

THE ROLE OF HUMAN CAPITAL IN THE AGE OF ARTIFICIAL INTELLIGENCE DEVELOPMENT

Balandina Iuliia

Immanuel Kant Baltic Federal University, Kaliningrad, Russia
ulyaba28@gmail.com
ORCID: 0009-0003-0754-8220

Bushuev Iliia

Immanuel Kant Baltic Federal University, Kaliningrad, Russia
hvnwrdrd.az@gmail.com
ORCID: 0009-0003-3197-4035

Abstract: *As artificial intelligence transitions from a technological novelty to a core economic driver, human capital faces unprecedented structural disruption. The objective of this study is to analyze how AI reshapes skill hierarchies and to formulate evidence-based corporate adaptation strategies. Methodology combines a systematic literature review (2014–2025) with a descriptive case study of Amazon’s “Upskilling 2025” initiative, utilizing secondary analysis of institutional reports and corporate disclosures. The study tests two working hypotheses: (H1) AI integration shifts labor market value from routine technical execution to hybrid cognitive-adaptive competencies; (H2) structured internal upskilling programs significantly mitigate automation risks and enhance workforce resilience. Results indicate that labor market polarization, rather than mass unemployment, represents the primary challenge, with routine cognitive roles facing displacement while adaptive and interpersonal skills gain premium value. Case evidence demonstrates that proactive internal training enhances organizational agility and internal mobility. The study concludes that strategic human capital development requires coordinated corporate and institutional action to ensure inclusive economic growth. Limitations include reliance on publicly available data; future research should incorporate longitudinal microdata across multiple sectors.*

Key words: *human capital, artificial intelligence, skills transformation, upskilling strategies, continuous learning, hybrid skills development, workforce adaptation*

JEL classification: *J24, O33, J62, O47*

1. INTRODUCTION

In the early twenty-first century, artificial intelligence has transitioned from a technological novelty to a fundamental driver of global economic transformation. Neural networks, machine learning, and robotics are reshaping work processes, productivity standards, and labor demand, significantly influencing the structure of modern economies (World Economic Forum, 2025; McKinsey Global Institute, 2026b).

While automation delivers measurable efficiency gains, it simultaneously generates profound uncertainty regarding job stability and skill requirements. Artificial intelligence contributes both to job creation and job displacement, leading to structural changes in employment patterns rather than simple job loss (World Economic Forum, 2025). According to recent global assessments, a significant share of jobs is expected to undergo transformation in the coming years due to technological change, particularly driven by advances in artificial intelligence and digitalization (McKinsey Global Institute, 2026a).

Human capital—the accumulated knowledge, competencies, and health of individuals—remains central to sustainable economic growth. However, in the context of rapid technological advancement, it faces increasing vulnerability due to the mismatch between existing skill sets and emerging labor market demands. At the same time, artificial intelligence increases the value of advanced

cognitive, social, and adaptive skills, making continuous learning a critical factor for long-term employability (World Economic Forum, 2025).

The core problem lies in the growing gap between the pace of artificial intelligence development and the adaptive capacity of education systems and labor markets. This mismatch creates risks of structural unemployment, labor market polarization, and widening inequality, while also highlighting the importance of proactive investment in human capital development and reskilling strategies (McKinsey Global Institute, 2026a).

The research objective of this study is to analyze the impact of artificial intelligence on the transformation of human capital and to substantiate adaptation strategies based on international evidence. To achieve this objective, the study addresses several key tasks, including the systematization of the human capital concept within the digital economy framework, the examination of how artificial intelligence influences skill demand and employment structures, and the evaluation of international upskilling practices through the Amazon “Upskilling 2025” case study. Based on these analyses, the study formulates practical recommendations for continuous workforce development, focusing on mechanisms and strategies for adapting human capital to technological change.

1.1. RESEARCH GOAL AND METHODOLOGY

This study employs a qualitative research design combining a systematic literature review with a descriptive case study approach. The theoretical analysis is based on a systematic review of peer-reviewed literature and institutional reports published between 2014 and 2025, selected from Scopus, Web of Science, and official databases of international organizations (OECD, WEF, McKinsey). Selection criteria included relevance to AI-driven labor market transformation, empirical grounding, and citation impact. The practical dimension utilizes a secondary case study analysis of Amazon’s “Upskilling 2025” initiative, relying on publicly available corporate disclosures, sustainability reports, and third-party workforce assessments.

The research design explicitly maps the four stated tasks to the paper’s structure: Task 1 is addressed in Section 2.1; Task 2 in Sections 2.2–2.3 and 3.1–3.2; Task 3 in Section 4; and Task 4 in the Conclusion and policy recommendations. The study tests two working hypotheses: (H1) AI integration shifts labor market value from routine technical execution to hybrid cognitive-adaptive

competencies; (H2) structured corporate upskilling programs significantly mitigate automation risks and enhance workforce resilience. Findings are discussed in relation to contemporary economic theories of human capital and digital transformation.

2. THEORETICAL FOUNDATIONS: HUMAN CAPITAL IN THE AGE OF ARTIFICIAL INTELLIGENCE

2.1. HUMAN CAPITAL CONCEPT IN MODERN ECONOMIC THEORY

In contemporary economic theory, human capital is understood as the stock of knowledge, skills, health, and competencies accumulated by individuals and utilized in the production of goods and services. The concept was formalized in the works of Becker (1964) and Schultz (1963), who emphasized that investments in education and training increase individual productivity and earnings, thereby contributing to economic growth (Becker, 1964; Schultz, 1963).

Traditional approaches to human capital primarily focused on formal education and professional training as key determinants of labor productivity. However, more recent research expands this perspective by incorporating a broader set of competencies, including cognitive, social, and behavioral skills, which significantly influence labor market outcomes (Deming, 2017).

Empirical evidence shows that the labor market increasingly rewards workers who combine technical expertise with strong interpersonal and problem-solving abilities, particularly in occupations requiring collaboration and complex decision-making (Deming, 2017).

In the context of digital transformation and artificial intelligence development, the concept of human capital is undergoing a significant shift. Instead of static accumulation of knowledge, adaptability and continuous learning are becoming central components of human capital.

Recent studies emphasize that higher-order skills—such as critical thinking, communication, and the ability to work with advanced technologies—play a crucial role in determining productivity and wage differentials in modern economies (World Economic Forum, 2025).

Furthermore, contemporary research highlights the multidimensional nature of human capital, recognizing that its components extend beyond formal education to include experience, health, and social capabilities.

These factors jointly influence individual performance and contribute to differences in

employment outcomes and economic resilience across countries and industries (OECD, 2025).

Thus, the evolution of human capital theory reflects a transition from a narrow focus on education to a broader understanding that integrates cognitive, social, and adaptive capacities. This transformation is particularly relevant in the age of artificial intelligence, where the ability to continuously acquire and apply new skills becomes a key determinant of economic value and labor market success.

2.2. ARTIFICIAL INTELLIGENCE AS A DRIVER OF ECONOMIC TRANSFORMATION

Artificial intelligence (AI) can be defined as a set of technologies capable of performing tasks that typically require human intelligence, including perception, learning, problem-solving, and decision-making (Russell and Norvig, 2020). In economic terms, AI is increasingly recognized as a general-purpose technology (GPT), similar to electricity or the steam engine, due to its wide applicability and potential to transform multiple sectors simultaneously (Bresnahan and Trajtenberg, 1995).

Economic theory identifies two primary channels through which AI affects production and labor markets.

The first is the substitution effect, whereby AI and automation replace routine cognitive and manual tasks, reducing demand for certain categories of labor (Autor et al., 2003). The second is the complementarity effect, in which AI enhances the productivity of workers by augmenting their capabilities, thereby increasing demand for non-routine, complex, and creative tasks (Brynjolfsson and McAfee, 2014).

Recent research emphasizes that the impact of AI is not uniform across occupations but depends on the task structure within jobs. Occupations involving repetitive and predictable tasks are more susceptible to automation, while those requiring analytical thinking, creativity, and interpersonal interaction remain relatively resilient (OECD, 2025). As a result, AI contributes to structural changes in employment rather than simple job displacement.

At the macroeconomic level, the long-term effects of AI on economic growth remain a subject of debate. Some scholars argue that AI has the potential to significantly accelerate productivity growth through innovation and automation, while others point to potential limitations related to technology diffusion and diminishing returns (Gordon, 2016). A balanced perspective suggests that the economic impact of AI will largely depend

on the ability of institutions and labor markets to adapt to technological change.

Thus, artificial intelligence acts as a key driver of economic transformation, simultaneously creating opportunities for productivity growth and challenges related to labor market restructuring. Its overall impact is determined not only by technological capabilities but also by the adaptability of human capital and the effectiveness of policy responses.

2.3. ECONOMIC UNCERTAINTY AND LABOR MARKET TRANSFORMATION

Artificial intelligence affects labor markets not only through changes in employment levels but also through the transformation of job quality, task composition, and skill requirements.

Recent cross-country evidence suggests that, at the current stage of adoption, the effects of AI on total employment remain limited, while the most visible changes occur in how workers perform their tasks and interact with technology. Moreover, workers report a mixed picture regarding the effects of AI on job satisfaction, wages, and working conditions, reflecting both opportunities and challenges associated with automation and algorithmic work processes.

One important dimension of AI's impact is job quality. While automation of repetitive or hazardous tasks can improve safety and satisfaction, the use of AI systems may also increase work intensity, affect autonomy, and contribute to algorithmic management practices that reshape workplace dynamics (OECD, 2025). These developments underscore the need to consider not only quantitative changes in employment but also qualitative aspects of work, such as employee well-being, task complexity, and workplace inclusiveness.

Changes in labor market dynamics are closely linked to shifts in skill demands.

AI adoption tends to increase the demand for skills that complement technology, such as analytical thinking, communication, and digital proficiency, while also affecting the tasks performed by workers who do not directly work with advanced technologies (McKinsey Global Institute, 2026a). As a result, the boundaries between occupational categories are shifting, leading to a reconfiguration of skill profiles valued in contemporary labor markets.

The evolving impact of AI highlights the importance of policies that promote continuous learning, reskilling, and upskilling to ensure that workers can adapt to new task structures and maintain employability. Without adequate

adaptation mechanisms in education systems and labor market institutions, the benefits of AI adoption may be unevenly distributed, potentially exacerbating inequality and labor market divides.

3. AI'S IMPACT ON HUMAN CAPITAL DEVELOPMENT

3.1. TRANSFORMATION OF SKILLS AND COMPETENCIES

The rapid development of artificial intelligence is significantly transforming the structure of skills required in the labor market.

According to recent global assessments, approximately 39% of workers' core skills are expected to change by 2030, reflecting the accelerating pace of technological disruption (World Economic Forum, 2025).

This transformation leads to the growing importance of “hybrid skills,” which combine technical competencies with cognitive and interpersonal abilities.

While technological skills such as data analysis, AI literacy, and digital competencies are increasingly demanded, human-centered skills—such as analytical thinking, communication, and adaptability—remain critical for effective performance in complex and dynamic environments (World Economic Forum, 2025).

Four key competency categories can be identified in the context of AI-driven transformation (see Table 1).

Table 1. Dynamics of Skill Demand, 2026–2030

Skill Type	Specific Competencies	Status and Forecast
Technological	AI literacy, data analysis, digital skills, cybersecurity	High demand with rapid obsolescence; requires continuous updating (World Economic Forum, 2025)
Cognitive	Analytical thinking, problem-solving, critical thinking	Increasing importance as key differentiators in complex tasks (World Economic Forum, 2025)
Interpersonal	Communication, teamwork, emotional intelligence	Resistant to automation; demand continues to grow (OECD, 2025)
Self-management	Adaptability, lifelong learning, resilience, flexibility	Critical for continuous skill acquisition in dynamic environments (OECD, 2025)

Source: Compiled by the author based on World Economic Forum (2025) and OECD (2025).

As shown in Table 1, the demand for skills is shifting toward a balanced combination of technological, cognitive, interpersonal, and adaptive competencies.

Technological skills require continuous updating due to rapid innovation cycles, while cognitive and interpersonal competencies are becoming increasingly important in complex and non-routine work environments (OECD, 2025).

Another important aspect of this transformation is the phenomenon of “cognitive offloading,” where excessive reliance on AI systems may reduce individuals' ability to think critically and make independent decisions. Empirical evidence shows that AI assistance can significantly influence worker behavior and performance, particularly among less experienced employees (Brynjolfsson et al., 2023).

3.2. LABOR MARKET CHANGES UNDER AI INFLUENCE

Artificial intelligence is reshaping labor markets through both job creation and structural transformation. Empirical evidence shows that AI adoption has a mixed impact on employment: while automation can replace specific routine tasks, it also augments productivity and creates new work opportunities as tasks are reorganized rather than eliminated (OECD, 2025). Studies indicate that the impact of AI on total employment remains modest at present but that the nature of work and demand for different tasks and skills are changing significantly as firms integrate AI technologies (OECD, 2025).

The effect of AI is uneven across occupations. Jobs involving routine, repetitive, and predictable tasks are more prone to automation, while roles requiring complex problem solving, creativity, and

interpersonal interaction are more resilient and often see increased demand (McKinsey Global Institute, 2026b). As a result, AI contributes to structural shifts in employment and reinforces trends of job polarization, where opportunities grow strongest in both high-skill technical roles and in jobs with high human interaction requirements (OECD, 2025).

In addition to transforming existing occupations, AI is stimulating the emergence of new professions related to data analysis, machine learning operations, AI ethics and governance, and digital systems management. This reflects a broader transformation in the labor market, where the composition of tasks within occupations changes, leading to the creation of new roles rather than simple disappearance of old ones (OECD, 2025).

Another important effect of AI adoption is its influence on worker productivity. AI tools can enhance the efficiency of specific tasks and support decision making, particularly among less experienced workers, which can in turn alter traditional pathways for skill development and career progression (OECD, 2025). However, this also means that traditional routes for gaining experience through routine task performance may be reduced, requiring different training and supervision structures.

Overall, the evidence suggests that AI's influence on labor markets is not limited to job losses or gains in numbers, but is deeply tied to changes in the structure of work, the composition of skills demanded, and the nature of job quality and performance.

3.3. NEGATIVE IMPACTS OF AI ON HUMAN CAPITAL

Despite its potential benefits, the adoption of artificial intelligence poses several risks to human capital development.

First, artificial intelligence may contribute to increased economic inequality. Technological change, including AI, tends to disproportionately benefit highly skilled workers and capital owners, while individuals performing routine tasks face higher risks of displacement and wage stagnation (Acemoglu and Johnson, 2023). At the same time, empirical evidence suggests that the relationship between AI and inequality is complex and depends on how technologies are adopted and integrated into production systems (OECD, 2025).

Second, structural changes in the labor market may exacerbate existing inequalities across demographic groups. Workers employed in routine, administrative, and service occupations are generally more exposed to automation risks,

which may lead to uneven distribution of employment opportunities and income (OECD, 2025). In addition, differences in access to education and digital skills can further widen these disparities.

Third, the growing use of AI in decision-making processes raises concerns about algorithmic bias. AI systems trained on historical or incomplete data may reproduce or amplify existing social inequalities, particularly in areas such as hiring, evaluation, and access to opportunities (O'Neil, 2016). This creates risks for fairness and inclusiveness in labor markets.

Finally, global disparities in access to technology, infrastructure, and education may widen the gap between developed and developing countries. Economies with limited digital capacity risk being excluded from the benefits of AI-driven growth, reinforcing existing structural imbalances in the global economy (Rodrik, 2018).

These risks highlight that the impact of artificial intelligence on human capital is not only technological but also institutional and social. Without appropriate policies, including investment in education, reskilling, and inclusive digital development, the benefits of AI may be distributed unevenly, potentially increasing inequality and limiting long-term economic sustainability.

4. PRACTICAL ADAPTATION STRATEGIES: AMAZON'S "UPSKILLING 2025" CASE STUDY

4.1. PROGRAM CONTEXT AND RATIONALE

Amazon's Upskilling 2025 initiative is a large-scale human capital development strategy aimed at equipping employees with skills needed in the rapidly evolving labor market.

As part of this commitment, Amazon has pledged to invest more than \$1.2 billion in education and training programs for its workforce through to 2025, with the goal of providing access to skills training for 300,000 employees (Amazon, 2025).

The programme was launched in 2019 as a response to structural changes in the labor market resulting from technological transformation, automation, and artificial intelligence adoption.

These factors increasingly diminish the relevance of routine tasks and elevate the demand for advanced technical and digital competencies, especially in areas such as cloud computing, data analysis, and machine learning. By investing in internal upskilling, Amazon seeks to both enhance workforce adaptability and reduce reliance on external hiring to fill technical roles (Amazon, 2025).

Table 2 summarises the main drivers of the Upskilling 2025 initiative and its alignment with broader workforce transformation trends:

Category	Description
Investment Commitment	Over \$1.2 billion committed to employee education and skills training
Target Population	Upskilling opportunities for 300,000+ employees by 2025
Strategic Focus	Technical and digital skills development, career mobility, and adaptability
Labour Market Drivers	Automation and AI adoption increasing demand for high-skill competencies

Source: Compiled by the author based on Amazon (2025).

The Upskilling 2025 initiative represents a strategic shift in workforce development. Rather than focusing exclusively on external recruitment to meet skill demand, Amazon emphasises internal mobility and career progression by providing employees with structured opportunities to gain in-demand skills. This shift supports both organisational goals—retaining talent and filling critical roles—and individual career development, allowing employees to transition into higher-skill, higher-paying positions within the company.

The programme includes a range of training opportunities across multiple disciplines and functional areas.

For example, employees can participate in cloud computing and digital skills training through AWS-related programmes, technical apprenticeships, and specialised development pathways that span from foundational digital literacy to advanced professional competencies.

In addition, Amazon’s broader upskilling ecosystem encompasses educational support mechanisms such as Career Choice, which allows employees to pursue further education (including tuition for college or vocational training) with company-funded assistance, demonstrating a comprehensive approach to workforce development that extends beyond basic technical training.

Overall, the Upskilling 2025 initiative illustrates how a major global employer can adapt its human capital strategy to the challenges of technological disruption, balancing organisational needs with employee empowerment.

4.2. PROGRAM STRUCTURE AND LEARNING TRACKS

Amazon’s Upskilling 2025 initiative consists of a portfolio of complementary training programs designed to support employees at different stages of their careers and with varying skill needs. The structure of the programme reflects a multi-layered approach to workforce development, combining formal education options, technical training, and career mobility support.

At the foundational level, programmes such as Career Choice provide employees with access to prepaid tuition and funding for industry-recognized education, enabling them to pursue certificates, degrees, and vocational credentials in areas relevant to high-growth sectors (Amazon, 2025). Career Choice is available globally and empowers workers to develop skills beyond their current roles, with a focus on fields such as transportation, healthcare, information technology, and business services.

A central component of the training structure is AWS Training and Certification, which equips learners with cloud computing skills at various levels, from introductory coursework to advanced professional certifications. AWS Training and Certification offers hundreds of free digital courses and hands-on labs through platforms such as AWS Skill Builder, allowing employees to build practical capabilities in cloud infrastructure and related technologies (Amazon, 2025).

In addition to formal learning pathways, Amazon supports role-specific apprenticeships and technical programmes. For example, initiatives such as Amazon Technical Academy and other apprenticeship tracks offer structured on-the-job training in areas like software development,

robotics, and systems support, enabling participants to gain relevant experience while contributing to organisational operations (Amazon, 2025).

The programme structure also includes specialised pathways, such as training in mechatronics and robotics, which prepares employees for technology-driven roles involving advanced machinery and automated systems. These apprenticeships blend classroom instruction with practical work experience, reinforcing both technical competence and workplace readiness (Amazon, 2025).

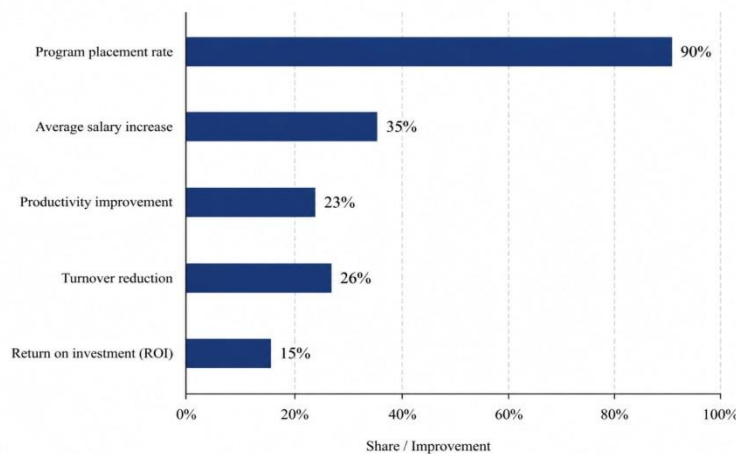
Overall, the programme’s structure reflects a strategic integration of education, professional certification, hands-on training, and career support, tailored to address the diverse needs of Amazon’s workforce and align with the skills required in a digitally transformed labor market.

4.3. RESULTS AND SCALABILITY POTENTIAL

The implementation of Amazon’s *Upskilling 2025* initiative has generated a range of observable outcomes that provide insights into how employer-led training programmes can influence human capital development and workforce adaptability. As part of its commitments, the programme has expanded access to training across multiple pathways, resulting in measurable levels of employee participation in different components of workforce development (Amazon, 2025).

The distribution of employee engagement across major training components is illustrated in Figure 4.3. This diagram reflects the relative uptake of foundational education programmes such as *Career Choice*, cloud computing training through AWS, role-specific technical apprenticeships, as well as specialised pathways such as mechatronics and robotics.

Figure 1. Employee Participation in Upskilling 2025 Training Programmes



This chart shows the relative share of employees participating in major upskilling pathways offered within the Upskilling 2025 initiative, indicating widespread engagement with foundational and cloud based training, alongside participation in technical apprenticeships and specialised skill areas.

High levels of engagement in foundational and cloud focused training components suggest that employees are actively seeking opportunities to strengthen core digital and technical competencies that are broadly applicable across organisational functions. This pattern aligns with broader labour market trends that emphasise foundational digital literacy and cloud skills as key for employability in an AI driven economy (OECD, 2025).

Participation in technical apprenticeships and specialised training pathways, although

representing a smaller share of total engagement, highlights the importance of deeper skill acquisition for workers transitioning into specialised roles requiring in depth technical knowledge. Such pathways contribute to organisational agility by creating internal pipelines of workers with advanced competencies.

Workforce development research indicates that participation in structured training is associated with increased career flexibility and expanded occupational options, even when comprehensive longitudinal data on wage progression and internal mobility remain limited (OECD, 2025). The engagement patterns shown in Figure 4.3 reflect both the diversity of learning needs among employees and the strategic layering of training options within the Upskilling 2025 framework.

Several key lessons emerge from these outcomes:

Accessible foundational training promotes broad engagement: Training programmes that offer widely applicable skills attract participation across diverse job categories.

Cloud and digital credentials are important levers for career progression: Structured training paths related to cloud computing and digital skills align employee competencies with organisational priorities.

A mix of general and specialised pathways accommodates varied career goals: Combining foundational training with targeted apprenticeships enhances the relevance of upskilling programmes to different segments of the workforce.

While Amazon's approach demonstrates that structured internal training can support workforce adaptation, broader research points to the need for complementary external conditions, including labour market demand for newly acquired skills and ongoing technological change (OECD, 2025). Nevertheless, the engagement patterns captured in Figure 4.3 offer a useful snapshot of how employer led training initiatives can contribute to human capital development in a digitally transforming economy.

CONCLUSION

This research demonstrates that artificial intelligence represents not just a technological shift, but a fundamental transformation of the human capital paradigm. Theoretical analysis confirms that AI functions simultaneously as a productivity multiplier and a source of structural disruption, with outcomes heavily contingent upon the adaptation strategies adopted by both employers and employees.

The Amazon Upskilling 2025 case study provides compelling evidence that corporate investment in continuous learning yields significant returns, particularly in workforce adaptability and internal talent development. This initiative has shown how internal talent development can effectively address both automation threats and external talent shortages, with employees gaining in-demand digital and technical skills that align with broader labor market trends (Amazon, 2025; OECD, 2025).

However, corporate initiatives alone cannot resolve economy-wide challenges. Negative consequences—including labor market polarization, amplified inequality, and the digital divide—require proactive state intervention. Effective policy responses should include: (1) national strategies for digital literacy and lifelong learning; (2) education system reforms integrating 21st-century competencies; (3) social protection mechanisms supporting workers displaced by

automation; and (4) international cooperation to mitigate cross-country divergence.

The central conclusion is that the future of work will be determined not by technology's capacity to replace humans, but by our collective ability to cultivate uniquely human qualities: creativity, empathy, ethical judgment, and adaptive learning. Strategic investment in human capital—through coordinated corporate and state action—is the essential foundation for inclusive, sustainable growth in the AI-driven economy.

REFERENCES

- [1] Acemoglu, D., and Johnson, S. (2023). *Power and progress: Our thousand-year struggle over technology and prosperity*. New York: PublicAffairs.
- [2] Acemoglu, D., and Restrepo, P. (2018). The race between man and machine: Implications of technology for growth, factor shares, and employment. *American Economic Review*, 108(6), 1488–1542.
- [3] Amazon. (2025). *Upskilling initiatives*. Retrieved April 28, 2026, from <https://www.aboutamazon.com/workplace/upskilling>
- [4] Autor, D. H., Levy, F., and Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. *The Quarterly Journal of Economics*, 118(4), 1279–1332.
- [5] Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. Chicago: University of Chicago Press.
- [6] Bresnahan, T. F., and Trajtenberg, M. (1995). General purpose technologies: "Engines of growth"? *Journal of Econometrics*, 65(1), 83–108.
- [7] Brynjolfsson, E., Li, D., and Raymond, L. R. (2023). *Generative AI at work* (NBER Working Paper No. 31161). National Bureau of Economic Research.
- [8] Brynjolfsson, E., and McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York: W. W. Norton & Company.
- [9] Deming, D. J. (2017). The growing importance of social skills in the labor market. *The Quarterly Journal of Economics*, 132(4), 1593–1640.
- [10] Gordon, R. J. (2016). *The rise and fall of American growth: The U.S. standard of*

- living since the civil war. Princeton: Princeton University Press.
- [11] McKinsey Global Institute. (2026a). The State of Organizations 2026. McKinsey & Company.
- [12] McKinsey Global Institute. (2026b). The race takes off in the next big arenas of competition. March 2026. McKinsey & Company.
- [13] O'Neil, C. (2016). Weapons of math destruction: How big data increases inequality and threatens democracy. New York: Crown.
- [14] Organisation for Economic Co-operation and Development. (2025). OECD Employment Outlook 2025: Can We Get Through the Demographic Crunch? Paris: OECD Publishing.
- [15] Rodrik, D. (2018). Straight talk on trade: Ideas for a sane world economy. Princeton: Princeton University Press.
- [16] Russell, S., and Norvig, P. (2020). Artificial intelligence: A modern approach (4th ed.). New York: Pearson.
- [17] Schultz, T. W. (1963). The economic value of education. New York: Columbia University Press.
- [18] World Economic Forum. (2025). Future of Jobs Report 2025. Geneva: World Economic Forum.



This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License