EXPERT'S REPORT

ECONOMIC AND SOCIAL COUNCIL

CHURKIN MOSCOW INTERNATIONAL MODEL UNITED NATIONS

GLOBAL UNEMPLOYMENT IN THE CONTEXT OF HUMAN LABOR REPLACEMENT BY ARTIFICIAL INTELLIGENCE

CONTENTS

INTRODUCTION

Technological progress has developed rapidly in recent decades, and one of its greatest achievements has been the invention of artificial intelligence (which is also known as AI). At the moment, it is factually considered not just a program, but a separate branch of computer science in general. The introduction of such innovative technologies in everyday life has made many aspects of it much easier. There are special algorithms with which AI not only performs tasks, but also constantly develops and updates based on the data already received, adapting to the requirements. However, a range of urgent questions has gradually arisen, related to the possibility of replacing human labor with artificial intelligence due to its accessibility and learning ability.

The global economy and the labor market are faced with a situation in which AI can be considered not only as an assistant in performing routine or dangerous tasks for humans. It seems like it can also work as a full-fledged employee in many areas. Traditional professions are increasingly automated, which makes knowledge of programming languages and the ability to work with machines a generally accepted requirement when applying for a job[1].

Based on recent research, scientists suggest that some professions may soon lose their relevance due to AI taking over these functions, which means that they are in danger of disappearing. It is necessary to understand that familiarization with this agenda should include not only effective solutions to the problem, but also the possible consequences of rising technological unemployment and an analysis of past interactions with machines, which might be the key to adapting to current realities.

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[1] 11 Jobs AI could replace in 2025 - And 15+ Jobs That Are Safe // Forbes.com URL: https://www.forbes.com/sites/rachelwells/2025/03/10/11-jobs-ai-could-replace-in-2025-and-15-jobs-that-are-safe/ (accessed: 15.08.2025).

Chapter 1 — Overview and historical background

The history of AI began long before the age of computers. Ancient cultural myths spoke of statues or objects which could act and think like humans. Automating tasks or creating artificial life has long been a part of people's imagination.

In the seventeenth century, the French scientist Blaise Pascal invented the first digital mechanical machine. It was called «Pascaline»[2], and it took five years to create. The device surprised the science of that time, however, due to the high cost and complexity of operation, it could not find its audience. Nevertheless, Pascal's invention made a huge contribution to the history of computer technology.

By the 20th century, formalized theories laid the groundwork for AI. In 1937, Alan Turing, often dubbed the father of modern computing, introduced the Turing Machine, a theoretical device that could solve any calculable problem given enough time and resources. The famous «Turing Test», conducted in the 1950s, suggested that a machine could be considered intelligent if it was indistinguishable from a human. He also suggested that any kind of computing could be represented digitally.

The very name «artificial intelligence» was first used at the Dartmouth Conference in 1956 by John McCarthy. This year is also often considered as the AI's birth. A bit later some scientists suggested machines that could mimic human-like problem-solving was possible.

In the 1960s, there was significant progress, for example, in 1966, Joseph Weizenbaum, a professor at the Massachusetts Institute of Technology, developed a program that was called «ELIZA». The program simulates the therapist's dialogue with the patient, implementing the technique of active listening, and is one of the prototypes of AI.

Despite the difficulties, the 1990s were marked by a shift towards practical application. Companies have begun to integrate artificial intelligence into real-world applications such as speech recognition.

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[2] The Pascaline // Britannica URL: https://www.britannica.com/technology/Pascaline (accessed: 20.08.2025).

The development of algorithms such as backpropagation has made it possible to train more complex neural networks, laying the foundation for future breakthroughs. On May 11, 1997, a chess match took place in New York between grandmaster Garry Kasparov and a supercomputer specializing in Deep Blue chess[3]. The machine won by beating a human for the first time, that is, by doing something that was previously considered impossible.

Explosive growth of AI was in the 2010s, primarily driven by deep learning, which could process vast amounts of data. Deep-learning gets its inspiration from replicating the structure of the human brain. The language and image recognition capabilities of AI systems have developed rapidly.

Just 10 years ago, no machine could reliably provide that at a human level. But, as the chart shows, AI systems have become steadily more capable and are now beating humans in tests in all these domains.

Speaking about images, in recent years, the capabilities of artificial intelligence systems have become more impressive. While early systems were focused on creating images of faces, new models have expanded their capabilities to convert text to an image based on almost any prompt. Nowadays some implementations of such AI systems are already so cheap that they are available on the phones: image recognition categorizes photos, and speech recognition transcribes what a person dictates.

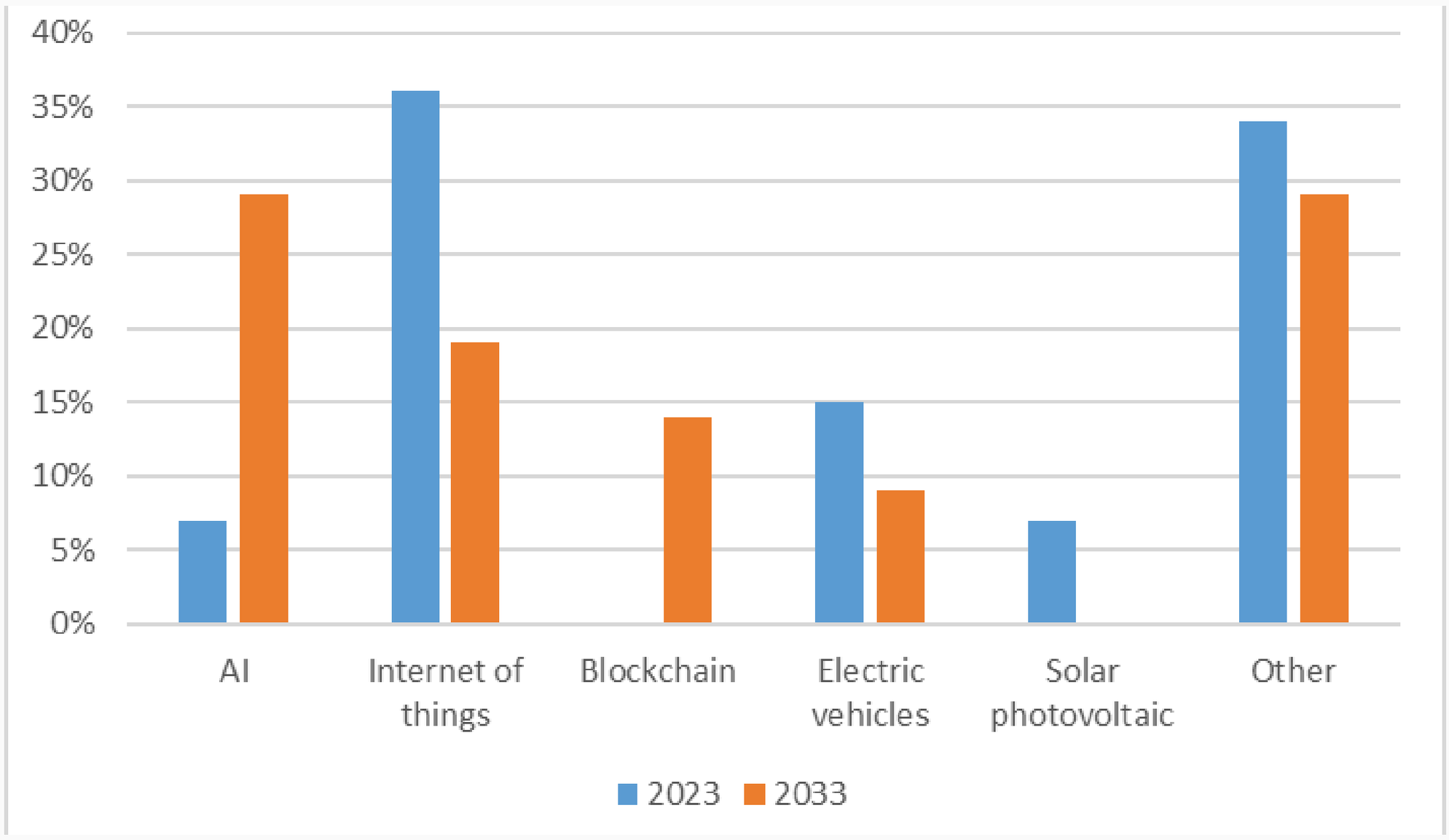

Figure 1. Estimated frontier technology market size and share of selected technologies

[3] Man vs Machine // Garry Kasparov URL: https://www.kasparov.com/timeline-event/deep-blue/ (accessed: 20.08.2025).

Source: UN Trade and Development (UNCTAD) based on various online market research reports.

According to this diagram AI could quadruple its share of the global frontier technology market to 29% becoming the sector's dominant force[4].

However, concerns about the potential risks and ethical implications of advanced AI have also emerged, causing debate about the future of AI and its impact on society, so replacement of some professions by AI is one of the most debating questions.

In 2024 McKinsey consulting company conducted a study, providing a depressing forecast based on it[5]. It says that by 2030 between 400 and 800 million people may face unemployment, and 75 million will have to retrain in order not to be left with nothing. The rapid development of AI has ceased to be a purely technological phenomenon, having transformed into a powerful social, economic and political force. Automated systems are increasingly making decisions that critically affect people's lives, from approving loans to managing traffic flows.

Not all professions are subject to automation[6]. The more predictable and monotonous the work, the more repetitive operations are repeated, the higher the risk of replacing these operations with artificial intelligence. Data entry and processing, conveyor production processes and standardized data analysis are the most formulaic. Consequently, employees associated with, for example, document management, packaging of goods, and checking accounts are at risk. In addition, artificial intelligence will learn a new profession faster if a lot of digital data is freely available.

The neural network is able to analyze a large number of documents and texts much faster than a human, process historical data and make forecasts. Taking these factors into account, office positions, professions in the service sector, transport, manufacturing and construction are the most vulnerable.

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[4] AI market projected to hit $4.8 trillion by 2033, emerging as dominant frontier technology // UNCTAD URL: https://unctad.org/news/ai-market-projected-hit-48-trillion-2033-emerging-dominant-frontier-technology (accessed: 10.08.2025).

[5] A new future of work: the race to deploy AI and raise skills in Europe and beyond // McKinsey Global Institute URL: https://www.mckinsey.de/~/media/mckinsey/locations/europe%20and%20middle%20east/deutschland/news/presse/2024/2024%20-%2005%20-%2023%20mgi%20genai%20future%20of%20work/mgi%20report_a-new-future-of-work-the-race-to-deploy-ai.pdf (accessed: 10.08.2025).

[6] Which Jobs Will AI Replace? // Forbes.com URL: https://www.forbes.com/sites/ariannajohnson/2023/03/30/which-jobs-will-ai-replace-these-4-industries-will-be-heavily-impacted/?sh=4b7d49235957 (accessed: 12.08.2025).

The automated process of document verification and report generation is being replaced by accountants, auditors and office managers. Processing standard requests using chatbots displaces call center operators, and paying for goods in a store by a customer through an artificial intelligence terminal reduces the store's cost of paying for cashiers.

In logistics, we are talking about unmanned trucks, autonomous taxis, couriers in the form of drones and robots. In production, welding and packaging robots do not need interruptions, maintaining a constant high speed of the workflow. Creative professions are also being influenced by the development of neural networks. It is possible to partially replace the functions of a graphic designer due to the ability to generate images several times faster than a human.

This increasing autonomy and power of algorithms poses complex ethical and legal issues that challenge traditional legal systems, corporate norms, and societal foundations. Ensuring transparency, fairness, and respect for fundamental human rights is becoming not just a desirable attribute, but a need for sustainable and socially acceptable AI adoption.

Chapter 2 — Current landscape

Global and Regional Trends in AI-Driven Labor Disruption

AI has rapidly emerged as a transformative force in labor markets worldwide, but its impact on employment is highly uneven across regions and income levels. Recent analyses indicate that nearly 40% of jobs globally have some level of exposure to AI-driven automation[7]. Advanced economies face the greatest immediate disruption: roughly 60% of jobs in high-income countries may be affected by AI, compared to about 40% in emerging markets and only 26% in low-income economies[8]. This reflects the higher prevalence of digital and routine cognitive tasks in wealthy countries' workforces, whereas many low-income countries still have larger shares of manual and informal jobs less directly exposed to current AI technologies. At the same time, the lower AI exposure in developing regions raises concerns that these countries might fall behind in productivity gains, potentially widening global development gaps as richer nations capitalize on AI.

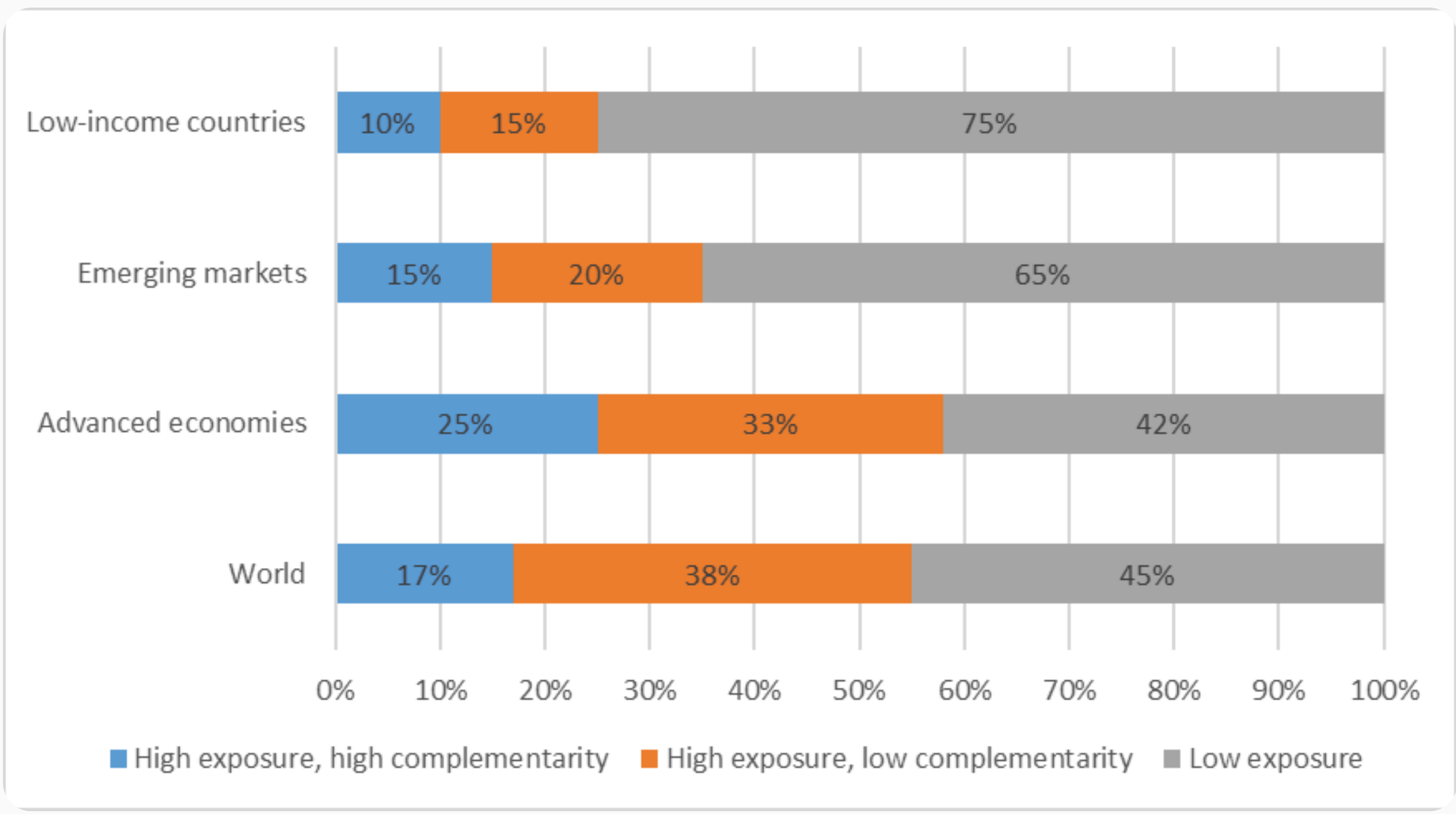

Figure 2. Table of the Employments shares by AI exposure

Source: AI's impact on jobs // ResearchGate URL: https://www.researchgate.net/figure/Source-International-labour-Organization-ILO-and-IMF-staff-calculations-Note-Share_fig1_380852117 (accessed: 22.08.2025).

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[7] AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity. // International Monetary Fund URL: https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the-global-economy-lets-make-sure-it-benefits-humanity#:~:text=The%20effect%20on%20labor%20income,these%20phenomena%20could%20exacerbate%20inequality (accessed: 22.08.2025).

[8] Ibid.

Regional disparities are also pronounced within countries. In many OECD economies, AI is expected to exacerbate existing urban-rural divides. A recent OECD report found that the share of jobs "exposed" to generative AI ranges from over 45% in some urban high-tech hubs to under 15% in more rural regions[9]. On average, about 32% of workers in urban areas are already in occupations exposed to AI, versus just 21% in rural areas[10]. This urban concentration of AI-disruption risk could deepen income and productivity gaps, as cities adopt new technologies faster while rural labor markets lag behind in digital infrastructure. Metropolitan areas and advanced industrial regions, once relatively insulated from automation, are now among the most exposed, since modern AI excels at automating non-routine cognitive tasks prevalent in cities. By contrast, many agrarian or less-developed regions face fewer immediate AI-driven job losses, but they also may miss out on AI-related productivity boosts, underscoring a complex dual challenge for policymakers in balancing innovation with inclusive growth.

International comparisons underscore which countries are currently most vulnerable to AI-driven unemployment. High-income and highly digitalized economies in North America, Europe, and parts of East Asia are seeing the fastest integration of AI in workplaces and thus the earliest labor displacement signals.

For example, one analysis forecasts that the United States and parts of Western Europe will shoulder a disproportionate share of potential job losses, given their large pools of clerical, administrative, and professional roles that AI can increasingly perform[11]. In contrast, many low-income countries in Sub-Saharan Africa and South Asia have lower automation rates today; however, they could face a longer-term «catch-up» effect if AI-enabled industries in rich countries undercut the labor-cost advantages of poorer nations. Notably, the trend of reshoring manufacturing to advanced economies using robotics and AI threatens export-led employment in developing countries.

For instance, Bangladesh's garment industry, a key employer in a lower-middle-income country, is experimenting with automated sewing and quality control; studies estimate that up to 60% of garment factory jobs in Bangladesh could be lost to automation by 2030[12].

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[9] Generative AI set to exacerbate regional divide in OECD countries, says first regional analysis on its impact on local job markets // OECD URL: https://www.oecd.org/en/about/news/press-releases/2024/11/generative-ai-set-to-exacerbate-regional-divide-in-oecd-countries-says-first-regional-analysis-on-its-impact-on-local-job-markets.html (accessed: 30.08.2025).

[10] Ibid.

[11] Top 19 Predictions from Experts on AI Job Loss // AI Multiple Research URL: https://research.aimultiple.com/ai-job-loss/ (accessed: 27.08.2025).

[12] Three Reasons Why AI May Widen Global Inequality // Center for Global Development URL: https://www.cgdev.org/blog/three-reasons-why-ai-may-widen-global-inequality#:~:text=Take%20Bangladesh%2C%20for%20example%2C%20where,due%20to%20automation%20by%202030 (accessed: 27.08.2025).

Likewise, in the services sector, countries like India and the Philippines, which have large call center and business-process outsourcing workforces, are bracing for AI-driven changes. Generative AI chatbots and voice assistants are beginning to handle customer service and back-office tasks, potentially eroding the competitive edge of these lower-cost labor hubs in the coming years[13].

This underscores that while advanced economies currently see the most immediate AI labor substitution, middle- and low-income countries are also vulnerable in the medium term, especially in sectors integrated into global value chains.

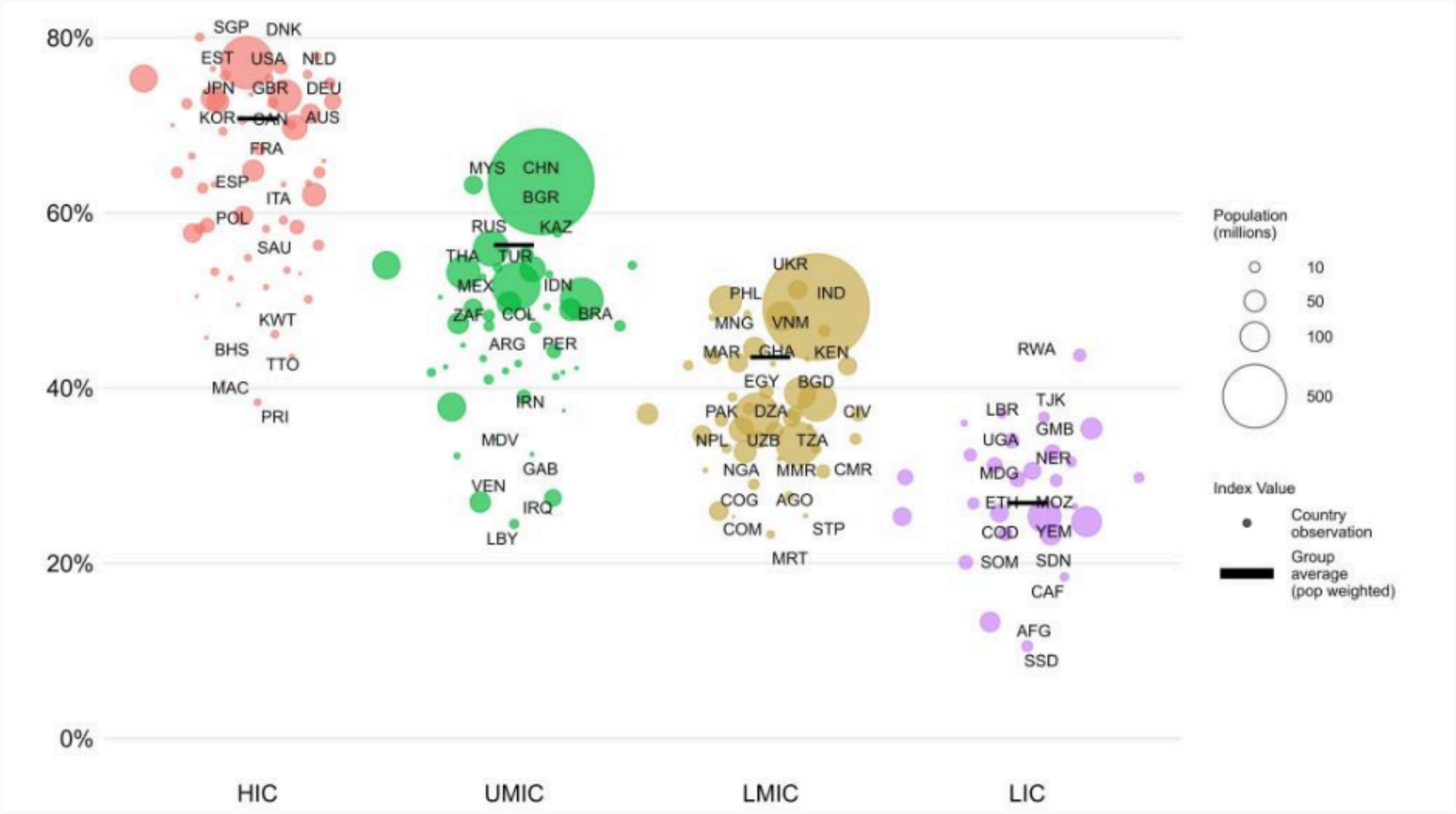

Figure 3. AI Preparedness Index

Note: Acronyms: high (HIC), upper-middle (UMIC), lower-middle (LMIC) and low (LIC) income countries. Countries with labels are those with a population over 25 million or those who are in the top or bottom five of each income group.

Source: Philip Schellekens, David Skilling. Three Reasons Why AI May Widen Global Inequality // 2025 Center for Global Development URL: https://www.cgdev.org/blog/three-reasons-why-ai-may-widen-global-inequality#:~:text=Take%20Bangladesh%2C%20for%20example%2C%20where,due%20to%20automation%20by%202030 (дата обращения: 20.08.2025).

[13] Ibid.

Vulnerable Sectors and Workforce Demographics

The impact of AI on jobs is highly sector-specific, with certain industries and job functions far more vulnerable to automation than others. Thus far, AI excels at automating routine, information-processing tasks. Roles that involve heavy data handling, text or code generation, and predictable decision-making are at particularly high risk. For example, office and administrative support positions, including data entry clerks, bookkeeping, and secretarial roles, have a high concentration of tasks that AI can perform or assist. One global assessment finds that clerical support workers are the occupational group most exposed to generative AI, with over 80% of their tasks having at least medium-level exposure to automation (58% medium exposure and 24% high exposure)[14]. By contrast, jobs involving manual labor, personal services, or complex human interaction (such as nursing aides, cleaners, or preschool teachers) remain relatively safe from full automation in the near term, as current AI and robotics struggle with physical dexterity, caregiving, and social-emotional skills.

Manufacturing and production sectors have long faced automation pressures from robotics, but AI is further changing the nature of these jobs. AI powered systems can optimize supply chains, predictive maintenance, and even operate machinery with less human input. While this can boost productivity, it also means that factories require fewer workers for the same output. Industrial regions with a high share of routine production jobs like automotive assembly in parts of Europe or electronics manufacturing in East Asia are seeing slower employment growth despite rising output, indicating that automation is substituting for labor in many plants[15]. In finance, legal services, media, and technology, AI algorithms are now performing tasks like document analysis, report writing, basic legal drafting, and even software coding[16].

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[14] Artificial intelligence and the future of work: Will AI replace our jobs? // UN RIC URL: https://unric.org/en/artificial-intelligence-and-the-future-of-work-will-ai-replace-our-jobs/ (accessed: 28.08.2025).

[15] Jun Ho Jeong, Hyung Je Jo. The Effects of Artificial Intelligence and Robotics on Employment and Wages in Korean Manufacturing Firms // URL: https://ojs.weizenbaum-institut.de/index.php/wjds/article/view/5_2_5/195 (accessed: 24.08.2025).

[16] Isla Binnie, Megan Davies. AI a productivity boost to banks but making money from it is a challenge // Reuters URL: https://www.reuters.com/technology/artificial-intelligence/ai-productivity-boost-banks-making-money-it-is-challenge-2024-12-11/ (accessed: 24.08.2025).

As an illustration, early evidence from the United States shows that occupations with greater AI adoption have begun to experience higher unemployment rates since 2022. Tech-heavy fields such as computer programming and data analysis saw some the steepest rises in unemployment between 2022 and 2025, correlating with their high estimated AI exposure (often over 70–80% of tasks automatable)[17]. Meanwhile, occupations with limited AI applicability (e.g. many blue-collar trades and personal services) had much smaller changes in unemployment. This indicates that even professional roles are not immune: if AI enables one worker to accomplish what once took several, the net demand for workers in certain skilled professions could stagnate or decline.

Beyond sectors, specific workforce demographics are at heightened risk in the AI-driven labor shakeup. Gender disparities are one notable concern. Because clerical and administrative jobs are disproportionately held by women in many countries, female workers may be more exposed to AI-related displacement. ILO research estimates that globally about 3.7% of women's employment could be automated with current generative AI technology, versus 1.4% of men's[18]. In high-income countries, this gap is even more striking: nearly 8% of female-held jobs (especially office roles) have high automation potential, compared to about 3% for men. This suggests AI could exacerbate gender inequalities in labor markets unless retraining and career transition support are targeted for affected women. Age is another factor: younger workers may adapt more easily to new technology and transition into emerging job roles, whereas older workers with obsolete skills risk greater difficulties. Indeed, analyses indicate that while AI can help boost productivity for those who up-skill (often benefiting younger, tech-savvy employees), it leaves those unable to adapt – frequently older or less-educated workers – at a disadvantage[19]. As a result, without intervention, AI could deepen generational divides, with older cohorts facing higher long-term unemployment or early retirement.

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[17] Serdar Ozkan, Nicholas Sullivan. Is AI Contributing to Rising Unemployment? Evidence from Occupational Variation // Federal Reserve Bank of St. Louis URL: https://www.stlouisfed.org/on-the-economy/2025/aug/is-ai-contributing-unemployment-evidence-occupational-variation#:~:text=The%20figure%20below%20shows%20that,applicability%2C%20experienced%20relatively%20smaller%20increases (accessed: 24.08.2025).

[18] Artificial intelligence and the future of work: Will AI replace our jobs? // United Nations 2025 URL: https://unric.org/en/artificial-intelligence-and-the-future-of-work-will-ai-replace-our-jobs/# (accessed: 23.8.2025).

[19] AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity. // INTERNATIONAL MONETARY FUND URL: https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the-global-economy-lets-make-sure-it-benefits-humanity#:~:text=AI%20could%20also%20affect%20income,workers%20could%20struggle%20to%20adapt (accessed: 23.08.2025).

Education and skill level determine vulnerability as well. Workers with lower educational attainment or outdated skills are at risk of being bypassed in an AI-driven economy. Many of the new jobs created alongside AI (such as AI system trainers, data analysts, and tech maintenance roles) demand higher technical skills or at least the ability to work with digital tools. In contrast, those in routine roles without advanced training may not have clear pathways to the new roles being generated. Absent such upskilling, that worker could join the ranks of the structurally unemployed. Geography and skill intersect in the digital divide: developing countries not only have fewer AI-disrupted jobs at the moment, but also face a shortage of the high-skilled talent needed to benefit from AI[20]. Many low-income and lower-middle-income nations report that a large share of their workforce lacks basic computer skills, meaning even when AI augmentation is possible, workers cannot take advantage of it. In Latin America, for instance, nearly half of occupations that could see productivity gains from AI currently do not use computers at work at all, highlighting a digital skills gap. Meanwhile, jobs already using computers are precisely those at risk of automation, implying that the negative effects of AI will appear sooner in digitally-connected workplaces, whereas positive effects (augmentation of work) may bypass regions or groups without digital access.

Chapter 3 — Socioeconomic consequences

According to data from a UN Trade and Development (UNCTAD) report the global AI market will soar from $189 billion in 2023 to $4.8 trillion by 2033 – a 25-fold increase in just a decade[21].

Inequality and Job Polarization

The substitution of human labor by AI technologies is poised to have far-reaching consequences on income distribution and the structure of employment. AI is strongly contributing to job polarization, the hollowing out of middle-skill jobs relative to growth at the high and low ends of the skill spectrum. Automation of routine tasks has been a driver of polarization for decades (eliminating many mid-level manufacturing and clerical jobs), and AI now threatens to extend this process into new domains[22]. Mid-skill white-collar roles such as accounting clerks, travel agents, and junior legal analysts, which previously offered stable middle-class employment, are increasingly subject to automation by AI systems. Meanwhile, demand is rising in two categories: at the top end, for highly skilled roles like AI engineers, data scientists, and business managers who can leverage AI; and at the lower end, for service jobs that AI cannot easily do (e.g. home health aides, hospitality workers, gig delivery services). Over time, this bifurcation means a relative decline of mid-income occupations and an expansion of jobs at the extremes of the wage distribution. Indeed, recent labor market projections indicate that by 2030 as many as 12–14% of workers globally may need to change occupations due to automation, as many mid-level administrative and support roles disappear while sectors like tech, healthcare, and education[23]. Without intervention, the result is a more polarized workforce: a concentrated group of highly paid tech-aligned workers, a large group in lower-paid manual and service jobs, and a shrinking middle. Such polarization not only undermines the traditional pathways to upward mobility but can also fuel social tensions, as those left in stagnant or declining career tracks see their prospects dim relative to the winners of the AI era.

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[21] AI market projected to hit $4.8 trillion by 2033, emerging as dominant frontier technology // UNCTAD URL: https://unctad.org/news/ai-market-projected-hit-48-trillion-2033-emerging-dominant-frontier-technology (accessed: 23.08.2025).

[22] OECD Employment Outlook 2023 // Organisation for Economic Co-operation and Development URL: https://www.oecd.org/en/publications/oecd-employment-outlook-2023_08785bba-en/full-report/artificial-intelligence-and-jobs-no-signs-of-slowing-labour-demand-yet_5aebe670.html#:~:text=Using%20these%20measures%20of%20AI,The (accessed: 23.08.2025).

[23] Top 19 Predictions from Experts on AI Job Loss // AImultiple research URL: https://research.aimultiple.com/ai-job-loss/ (accessed: 23.08.2025).

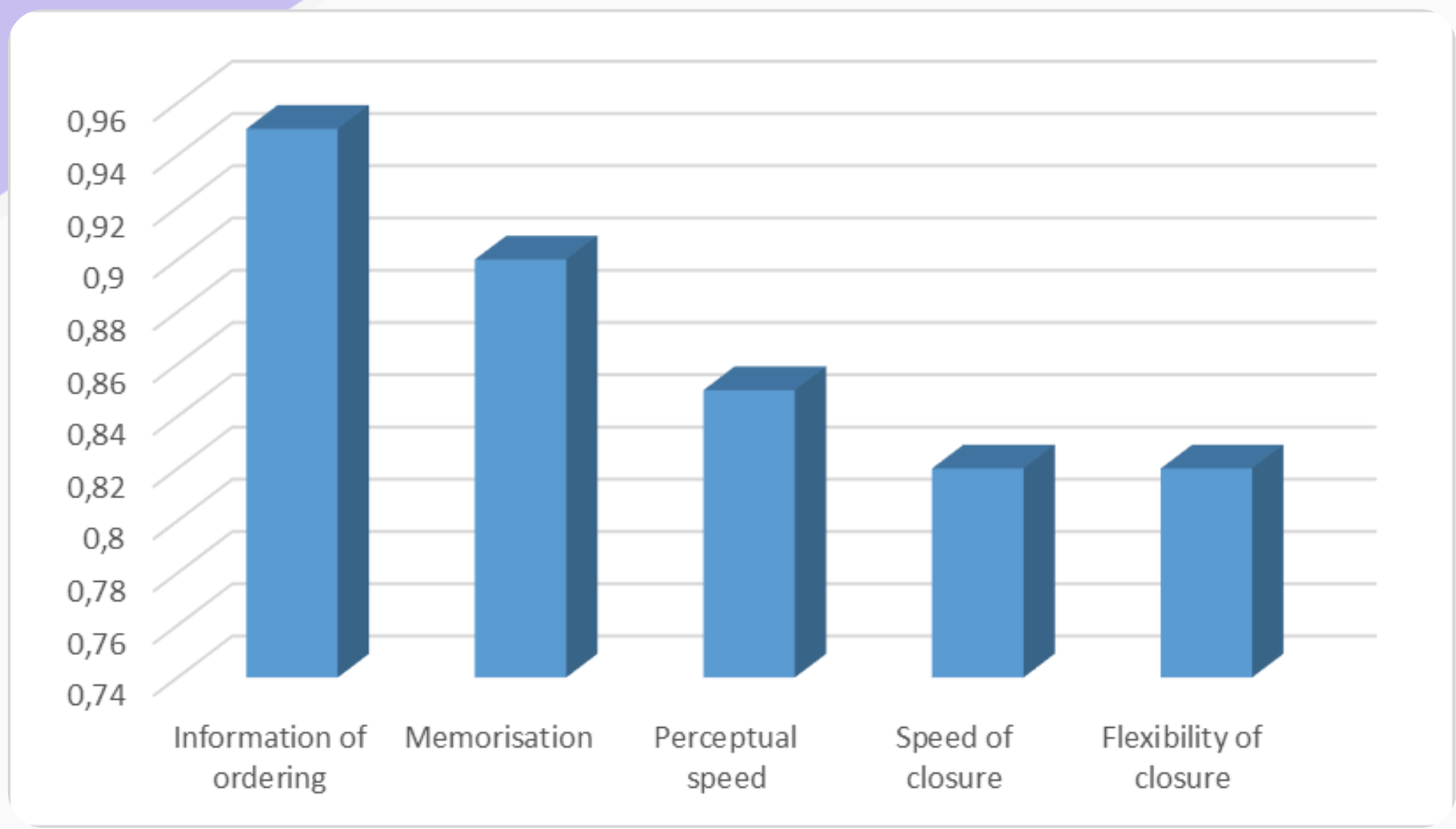

Figure 4. Abilities where AI has made the most progress (2010-2015)

Source: Artificial intelligence and jobs: No signs of slowing labour demand (yet) // OECD URL: https://www.oecd.org/en/publications/oecd-employment-outlook-2023_08785bba-en/full-report/artificial-intelligence-and-jobs-no-signs-of-slowing-labour-demand-yet_5aebe670.html#:~:text=Using%20these%20measures%20of%20AI, (accessed: 03.09.25).

It is important to note that inequality effects are not uniform worldwide, they intertwine with regional economic structures. Between countries, AI could aggravate global inequality by enabling richer nations to outpace developing ones. Wealthy countries are better positioned to invest in AI and apply it across industries, potentially achieving new productivity breakthroughs. In contrast, poorer nations, lacking capital and skilled personnel, might not see comparable gains[24]. This raises the concern of a widening international income gap, where developing countries lose competitive ground. For instance, if advanced economies use AI-assisted manufacturing and onshore more production[25], export-dependent developing economies could see job losses and slower growth. Thus, the equity challenge is twofold: managing the distribution of AI's gains within each society, and preventing AI from deepening the divide between the Global North and South.

[24] AI's \$4.8 trillion future: UN Trade and Development alerts on divides, urges action // UN Trade and Development (UNCTAD) URL: (https://unctad.org/news/ai-future-divides-action) (accessed: 23.08.2025).

[25] Reshoring manufacturing to the US: The role of AI, automation and digital labor // IBM URL: (https://www.ibm.com/thought-leadership/reshoring-ai) (accessed: 24.8.2025).

Re-Skilling and Education Challenges

AI-induced labor disruption has put a spotlight on the adequacy of current education and training systems. A major consequence of rapid automation is the urgent need for workforce reskilling and upskilling on an unprecedented scale. Traditional education curriculum and vocational training programs are struggling to keep pace with the evolving skill demands of an AI-driven economy. Many countries are finding that workers exiting declining occupations often lack the skills needed for emerging jobs. For example, the IMF projects that over 40% of all workers worldwide will require significant upskilling or retraining by 2030 to meet the demands of new technologies and changed job roles[26]. This is a staggering figure, implying hundreds of millions of people must acquire new competencies in areas such as digital literacy, data analysis, machine operation, or advanced cognitive skills to remain employable. Education systems, however, tend to reform slowly. Developing forward-looking curricula (including AI-related topics), expanding access to lifelong learning, and incentivizing on-the-job training are all challenges that governments face immediately. Without effective reskilling pathways, countries risk a scenario where jobs are available but workers are not qualified to fill them, creating structural unemployment even amid technological growth.

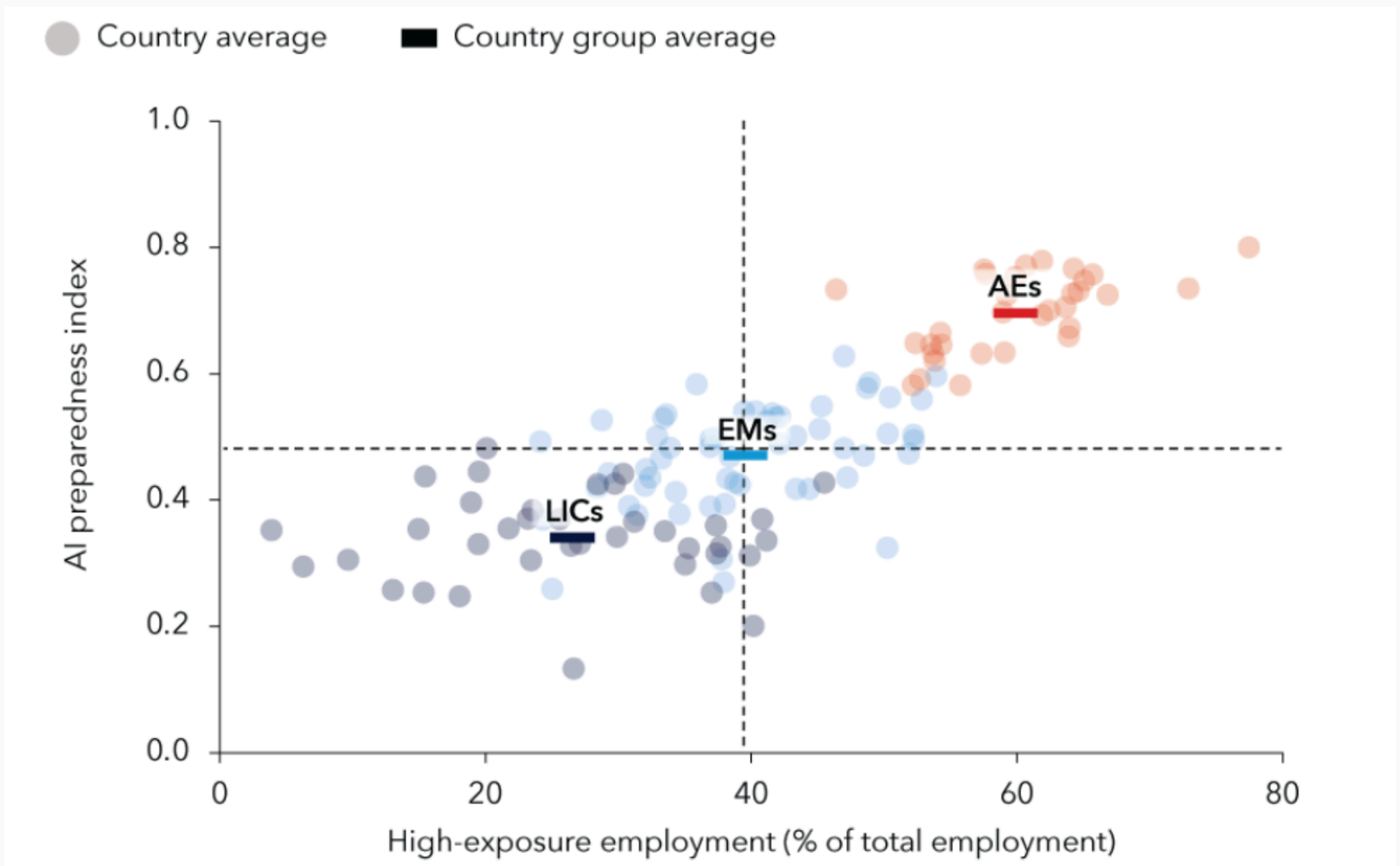

Figure 5. AI Preparedness Index and employment share in high-exposure occupations

[26] Top 18 Predictions from Experts on AI Job Loss // AImultiple research URL: (https://research.aimultiple.com/ai-job-loss/) (accessed: 26.8.2025).

Note: Plot reflects 32 advanced economies, 56 emerging market economies, and 37 low-income countries. Dotted reference lines are derived from AI Preparedness Index median values and high-exposure employment.

A specific challenge is the mismatch between the skills AI eliminates and those it creates. Jobs that AI displaces (like routine bookkeeping or basic coding) often require different skill profiles than the jobs it generates (like AI maintenance specialist or data ethicist). Many workers who spent careers performing repetitive tasks will need support to build entirely new skill sets. This is particularly challenging for mid-career and older workers who have been out of formal education for a long period. Even younger graduates may find that their training is outdated if their institutions haven't integrated AI and digital skills into the curriculum[27]. International organizations and labor experts are urging proactive strategies: integrating AI literacy and digital skills into secondary and tertiary education, partnering with industry to forecast skill needs, and scaling up vocational training in fields resilient to automation. Strengthening these educational responses is critical not just for individual employability but for economic competitiveness; countries that fail to prepare their workforce for the AI transition may experience stagnation and high unemployment even as AI technologies proliferate.

[27] AI & the retraining challenge // World Economic Forum URL: (https://www.weforum.org/agenda/2023/ai-retraining-challenge) (accessed: 27.08.2025).

Chapter 4 — Policies response and international actions and strategies

Main concerns regarding the AI

Artificial intelligence continues to integrate into different spheres of human life, which is why some classical professions are turning into so-called «hybrid» ones. For example, knowledge of legal algorithms will now be relevant in law, in medicine, mainly radiology and diagnostics, the ability to control the correct interpretation of the data obtained, which can have far–reaching consequences for the global health system and the well–being of the population, and in education, the use of neural networks to create various content during training. Some universities such as Harvard have been starting using artificial intelligence to teach students since 2023[28].

The so-called soft skills will occupy an important place in education. A review of the education system is needed with an emphasis on creativity, critical thinking, and emotional intelligence skills that are not yet available to machines. In a world where algorithms solve technical problems, it is creativity, the ability to organize team work, and the willingness to change and adapt to the conditions within the team that become the key competencies of specialists in almost any field. A study from Cornell University[29] shows a significant increase in employers' demand for skills that complement AI. Results show that AI-focused roles are nearly twice as likely to require skills like resilience, agility, or analytical thinking compared to non-AI roles. Furthermore, these skills command a significant wage premium; data scientists, for instance, are offered 5-10% higher salaries if they also possess resilience or ethics capabilities[30]. It is also extremely important to support large-scale professional development programs for employees at the state level like upskilling, providing opportunities to acquire new professions and skills that allow them to interact with AI as needed, that is, advanced training.

[28] CS50 Will Integrate Artificial Intelligence Into Course Instruction // Harvard Gazette URL: (https://news.harvard.edu/gazette/story/2023/08/cs50-integrates-ai/) (accessed: 28.08.2025).

[29] Complement or substitute? How AI increases the demand... // INET Oxford URL: (https://www.inet.ox.ac.uk/publications/complement-or-substitute-ai/) (accessed: 29.08.2025).

[30] Wage Premium for AI Skills // Stanford HAI URL: (https://hai.stanford.edu/research/ai-skills-premium) (accessed: 30.08.2025).

Also, it is necessary to improve the legislative framework aimed at clearly defining responsibility for the consequences of an AI's decision when executing work teams or providing consultations. For example, it is not known who is to blame for an accident involving autonomous cars, the owner of the car or the passenger, the developer of the algorithm, or the municipal authorities, who may be responsible for the poor condition of the roadway or poor markings that AI cannot recognize? Autonomous cars are one of the obvious concerns about AI when it comes to the quality of service delivery, but not the only one[31]. Who is responsible for erroneous medical advice generated by a poorly trained neural network if human health suffers as a result of following it? Another significant case occurred recently: a 16-year-old teenager committed suicide starting to communicate exclusively with ChatGPT a few months before. The tragedy happened on April 11, 2025, but the trial between OpenAI and his parents is still ongoing[32].

Artificial intelligence is widely used in face and voice recognition systems: mainly for access control, but also in various scoring systems in the banking and insurance sectors, in law enforcement tools, and so on. Some of these systems have a significant impact on businesses and people, but they are also susceptible to bias and errors that can occur due to the human factor. AI systems are not objective in nature. Since people provide data for learning, the system can inherit all cultural and social stereotypes existing in society. In recent years, news has repeatedly appeared about how facial recognition algorithms developed by Microsoft, IBM Face++ and other companies have demonstrated «biases» in determining people's gender[33]. Another example of AI bias has prompted Amazon to stop using it to hire employees[34]. The algorithm preferred male candidates, as it was trained on data received specifically from men.

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[31] Who is to blame if a self-driving car crashes? // The Guardian URL: (https://www.theguardian.com/technology/self-driving-cars-liability) (accessed: 31.08.2025).

[32] Parents of 16-year-old sue OpenAI // BBC News URL: (https://www.bbc.com/news/openai-lawsuit-teen) (accessed: 01.09.2025).

[33] Study finds gender and skin-type bias in commercial artificial-intelligence systems // MIT News URL: (https://news.mit.edu/2018/ai-systems-bias-gender-skin-type-0212) (accessed: 03.09.2025)..

[34] Amazon scraps secret AI recruiting tool that showed bias against women // Reuters. 2018. URL: https://www.reuters.com/article/amazon-com-jobs-automation/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G/ (accessed: 23.08.2025).

There are cases when algorithms in lending gave lower scores to women, in recruiting they discriminated against resumes based on race or gender, and in the judicial system, the recidivism risk assessment program mistakenly labeled African Americans as more likely to repeat crimes[35]. The phenomenon even has a name: algorithmic injustice. A thorough audit of algorithms is required at all stages: from analyzing the training data for representativeness to testing the final model for fairness.

Another issue regarding the use of AI is confidentiality; whenever a user writes a message to solve some practical problem, he provides the artificial intelligence with details either about his private life or about the company for which he is doing this work with the help of AI.

The lack of information about what the owners of the AI service are doing with this data is causing concern among defenders of people's digital rights and corporate information security services. There is a risk of loss of anonymity, in which case the personal data of a user or client can be used for blackmail, manipulation and other online crimes.

With the current misunderstanding of the copyright laws and its artificial intelligence usage, it could potentially put more than just translators or drivers out of work. There is a risk of rights violations in creative fields. The strike of Hollywood screenwriters and the Actors Guild in 2023 was a vivid illustration of this threat[36]. It began in May and ended in November and became one of the largest in the history of the organization. The screenwriters were against the fact that film companies used generative neural networks to create scripts for films. The claims of the screenwriters can hardly be called unfair: after all, script texts written by real professionals were used to train neural networks without their permission. As a result of the strike, the Screenwriters Guild was able to impose restrictions on the use of artificial intelligence technologies in creating scripts. For example, artificial intelligence cannot create or rewrite literary materials, and any materials created by AI will not be considered source material. At the same time, screenwriters can use artificial intelligence to write texts.

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[35] Machine Bias: Risk Assessments in Criminal Sentencing // ProPublica. 2016. URL: https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing (accessed: 24.08.2025).

[36] Hollywood actors strike over artificial intelligence // NBC News. 2023. URL: https://www.nbcnews.com/tech/tech-news/hollywood-actor-sag-aftra-ai-artificial-intelligence-strike-rcna94191 (accessed: 25.08.2025).

Legal Framework

The world's first comprehensive AI law was agreed in the EU in 2023 and finally adopted in 2024[37]. Parliament's priority was to make sure that AI systems used in the EU are safe, transparent, traceable, non-discriminatory and environmentally friendly. AI systems should be overseen by people, rather than by automation, to prevent harmful outcomes. Parliament also wanted to establish a technology-neutral, uniform definition for AI that could be applied to future AI systems. The AI Act sets apart unacceptable risk and high risk using artificial intelligence.

Banned AI applications in the EU include: Cognitive behavioural manipulation of people or specific vulnerable groups: for example voice-activated toys that encourage dangerous behaviour in children; Social scoring AI: classifying people based on behaviour, socio-economic status or personal characteristics; Biometric identification and categorisation of people; Real-time and remote biometric identification systems, such as facial recognition in public spaces.

China has a draft regulatory document that contains information on generative AI[38]. One of the provisions of the draft law reads as follows: generative artificial intelligence should reflect the «basic values of socialism», but, in addition, it contains many provisions on the responsibility of developers for the activities of AI systems. According to this document, developers are responsible for the results obtained by their AI. In addition, the draft law imposes restrictions on the search for training data: for example, developers are legally responsible if the data sets for training generative networks that they use violate someone else's copyright. The rules will have to be based on the country's existing legislation on fraud, recommendation algorithms, and data security, so China has a definite advantage over other countries that are developing new laws completely.

[37] Artificial Intelligence Act: MEPs adopt landmark law // European Parliament. 2024. URL: https://www.europarl.europa.eu/news/en/press-room/20240308IPR19015/artificial-intelligence-act-meps-adopt-landmark-law (accessed: 26.08.2025).

[38] How will China's generative AI regulations shape the future? A DigiChina Forum // Stanford DigiChina. 2023. URL: https://digichina.stanford.edu/work/how-will-chinas-generative-ai-regulations-shape-the-future-a-digichina-forum/ (accessed: 27.08.2025).

There is a document «*National Strategy for the Development of Artificial Intelligence until 2030*»[39], approved by Presidential Decree of the Russian Federation No. 490 dated October 10, 2019. The state is actively developing regulations in the field of artificial intelligence, paying special attention to legal status, ethical aspects, responsibility and autonomous systems[40]. Current regulations include experimental legal regimes and federal laws aimed at stimulating the development of AI and removing legal obstacles. Ethical considerations include data security, transparency, bias, and the creation of a Code of Ethics. AI poses risks to personal data, including profiling and discrimination, due to the lack of transparency in algorithms. The legal framework is evolving, and new laws and specialized lawyers in the field of AI are expected to appear.

Most companies involved in large-scale AI projects are based in the United States, and for that reason, issues of artificial intelligence regulation have been raised by local politicians for a long time. In 2019, the United States established the National Security Commission on Artificial Intelligence, which dealt not only with the use of AI for national security purposes but also regulating this use. Various industry agencies are also involved in the regulation of artificial intelligence in the U.S.[41]

In July 2023, the US presidential administration secured voluntary commitments from seven companies (Open AI, Google, Amazon, Anthropic, Google, Inflation, Meta, Microsoft) to manage AI-related risks. The companies expressed their willingness to ensure internal and external safety testing of AI products prior to their public release, and in September, eight more companies signed the same voluntary commitments (Adobe, Cohere, IBM, Nvidia, Palantir, Salesforce, Scale AI and Stability AI).

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[39] National Strategy for the Development of Artificial Intelligence in the Russian Federation until 2030 // AI.gov.ru. 2024. URL: https://ai.gov.ru/knowledgebase/dokumenty-po-razvitiyu-ii-v-rf/2024_nacionalynaya_strategiya_razvitiya_iskusstvennogo_intellekta_na_period_do_2030_goda_national_strategy_for_the_development_of_artificial_intelligence_over_the_period_extending_up_to_the_year_2030/ (accessed: 28.08.2025).

[40] Ethics of Artificial Intelligence // Association for the Development of Artificial Intelligence. 2025. URL: https://ethics.a-ai.ru/ (accessed: 29.08.2025).

[41] National Security Commission on Artificial Intelligence // Federal Register. 2019. URL: https://www.federalregister.gov/agencies/national-security-commission-on-artificial-intelligence (accessed: 23.08.2025).

On July 23, 2025, Donald Trump presented and adopted the «America's AI Action Plan»[42] in Washington. Artificial intelligence legislation is being observed not only in technological states such as New York and California, but also throughout the United States, states such as Kentucky, Massachusetts, Michigan, and New Jersey are also involved in solving this issue. In August 2025 Illinois Governor signed a law that makes it clear: artificial intelligence can’t provide therapy.

The measure called the Wellness and Oversight for Psychological Resources Act[43] is the first in the U.S. to ban AI from acting as a standalone therapist and to set limits on how it can assist licensed professionals. In this state mental health care will stay in human hands.

[42] America’s AI Action Plan // The White House. 2025. URL: https://www.whitehouse.gov/wp-content/uploads/2025/07/Americas-AI-Action-Plan.pdf (accessed: 24.08.2025).

[43] Illinois House Bill 1806 (AI regulation) // Illinois General Assembly. 2013. URL: https://www.ilga.gov/Legislation/BillStatus/FullText?DocNum=1806&DocTypeID=HB&GAID=18&LegId=0&SessionID=114 (accessed: 25.08.2025).

CONCLUSION

The trajectory of artificial intelligence reflects both humanity's oldest aspirations and its most pressing dilemmas. From the myths of self-acting machines and Pascal's early calculating devices to the breakthroughs of Turing and McCarthy, AI has evolved from an abstract concept into a defining force of the 21st century. What began as an intellectual pursuit has now become a social, economic, and political reality that shapes labor markets, redistributes opportunity, and challenges ethical norms.

Policy responses will therefore determine whether AI becomes a tool of shared progress or a source of social fragmentation. Education and reskilling stand out as the most urgent priorities: curricula must be reoriented toward digital literacy, critical thinking, and hybrid competencies that complement rather than compete with AI. Likewise, legal frameworks must establish accountability, ensure fairness, and protect fundamental rights in a world where algorithms increasingly influence personal and societal outcomes. The pioneering regulatory experiments of the European Union, China, Russia, and the United States illustrate different approaches, but they converge on the necessity of governance.

Ultimately, the history and present trajectory of AI show that technological development is never neutral. The choices societies make today in training their workforce, shaping ethical standards, and enacting robust regulation will decide whether AI exacerbates inequality and insecurity, or whether it catalyzes inclusive prosperity. As AI advances toward deeper integration into human life, the challenge is not to halt its progress, but to ensure that its power serves human dignity, equity, and sustainability. The task ahead is therefore as much about political will and social imagination as it is about technical innovation.