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# How AI Can Reduce Unemployment Rate Among Vulnerable Population of New Immigrants: Assimilation Issues Resolved with AI

## Abstract

The relevance of this study is to examine the role of artificial intelligence (AI) in the assimilation of vulnerable immigrant groups, in particular, in facilitating their integration into labour markets of new countries and reducing unemployment. The purpose of the article is to identify opportunities and mechanisms for using AI to support immigrants' adaptation, as well as to analyse policies and programmes aimed at attracting and developing immigrant talent in the field of AI. The study uses general scientific methods of analysis, synthesis, comparison and generalisation to evaluate available information, statistics and practical examples. The results of the study demonstrate that artificial intelligence has significant potential to support the assimilation of vulnerable categories of immigrants, facilitate their integration into new socio-economic conditions and reduce unemployment among them. Through the use of innovative AI tools and technologies, immigrants can access personalised educational resources, labour market information, and cultural nuances, which will greatly facilitate their adaptation. An analysis of the impact of AI on immigrant assimilation has shown the effectiveness of online courses, mentoring programmes, and specialised training modules in providing the necessary knowledge and skills to successfully enter the labour market of a new country. In particular, advanced training and retraining programmes available through AI platforms have proven to be highly effective in providing immigrants with relevant competencies and facilitating their professional development. Particular attention was paid to the US policy aimed at attracting and supporting skilled immigrants in the field of AI. The paper shows that the active use of AI in the process of immigrants' adaptation facilitates their rapid integration into the new society and plays a crucial role in reducing the unemployment rate among this group. The practical significance of the publication is to provide recommendations for the development of effective strategies for using AI in the process of immigrant integration.

## 1 Introduction

Artificial Intelligence (AI) has long been recognised as a powerful catalyst for labour market development and economic growth on a global scale. By its very nature, this technology offers unprecedented opportunities for automation, process optimisation and improved decision-making in sectors ranging from manufacturing to healthcare. But beyond the obvious benefits, AI opens up new horizons in the area of social inclusion, particularly in addressing the challenges of assimilating new immigrants who face barriers to the labour market.

In the context of globalisation and continuous immigration flows, the integration of migrants becomes particularly urgent, especially for vulnerable categories who often lack the skills or language knowledge to quickly integrate into new societies and economies. Here, AI has a unique potential not only to facilitate the professional development and adaptation of immigrants, but also to reduce their unemployment rates by offering personalised educational programmes, language courses and career guidance tools powered by AI.

Countries that actively implement policies to attract talent and specialists in information technology and innovation, such as the US, are pioneers in using AI to integrate immigrants. Such efforts not only facilitate the rapid adaptation of newcomers, but also provide the economy with skilled personnel and open up broad prospects for immigrants to master cutting-edge technologies. The topic is therefore both

timely and under-researched, making this study a significant contribution to theories of employment, labour market and migration management policy.

The research drew on a number of academic papers that thoroughly analyse different aspects of AI's impact on the labour market and migration. The research also referred to Acemoglu & Restrepo's 2017 study, which examines the impact of robots on jobs in American industry, and Guliyev's 2023 study, which uses a dynamic panel data model to examine the impact of AI on unemployment in developed countries. In addition, the study includes expert opinion and analysis from a variety of sources, such as a Centuro Global article (2023) discussing how AI is revolutionising immigration and changing the landscape of global expansion, and publications on LinkedIn discussing how AI can be used to combat unemployment and exploring the global implications of unemployment in the AI era.

Despite the extensive literature on the subject, there is still a lack of systematised material on the specifics of using AI to facilitate the assimilation process of immigrants and reduce their unemployment. Using various scientific methods, the study analysed, grouped and organised information on the use of AI to help immigrants assimilate and reduce their unemployment. This approach provides a deeper understanding of the potential of AI in this area.

## 2 The Impact of Artificial Intelligence on Industrial Development and the Labour Market

AI has profoundly changed various industries. In healthcare, it is improving diagnosis and treatment, making them faster and more accurate (Guliyev, 2023). In transport, AI is contributing to the development of autonomous vehicles, promising safer and more efficient travel. In manufacturing, the use of AI enables the optimisation of production processes, including through predictive maintenance and quality control, reducing costs and increasing productivity. In the financial sector, AI algorithms are being used to improve fraud detection systems, risk management and the personalisation of customer service. In the field of natural language processing, models such as GPT-4 are having a significant impact by improving the understanding and generation of human language, opening up new possibilities for the automation of communication. As a result, AI can benefit almost every industry, which has a significant impact on the labour market. As a result, there is a need for new professionals who are able to use AI technologies to implement innovative processes in all sectors of the economy.

AI technologies can enable employees to focus on more complex and creative tasks that require human skills such as critical thinking, problem solving and innovation (Kumar, 2023). This shift can lead to more fulfilling employment and greater job satisfaction. In addition, AI can help businesses make better decisions by providing data-driven business models and analytics, leading to increased profitability and growth, as well as the creation and expansion of new jobs. Ultimately, the positive impact of AI on employment is the creation of a more efficient, productive and fulfilling work environment with new job opportunities.

Despite the significant potential of AI to transform the labour market, as highlighted in individual studies, there is an equal amount of research highlighting the threats it may pose (Ilzetzki & Jain, 2023). It is predicted that almost 80 million jobs could disappear by 2035. The risk of significant job loss is therefore seen as one of the main threats posed by AI adoption. Positions involving routine and repetitive tasks are most at risk (Sale, 2023). According to Acemoglu & Restrepo (2017), each additional robotic device integrated into work processes reduces employment by 0.2% and wages by 0.42%. However, as Sale (2023) points out, it is important to recognise that AI can also create new jobs. Examples of such positions include AI developers, data analysts and cybersecurity specialists. In a long-term optimistic scenario, experts predict that AI will offset job losses due to automation and create significantly more new employment opportunities (Sale, 2023). According to forecasts published by Ilzetzki & Jain (2023), AI could create 97 million new jobs by 2025. These new positions will affect a wide range of fields, from big data analytics and machine learning to cybersecurity and digital marketing, indicating an increase in demand in sectors that require high levels of qualification and specialisation. In order to successfully transfer employees to these new positions, however, the skills gap must be bridged, as the qualification requirements for the new jobs are often very different from those for automated jobs.

## 3 Immigration and Immigration Policy

In the context of the demographic composition of the US labour force, a notable dynamic is the contribution of immigrants. According to the Bureau of Labor Statistics (BLS) (2022), immigrants represent a significant and growing share of the labour force. In 2024, immigrants account for about 18.8% of the labour force, or just over 31 million out of an estimated total labour force of 167.43 million. It is important to note that this segment participates in the labour market at a proportionally higher rate than their native-born counterparts, reflecting the integral role of immigrant labour in the US economy.

Further analysis of labour trends, as shown in Figure 2 with the regression line $y=0.342x+16.904$, allows extrapolation of future participation rates.
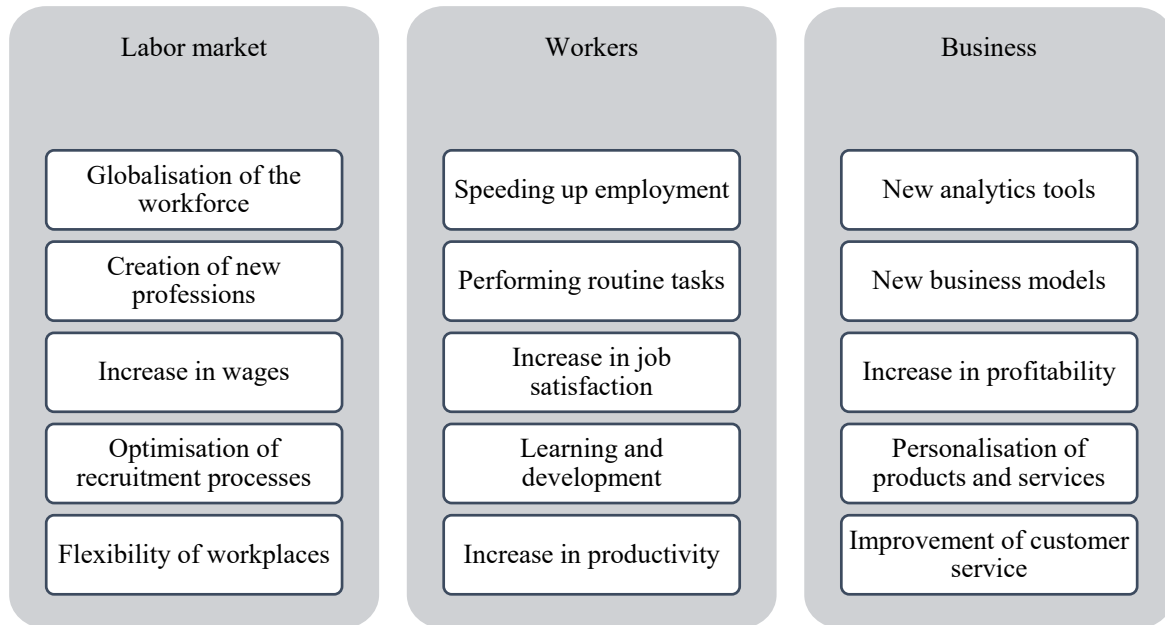
| Labor market | Workers | Business |
|---|---|---|
| Globalisation of the workforce | Speeding up employment | New analytics tools |
| Creation of new professions | Performing routine tasks | New business models |
| Increase in wages | Increase in job satisfaction | Increase in profitability |
| Optimisation of recruitment processes | Learning and development | Personalisation of products and services |
| Flexibility of workplaces | Increase in productivity | Improvement of customer service |

FIGURE 1 Benefits of AI for the labour market, employees and businesses
*Source: organised by the author*

The strong correlation coefficient ($R^2$) of 0.8664 indicates that the growth in employment among immigrants is not only significant, but is likely to continue. Forecasts for next year indicate an expected increase to 18.9 %, which underscores the robustness of the US immigration and labour policies and the vital contribution of immigrant workers to the labour force.

The immigrant population of the United States is predominantly from regions such as Latin America and Africa. These individuals fall primarily into the category of unskilled workers, as many lack education or training. Assimilating these immigrants into the workforce poses certain challenges due to their initial skill levels. In this context, AI can play a key role in their assimilation (Centuro Global, 2023). Knowledge of the language, cultural norms, laws and access to labour market information are crucial for those seeking to find their place in a new society. The autonomous use of AI and digital technologies can greatly facilitate this process. AI-based tools can provide personalised advice and recommendations, drawing on vast amounts of data about job vacancies, housing, educational opportunities and social services. Users can access essential information about the country's legal norms, housing and employment regulations, increasing their legal certainty and helping to avoid potential violations. AI can also assist with language learning and understanding cultural nuances through interactive courses and programmes, making the adaptation process more efficient.

On the other hand, immigration flows from Europe to other countries often consist of well-educated professionals with advanced degrees and deep expertise in their fields (Bureau of Labor Statistics, 2022). These individuals, seeking opportunities for professional and personal fulfilment not available in their home countries, often move to countries with higher salaries, better career prospects, and greater scientific and technological opportunities. This trend, known as "brain drain", is an important aspect of global immigration, highlighting the pursuit of individual paths to success and improvement in an environment that fosters innovation and professional development.

US immigration policy appears to be the most progressive, particularly with President Biden's landmark executive order of October 30, 2023, which is transforming the US technology, labour and immigration landscape with a focus on AI. The order aims to expand opportunities for qualified AI professionals by simplifying the immigration process, updating exchange programmes, and launching an international campaign to attract scientists and technologists. The key features of this initiative are as follows (Masse & Ruemenapp, 2023):

– *Simplification of the immigration process for qualified specialists in the field of AI.* Changes in immigration policy are aimed at attracting and retaining highly skilled AI professionals, which could potentially include simplifying the procedure for obtaining work visas, changing qualification criteria, and speeding up the processing of applications.
– *Updating exchange programs.* Expanding and adapting existing academic and research exchange programmes to provide better access to AI resources, knowledge, and expertise. This could facilitate more active knowledge and
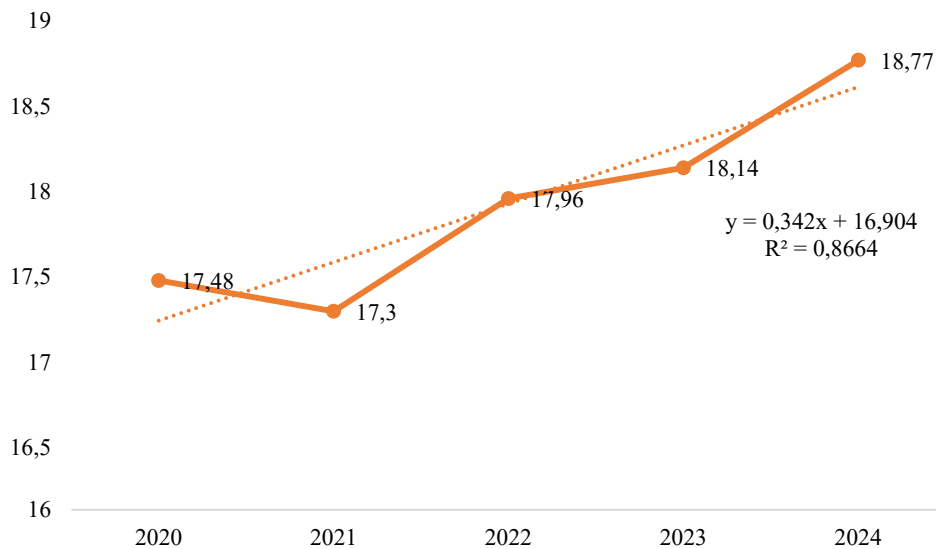
FIGURE 2 Share of immigrant employment in the US labour force
*Source: calculated by the author (Statista, 2024; Fred, 2024)*

technology sharing between the United States and other countries.
– *International campaign to attract scientists and technologists*. Development and implementation of international initiatives to attract leading AI researchers, scientists, and technologists to the United States. These may include special programmes, grants, scholarships, and other forms of support.
– *Investing in AI education and training*. Enhancing AI knowledge and skills among US citizens through investments in educational programmes, professional development and training. This will help prepare the workforce for future AI-related challenges and opportunities.
– *Focusing on the ethical and security aspects of AI.* Establish principles and a regulatory framework to ensure the ethical use of AI and the protection of personal data. This includes developing standards for accountability, transparency and security of AI systems.

As a result, immigrants with AI skills will have the opportunity to assimilate quickly and be guaranteed employment. Individuals who do not possess the AI skills shown in Figure 2 will have the opportunity to acquire them.
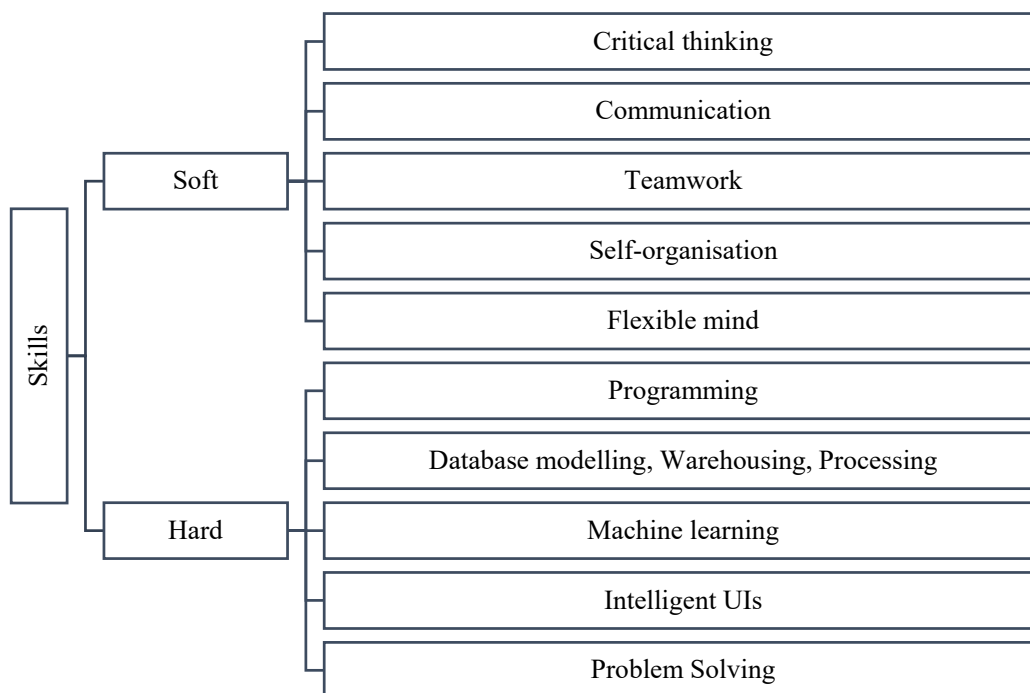


FIGURE 3 Skills required to work with artificial intelligence
*Source: compiled by the author based on Northumbria University (2021)*

## 4. How Immigrants Can Accelerate Employment Using AI Technologies

One of the key approaches is through skills development and retraining programmes that can help immigrants adapt to new labour market requirements (Sale, 2023):

– *Online Courses*. A flexible and accessible way of learning that allows immigrants to learn new skills regardless of their location.
– *Mentorship*. Hands-on training that allows immigrants to acquire skills directly at the workplace, facilitating their integration into the new work culture.
– *Vocational Education and Training (VET)*. Focuses on training in specific professions or trades, which can be useful for immigrants seeking to quickly enter the labour market.
– *Industrial Training*. Specialised training for a particular industry or sector, which allows immigrants to develop specific skills demanded by employers.
– *Workplace Learning*. Integrates learning into the workflow, allowing immigrants to earn and learn at the same time.

Immigrants with financial constraints can study AI technologies on platforms such as DeepLearning.AI and edX, which offer a large base of useful resources. DeepLearning.AI, with courses such as "AI For Everyone" and specialised topics such as "ChatGPT Quick Response Engineering for Developers", offers a wide range of knowledge about AI, from basic concepts to advanced applications. Similarly, edX expands learning horizons with a wide range of AI courses and programmes, from introductory lessons to more in-depth studies in AI, machine learning and data analytics. These courses are designed to accommodate different learning paces and schedules, allowing students to delve into the complexities of AI at their own pace and on their own terms.

## 5 Conclusions

The study of the impact of artificial intelligence on the labour market, in particular in the context of assimilation of vulnerable immigrant groups, demonstrates its significant potential to facilitate their integration and reduce unemployment. AI can serve as an effective tool to overcome a daptation barriers for immigrants, providing them with access to personalised information, educational resources and professional opportunities in the new society.

Modern artificial intelligence technologies offer innovative approaches to language, culture and professional skills, providing immigrants with tools for faster assimilation and successful entry into the labour market. Online courses, mentoring programmes, and specialised trainings allow people to acquire the necessary knowledge and competencies regardless of their background and level of education.

US policies aimed at attracting and supporting skilled AI professionals open up new prospects for highly skilled immigrants. However, even immigrants without specialised AI skills can benefit from accessible self-education and development resources, such as the DeepLearning.AI and edX platforms, increasing their chances of successful adaptation and integration.

Given the dynamism of the modern world, it is important to emphasise the value of continuous learning and adaptation to new technological realities. AI not only opens up new opportunities for immigrants, but also stimulates economic development and social integration on a broader level. Thus, the active use of AI in the process of assimilation of immigrants can be a key factor in ensuring their effective integration into new societies, reducing unemployment and improving the overall quality of life.

## References:

[1] Acemoglu, D. & Restrepo, P. (2017) Robots and Jobs: Evidence from US labor markets. *SSRN Electronic Journal,* 128(6). E-source: https://www.journals.uchicago.edu/doi/abs/10.1086/705716
[2] Bureau of Labor Statistics (2022) Foreign-born workers: Labor force characteristics – 2022. E-source: https://www.bls.gov/news.release/pdf/forbrn.pdf
[3] Centuro Global (2023) How AI is revolutionising immigration and changing the landscape of Global Expansion. *Centuro Global.* E-source: https://www.centuroglobal.com/blog/how-ai-is-revolutionising-immigration-and-changing-the-landscape-of-global-expansion/
[4] Fred (2024) *Civilian labor force level – Foreign born/civilian labor force level*. E-source: https://fred.stlouisfed.org/graph/?g=19CVy
[5] Guliyev, H. (2023) Artificial intelligence and unemployment in high-tech developed countries: New insights from dynamic panel data model. *Research in Globalization,* 7, 1–7. DOI: https://doi.org/10.1016/j.resglo.2023.100140
[6] Guliyev, H., Huseynov, N., & Nuriyev, N. (2023) The relationship between artificial intelligence, big data, and unemployment in G7 countries: New insights from dynamic panel data model. *World Development Sustainability,* 3, 1–7. DOI: https://doi.org/10.1016/j.wds.2023.100107

[7]   Ilzetzki, E., & Jain, S. (2023) The impact of artificial intelligence on growth and employment. *Centre for Economic Policy Research*. E-source: https://cepr.org/voxeu/columns/impact-artificial-intelligence-growth-and-employment

[8]   Kumar, A. (2023) Harnessing AI to tackle unemployment. *LinkedIn*. E-source: https://www.linkedin.com/pulse/harnessing-ai-tackle-unemployment-anudeep-kumar

[9]   Kumar, S. S. (2023) Unemployment in the age of AI: Exploring global implications. *LinkedIn*. E-source: https://www.linkedin.com/pulse/unemployment-age-ai-exploring-global-implications-sri-santeep-kumar

[10]  Masse, M. A., & Ruemenapp, D. J. (2023) Artificial intelligence & immigration: President Biden's new Executive Order. *Ogletree Deakins*. E-source: https://ogletree.com/insights-resources/blog-posts/artificial-intelligence-immigration-president-bidens-new-executive-order/

[11]  Northumbria University (2021) The 5 essential skills for a job in artificial intelligence. E-source: https://www.northumbria.ac.uk/study-at-northumbria/courses/msc-computer-science-with-artificial-intelligence-distance-learning-dtdsar6/artificial-intelligence-skills-blog-org/

[12]  Sale, A. (2023) Artificial intelligence: How do we deal with unemployment? E-source: https://medium.com/@a.sale/artificial-intelligence-how-do-we-deal-with-unemployment-12e054d0b766

[13]  Statista (2024) Monthly civilian labor force in the United States from February 2022 to February 2024. E-source: https://www.statista.com/statistics/193953/seasonally-adjusted-monthly-civilian-labor-force-in-the-us/#:~:text=U.S.%20civilian%20labor%20force%20seasonally%20adjusted%202022%2D2024&text=In%20February%202024%2C%20the%20civilian,people%20in%20the%20United%20States