International Journal of
Science, Architecture, Technology and Environment

# The Role of Artificial Intelligence in Socio-Economic Growth and Development

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*DOI: https://doi.org/10.63680/ijsate0726035.31*

## Abstract

Artificial intelligence (AI) has moved from a niche computational discipline to a general-purpose technology reshaping production, labor markets, public services, and social welfare across the globe. This expanded paper synthesizes current evidence on the socio-economic role of AI, examining its contribution to productivity and gross domestic product (GDP), its disruptive and generative effects on employment, its influence on inequality within and between nations, and its implications for education, healthcare, agriculture, financial inclusion, and governance. Drawing on projections from the International Monetary Fund, World Bank, International Labour Organization, PwC, McKinsey, Goldman Sachs, IDC, and the Federal Reserve Bank of St. Louis, the paper estimates that AI could add between roughly thirteen and twenty trillion dollars to global output by 2030, while simultaneously warning that these gains are unevenly distributed, concentrated among a small number of technologically advanced economies and large firms. Six original figures illustrate comparative GDP forecasts, regional uplift, labor market churn, the global usage divide, investment trends, and sectoral value capture. The paper argues that AI's net socio-economic effect is not predetermined by the technology itself but by the policy choices, infrastructure investments, and institutional frameworks that accompany its diffusion, and it closes with an expanded set of policy recommendations and illustrative country case studies aimed at broadening access, managing labor transitions, and ensuring that AI-driven growth translates into inclusive human development rather than deepened global divergence.

***Keywords:*** Artificial Intelligence, Economic Growth, Productivity, Labor Markets, Inequality, Digital Divide, Sustainable Development, Total Factor Productivity

## 1. Introduction

Artificial intelligence, broadly defined as computer systems capable of performing tasks that typically require human cognition such as pattern recognition, prediction, language processing, and decision-making, has

become one of the most consequential general-purpose technologies of the twenty-first century. Unlike earlier waves of automation that primarily affected routine physical tasks, contemporary AI systems, particularly large language models and machine learning platforms, increasingly perform cognitive and creative tasks once thought to be uniquely human. This shift has placed AI at the center of debates about the future of work, the trajectory of national economies, and the distribution of prosperity worldwide.

The socio-economic significance of AI lies in its dual character. On one hand, it functions as a productivity-enhancing tool capable of lowering production costs, accelerating innovation cycles, and expanding the range of goods and services an economy can produce. On the other hand, it is a disruptive force capable of displacing workers, concentrating economic power among firms and countries that control data, computing infrastructure, and technical talent, and reshaping the skills that labor markets reward. Understanding both dimensions is essential for policymakers, businesses, and civil society seeking to harness AI's benefits while managing its risks.

This expanded edition adds six original data visualizations synthesizing figures from major institutional sources, deepens the treatment of labor markets and inequality, and introduces new sections on agriculture, financial inclusion, entrepreneurship, and illustrative national case studies. It draws on recent projections and empirical studies from major international institutions, including the International Monetary Fund (IMF), World Bank, International Labour Organization (ILO), United Nations Development Programme (UNDP), the Federal Reserve Bank of St. Louis, and leading consultancies such as PwC, McKinsey, Goldman Sachs, and IDC, to provide an evidence-based account of where AI-driven growth currently stands and where it appears to be heading.

### 1.1 Scope and Structure

Section 2 reviews the theoretical framework used to understand general-purpose technologies and their diffusion. Section 3 examines macroeconomic growth effects, including regional and sectoral variation, supported by Figures 1, 2, and 3. Section 4 analyzes labor market effects, including displacement, creation, and wage dynamics, supported by Figure 4. Section 5 surveys social development applications in education, healthcare, agriculture, and financial inclusion. Section 6 addresses global disparities and the digital divide, supported by Figure 5. Section 7 traces AI-related investment trends, supported by Figure 6. Section 8 discusses key risks and challenges. Section 9 presents brief illustrative case studies. Section 10 offers expanded policy recommendations, and Section 11 concludes.

## 2. Literature Review and Theoretical Framework

Economic theory has long recognized that general-purpose technologies, such as the steam engine, electricity, and the internet, generate growth not merely through their direct application but through complementary innovations they enable across many sectors. Economists have described this pattern as a productivity J-curve, in which measured productivity gains lag the initial investment because firms must first reorganize processes, retrain workers, and build complementary intangible capital before returns materialize. AI is widely viewed as fitting this pattern: national accounts may understate its near-term contribution while capturing the scale of upfront capital expenditure on data centers and infrastructure.

A parallel body of literature examines AI through the lens of skill-biased and task-biased technological change. Where earlier automation primarily substituted for routine manual labor, AI's capacity to perform non-routine cognitive tasks, including analysis, writing, and coding, extends the scope of potential displacement into professional and knowledge-based occupations. At the same time, studies of task exposure consistently find

that most jobs are only partially exposed to AI, meaning the technology is more likely to transform occupations by automating specific tasks within them than to eliminate entire job categories outright.

A third strand of literature situates AI within the broader development economics tradition, asking whether new general-purpose technologies narrow or widen gaps between rich and poor countries. Historical precedent is mixed: some technologies, such as mobile telephony, allowed developing economies to leapfrog older infrastructure, while others reinforced existing advantages held by early-adopting economies. Recent institutional analyses lean toward caution, suggesting that without deliberate policy intervention, AI's benefits are likely to concentrate among countries and firms that already possess capital, data, computing infrastructure, and technical skill.

A fourth, more recent strand focuses on total factor productivity (TFP) as the primary transmission channel from AI adoption to growth. Firm-level studies, including analysis of several hundred Japanese enterprises, find that AI investment is associated with statistically significant increases in TFP, with gains attributed to a combination of cost reduction, revenue growth, and faster innovation cycles. Cross-country modeling by the OECD similarly projects that labor productivity across G7 economies could rise by roughly 0.4 to 1.3 percentage points annually over a ten-year horizon as a result of AI adoption, though the pace of realization depends heavily on complementary investment and organizational change.

## 3. AI and Macroeconomic Growth

Multiple institutional forecasts converge on the view that AI will make a substantial, if unevenly distributed, contribution to global output over the coming decade. PwC's widely cited analysis projects that AI could add roughly fifteen trillion dollars to global GDP by 2030, an amount exceeding the combined current economic output of China and India, with productivity improvements accounting for over half of these gains and increased consumer demand accounting for the remainder. IDC's analysis projects an even larger cumulative figure of nearly twenty trillion dollars through 2030 and estimates AI could drive roughly three and a half percent of global GDP in that year alone. Other estimates vary in magnitude but agree on direction, as shown in Figure 1 below.

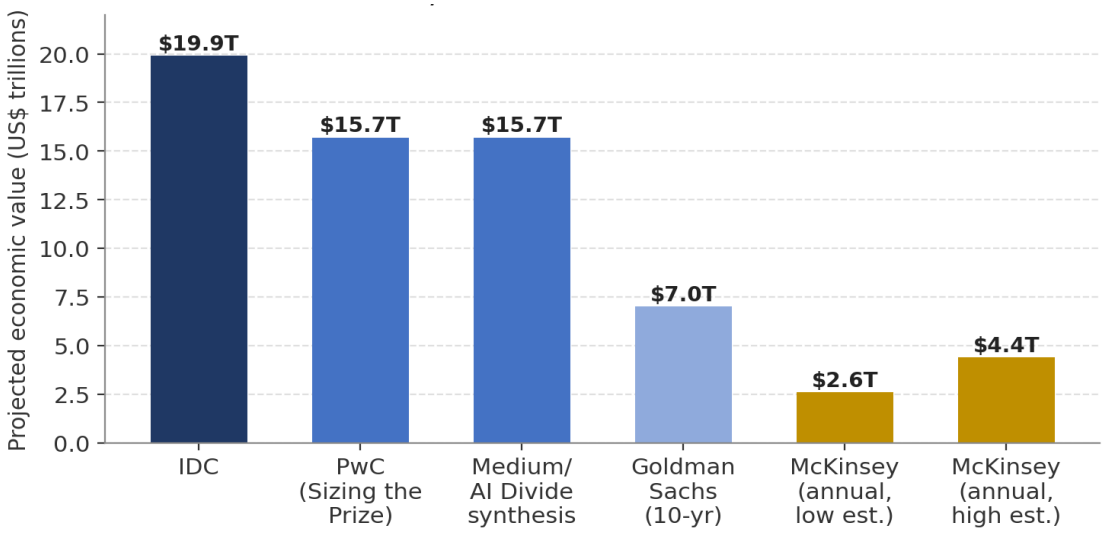



*Figure 1. Comparative institutional forecasts of AI's contribution to global GDP vary by methodology and time horizon but consistently point to a multi-trillion-dollar economic footprint.*

### 3.1 Regional and Sectoral Patterns

Growth effects are not projected to be uniform across regions. China is expected to see among the largest proportional GDP gains from AI, driven by manufacturing automation and government-backed digital strategy, while North America is projected to benefit from early technology readiness and a labor market where a comparatively high share of jobs are exposed to AI-driven productivity tools. Europe and developed economies in Asia are expected to see moderate gains, while Africa, Latin America, and developing Asia are projected to experience comparatively modest boosts, reflecting gaps in digital infrastructure, capital availability, and skilled labor. Figure 2 visualizes this regional variation.

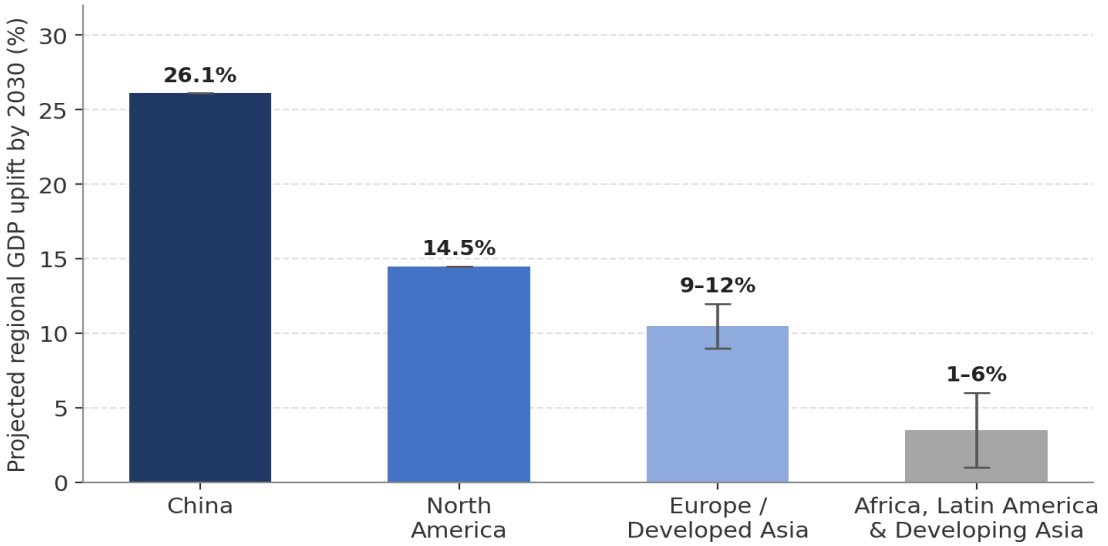



*Figure 2. Projected regional GDP uplift attributable to AI by 2030. China and North America are projected to capture the largest proportional gains, while developing regions lag substantially.*

| Region | Approx. Projected GDP Uplift from AI by 2030 |
|---|---|
| China | ~26% regional GDP uplift |
| North America | ~14–15% regional GDP uplift |
| Europe / Developed Asia | ~9–12% regional GDP uplift |
| Africa, Latin America, Developing Asia | Below 6% regional GDP uplift |

*Table 1. Illustrative regional GDP uplift projections attributable to AI by 2030, based on PwC's Sizing the Prize analysis and related institutional estimates. Figures are projections, not guarantees, and vary across sources.*

At the sectoral level, retail, financial services, and healthcare are frequently identified as industries positioned to capture disproportionate value from AI, owing to their reliance on large volumes of transactional and behavioral data amenable to machine learning applications. Manufacturing continues to benefit from robotics and predictive maintenance, while professional services, including consulting, law, and accounting, are undergoing significant restructuring as generative AI tools automate research, drafting, and analytical tasks previously performed by junior staff. Figure 3 presents an illustrative breakdown of value capture across leading sectors.

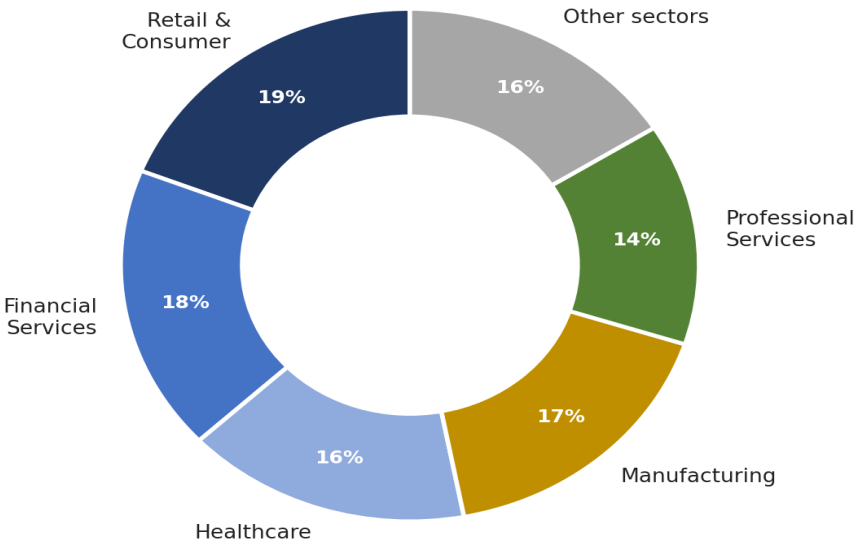



*Figure 3. Illustrative distribution of AI-driven economic value across leading sectors, reflecting the sectoral emphasis identified in institutional analyses such as PwC's Sizing the Prize.*

### 3.2 Productivity, Investment, and Measurement Challenges

A growing body of evidence indicates that AI-related investment, spanning data centers, semiconductors, software, and research and development, is already a measurable driver of GDP growth in leading economies. Analysis from the Federal Reserve Bank of St. Louis found that AI-related investment categories contributed significantly to United States real GDP growth through 2025, surpassing, both in absolute terms and as a share of GDP, the contribution that information-technology investment made during the dot-com boom of the late 1990s. Section 7 examines this investment trend in greater detail, supported by Figure 6.

At the same time, economists caution that conventional national accounting frameworks were designed for an industrial economy centered on physical capital and struggle to capture intangible AI-related value such as proprietary datasets, model weights, and algorithmic know-how. This measurement gap means that GDP statistics may simultaneously overstate AI's near-term contribution, by counting large infrastructure outlays as investment regardless of eventual productivity payoff, and understate its broader long-run economic footprint, since much of the value created by AI applications is not captured in existing statistical categories. One estimate suggests that over one hundred billion dollars of AI-related economic activity in the United States alone may currently go unmeasured in official statistics.

## 4. AI and Labor Markets

The employment implications of AI are among the most closely watched aspects of its socio-economic footprint. Forecasts differ substantially in magnitude but share a common structure: AI is expected to displace certain tasks and occupations while simultaneously creating new categories of work, with the net effect depending heavily on the pace of adoption, the availability of reskilling programs, and sector-specific dynamics. Figure 4 compares several widely cited displacement and creation estimates.

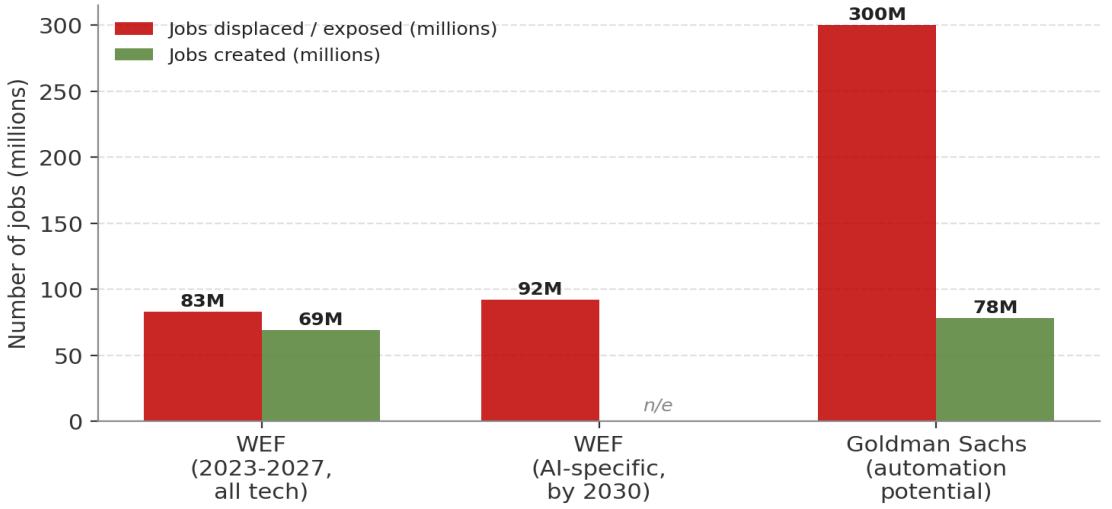



*Figure 4. Selected estimates of global job displacement and creation from AI and automation. Estimates vary substantially by methodology, time horizon, and definition, and are not directly comparable or additive.*

### 4.1 Displacement and Creation

The World Economic Forum's Future of Jobs research anticipated that dozens of millions of jobs would be displaced globally over a five-year horizon while a comparable, slightly smaller number of new roles would emerge, implying a modest net contraction alongside substantial workforce churn. More recent and AI-specific estimates cited by the World Economic Forum suggest that roughly ninety-two million roles could be at risk by 2030, while Goldman Sachs has separately estimated that automation could affect roughly three hundred million full-time-equivalent positions globally, with a projected net creation of tens of millions of new jobs once new occupations and productivity-driven demand are taken into account.

Survey evidence from McKinsey indicates that a large share of employers anticipate some workforce reduction as AI automates specific tasks, while a smaller but still substantial share cite displacement as a primary strategic concern. At the same time, adoption of AI tools among knowledge workers has become widespread, with a majority of surveyed professionals reporting regular use of generative AI tools and substantial self-reported productivity gains, underscoring that many workers are augmenting rather than being replaced by these systems, at least in the current phase of adoption.

### 4.2 Entry-Level and Early-Career Effects

Emerging evidence points to a particularly pronounced effect on early-career workers and entry-level roles, which historically served as the primary training ground for tasks now increasingly automatable, such as research synthesis, basic coding, and document drafting. Some large professional services firms have begun reducing entry-level hiring; one major consultancy reduced its global workforce by roughly eleven thousand positions in 2025 while simultaneously reporting revenue growth of seven percent and a sharp increase in generative-AI-related bookings, illustrating how AI can be simultaneously expansionary for firm revenue and contractionary for headcount. Labor-market studies have also found measurably weaker job-finding rates for young workers in the most AI-exposed occupations compared with older, more experienced incumbents in the same fields, driven more by reduced hiring of new entrants than by layoffs of existing staff.

### 4.3 Wage and Skill Premium Effects

Where AI adoption has proceeded furthest, evidence suggests a widening wage gap between highly AI-exposed, AI-complementary occupations and the rest of the labor market, consistent with a skill-biased pattern in which workers who can effectively direct and supervise AI systems command a growing premium relative to those performing tasks AI can substitute for directly. Wage data from high-AI-exposure industries show growth rates more than double the economy-wide average since late 2022, a bifurcation consistent with early-stage skill-premium acceleration documented in prior technology-displacement cycles. This bifurcation mirrors dynamics observed in earlier waves of technological change but appears, in some sectors, to be unfolding on a compressed timeline given the speed of generative AI adoption since 2022.

## 5. AI and Social Development

### 5.1 Education

AI-enabled adaptive learning platforms are increasingly used to personalize instruction, identify learning gaps, and extend educational access in resource-constrained settings. Pilot programs in several countries have reported measurable improvements in student outcomes, such as pass-rate increases in the high single digits to high teens, when AI-based tutoring and administrative tools are integrated into existing curricula, though the scale and durability of these gains vary and require independent, long-term evaluation. Beyond direct instruction, AI is being used for administrative efficiency, allowing teachers to spend more time on direct student engagement rather than routine grading and scheduling tasks.

### 5.2 Healthcare

In healthcare, AI applications ranging from diagnostic imaging analysis to drug discovery and hospital operations management are being deployed to improve treatment accuracy and reduce costs. Machine learning models increasingly assist radiologists and pathologists in detecting anomalies, while AI-driven logistics tools help hospitals manage patient flow and resource allocation more efficiently. These applications carry particular promise for underserved regions with shortages of specialist medical personnel, potentially allowing a smaller pool of clinicians to extend diagnostic capacity, provided that connectivity, data quality, and regulatory frameworks are adequate to support safe deployment.

### 5.3 Agriculture and Rural Livelihoods

AI-driven precision agriculture tools, including satellite-based crop monitoring, predictive pest and weather models, and automated irrigation systems, are being piloted across both advanced and developing agricultural economies. These tools have the potential to raise yields and reduce input waste, which is particularly significant in regions where agriculture remains a dominant source of employment and rural income. However, realizing these gains at scale depends on rural connectivity, affordable devices, and extension services capable of translating AI outputs into actionable guidance for smallholder farmers, conditions that remain uneven across low-income regions.

### 5.4 Financial Inclusion

AI-powered credit scoring models that incorporate alternative data sources, such as mobile phone usage and transaction histories, have expanded access to credit for individuals and small businesses lacking traditional credit histories, a population that is disproportionately concentrated in developing economies. Fraud detection and anti-money-laundering systems built on machine learning have also improved the security and

efficiency of digital financial services, supporting the broader expansion of mobile banking and digital payment systems in emerging markets.

### 5.5 Public Services and Governance

Governments are increasingly experimenting with AI in areas such as tax administration, fraud detection, benefits eligibility screening, and citizen service chatbots. When implemented well, these tools can reduce administrative costs and processing times, extend service availability outside traditional office hours, and improve consistency in decision-making. However, the same systems raise governance concerns around algorithmic bias, transparency, and accountability, particularly when AI outputs influence decisions about welfare eligibility, policing, or judicial processes, areas where erroneous or biased automated decisions can carry serious consequences for individuals.

## 6. Global Disparities and the Digital Divide

A recurring theme across recent institutional research is that AI's socio-economic benefits are not being distributed evenly, either within or between countries. The United Nations Development Programme has warned that unmanaged AI diffusion risks triggering a new era of divergence, in which countries that begin the AI transition with strong digital infrastructure, data ecosystems, and technical capacity pull further ahead of those that do not, reversing decades of gradual convergence in global development indicators. Figure 5 illustrates the scale of this usage divide.

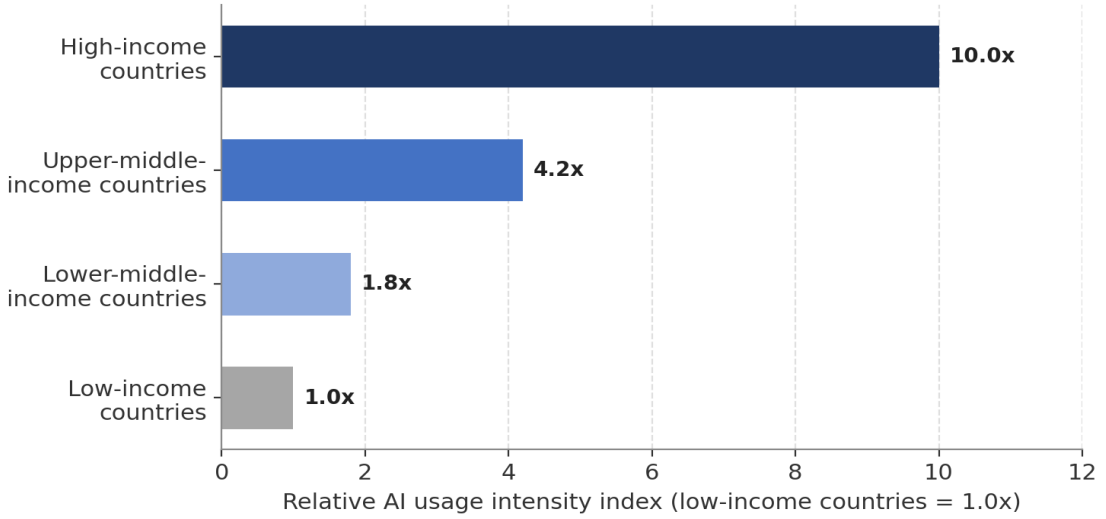



*Figure 5. Illustrative disparity in AI usage intensity across country income groups, consistent with World Bank and Anthropic Economic Index findings that high-income country usage substantially exceeds that of low-income countries.*

### 6.1 Between-Country Divergence

The World Bank's Digital Progress and Trends research identifies four preconditions countries need to benefit fully from AI: reliable and affordable internet connectivity, high-quality local data, a digitally skilled population, and sufficient computing capacity. Countries lacking these foundations, disproportionately located in Sub-Saharan Africa, parts of South Asia, and other lower-income regions, risk being excluded from AI-driven productivity gains even as the technology transforms production elsewhere. One study cited in the

International AI Safety Report 2026 estimates that AI's impact on economic growth in advanced economies could be more than twice that in low-income countries, underscoring the risk of a widening between-country growth gap absent corrective policy.

### 6.2 Within-Country Inequality

Even within advanced economies, AI's gains appear concentrated among firms and workers positioned to adopt and complement the technology. Joint research from the International Labour Organization and World Bank, prepared as background analysis for the World Development Report 2026 and covering roughly two-thirds of global employment across 135 countries, finds that exposure to generative AI is highest in advanced economies, particularly within clerical and professional occupations, while developing economies, though less exposed on average, face structural constraints, including limited digital infrastructure and capital, that restrict their ability to capture the benefits that do exist. Analysts examining recent AI-related corporate investment further note that value creation is heavily concentrated among roughly ten leading economies capturing an estimated seventy to seventy-five percent of total AI-related value, raising the prospect of a widening gap between AI "haves" and "have-nots" absent deliberate countervailing policy.

### 6.3 Urban-Rural and Demographic Dimensions

Disparities also manifest along urban-rural and demographic lines. Urban centers with concentrated digital infrastructure, venture capital, and technical talent tend to capture AI-related investment and job creation disproportionately relative to rural and peripheral regions. Similarly, workers with limited digital literacy, often correlated with age, prior educational attainment, or geographic isolation, face greater difficulty transitioning into AI-complementary roles, risking a widening of the skill premium described earlier in this paper along additional demographic dimensions. Evidence from middle-income countries further shows that AI usage remains concentrated among a narrow set of professions, such as information-technology workers and teachers, rather than spreading broadly across the labor force as it has begun to in wealthier economies.

## 7. AI-Related Investment Trends

Investment in AI infrastructure, including data centers, specialized semiconductors, and cloud computing capacity, has accelerated sharply since the wide release of generative AI tools in 2022. Analysis from the Federal Reserve Bank of St. Louis, using GDP data through the third quarter of 2025, finds that AI-related investment categories now contribute more to real GDP growth, both in absolute terms and as a share of overall growth, than information-technology investment did at its peak during the dot-com boom of the mid-to-late 1990s. Figure 6 presents a stylized version of this accelerating trend.

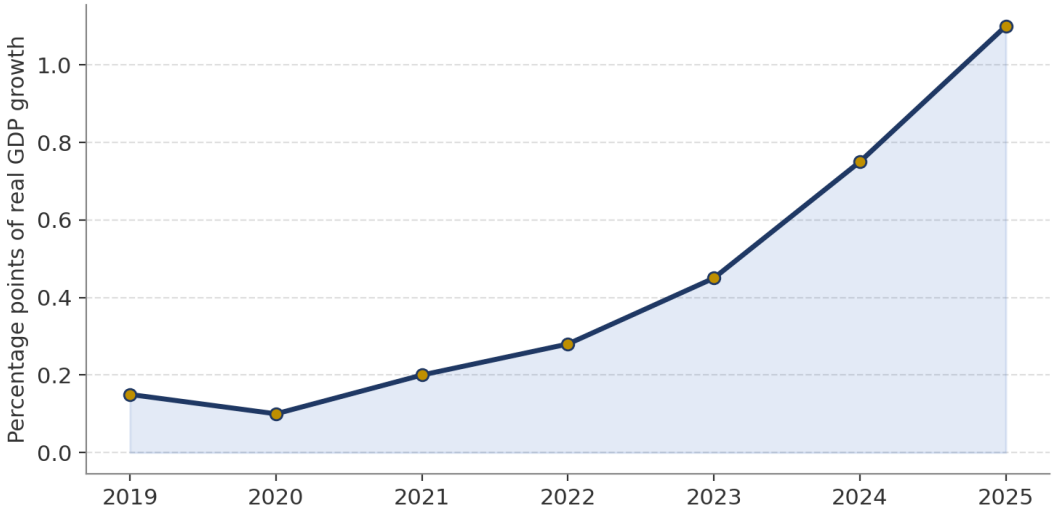



*Figure 6. Illustrative growth trajectory of AI-related investment's contribution to U.S. real GDP growth, consistent with the sharp acceleration documented by the Federal Reserve Bank of St. Louis through 2025.*

To match anticipated global demand for AI computing capacity, data center capital expenditure worldwide may require roughly six and a half to seven trillion dollars by 2030. This investment boom is reshaping the structure of national economies, but it also raises questions about capital allocation efficiency and the risk of overinvestment if realized productivity gains lag current expectations, a concern several economists have likened to the infrastructure overbuild that followed the late-1990s telecommunications boom, even though that earlier overbuild ultimately provided capacity that supported later internet-driven growth.

## 8. Challenges and Risks

### 8.1 Labor Market Disruption and Social Cohesion

Rapid, poorly managed labor market transitions carry risks beyond individual economic hardship, including reduced social cohesion, political polarization, and diminished trust in institutions perceived as failing to manage technological change equitably. The concentration of displacement risk among specific occupations, sectors, and demographic groups, such as early-career workers and those in routine cognitive roles, means the social costs of AI-driven disruption are unlikely to be evenly shared even within a single economy.

### 8.2 Data, Bias, and Algorithmic Accountability

AI systems trained on historical data can reproduce and, in some cases, amplify existing social biases related to race, gender, and socioeconomic status, particularly when deployed in high-stakes domains such as lending, hiring, healthcare, and criminal justice. Ensuring algorithmic accountability requires robust auditing mechanisms, transparency about model limitations, and regulatory frameworks capable of keeping pace with rapidly evolving technology, a challenge that has proven difficult for many national governance systems to date.

### 8.3 Energy, Infrastructure, and Environmental Costs

The infrastructure required to support AI at scale, including data centers and specialized computing hardware, carries substantial energy and resource demands. Estimates suggest that global data center capital expenditure to meet AI-related demand could reach several trillion dollars by 2030, with corresponding

implications for electricity consumption, water use for cooling, and greenhouse gas emissions unless paired with substantial investment in clean energy generation. These infrastructure and environmental costs represent a socio-economic consideration in their own right, particularly for regions where AI-related data center development competes with other priorities for scarce electricity and water resources.

### 8.4 Market Concentration

The capital intensity of frontier AI development, encompassing computing hardware, energy, and specialized technical talent, favors large, well-capitalized firms and technologically advanced economies. This dynamic risks entrenching market concentration in the technology sector and, by extension, in the broader economy, as AI-driven productivity advantages accrue disproportionately to incumbents capable of making the necessary upfront investments, potentially raising barriers to entry for smaller firms and slowing the diffusion of AI's benefits to the wider economy.

## 9. Illustrative Country Case Studies

### *9.1 China: State-Directed Manufacturing Automation*

China's manufacturing sector has emerged as a leading example of AI-driven industrial transformation, with government-backed digital strategy supporting large-scale deployment of AI-enabled robotics. Reported trial results from Chinese manufacturing facilities have shown production increases in the range of twenty percent alongside meaningful annual cost savings, contributing to projections that China could see the largest proportional regional GDP uplift from AI of any major economy by 2030.

### *9.2 India: AI in Education and Workforce Development*

India presents an example of AI's potential role in human capital development, with pilot programs using AI-driven learning platforms reporting improved pass rates in university settings. Given India's large working-age population, analysts have suggested that AI-enabled education and skills development could make a meaningful contribution to GDP growth over the coming decade by improving workforce quality and productivity, though realizing this potential at national scale will require substantial and sustained investment in digital infrastructure and teacher training.

### *9.3 United States: Investment-Led Growth and Labor Market Bifurcation*

The United States illustrates both the growth and disruption dimensions of AI simultaneously. AI-related investment has become a significant driver of GDP growth, while professional services firms have begun to restructure entry-level hiring in response to generative AI capabilities, and wage growth has diverged notably between AI-exposed and less-exposed industries. This dual pattern underscores the paper's broader argument that AI's aggregate economic benefits and its distributional costs can occur concurrently within the same economy.

## 10. Policy Recommendations

Given the evidence reviewed above, the socio-economic trajectory of AI is not fixed but will be shaped substantially by policy choices made over the coming years. The following recommendations, synthesized from institutional research and the analysis in this paper, are intended to help maximize AI's growth potential while managing its distributional and social risks.

- Invest in digital infrastructure: Expand affordable, reliable internet connectivity and computing capacity in underserved regions to prevent a widening digital divide from becoming a permanent economic divide.
- Modernize education and workforce training: Integrate AI literacy into curricula at all levels and fund large-scale reskilling programs targeted at workers in highly AI-exposed occupations, with particular attention to early-career workers facing reduced entry-level opportunities.
- Strengthen social protection systems: Adapt unemployment insurance, portable benefits, and income-support mechanisms to better accommodate the more frequent job transitions that AI-driven labor market churn is likely to produce.
- Promote algorithmic accountability: Establish clear regulatory standards for transparency, auditing, and bias mitigation in high-stakes AI applications, particularly in lending, hiring, healthcare, and public administration.
- Support small and medium enterprises: Provide financing, technical assistance, and shared computing infrastructure to help smaller firms adopt AI tools, reducing the risk that productivity gains accrue only to large incumbents.
- Pursue international cooperation: Coordinate across countries on data governance, technical standards, and capacity-building support for lower-income economies, recognizing that AI's cross-border effects on trade, labor markets, and security require multilateral engagement rather than purely national responses.
- Improve economic measurement: Update national accounting frameworks to better capture intangible AI-related capital and output, enabling more accurate assessment of the technology's true economic contribution and informing better-targeted policy.
- Invest in sustainable AI infrastructure: Pair data center and computing capacity expansion with investment in clean energy generation to manage the environmental footprint of AI-driven growth.
- Extend rural and agricultural digital access: Prioritize connectivity and extension services that allow precision-agriculture and financial-inclusion applications of AI to reach smallholder farmers and underbanked populations.
- Monitor entry-level labor market effects: Track hiring trends for early-career workers in AI-exposed occupations specifically, given emerging evidence that this group faces disproportionate transitional risk.

## 11. Conclusion

Artificial intelligence stands among the most consequential general-purpose technologies of the current era, carrying the potential to add trillions of dollars in economic value, transform education and healthcare delivery, extend financial inclusion, and reshape the nature of work itself. The evidence reviewed in this paper, and summarized visually across the six figures presented, indicates that AI's aggregate economic contribution is likely to be substantial, with credible institutional projections placing its cumulative global GDP impact by 2030 in the range of thirteen to twenty trillion dollars. Yet aggregate figures obscure a critical reality: AI's benefits are currently concentrated among a relatively small number of technologically advanced economies, large firms, and highly skilled workers, while risks of displacement, bias, and exclusion fall disproportionately on early-career workers, lower-income countries, and populations lacking digital infrastructure and skills.

The central conclusion of this paper is that AI's socio-economic impact is not a fixed, technologically determined outcome but a contingent one, shaped by the scale and direction of public and private investment,

the design of education and social protection systems, and the strength of international cooperation on data governance and capacity building. Absent deliberate policy intervention, the trajectory of AI adoption appears likely to widen existing gaps in wealth and opportunity, both within and between nations. With well-designed policy, however, the same technology holds genuine potential to accelerate inclusive growth, expand access to essential services, and raise living standards broadly. The task facing policymakers, businesses, and international institutions over the coming decade is to ensure that the second outcome, rather than the first, defines AI's socio-economic legacy.

## Acknowledgement

The authors declare no conflicts of interest. We are very much thankful to the authors of different publications as many new ideas are abstracted from them. Authors also express gratefulness to their colleagues and family members for their continuous help, inspirations, encouragement, and sacrifices without which this work could not be executed. Finally, the main target of this work will not be achieved unless it is used by research institutions, students, research scholars, and authors in their future works. The authors will remain ever grateful to Dr. Neelu Singh, Director, ICFRE Tropical Forest Research Institute, Jabalpur, Director, XLRI – Xavier School of Management, Jamshedpur & Principal Government Science College, Jabalpur who helped by giving constructive suggestions for this work. The authors are also responsible for any possible errors and shortcomings, if any in the paper, despite the best attempt to make it immaculate.

## Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship and publication of this article.

## Funding

The author received no financial support for the research, authorship and publication of this article.

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