Investment trends and economic prospects in the GenAI era

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Content

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Join us on an exploration of the dynamic world of generative AI (GenAI) and its substantial effects on investment trends across Europe, the Middle East, and Africa. Our goal is to determine the extent to which firms will embrace AI in the next decade and to analyze the potential consequences for investment patterns and GDP development.

In brief:

- A significant leap in AI adoption is on the horizon.
- This is set to ignite investment and propel GDP growth.
- The extent of these benefits will vary by region, painting a diverse global picture.

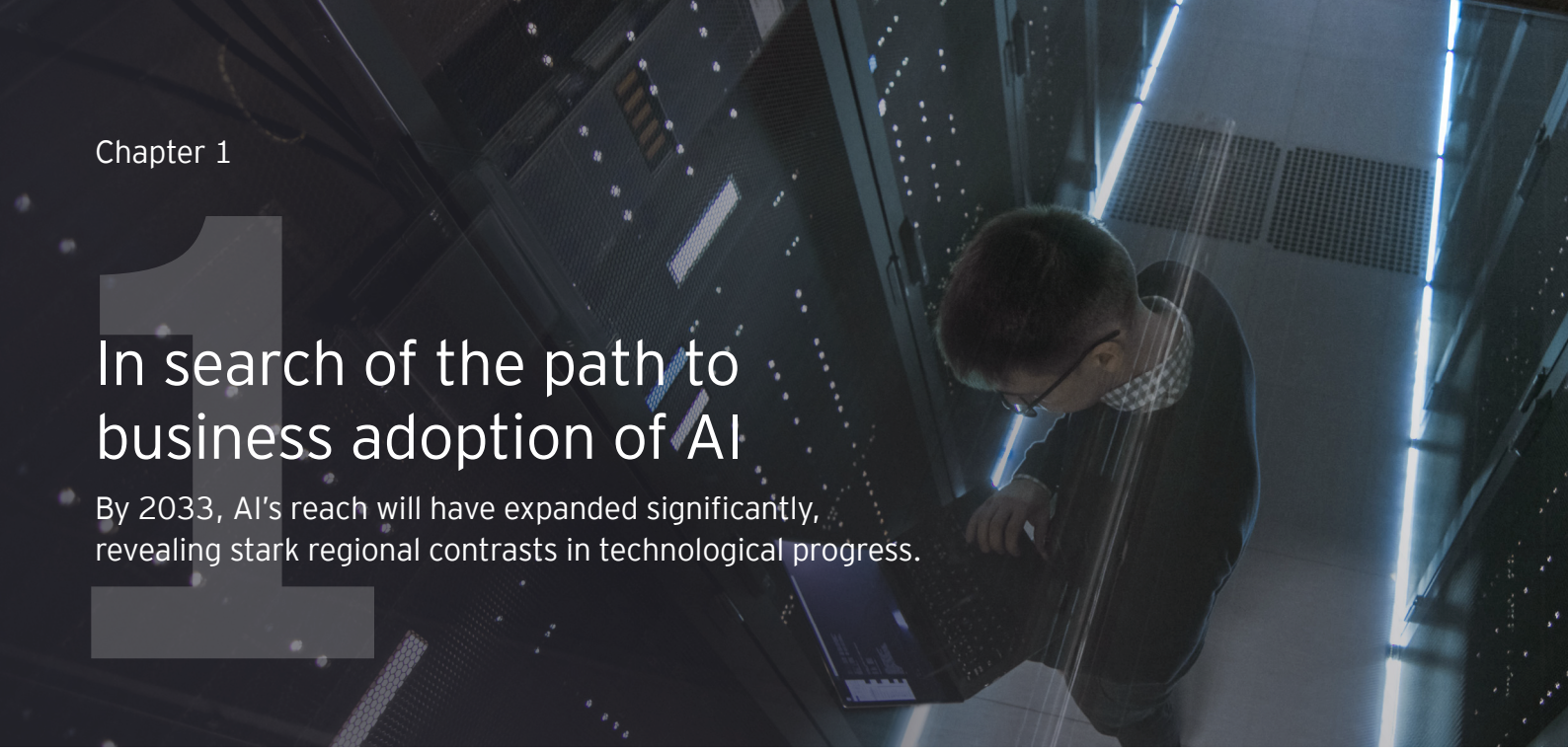
Building on our previous EY insights on GenAI investment in the USA and GenAI-driven task automation and augmentation potential, while drawing parallels with the ICT revolution, we assess the likelihood of firms to adopt GenAI over the next decade in six regions: Western Europe, Southern Europe, Central and Eastern Europe (CEE), the Middle East and North Africa (MENA), and Sub-Saharan Africa.[1] Subsequently, we calculate the degree to which investment in GenAI-related technologies will need to increase for firms to achieve the expected level of GenAI integration. Finally, we estimate how this increase in investment will influence economic growth. Importantly, investment is not the only channel through which GenAI will affect GDP – we will investigate its impact on productivity in a forthcoming article.

1 Western Europe includes Germany, France, the UK, Ireland, Switzerland, Austria, Benelux, and Nordic countries. Southern Europe covers Portugal, Spain, Italy, Cyprus, Malta, and Greece. Central and Eastern Europe includes Baltic countries, Poland, Czechia, Slovakia, Hungary, Romania, Bulgaria, Albania, and the countries of the former Yugoslavia. Middle East and North Africa covers Gulf Cooperation Council countries, Iraq, Lebanon, Egypt, Tunisia, Algeria, and Morocco. Sub-Saharan Africa includes vast majority of remaining African countries.

Key findings:

- **The proportion of firms adopting AI will increase significantly in the coming decade.** As we described in Chapter 1, the AI boom is about to take off, with current adoption rates (share of companies using AI) ranging from 10.9% in Western Europe to a modest 0.4% in Sub-Saharan Africa. Under a scenario of widespread AI integration, these figures could rise significantly by 2033, reaching up to 77% in Western Europe and 8% in Sub-Saharan Africa.
- **Drawing parallels with the ICT boom, we foresee a potential investment windfall tied to AI adoption.** As we show in Chapter 2, by 2033, AI-driven ICT investment could increase by as much as 1.7% of GDP in Western Europe and up to 0.2% of GDP in Sub-Saharan Africa.
- **Investment in GenAI will boost GDP growth to a varying degree across regions,** as detailed in Chapter 3. Depending on the adoption scenario, Western Europe's GDP might increase by 0.8% to 1.9% over the next decade thanks to investment in GenAI, translating to billions of dollars in monetary gains. Given their less rapid AI integration, Sub-Saharan Africa will see much more modest GDP gains, at 0.1% to 0.3%. We estimate that the combined GDP of Europe, Middle East, and Africa (EMEA) will be between US$190 billion and US$440 billion[2] higher in 2033 because of investment in GenAI.

2 Monetary gains are expressed throughout the article in terms of 2015 US dollars.



Chapter 1

In search of the path to business adoption of AI

By 2033, AI's reach will have expanded significantly, revealing stark regional contrasts in technological progress.

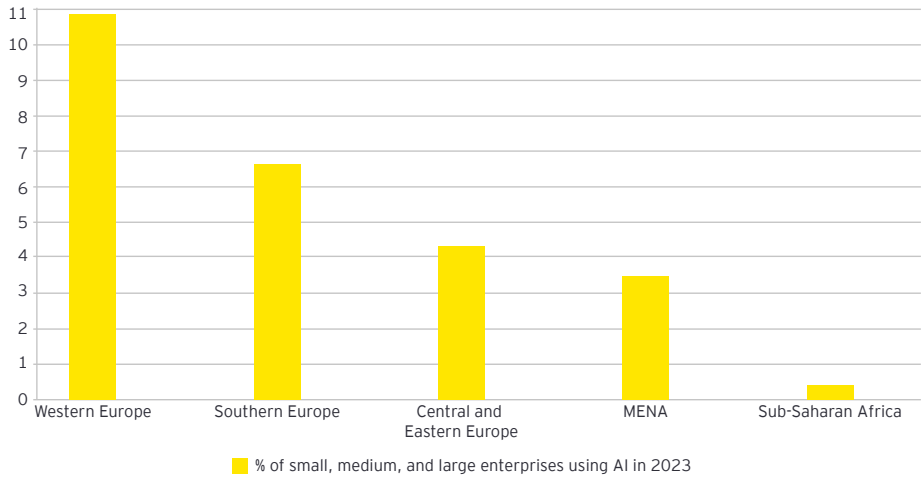
We begin our analysis by estimating the pace of AI integration by small, medium, and large enterprises over the next decade, using the following three inputs:

- Current levels of AI adoption.
- The pace of ICT integration since the tech surge of the 1990s (as a proxy).
- The percentage of tasks that could be automated or augmented using AI in the next decade.

AI adoption today: assessing the current landscape

Eurostat surveys show a varied AI integration landscape across Europe. In 2023, 10.9% of Western European companies (with 10 or more employees) used AI, compared to 6.7% in Southern Europe and 4.3% in Central and Eastern Europe. The clear link between ICT and AI adoption rates shows that countries with more advanced ICT infrastructure also adopt AI more quickly. We leverage this relationship to bridge the data availability gap and estimate current AI integration outside Europe. We infer the AI-ICT adoption relationship from Central and Eastern European countries, which have more in common with non-European regions, and apply it to MENA, and Sub-Saharan Africa. After adjusting the figures to align with Eurostat data for Central and Eastern Europe, we estimate that 3.5% of MENA firms use AI, and 0.4% in Sub-Saharan Africa.

Figure 1: AI adoption rate in 2023, % of small, medium, and large enterprises using AI



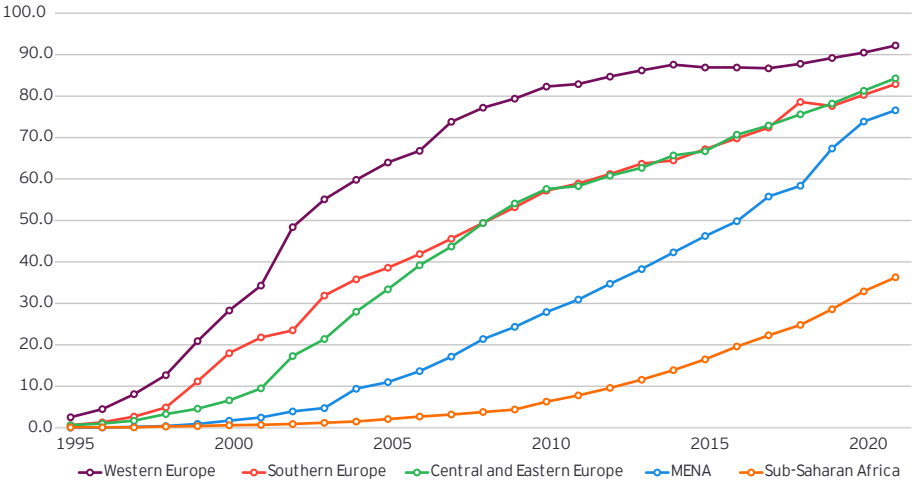
Source: Eurostat, World Bank, EY EAT.

The ICT revolution: prelude to the future of AI

To understand the adoption potential of AI, we look back at the 1990s, a decade defined by the ICT boom. The similarities between the ICT revolution and the ongoing AI transformation are notable. Both technologies are universally applicable and have the potential to greatly enhance productivity. Therefore, we expect AI integration to follow a similar trend to historical ICT adoption (see Figures 2 and 3).

Among the studied regions, ICT integration was most rapid in Western Europe, with internet usage – a primary ICT indicator – skyrocketing in the first decade. This growth leveled off after 2010 as the region neared saturation. Southern, Central and Eastern Europe, initially behind, eventually caught up, nearly closing the ICT gap with Western Europe by 2021. In MENA, significant internet growth began after 2003. By 2021, MENA had made substantial progress, reaching an internet user rate of 77% and reducing the gap with Europe. In Sub-Saharan Africa, ICT adoption was much slower and remains substantially below European levels to this day.

Figure 2: ICT adoption during 1995–2021 across EMEA regions, with internet usage as a proxy for ICT adoption



Source: World Bank, EY EAT.

AI adoption: what the future may hold

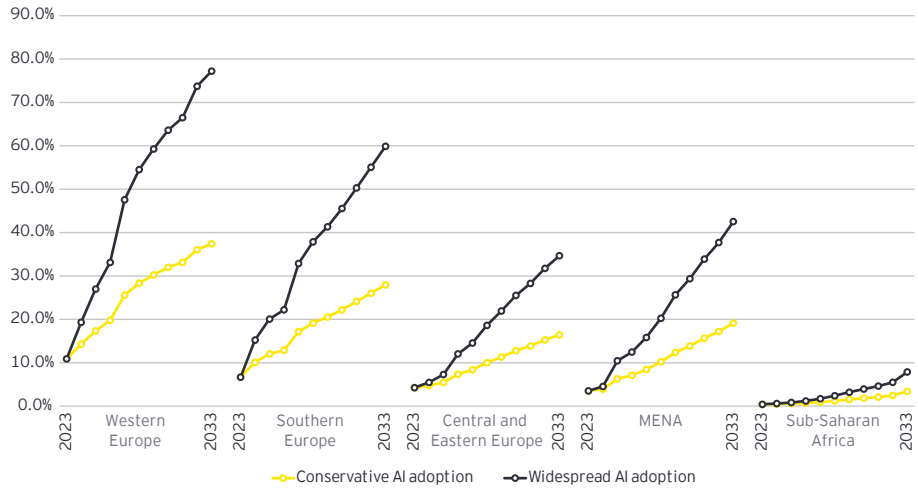
Despite many similarities, the assumption that AI integration will fully follow the trends observed during the ICT revolution may not be appropriate for at least two reasons. First, CEE and MENA have been catching up with Western Europe in terms of economic development and are now much better placed to reap the benefits of AI than they were in the case of the ICT revolution in the 1990s. Second, AI differs from previous technological advancements, including the ICT revolution, as it influences mainly high-skilled occupations.

Therefore, to evaluate AI adoption among firms in EMEA regions, we combine data on the current AI usage and insights from ICT integration with our estimates of the proportion of tasks that could be automated or augmented through AI in the next decade, as discussed in our previous article.

We examine two potential pathways for AI integration:

1. **Widespread AI adoption scenario:** This envisions that the uptake of AI will progress at a pace comparable to the ICT revolution. As a reference point, in 2023, AI was embraced by 10.9% of firms in Western Europe, mirroring ICT integration rates from 1998. Based on this trend, we expect that AI utilization will experience a significant upswing in the next decade to reach 77% – a figure that reflects the widespread adoption of the internet in 2008.
   We assume that the ratio of firms adopting GenAI in any given region to those in Western Europe will align with the ratio of tasks that could be profitably automated or augmented by AI in the next decade in that region compared to Western Europe. Based on this approach, our calculations indicate that by 2033, AI integration will have expanded to 60% of firms in Southern Europe, 35% in Central and Eastern Europe, 43% in MENA, and 8% in Sub-Saharan Africa. These projections represent a substantial increase from the current adoption rates of 6.7%, 4.3%, 3.5%, 0.5% and 0.4%, respectively. The projected growth trajectories are shaped by the historical patterns observed during ICT integration.
2. **Conservative AI adoption scenario:** Under a more cautious projection, we assume a slower and more selective uptake of AI, with its application concentrated among a narrower group of businesses. Drawing on the relationship between AI integration in 2023 and ICT adoption in 2021 in European countries, we estimate that the pace of AI integration will be 40% of what we assume in our widespread AI adoption scenario. Consequently, by 2033, 37% of firms in Western Europe, 28% in Southern Europe, 16% in Central and Eastern Europe, 19% in the MENA region, and 3% in Sub-Saharan Africa will have integrated AI into their operations.

Figure 3: AI adoption rate, % of small, medium, and large enterprises using AI

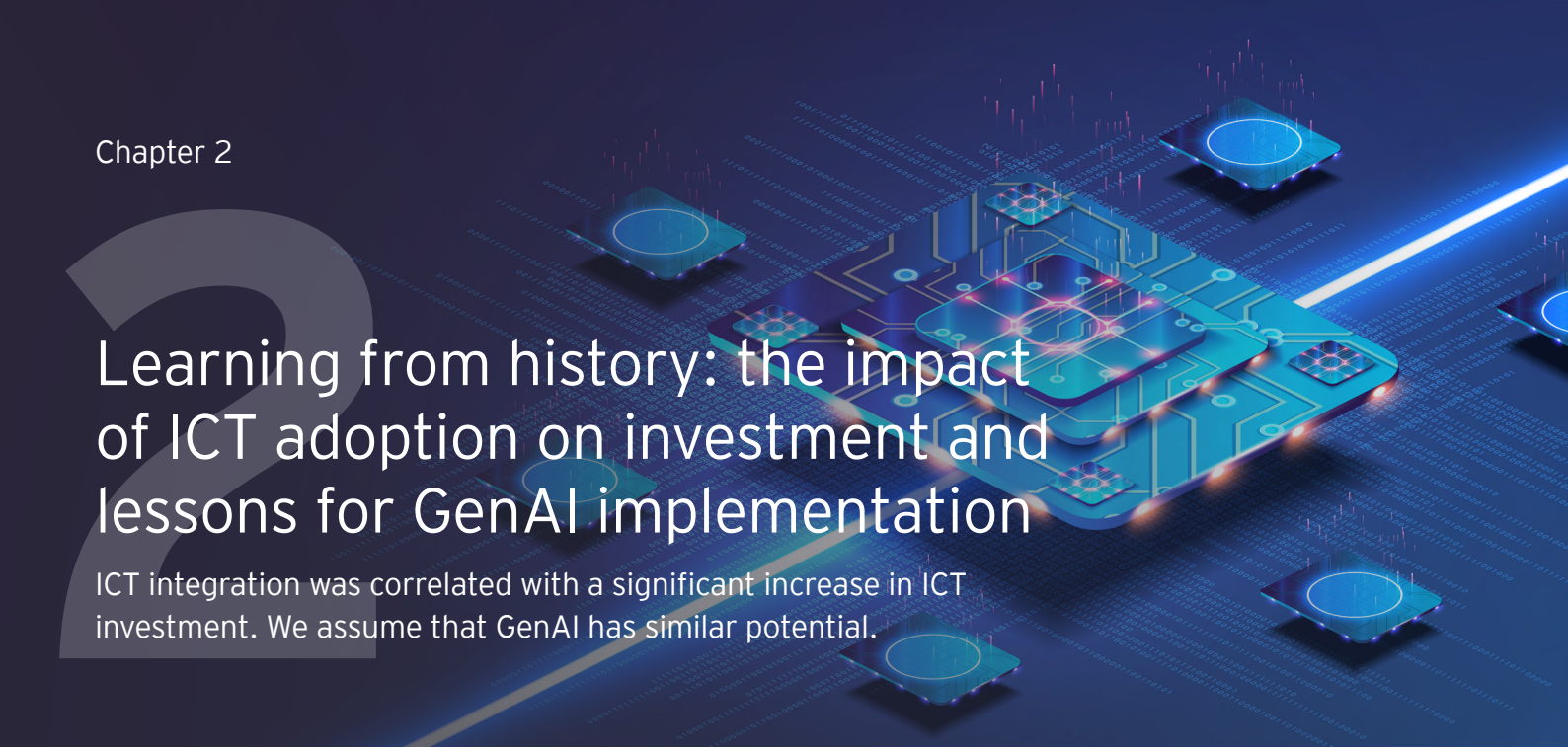


Source: Eurostat, EY EAT.

The projected AI adoption rates for the coming decade vary significantly by region, with Sub-Saharan Africa at a modest 3%–8% depending on the scenario, and Western Europe at a high end of 37%–77%. Scale of AI adoption contrasts with our previous article analyzing GenAI's impact on the labor market, in which we found that the percentage of tasks expected to be automated by AI is much lower — only 0.5% in Sub-Saharan Africa, and up to 5% in Western Europe. This apparent discrepancy reveals an important insight: while many firms may integrate AI into their operations, the actual extent of task automation by AI is likely to be more limited, suggesting that in many cases, AI will be applied only to selected tasks in each position.

As we explore the varied potential pathways for AI adoption, we set the stage for a discussion on the subsequent economic implications. Our focus is to discern how these varying levels of AI integration will be reflected in tangible economic benefits, such as investment patterns, which ultimately impact GDP.

Chapter 2



Learning from history: the impact of ICT adoption on investment and lessons for GenAI implementation

ICT integration was correlated with a significant increase in ICT investment. We assume that GenAI has similar potential.

Firms will not be able to adopt AI technologies without purchasing GenAI software and cloud computing services, investing in the development of tailored-made in-house applications and spending on hardware that enables GenAI to run smoothly. Hence, the broad integration of GenAI is likely to lead to a similar increase in ICT investment as took place with the adoption of computers and internet during the ICT revolution. To estimate the potential scale of this phenomenon, we look at the historical relationship between ICT investment and the rate of ICT assimilation. This retrospective analysis underpins our predictions for the impact of GenAI on investment over the next ten years, as described in the next chapter.

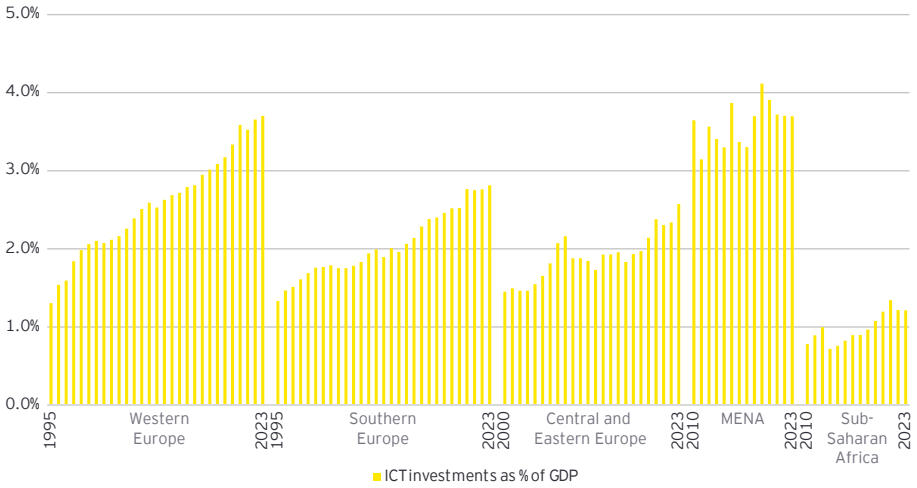
Historical perspective on tech investment patterns

The past 30 years have witnessed a general increase in ICT investment relative to GDP across most regions, except for MENA, which have maintained a consistently high rate of investment, as shown in Figure 4.

In our study, ICT investment encompasses three asset categories:

1. Tangible ICT equipment, including computer hardware and telecommunications equipment.
2. Intangible intellectual property products related to computer software and databases.
3. Intangible R&D expenditure on ICTs, proxied by R&D expenditure on manufacturing computer, electronic and optical products and the information and communication sectors.

Figure 4: ICT investments as % of GDP, across EMEA regions



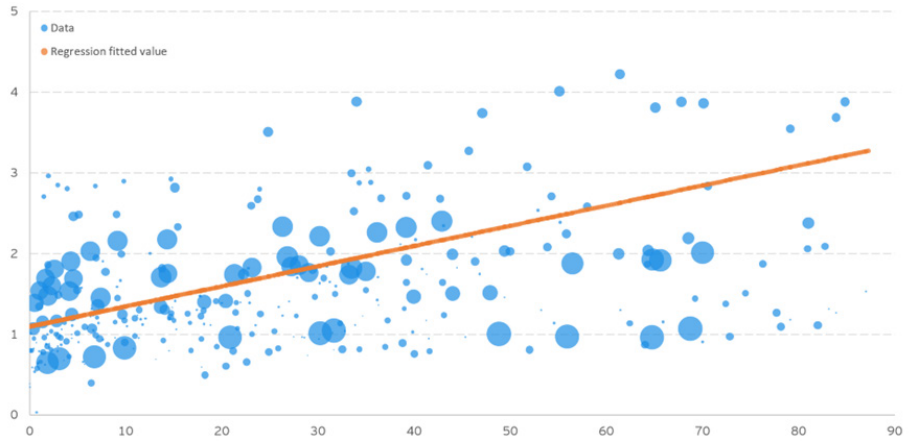
Source: Eurostat, World Bank, EY EAT.

Tech adoption and investment: lessons from the ICT revolution

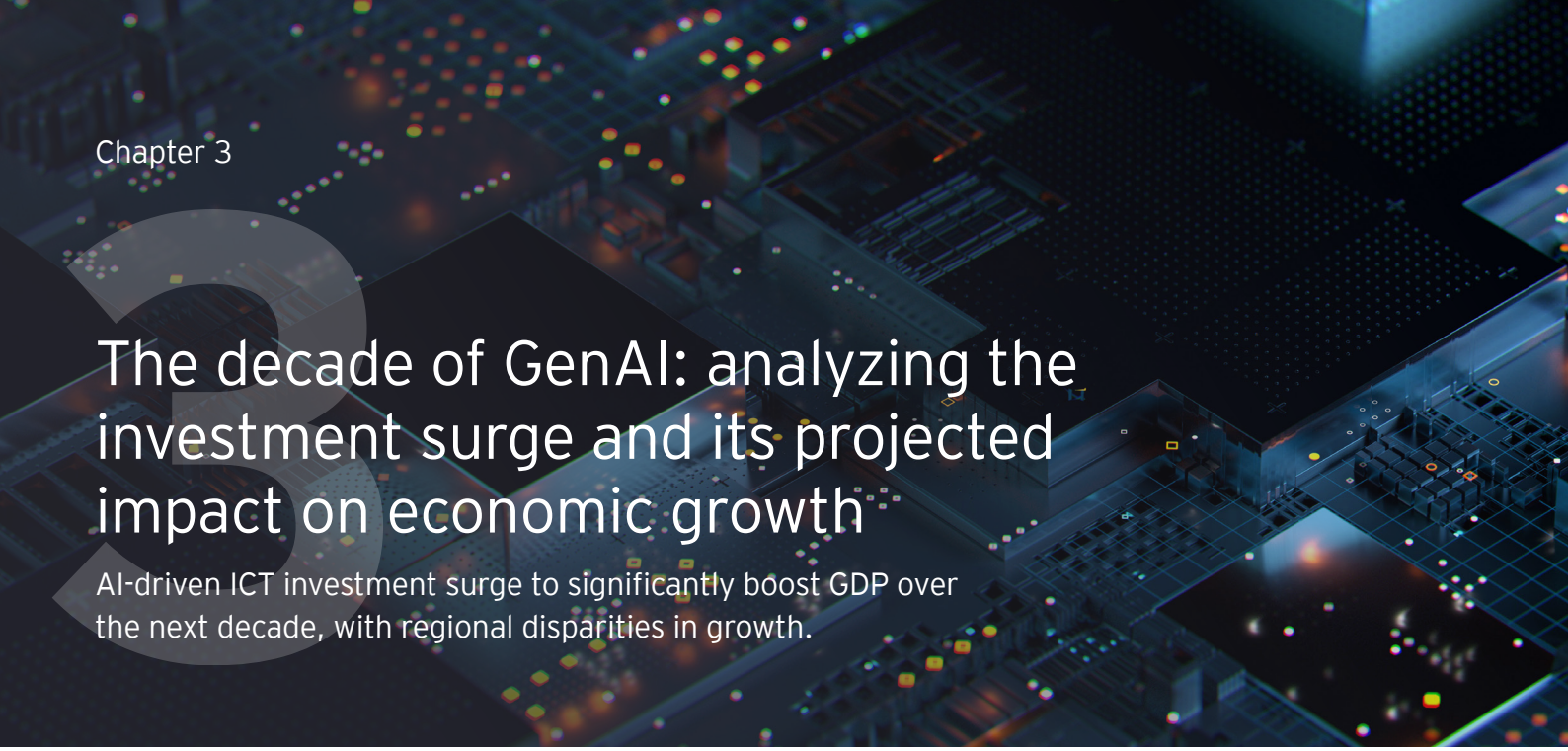
Bridging the gap between the historical impact of ICT and the future of GenAI requires an understanding of the investment landscape that companies face. The integration of GenAI is not a simple plug-and-play scenario; it involves significant investment in both software and the hardware necessary to support it. This level of investment is likely to be reminiscent of the ICT revolution's early days.

During the formative decade of ICT expansion (1995–2005), there was a robust correlation between the rate of ICT adoption and the corresponding investment. Our analysis shows that in Europe, an increment of 10 percentage points in ICT integration was associated with a 0.25 percentage point rise in ICT investment relative to GDP (see Figure 5). We anticipate that AI will have a comparable influence on investment in the years ahead. Therefore, by examining AI adoption trends (refer to Figure 3), we can estimate the potential impact of AI on investment patterns.

Figure 5: Comparative analysis of ICT adoption (OX) and investment as a percentage of GDP (OY) (1995–2005); dot size weighted by GDP



Source: Eurostat, World Bank, EY EAT.



Chapter 3

The decade of GenAI: analyzing the investment surge and its projected impact on economic growth

AI-driven ICT investment surge to significantly boost GDP over the next decade, with regional disparities in growth.

In this chapter, we link forecasts for AI adoption by firms with historical connections between ICT integration and investment to estimate the potential impact of AI on ICT investment and GDP.

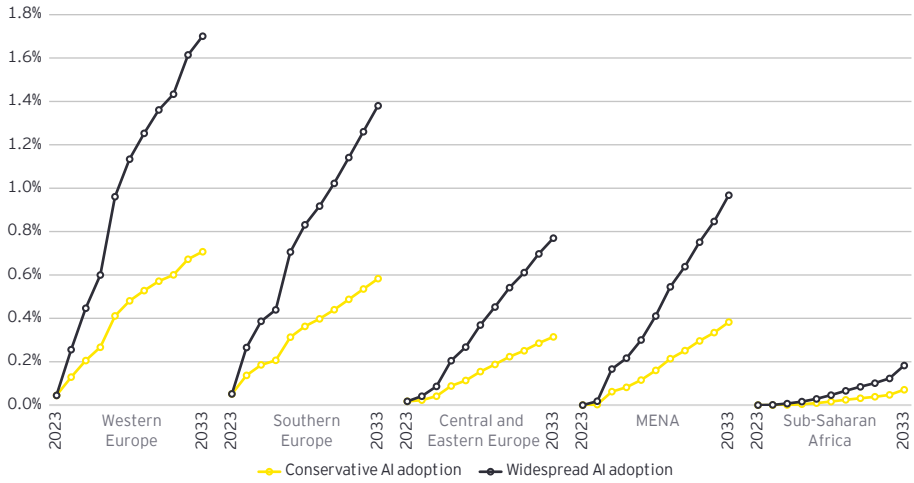
Booming AI investment

Applying the relationship between ICT adoption and ICT investment established in the previous chapter to the scenarios of AI integration by firms, we estimate the increase in AI-driven ICT investment over the next decade.

Western Europe is set to be at the forefront of AI investment among the regions we analyze. By 2033, we forecast that AI investment in this region will increase by 0.7% to 1.7% of GDP relative to 2022 levels, which translates to between US$120 billion and US$280 billion, depending on whether the adoption is conservative or widespread. Southern Europe is expected to follow, with AI investment increasing by 0.6% to 1.4% of GDP, or US$25 billion to US$60 billion. MENA is also set to make significant strides, with ICT investment likely to reach around 0.4%–1% of GDP, or US$20 billion to US$45 billion. In Central and Eastern Europe, where GenAI integration is less pronounced, we estimate that AI investment will rise by between 0.3% and 0.8% of GDP, amounting to between US$7 billion and US$20 billion.

Sub-Saharan Africa, however, may progress more slowly due to a lesser rate of AI adoption. In this region, we anticipate AI-related investment to increase by 0.1% of GDP in a conservative scenario, with the potential to reach 0.2% in a scenario of widespread AI adoption. In financial terms, this is projected to be between US$2 billion to US$4 billion.

Figure 6: Projected increase in ICT Investment driven by AI as a percentage of GDP relative to 2022 levels (2023–2033)



Source: EY EAT.

We assume here that all AI-driven investment will fully constitute new spending, i.e., ICT investment would be lower over the next decade by the amount shown in Figure 6 without the emergence of GenAI. In practice, however, there might be some substitution between GenAI and other types of ICT investment to the extent that GenAI will replace some existing ICT technologies. Therefore, the boost to ICT investment under the two considered AI adoption scenarios may be somewhat smaller than indicated.

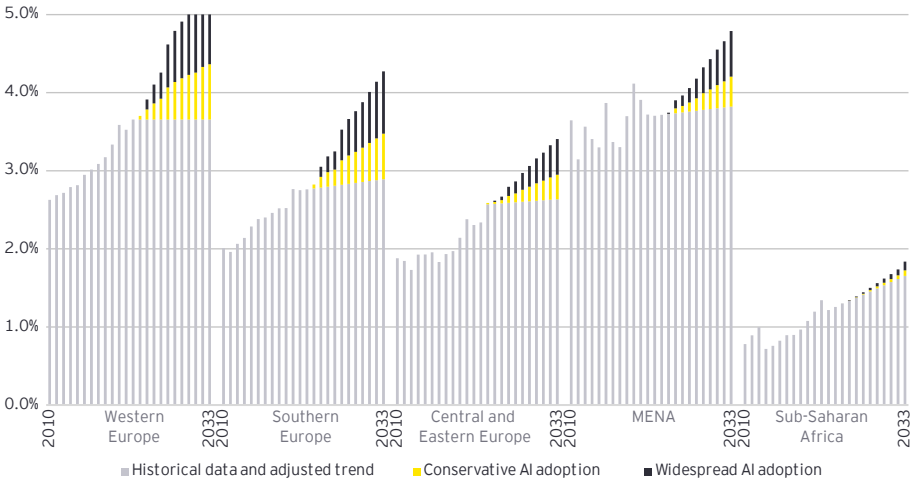
AI as the catalyst for an ICT investment surge

The next decade is set to position AI as a central catalyst for ICT investment across the EMEA region. Our projections suggest that, in the absence of AI's influence, ICT investment as a percentage of GDP might plateau in Western Europe. By 2033, we anticipate that total ICT investment in Western Europe will vary between 4.4% and 5.4% of GDP, corresponding to conservative and widespread AI adoption scenarios, respectively. Southern Europe as well as Central and Eastern Europe, in the absence of AI's momentum, may witness a deceleration in their current ICT investment trajectories. Thus, our assumptions lead us to believe that by 2033, ICT investment in these regions will be between 3.5% and 4.3% for Southern Europe and between 3.0% and 4.7% for Central and Eastern Europe. The MENA region is forecast to have total ICT investment of between 4.2% and 4.7% of GDP, contingent on the AI adoption scenario.

In less developed areas such as Sub-Saharan Africa, the focus will be on a catch-up mechanism to lessen the technological disparity with more developed Western nations, with AI-driven investment playing a lesser role. Therefore, we believe that total ICT investments in Sub-Saharan Africa will demonstrate progress, to reach between 1.7% and 1.8% of GDP by 2033, an increase from 1.3% in 2023.

While an AI-driven surge in ICT investment is anticipated, it may not directly correspond to an increase in the overall investment rate within the economy. For instance, Europe's experience over the past three decades has shown that a rise in ICT investment did not necessarily lead to a higher proportion of total investment in GDP. This phenomenon can be attributed to a crowding-out effect, where increased investment in one sector may substitute investment in others, tempering the net impact of AI on overall investment and GDP.

Figure 7: ICT investment as % of GDP, historical data and 2023–2033 foresight, conservative vs widespread AI adoption scenario



Notes: Lower grey columns correspond to historical data and adjusted trends; yellow middle columns represent forecasts of additional ICT investment in our conservative scenario. Top black columns show the additional ICT investment due to more rapid AI adoption.

Source: EY EAT.

AI and GDP boost

As GenAI adoption accelerates, we anticipate a surge in ICT investment that is poised to drive GDP growth. Increased ICT investment will directly contribute to GDP on the demand side, followed by indirect demand-side effects. A boost to domestic economic activity will raise incomes and thus consumption, while an increase in economic activity abroad will support exports. At the same time, some ICT capital will be imported, reducing the impact on the domestic economy. Finally, and most importantly, ICT investment will also enhance the productive capacity of the economy through capital accumulation, raising potential GDP on the supply side.

GenAI is also likely to positively influence productivity, but we are abstracting from this channel of impact for now – we will explore it in detail in the upcoming article.

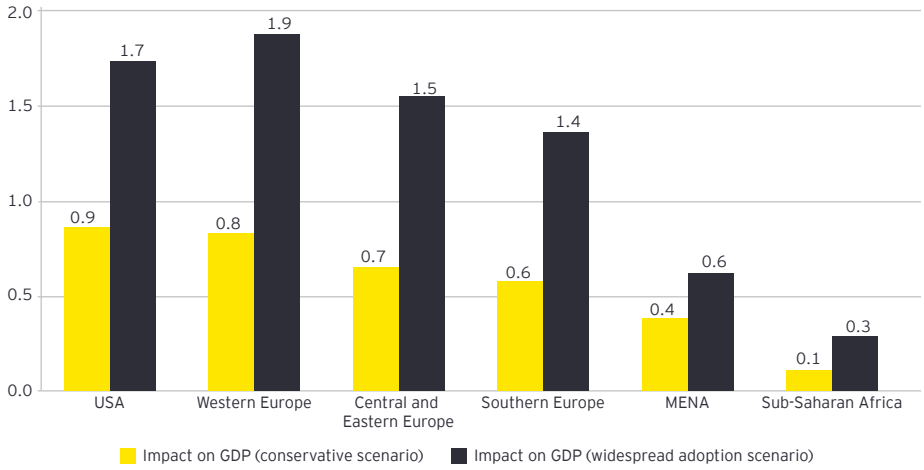
To account for these various channels in a consistent manner, we simulate the effects of increased ICT investment on the economy using our amended version of the Oxford Global Economic Model. We assume that the increase in ICT investment will fully translate into a rise in private non-residential investment. We conduct this exercise for EMEA and the USA, in the latter case using the estimates presented in one of the previous EY articles as an input.

In most regions, GDP is set to increase to a similar degree as ICT investment alone — the upticks in consumption, exports and imports largely offset each other (Figure 8). Therefore, Western Europe sees the strongest impact of investment in GenAI on GDP over the next decade across EMEA, amounting to 0.8%, or US$135 billion, in the conservative scenario, and 1.9%, or US$305 billion, in the widespread adoption scenario.

The only clear exception to this rule is Central and Eastern Europe, which experiences a much stronger increase in GDP (0.65% in 2033 in the conservative scenario) than in ICT investment (0.31% of GDP in the conservative scenario) as it benefits from a relatively strong increase in external demand stemming from Western Europe.

At the same time, the increase in potential GDP, i.e., the productive capacity of the economy, tends to be smaller than in demand, suggesting that investment in GenAI may be pro-inflationary. However, as already flagged above, our analysis has so far abstracted from GenAI's impact on productivity, which is likely to lead to an additional rise in potential GDP, offsetting the pro-inflationary effects of investment. We will explore this channel in upcoming articles, to reveal the full impact of GenAI on GDP and inflation.

Figure 8: Impact of AI investment on GDP in 2033



Source: EY EAT.

Chapter 4

GenAI and the New Economic Era: business leaders' insights on the path to transformation

Practical steps for business leaders include: (1) leverage AI for competitive growth, (2) prioritize AI in technology strategies, and (3) adopt AI incrementally and mindfully.

In today's rapidly evolving technological landscape, businesses are recognizing the transformative power of AI. Recent research and surveys highlight a clear trajectory: investing in AI is not just a trend, but a strategic imperative for growth and competitiveness. Here are the main insights for businesses looking to harness the potential of AI and GenAI:

- **Leverage AI for competitive growth:** Babina et al. (2023) reveals a strong and consistent pattern in which companies that allocate greater resources to AI experience significant growth. Specifically, a one-standard-deviation increase in AI investment, measured over an eight-year period through analysis of employee resumes, corresponds to a 19.5% increase in sales, an 18.1% increase in employment, and a 22.3% increase in market value. This pattern holds true across key sectors such as manufacturing, finance, and retail.
- **Prioritize AI in technology strategies:** With AI and GenAI emerging as key areas of investment, businesses should strategically allocate human and financial resources to these technologies. This not only aligns with current investment trends but also positions companies at the forefront of innovation.
- **Start by closing the knowledge gap:** Lack of knowledge regarding potential AI applications is one of the main barriers to AI adoption. As businesses navigate the complexities of GenAI, they should adopt a phased approach to its implementation. This involves identifying business transformation opportunities enabled by GenAI, establishing robust data management policies, addressing ethical concerns, and enhancing staff digital skills. By doing so, organizations can capitalize on the positive impacts of AI while safeguarding against potential downsides.

Summary

In our article, we explore the trajectory of AI adoption across various regions, and its implications for investment and GDP. We anticipate that across EMEA, Western Europe will lead the charge while Sub-Saharan Africa may progress more slowly due to technological disparities. Our analysis suggests that ICT investment will consistently rise over the next decade, with AI acting as a key driver, particularly in Western Europe. This investment impulse will have a boosting effect on the economy and lead to an increase in GDP.

Investment in AI may be particularly important for Europe, which faces challenges to long-term growth, particularly stemming from declining working-age populations. In this context, it is paramount that regulations, such as the EU AI Act, provide a legal framework that reduces uncertainty and help ensures security, while not stifling GenAI's development.

In subsequent discussions, we plan to delve into AI's additional effects on productivity, inflation, interest rates and country competitiveness, offering a broader view of AI's impact on the global economic landscape.

References:

1. Babina, T., Fedyk, A., He, A., & Hodson, J. (2024). Artificial intelligence, firm growth, and product innovation. Journal of Financial Economics, 151, 103745.
2. EY Economic growth through capital investment in GenAI (2023)
3. EY Reimagining Industry Futures Study 2024: How can you realize the promise of transformational technologies?
4. EY: The European Union Artificial Intelligence Act: Latest developments and key takeaways

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