How global business leaders can harness the power of GenAI

EY Parthenon

Building a better working world

Executive summary

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In a global context marked by sluggish productivity growth, aging demographics, fragile post-pandemic supply chains and escalating geopolitical tensions, generative AI (GenAI) emerges as a crucial tool for business leaders navigating these multifaceted global challenges.

GenAI offers a transformative solution by introducing operational efficiencies and fostering innovation at an unprecedented pace. Through the automation of routine tasks and the generation of new ideas, products and processes, GenAI can significantly enhance productivity, allowing businesses to achieve more with fewer resources.

The power of GenAI can also play a pivotal role in strengthening supply chains, making them more resilient to a variety of disruptions, including those arising from geopolitical conflicts. By improving demand forecasting, supply chain management and logistics, GenAI enables businesses to better match supply with demand, thereby stabilizing prices and alleviating inflationary pressures. This capability is especially critical in times of supply side fragilities and lingering inflationary pressures, where the ability to quickly adapt to supply shocks is invaluable.

In a post-pandemic labor market characterized by labor hoarding — where businesses retain talent at a higher cost after struggling to hire, train and retain skilled workers — and slowing labor force growth, GenAI's potential to enhance productivity becomes even more essential. The technology automates routine tasks, thereby freeing up human resources for more complex and innovative processes. This shift not only drives greater economic efficiency and growth but also offsets the costs associated with talent retention.

Throughout our series, five strategic lessons emerge for global business leaders keen to harness the power of GenAI and position their organizations to not only survive, but thrive.

1. Leverage GenAI for accelerated productivity growth. Forward-thinking businesses should embrace GenAI technologies to spearhead transformative advancements, not simply pursue quick efficiency gains. The adoption of GenAI is essential to maintaining a competitive edge in an increasingly digitized world.

2. Capitalize on GenAI's economic impact. The full economic impact of GenAI is expected to be immense. To tap into this unprecedented growth, it's essential that enterprises strategically position themselves at the forefront of GenAI adoption so they are primed to leverage the economic wave that GenAI brings.

3. Drive comprehensive artificial intelligence (AI) integration. AI's influence transcends automation, permeating decision-making and strategic planning. A comprehensive integration of GenAI into business operations is critical. This means weaving AI through the very fabric of organizational processes, thereby revolutionizing productivity and spurring innovation across all sectors.

4. Reinvent workforce dynamics. It's critical that the focus shifts toward transforming jobs and enhancing their value through AI rather than eliminating them. Reskilling the workforce and developing AI-worker interfaces can lead to improved job quality and satisfaction, aligning human potential with AI's capabilities.

5. Cultivate an AI-savvy corporate culture. An organization's cultural adaptation to GenAI is as vital as its technical implementation. It requires fostering an environment of continuous learning, promoting AI literacy and equipping employees to adapt to and leverage GenAI's evolving capabilities. This cultural shift is fundamental to reaping the full benefits of the GenAI revolution.

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AI offers an unprecedented opportunity to address key global challenges. Companies cannot wait on the sidelines. Those that transform business models with GenAI will be more innovative and resilient.

Dr. Khalid Khan
EY Americas Strategy and Transactions AI Leader
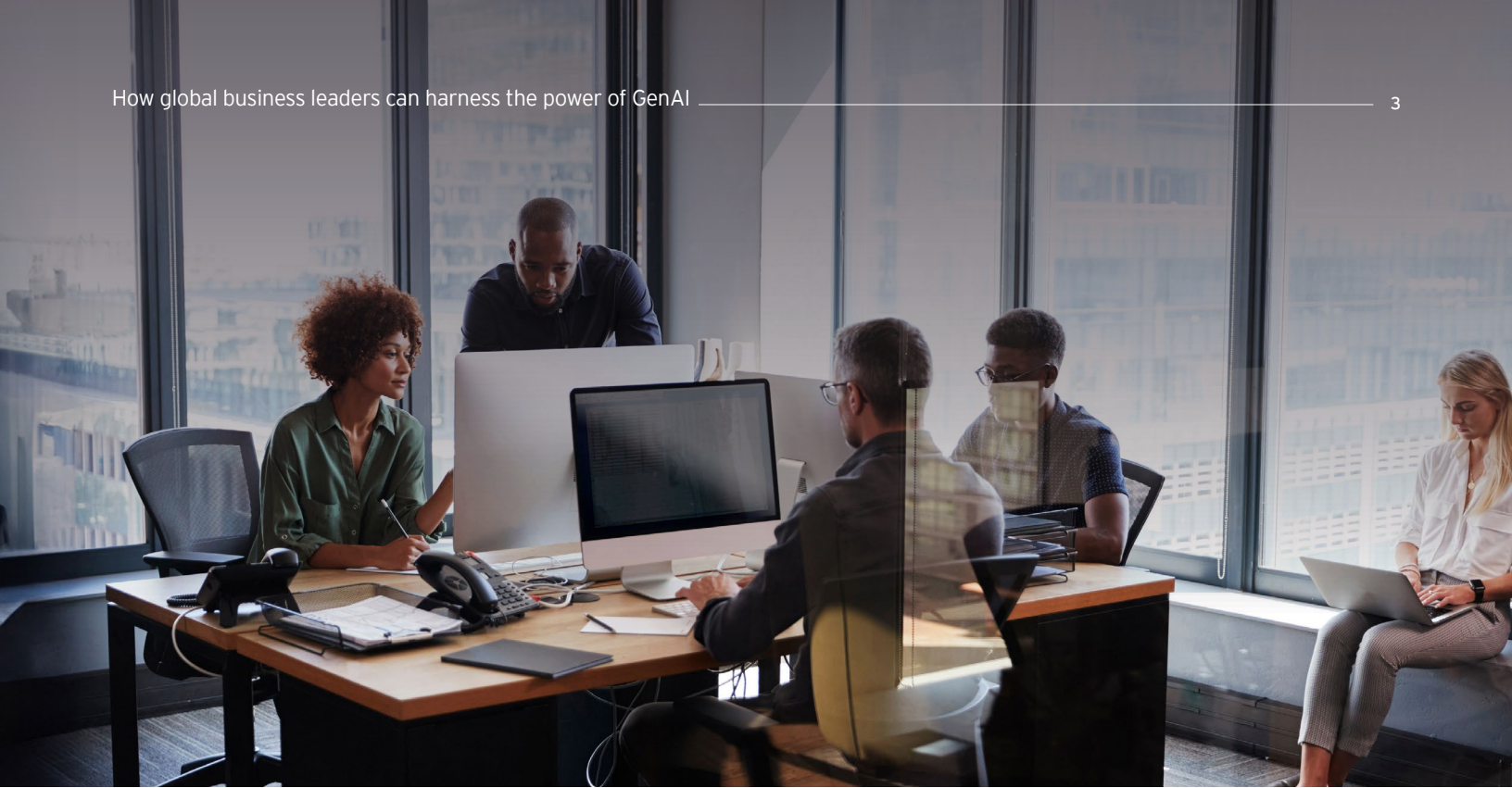
1. Small benefits today, transformative gains tomorrow

Effective adoption and diffusion of a new technology take time; GenAI's impacts may be realized faster than previous innovations.

We find that while 43% of CEOs have already begun investing in AI and another 45% plan to do so in the next year, according to the EY CEO Outlook Pulse survey, many are pursuing quick efficiency gains rather than more fundamental changes to enhance GenAI's growth potential.

This gradualist approach is not surprising as it aligns with prior technological revolutions. Indeed, there are often numerous sources of delay between a technological revolution and its boost to economic growth:

- Learning and adjustment period. With any new technology, there is often a period during which it's essential for business leaders to develop an understanding of its potential benefits, and workers and managers to learn how to use it effectively. This often involves trial and error by early adopters, training of personnel and the development of leading practices.

- Implementation and diffusion. Subsequently, it takes time for new technologies to be adopted and diffused throughout an economy. Even after a technology is introduced, businesses might delay the adoption due to high up-front costs, uncertainty about its benefits or simply because they are waiting to see if even better technologies emerge.

‣ Complementary innovations. Some technologies require complementary innovations or infrastructures to be fully effective. For instance, while the steam engine was invented in the early 1700s, it wasn't until about 80 years later that steam technology improved and was adopted more broadly. Similarly, while the electrical age began in the 1880s in the US, it was only in the 1920s when electrification made critical advances, especially with more robust electrical grids. And the benefits of personal computers were magnified once the internet became widespread.

The notable capabilities and performance of emerging AI tools already represent a big improvement over those introduced a decade ago, such as cell phone virtual assistants. And while broad-based productivity boost will likely occur with a lag, the speed of technological adoption and diffusion has increased from multiple decades in the 1800s to around 10 years in the computer age. Faster diffusion and adoption of GenAI could mean the boost to economic activity will be felt in the next three to five years.

2. US leading the way, but many markets primed for success

A view of AI research and development, company count and employment suggests China, India and more are other GenAI frontrunners.

The US economy is currently leading the way in terms of AI research and development, commercialization and talent, but prospects for growth in other economies are very encouraging. Classifying different economies as a function of three dimensions – the number of AI companies, the number of AI patents granted and the number of AI professionals – illustrates this reality.
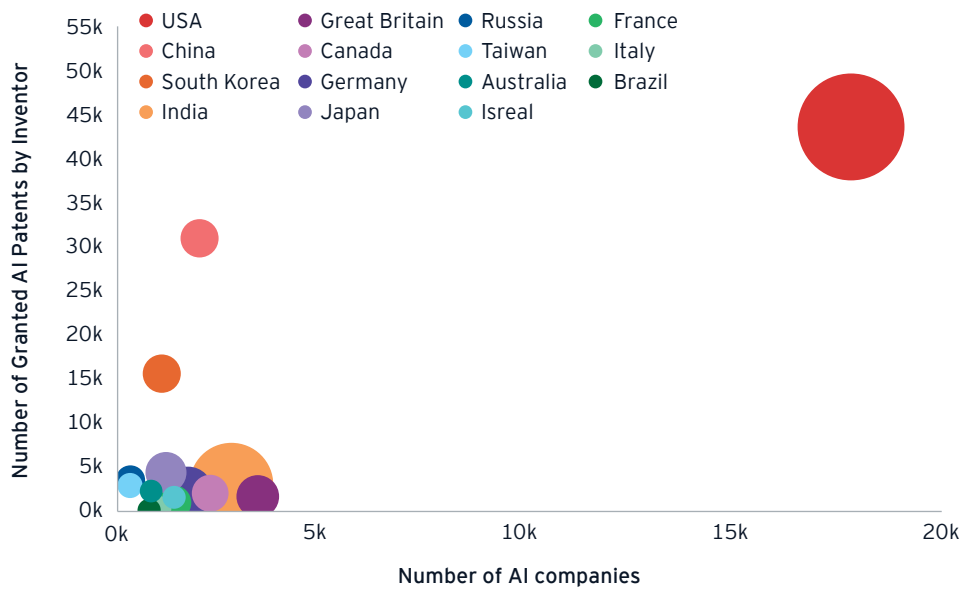
Based on EY-Parthenon analysis, the US is benefiting from both a first-mover advantage as well as demographic size with the number of AI companies (17.7k) and patents (41.4k) being about 10 times larger than in most other economies and the largest number of AI professionals (22.5k). China is in an interesting position. While it has much fewer AI companies (1.9k), it benefits from having the second-largest global research and development pipeline with about 75% of the US number of AI patents (29.4k).

India is also noteworthy as it stands in line with other advanced economies with regards to the number of AI patents (2.9k) and companies (2.7k), but it benefits from a clear scale advantage in the second-largest number of AI professionals (13.6k), behind the US (22.5k). A key question is whether India will retain and leverage that skilled talent pool domestically.

Across advanced economies, South Korea leads the way on the research and development front with more than three times more patents (14.8k) than Japan (4.2k). Taiwan, Australia, Germany, Canada and Great Britain have slightly fewer patents (around 1.7k to 2.8k) than Japan, but Germany, Canada and Great Britain have a commercial advantage with a larger number of AI companies（1.6k to 3.3k).

Chart 1: Count of AI companies, granted AI patents, and AI professionals for select countries
2023

Legend:
- USA
- China
- South Korea
- India
- Great Britain
- Canada
- Germany
- Japan
- Russia
- Taiwan
- Australia
- Isreal
- France
- Italy
- Brazil

Y-axis: Number of Granted AI Patents by Inventor (0k–55k)
X-axis: Number of AI companies (0k–20k)

Source: EY-Parthenon; Tortoise Media
Bubble size communicates number of AI professionals within an economy

3. Packing 12 to 14 years of growth in the next decade

We estimate that investments in GenAI may significantly boost global economic activity and GDP by $1.7t-$3.4t during this period.
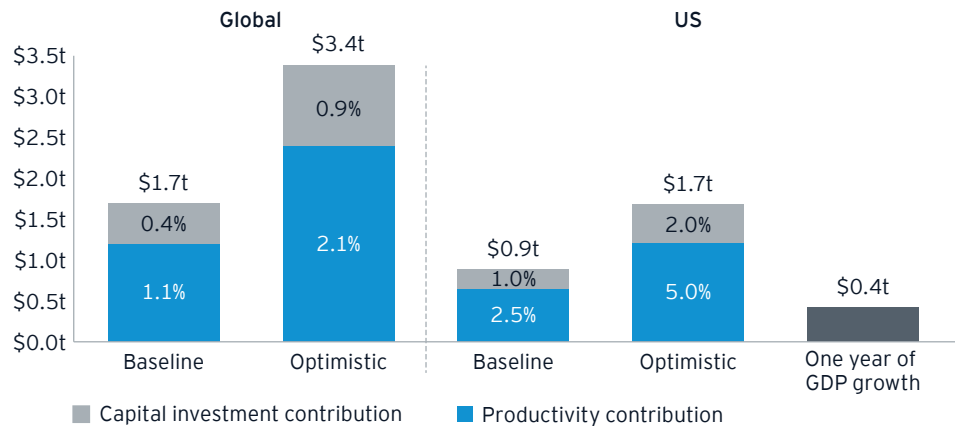
When combining the contribution from greater investment in GenAI and stronger productivity growth, one can truly observe the potential of GenAI to significantly lift global economic activity over the next decade.

We estimate the GenAI revolution could lift global GDP by $1.7t to $3.4t in 2033, or the equivalent of 1.5% to 3%. For the US economy, the boost to GDP will likely range from $900b to $1.7t by 2033, or the equivalent of 3.5% to 7%.

These figures might not mean much to the average observer, but assuming the US economy's long-term growth rate is around 1.8% to 2.0%, this would represent the equivalent of two to four extra years of growth within a decade.

At the global level, where long-term GDP growth is closer to 2.5% to 3.0%, this would represent up to a full year of additional growth over the next decade – or, put differently, adding an economy the size of India over a decade.

Chart 2: GenAI cumulative real GDP boost by 2023 (USD$; bar totals) and percent boost to 2033 real GDP (percent of 2023 real GDP; bar segments)

Global   US

$3.4t			

$3.5t
$3.0t   0.9%
$2.5t
$2.0t $1.7t $1.7t
$1.5t   0.4% $0.9t   2.0%
$1.0t   2.1%   1.0% $0.4t
$0.5t   1.1%   2.5%   5.0%
$0.0t
         Baseline   Optimistic   Baseline   Optimistic   One year of
                                                          GDP growth

■ Capital investment contribution   ■ Productivity contribution

Source: EY-Parthenon

Capital investment foundation

In assessing the potential economic impact of GenAI from a capital investment perspective, we examined the near-term boost to growth from increased investment in software, R&D in semiconductor and other electronic components manufacturing, other computer and electronic product manufacturing, scientific services and software publishers, computers and peripheral equipment, and communication equipment.

Drawing parallels with the IT revolution of 1980-2000, we found that business investment in GenAI will likely be 25% faster than the 2017-2022 annual trend pace of growth of 8.8%. This would lead to a real GDP lift of 1%, worth over $250b over the next decade. A more optimistic scenario could see 50% faster business investment growth, leading to a real GDP boost of 2%, worth a cumulative $500b by 2033.

Looking across major economies, the contribution from greater GenAI investment could also be significant. While the US market is likely to remain the leader in GenAI technologies investment, China, Europe and India will most likely be following closely behind. We estimate that the lift to global GDP could total between $500b and $1t over the next decade.

Productivity growth acceleration

During the information and communication technologies (ICT) revolution of 1980s-1990s, productivity growth doubled. Using a conservative assumption that the productivity growth lift from GenAI is only half of productivity acceleration witnessed during the ICT revolution of 1980s-1990s, we find that it would raise GDP by $650b over the next decade, or the equivalent of a 2.5% increase by 2033.

In a more optimistic scenario where productivity grows twice as fast as the 2017-2022 trend pace – akin to the acceleration during the computer age – the productivity boost powered by GenAI would lift GDP by $1.2t, or 5%, over the next 10 years.

Looking across major economies, a GenAI-driven productivity upswing could also make a substantial contribution to the global economy. We estimate that the lift to global GDP from stronger productivity could total $1.2t to $2.4t over the next decade.
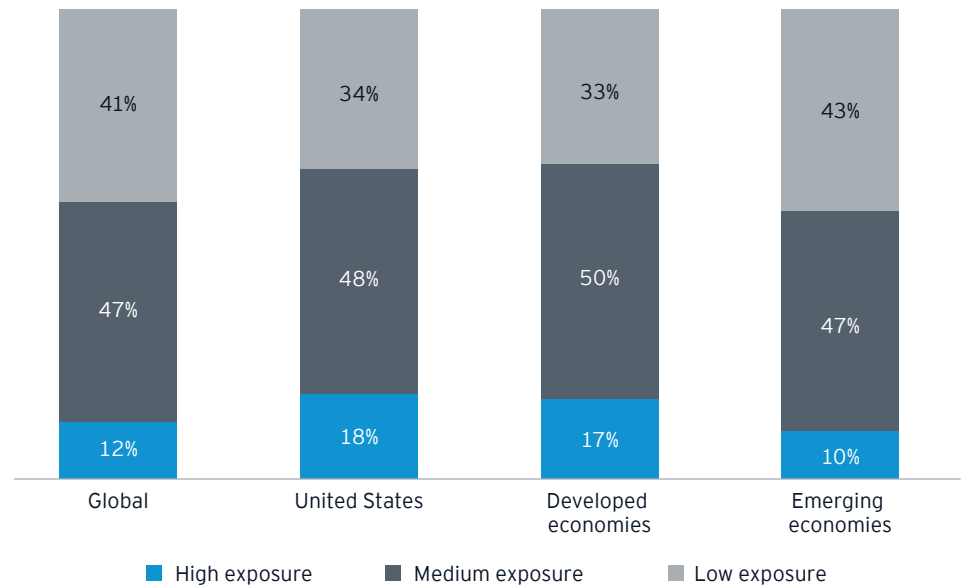
4. Labor augmentation is everywhere

GenAI will likely affect most workers, with task augmentation varying by role, skill level and degree of human interaction.

We believe the GenAI-driven labor transformation will be universal in that it will affect nearly all functions over the coming decade, but the degree to which functions will be affected will vary greatly across occupations, sectors and geographies. In the US, 66% of employment (or the equivalent of 104m jobs) is highly or moderately exposed to GenAI. The remaining 34% of occupations have low AI exposure but will likely still be affected by AI via some secondary tasks. Globally, we find that 59% of occupations have a "high to moderate" exposure, with 67% in advanced economies and 57% in emerging markets.

Chart 3: Share of employment by AI augmentation score

	High exposure	Medium exposure	Low exposure
Global	12%	47%	41%
United States	18%	48%	34%
Developed economies	17%	50%	33%
Emerging economies	10%	47%	43%

Source: EY-Parthenon

GenAI's ability to perform complex cognitive tasks means that AI taking over and rendering low-skilled jobs obsolete will most likely turn out to be a myth, and advanced economies may initially see a greater labor augmentation potential. Mathematical and programming skills have the highest GenAI exposure scores, while active listening and learning have the lowest, as these are tasks involving complex human interaction, creativity and emotional understanding.

Looking at the top 10 occupation groupings with the highest AI augmentation scores, professions like plant and system operators, physical scientists, agricultural workers, drafters, programmers, engineers and architects involve a high degree of repetitive and data-driven tasks that AI can automate. These include data analysis and monitoring, operations scheduling, document review, design work and safety inspection processes.

Although these occupations are significantly exposed to AI, total automation is unlikely, as workers remain indispensable for overseeing processes, strategic decision-making and tasks requiring nuanced judgment. Indeed, the wide dispersion of AI augmentation scores for the top 10 occupation groupings illustrates the importance of human intervention.

The 10 occupation groupings with the lowest AI augmentation scores have the highest intrinsic human elements needed for their functions. For example, roles like post-secondary teachers require human interaction and ability to customize learning. Occupations such as health care practitioners demand personalized care and critical decisions that AI currently can't provide. Roles such as cooks and firefighters necessitate precise physical intervention (which can require complementary robotization) and high-stakes decision-making in unpredictable situations. Consequently, these roles, which require human interaction, decision-making, physical intervention and personalization, face lower risk from GenAI augmentation at first.

Still, as is the case for major occupations with high AI exposure scores, there is wide dispersion across the low-AI-exposure occupations. Even occupations that require human interaction have some sub-functions that can be augmented via GenAI. Think of grading or course material preparation for a teacher; or prevention, monitoring and early risk detection for firefighters.

Chart 4: Median, max and min rescaled AI augmentation scores across US "minor occupation groups" − highest and lowest 10 occupations
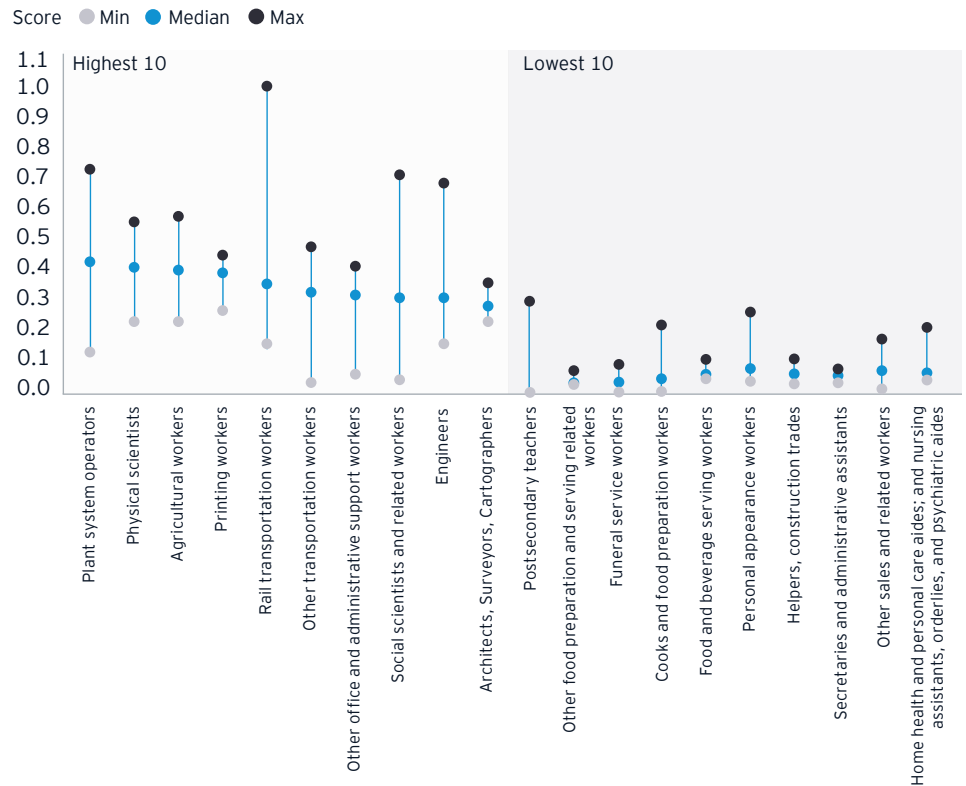
Source: EY-Parthenon; Bureau of Labor Statistics
Chart includes median, max and min for highest and lowest ten US minor occupation groups.

5. The risk of inequality

Tackling GenAI divides will likely require a multifaceted approach.

The integration of GenAI also brings challenges and risks. These could manifest in several ways, such as rising income inequality, increasing market concentration and widening global disparities. Addressing these issues effectively is crucial to leveraging GenAI capabilities in a manner that inclusively benefits households, companies and economies across the globe.

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Economically, GenAI's impact is immense. With governing frameworks for adoption, business leaders who take a human-centric, responsible approach can address inequality and expand prosperity for shareholders and the broader economy.

Dr. Khalid Khan
EY Americas Strategy and Transactions AI Leader

Chart 5: AI Government Readiness Index and GDP per capita by country
2022 (GDP per capita) and 2023 (AI Readiness)
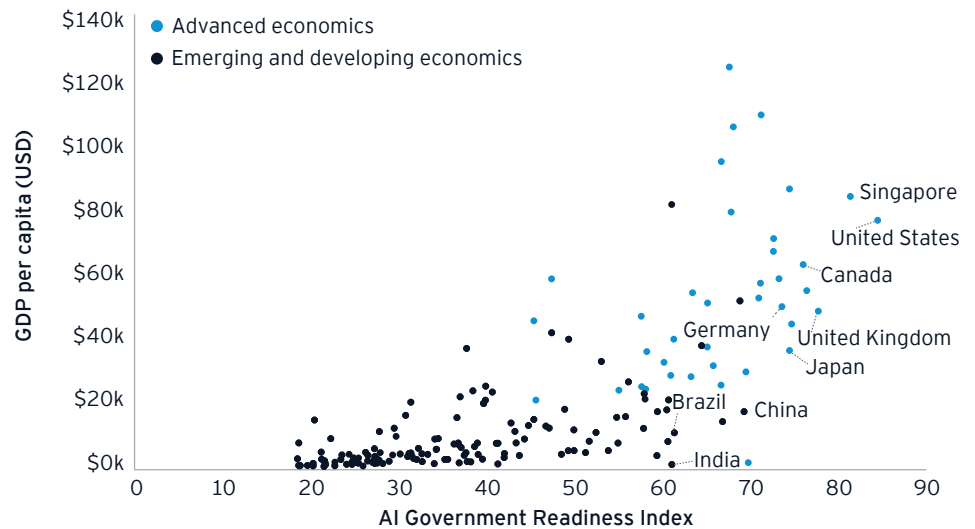
Source: EY-Parthenon; Oxford Insights; IMF

The uplift from AI will not likely be equally felt among households. In the case of the US, we estimate that the economic gains from GenAI will translate into a boost to household income worth between $675b and $1.3t over the next decade. Over 50% of the gain will accrue to households in the upper income quintile (top 20 percent of households by income level) while less than 5% of it will accrue to the bottom quintile (bottom 20 percent). Globally, the effects on inequality could be similarly biased, with higher-income workers benefiting from outsized gains, especially in economies where inequality and income polarization are high.

Wage inequality will likely increase as workers in high-paid occupations stand to capture a greater share of labor income gains. With GenAI showing the greatest potential to complement (rather than substitute) high-wage occupations relative to low-wage occupations, higher-wage workers are likely to see a disproportionate increase in their labor income, which could lead to a widening in inequality.

GenAI development also has the potential to spur greater market concentration and create winner-takes-all business dynamics. GenAI technologies offer first-mover advantages and large economies of scale that could lead to a growing divide between AI leaders and laggards and the rise of "superstar" firms that could reap most of the AI benefits. The risk of oligopolies and vertical integration raises the stakes for regulators to offset potential negative externalities.

The global economic boost from AI will likely be concentrated in countries at the forefront of AI development and those best equipped to harness the technologies. Pioneers in AI development such as the US and China and early adopters such as the UK, Canada, Japan, South Korea and India will most likely benefit disproportionately from AI's economic boost while developing countries that are the least prepared for AI adoption such as those in sub-Saharan Africa, Latin America and South Asia will likely lag behind.

Addressing these AI divides will require a multifaceted approach. At the workforce level, it will be critical to implement policies that help mitigate the less desirable impacts of AI on workers such as job displacement as well as supporting training and upskilling of the workforce to enable these new technologies.

At the country level, encouraging the diffusion of new technologies among smaller firms and implementing business strategies and policies that promote increased market competition could help to spread AI's benefits more broadly across the economy.

At the global level, stronger cooperation to reduce technological disparities by expanding access to AI technology and infrastructure and building digital skills could help bridge the AI divide.

Key contact

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Concluding thoughts

In today's rapidly evolving and complex global landscape — characterized by slow productivity growth, aging populations, delicate supply chains and growing geopolitical tensions — the power of GenAI stands out as a beacon for business leaders. It presents an innovative way to navigate these challenges by enhancing operational efficiency and sparking unparalleled innovation.

However, the adoption of GenAI is not without its hurdles and potential pitfalls. Prior technological revolutions have illustrated the importance of building the ecosystem of complementary innovations, infrastructure, skills and culture necessary to fully reap the productivity benefits of this new technology.

GenAI's integration into the fabric of business and society could also lead to increased income inequality, greater market dominance by a few and expanded global disparities. Tackling these challenges head-on is imperative for the advantages of GenAI to be distributed equitably, benefiting individuals, businesses and economies worldwide in an inclusive manner.

Summary

This is the sixth installment of the EY-Parthenon macroeconomic article series on the economic impact of AI. The series aims to provide insights on the economic potential of generative AI (GenAI), including new developments and actionable insights to arm companies' decision-makers. The sixth article in this series covers how global business leaders can harness the power of GenAI.

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