

While the scenario “Race to the bottom: China in the EU Driver’s Seat” foresees the complete technological and economic dominance of China, which becomes the global leader in AI standards and protection. This scenario is characterized by a decline in EU competitiveness, dependence on Chinese supply chains and the deployment of mass surveillance technology. Europe is losing technological sovereignty, but retains a semblance of economic functionality under the dictates of multinational corporations. The scenario “The Wild West: EU in Total Disarray” takes a step further into the future. While the first scenario is characterized by rigidly coordinated polarization under the control of foreign capital, the second scenario foresees the economic regression of the European Union due to protectionism, trade wars and the collapse of the WTO, leading to deep stagflation, mass bankruptcies and extreme poverty. In the face of cybercrime and destruction of infrastructure, the EU abandons digitization and green projects, redirecting resources to the defense industry

In the conditions of globalization and general instability, digital technology in “The Wild West” scenario loses its primary role as a generator of economic growth and becomes exclusively an instrument of physical and online security. The labor market in such an environment is experiencing a complete collapse, fueled by a drastic economic decline and the dominant expansion of the gray economy, which completely replaces legal flows. The employment structure is losing its middle layer and polarizing into extreme categories: high-tech jobs are becoming rare, located exclusively within the dedicated industry and national defense sectors in small and medium-sized enterprises. On the other hand, the vast majority of the working-age population is permanently relegated to the zone of tem-

porary unstable jobs, dependent on low-skilled daily jobs on the black market, without any legal and social protection.

Against visions of technological dependence, the third scenario of “Circularity: EU as a Sustainable, Resilient Island” projects a radically different transformation in which the European Union successfully establishes technological sovereignty and ecological sustainability. Digital technology is no longer an instrument of external exploitation or a tool for crisis management, but becomes the primary driver of economic development and closed cycles of production (circularity). Through a significantly strengthened common industrial policy, the EU manages to generate stable, high-tech jobs evenly distributed across all economic sectors. The key pillar of this transformation is an innovative ecosystem driven by advanced artificial intelligence, which radically changes the dynamics of the labor market. Instead of polarization, the workforce is characterized by high adaptability, given that individuals, with the systemic support of generative artificial intelligence, go through continuous processes of additional training and reskilling and reskilling. In this way, economic growth in Europe is based on internal innovation, social security and human-centered technological development.

The fourth scenario “A transformed world: the sky is the limit” projects a radically redefined global reality because the synergy of digital technology and comprehensive quantization optimizes the existing system and creates a completely new structure of the labor market. Here, the European Union occupies an absolute leadership position at the global level, positioning itself as a leader whose focus is on long-term sustainability. An extreme technological leap and automation lead to a transformation of the concept of work and working time. Namely, the labor market in high-tech sectors is moving to a three-day work week, while, along with the dramatic freeing of citizens’ free time, a massive and highly developed leisure industry is being generated. Work loses its traditional role as a mere means of survival and is transformed into a sphere of personal development and innovation, which successfully realizes a post-scarcity welfare society under the auspices of European technological sovereignty.

The comparative analysis of the four presented scenarios of the development of the European labor market until 2035, from the loss of sovereignty to the sustainable closure of the economy, up to the radical utopian transformation, gives clear and urgent signals to the creators of public policies. These scenarios indicate that the future of the labor market will not be a passive result of technological development, but will directly depend on the strategic decisions made today. In this regard, the key implications for the creators of economic and regulatory policies can be systematized through three fundamental pillars:

- The imperative of technological sovereignty suggests that continuous investment in quantum computing and artificial intelligence infrastructure is necessary because this is the only way to reduce dependence on American and Chinese technological monopolies.
- The reform of educational systems and the concept of lifelong learning require the creation of an institutional framework for mass retraining of workers, where generative AI must not be treated as a threat that replaces people, but as an inclusive tool that improves human cognitive abilities and facilitates learning.
- Proactive regulation of the labor market and social protection in order to prevent the breakdown of social cohesion and the transition of the working-age population to the gray economy. Conceptualizing more flexible working hours and a simplified social security system must accompany the automation of traditional occupations.

Ultimately, the above scenarios suggest that passivity leads to fragmentation, while only proactive, environmentally aware and technologically sovereign policies can create stable, fair and high-tech labor markets.

4. METHODOLOGY AND DATA

This study adopts a quantitative descriptive-comparative research design based on the analysis of secondary data to examine the impact of artificial intelligence and digital transformation on business processes and labor market dynamics in Europe. The empirical analysis relies on data published in the World Economic Forum's Future of Jobs Report 2025, which provides harmonized survey-based information collected from organizations across Europe and other world regions. This source was selected because it offers comprehensive, internationally comparable, and standardized indicators on technological adoption, labor market trends, skills development, organizational transformation, and sectoral dynamics, ensuring methodological consistency and a high level of reliability in data interpretation.

The secondary data were systematically selected according to their relevance to the research objectives. The analysis focuses on four key dimensions: (a) macroeconomic and technological trends driving business transformation, (b) the projected evolution of workforce skills by 2030, (d) organizational barriers to business transformation, and (c) sectoral differences across 22 European industries. The analytical procedure was conducted in several stages. First, a comparative analysis of European and global indicators was performed to identify regional specificities in labor market restructuring, AI adoption, technological transformation, and demographic pressures. Second, a temporal comparison of core workforce skills between 2025 and the projected requirements for 2030 was carried out to examine the transition from predominantly cognitive and interpersonal competencies toward hybrid profiles combining advanced digital and technological capabilities. Finally, a sector-level comparative analysis was undertaken to identify differences in AI exposure, labor-market churn, skill disruption, and organizational priorities across European industries, highlighting sector-specific patterns and notable anomalies.

The empirical findings were interpreted using descriptive statistical analysis supported by the existing theoretical and empirical literature on artificial intelligence, digitalization, and labor market transformation. This approach enabled a comprehensive assessment of the relationships between technological progress, workforce restructuring, and future skill requirements while providing a robust basis for discussing the implications of AI-driven business transformation for the European economy.

The study is subject to several methodological limitations inherent to the use of secondary data. The analyzed indicators are based on organizational survey responses and therefore reflect managerial perceptions and strategic expectations rather than direct measurements of actual labor market outcomes. In addition, the projected skill requirements for 2030 represent forecast-based estimates that may be influenced by unforeseen macroeconomic developments, regulatory changes, or disruptive technological breakthroughs. Nevertheless, the standardized and internationally comparable nature of the dataset provides a solid empirical foundation for analyzing current trends and assessing the future direction of business and labor market transformation in Europe.

5. RESEARCH RESULTS AND DISCUSSION

Table 1 shows comparative data for Europe and the global level on the transformation of business and the labor market, where it is clear that digitization and artificial intelligence are the primary drivers of change. As many as 90% of European and 88% of global organizations are already implementing AI programs, while the vast majority recognize technologies for data processing and automation through robots as key factors for future development. This mass technological integration directly causes great dynamics in the labor market, so in the next five years structural change is expected in about a fifth of jobs

(21% in Europe, 22% globally), with disruption and change of more than a third of the basic work skills of employees.

Table 1. Labour market trend outlook, macrotrends and technological trends in business transformation

Trend outlook	Europe	Global
Labour-market churn (Five-year structural labour-market churn)	21%	22%
Skill disruption (Shares of core skills which will change)	36%	39%
Organizations with DEI priorities (Share of organizations with Diversity, Equity, and Inclusion priorities)	84%	83%
AI exposure (Share of organizations running AI programmes)	90%	88%
Macrotrends driving business transformation (Share of organizations surveyed that identified this trend as likely to drive transformation in their organization)		
Broadening digital access	57%	60%
Rising cost of living, higher prices or inflation	51%	50%
Ageing and declining working-age populations	49%	40%
Increased focus on labour and social issues	47%	46%
Slower economic growth	37%	42%
Growing working-age populations	27%	24%
Stricter anti-trust and competition regulations	19%	17%
Increased government subsidies and industrial policy	16%	21%
Technology trends driving business transformation (Share of organizations surveyed that identified the technology as likely to drive transformation in their organization)		
AI and information processing technologies (big data, Virtual Reality...)	87%	86%
Robots and autonomous systems	62%	58%
New materials and composites	30%	30%
Semiconductors and computing technologies	17%	20%
Sensing, laser and optical technologies	15%	18%
Quantum and encryption	9%	12%
Biotechnology and gene technologies	9%	11%
Satellites and space technologies	5%	9%

Source: World Economic Forum. (2024). *The future of jobs report 2025*. World Economic Forum, pp. 226

On the macroeconomic side, the data points to serious pressures facing companies, with the spread of digital access and the rising cost of living due to inflation standing out. However, the key difference between Europe and the rest of the world lies in demographics, with an aging and shrinking working age population affecting as many as 49% of European businesses compared to 40% globally. Due to this labor shortage, European companies rely significantly more on automation and robots (62%) compared to the global average (58%) to maintain productivity in the face of slower economic growth.

Table 2. The most increased skills in Europe by 2030

Core skills of 2025		Core skills of 2030	
Analytical thinking	71%	AI and big data	91%
Resilience, flexibility and agility	71%	Networks and cybersecurity	75%
Leadership and social influence	63%	Technological literacy	73%
Motivation and self-awareness	59%	Curiosity and lifelong learning	72%
Curiosity and lifelong learning	58%	Resilience, flexibility and agility	71%

Source: World Economic Forum. (2024). *The future of jobs report 2025*. World Economic Forum, pp. 226

Data from Table 2 illustrate that in 2025, cognitive and interpersonal abilities such as analytical thinking and leadership dominated, while the projection for 2030 emphasizes a hybrid model of workers that includes technical expertise, as a primary requirement for employment, and skills. This trend confirms the conclusion that automation does not eliminate the need for human capital, but forces it to constantly improve and adopt advanced digital skills in order to respond to the demands of the labor market.

Table 3. Key barriers for business transformation

Barriers for business transformation	Europe	Global
Skills gaps in the labour market	66%	63%
Organization culture and resistance to change	46%	46%
Inability to attract talent to the industry	41%	37%
Outdated or inflexible regulatory framework	39%	39%
Lack of adequate data and technical infrastructure	32%	32%

Source: World Economic Forum. (2024). *The future of jobs report 2025*. World Economic Forum, pp. 227

Table 3 shows the share of organizations expecting the barriers to hinder their organizational transformation. The data unequivocally confirm that the biggest challenge in the digital transformation of companies does not lie in technology itself, but in human capital, given that the lack of adequate skills on the labor market is the primary barrier for as many as 66% of companies in Europe and 63% globally. This deficit corresponds directly to the previously analyzed explosive growth in the need for specialized AI and cybersecurity competencies, creating a deep gap between current labor supply and evolving technological demands. While internal cultural resistance to change (46%) and rigid regulatory frameworks (39%) are equally represented at both observed levels, Europe faces a significantly more pronounced problem of attracting new talents to the industry (41% compared to 37% globally), which, in combination with an unfavorable demographic structure and an aging population, further slows down the implementation of advanced technological solutions and threatens the competitiveness of the European economy on the global stage (Gmyrek et al., 2025; OECD, 2025).

The conducted analysis of empirical data indicates that the global labor market is on the threshold of the most intense structural transformation in modern history. Technological progress, led by generative artificial intelligence, automation and big data analysis, has ceased to be merely an instrument of operational efficiency and has become the primary macroeconomic driver of change.

Table 4. European industry insights by sectors

European Industry Profile				
	Labor-market churn	Skill disruption	Organizations with DEI priorities	AI exposure
Accommodation, Food, and Leisure	24%	42%	80%	77%
Advanced Manufacturing	50%	37%	78%	86%
Agriculture Forestry and Fishing	24%	41%	67%	83%
Automotive and Aerospace	17%	38%	87%	83%
Chemical and Advanced materials	19%	42%	91%	83%
Education and Training	22%	44%	91%	93%
Electronics	17%	33%	87%	95%
Energy Technology and Utilities	19%	40%	81%	72%
Financial services and Capital markets	30%	41%	88%	97%
Government and Public sector	23%	38%	75%	76%
Information and Technology services	34%	32%	89%	93%
Infrastructure	14%	35%	81%	78%
Insurance and Pensions management	19%	47%	97%	0%
Medical and Healthcare services	19%	39%	91%	94%
Mining and metals	14%	35%	89%	79%
Oil and Gas	22%	28%	75%	82%
Production of Consumer goods	18%	40%	82%	90%
Professional services	19%	41%	90%	95%
Real Estate	23%	40%	95%	90%
Retail and wholesale of consumer goods	28%	38%	78%	87%
Supply chain and transportation	35%	37%	84%	88%
Telecommunications	20%	40%	85%	89%

Source: World Economic Forum. (2024). *The future of jobs report 2025*. World Economic Forum

Empirical data for Europe (Table 4) indicate that the transformation of business through artificial intelligence (AI) is affecting sectors unevenly. While advanced manufacturing sees the highest labor turnover (50%), the insurance sector shows an anomaly with zero current exposure but a high need to change skills, hinting at the coming transformation. Alongside technological pressures, sectors with extreme skills disruption, such as education and healthcare, show an exceptionally high commitment to strategies that reduce social risks. In contrast, in primary industries, the transition will primarily take place through automation, while service sectors will have to radically redefine the skills profile and inclusiveness of jobs.

6.CONCLUSION

The findings of this study confirm that artificial intelligence has become one of the most influential drivers of business transformation and labor market restructuring across Europe. The diffusion of AI technologies, automation, and advanced data-processing systems is accelerating changes in organizational models, employment structures, and skill requirements, creating both significant opportunities and substantial challenges for European economies. The analysis reveals significant disparities in the adoption of AI technologies across Europe, with Scandinavian countries leading in enterprise AI usage, while most Southeastern European and several Eastern European countries continue to exhibit rel-

atively low levels of AI integration, which confirms the first hypothesis that was set at the beginning of the research. Furthermore, previous empirical evidence discussed in the paper indicates that AI adoption is positively associated with higher GDP per capita, stronger institutional development, and lower unemployment. The OECD labor market data also suggest that historically high employment levels create favorable conditions for investments in AI technologies, supporting the conclusion that economically developed countries with stronger labor markets provide a more conducive environment for AI implementation. These findings corroborate the conclusions of [Drago et al. \(2025\)](#) and [Radukic et al. \(2019\)](#), suggesting that countries with stronger competitiveness, technological readiness, and more efficient labor market institutions are better positioned to adopt AI technologies and successfully manage the structural changes associated with digital transformation.

Also, the paper confirmed the second hypothesis that AI will significantly affect the transformation of business and the labor market. It was found that 90% of European and 88% of global organizations use AI technologies, and in the next five years it is expected that the basic working skills of employees will change by 21% in Europe and 22% globally, so digitalization and AI will affect the transformation of business (especially large companies) and the labor market. The analysis further reveals that AI is expected to accelerate labor-market restructuring, increase skill disruption, reshape workforce requirements toward advanced digital competencies, and stimulate organizational changes across all major sectors of the European economy. The identified sectoral differences, projected changes in workforce skills by 2030, and the growing importance of AI-related competencies provide robust evidence that artificial intelligence is fundamentally transforming both business operations and labor market dynamics.

The analysis demonstrates that AI adoption is no longer limited to improving operational efficiency but increasingly shapes the demand for labor, the nature of work, and the competitiveness of firms. While AI contributes to productivity growth and the creation of new technology-oriented occupations, it simultaneously increases the risk of job polarization, skill mismatches, and labor market inequalities. The results indicate that the most critical obstacle to successful business transformation is not the availability of technology itself but the growing shortage of adequately skilled workers. The widening gap between existing competencies and future labor market requirements highlights the urgent need for large-scale reskilling and upskilling initiatives.

The scenario analysis further suggests that the future of the European labor market will largely depend on policy choices regarding technological sovereignty, innovation capacity, and social inclusion. Scenarios characterized by strong political coordination, investment in domestic technological capabilities, and continuous workforce adaptation offer the most favorable outcomes in terms of employment stability, productivity growth, and social cohesion. In contrast, fragmented governance, technological dependence, and insufficient investment in human capital may intensify labor market disruptions and weaken Europe's long-term competitiveness.

Sectoral evidence reveals that the impact of AI is highly heterogeneous across industries. While advanced manufacturing, information technology, finance, healthcare, and education are expected to experience substantial changes in skill requirements and work organization, traditional sectors will face increasing pressure to automate routine tasks and improve productivity. Consequently, labor market policies must be tailored to sector-specific challenges while ensuring inclusive access to digital skills development.

The findings of this study highlight the need for coordinated action among policymakers, educational institutions, and businesses to ensure a successful transition toward an AI-driven economy. Policymakers should prioritize investments in digital infrastructure,

research and development, lifelong learning systems, and active labor market policies that support workforce reskilling and upskilling while establishing regulatory frameworks that foster responsible AI adoption and social inclusion. Educational institutions should modernize curricula by integrating artificial intelligence, digital literacy, data analytics, and cybersecurity while strengthening collaboration with industry to equip graduates with both technical and transversal competencies required in the future labor market. At the same time, businesses should complement AI investments with continuous employee training, internal reskilling programs, and human-centered implementation strategies that enhance productivity without compromising workforce adaptability. Such a coordinated approach would reduce skill shortages, strengthen labor market resilience, and ensure that artificial intelligence contributes to sustainable economic growth, competitiveness, and inclusive social development across Europe.

Ultimately, artificial intelligence should not be viewed solely as a source of labor market disruption but as a transformative technology whose long-term benefits will depend on Europe's ability to combine innovation, adaptability, and social responsibility. The successful management of this transition will determine whether AI becomes a driver of shared prosperity or a source of growing economic and social fragmentation in the coming decade.

This study has several limitations. First, the analysis is primarily based on secondary data and scenario projections, which may not fully capture the speed and complexity of future AI-driven labor market transformations. Second, the research focuses on selected European countries and aggregated sectoral trends, limiting the ability to identify country-specific and firm-level effects of AI adoption. Third, the rapidly evolving nature of artificial intelligence may alter current assumptions regarding employment, productivity, and skills demand.

Future studies could exploit longitudinal and firm-level data to examine the causal effects of AI adoption on employment, wages, and workforce composition across industries. Further research may also investigate sector-specific adaptation strategies, the effectiveness of reskilling policies, and the role of technological sovereignty in enhancing labor market resilience and competitiveness in Europe.

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