



How Singapore's thriving digital economy could drive generative AI adoption

Our recent research explores the crucial elements that will either hinder or promote the adoption of generative AI by businesses in Singapore. With these insights, we outline strategies for companies to achieve success with this transformative technology.

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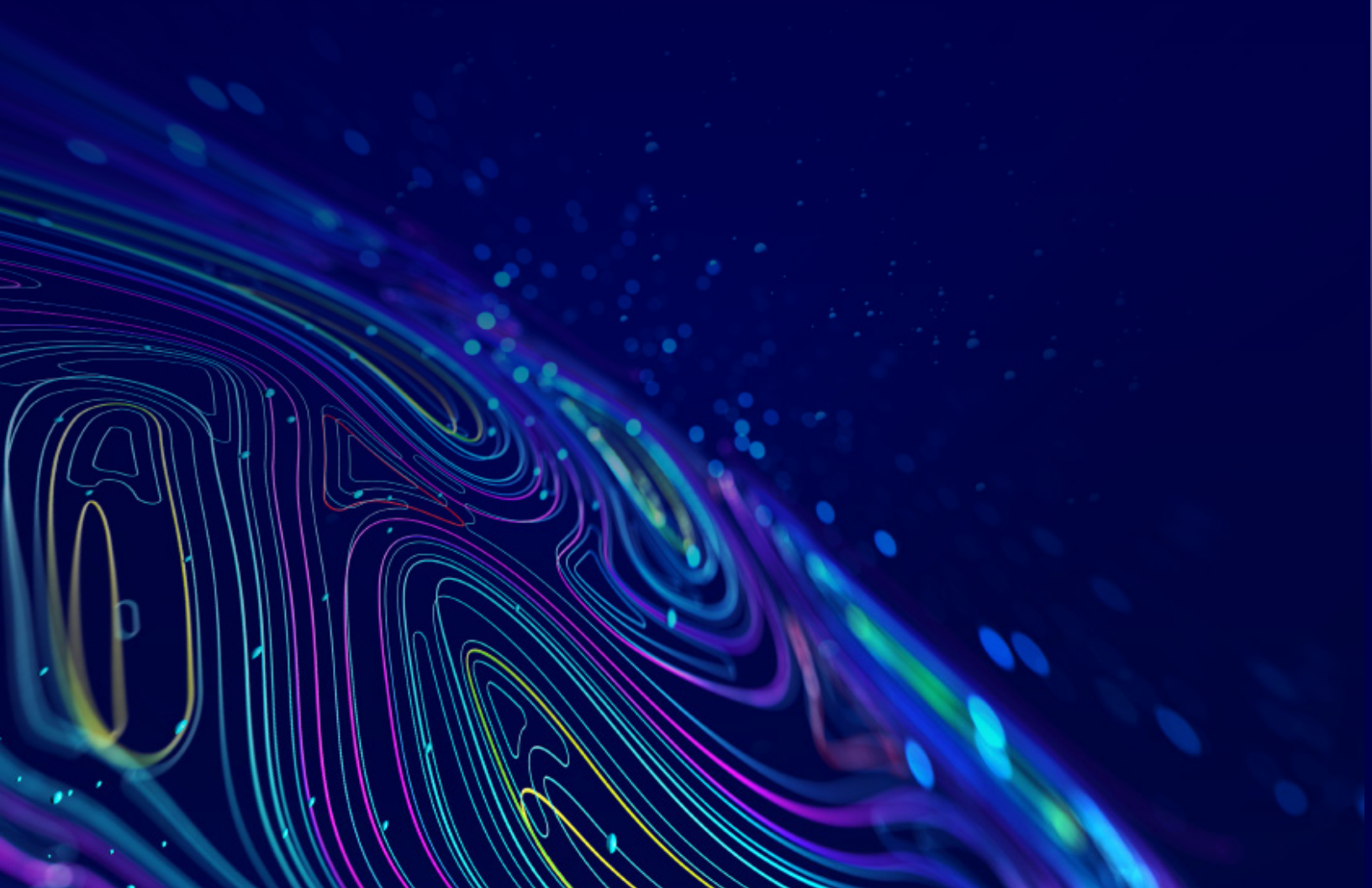
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Businesses in Singapore believe generative AI is critical to their future success. Buoyed by their conviction, businesses in the region report a median planned spend of USD \$16 million, higher than the global median of \$12.5 million, according to our recent study.

The enthusiasm for this technology is unsurprising, given the robust growth of Singapore's digital economy over the past five years. According to the country's Infocomm Media Development Authority, Singapore's digital economy contributed [a sizable 17.3%](#) of gross domestic product (GDP), nearly doubling to S\$106 billion in 2022 from 2017.

However, our study also reveals that a majority of businesses (66%) in Singapore believe they aren't moving fast enough with respect to their generative AI strategies. Over half (58%) believe these delays will result in a competitive disadvantage.

In addition, respondents express concerns that factors like talent shortages, data challenges and negative consumer perceptions may make it difficult to quickly develop and scale use cases in Singapore.

The fact is, regional variances—regulatory environment, country infrastructure, costs and available talent—will influence how successful businesses are with implementing their generative AI strategies and how they will use this powerful technology. As a result, the pace of generative AI uptake and the way in which it's used will be uneven across the globe.

Introduction

To better understand what generative AI adoption will look like globally, we conducted a study of 2,200 business leaders in 23 countries and 15 industries—including 100 in Singapore. The study assessed a wide range of generative AI adoption trends, including investment levels, use cases, how critical generative AI strategies are to business success and organizational readiness to adopt the technology.

We also analyzed 18 business factors that will either inhibit or accelerate business adoption of gen AI (see the end of the report for the full list of factors). Respondents evaluated each factor's potential impact on their generative AI strategy, rating it as either positive or negative on a scale of high to low impact.

Methodology

From the results, we calculated a “momentum score” for each country or region. The momentum score represents the level of confidence business leaders have about being able to roll out their generative AI strategy based on internal business factors and the prevailing local conditions of their country or region.

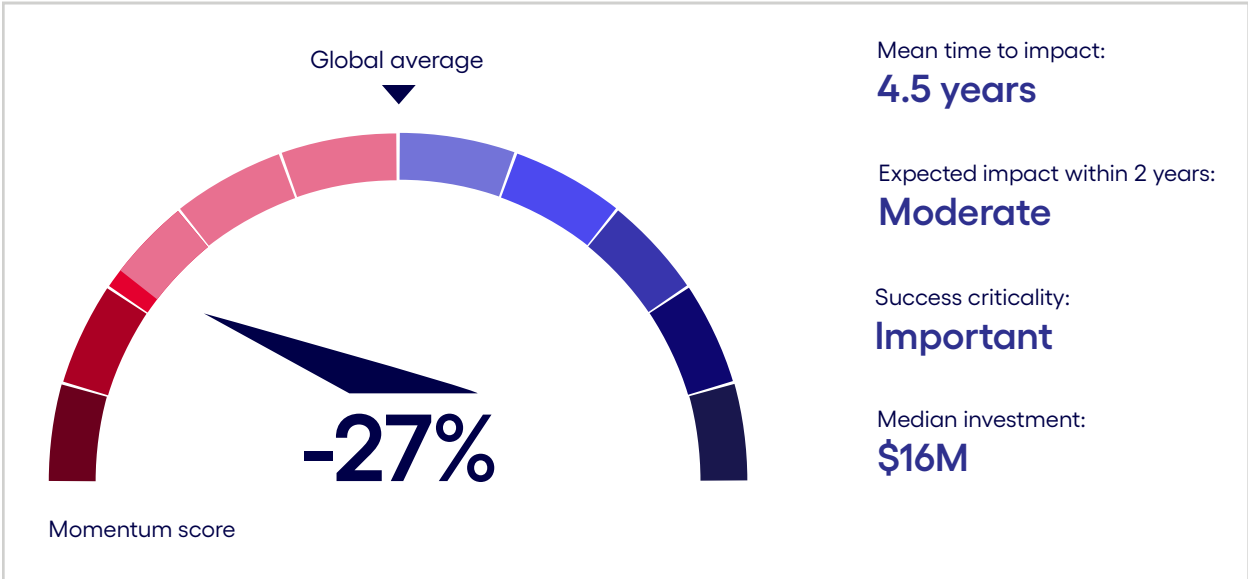
For all the regions covered, inhibitors to adoption outranked accelerators, meaning that all momentum scores skewed negative. In effect, businesses globally feel constrained by their operating environment.

But to understand how different regions and countries varied relative to one another, we averaged the ratings to establish a baseline global momentum score. This approach enabled us to identify those that are more optimistic about their ability to adopt the technology compared with a global average.

For Singapore, the momentum score is 27% lower than the global average. The factors contributing to this score vary, but the most impactful are the comparatively more pessimistic views of the availability of compute power in the region, their data readiness, and the availability and cost of capital.

Despite this, Singapore respondents had a more optimistic view than the global average when it comes to the cost and availability of generative AI-related technologies. Singapore is one of the few countries to rate this factor as an accelerator rather than an inhibitor.

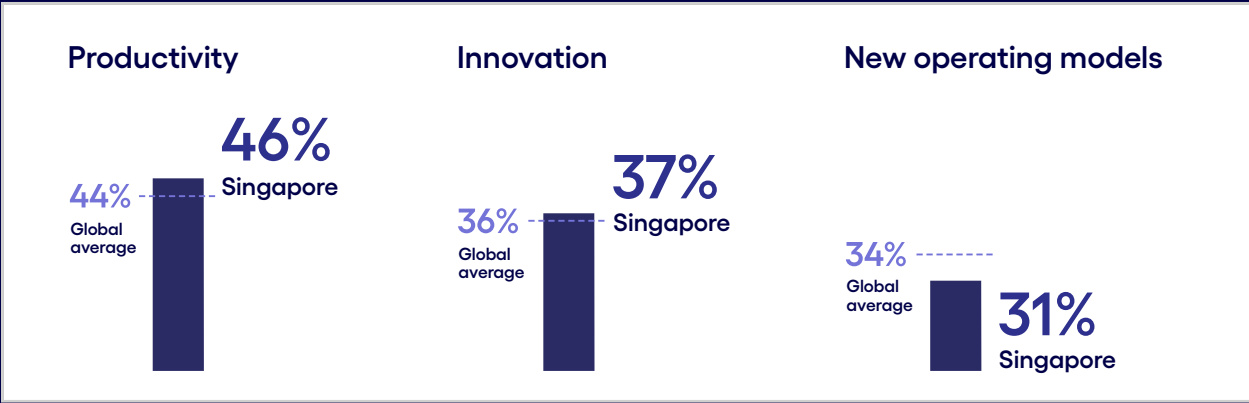
Singapore gen AI scorecard



Base: 100 senior business leaders in Singapore
Source: Cognizant and Oxford Economics

Figure 1

As for where their generative AI investments will be aimed in the near term, we looked at two distinct uses of the technology: productivity, such as helping people work more quickly and get more done, and disrupt-the-business innovations, which involves more sweeping change to business and operating models. Overall, Singapore mirrors the global trend: Over the next two years, more respondents expect to use generative AI to boost productivity than drive innovation.



Base: 100 senior business leaders in Singapore
Source: Cognizant and Oxford Economics

Figure 2

However, our study also reveals a change in what productivity means when pursued with generative AI. The end goal is not efficiency and cost-cutting, as has been the case with previous automation endeavors. Instead, the goal is to redirect productivity gains into funding endeavors that fuel growth. This new dynamic requires fresh thinking around understanding business use cases of generative AI, which we'll address later in this report.

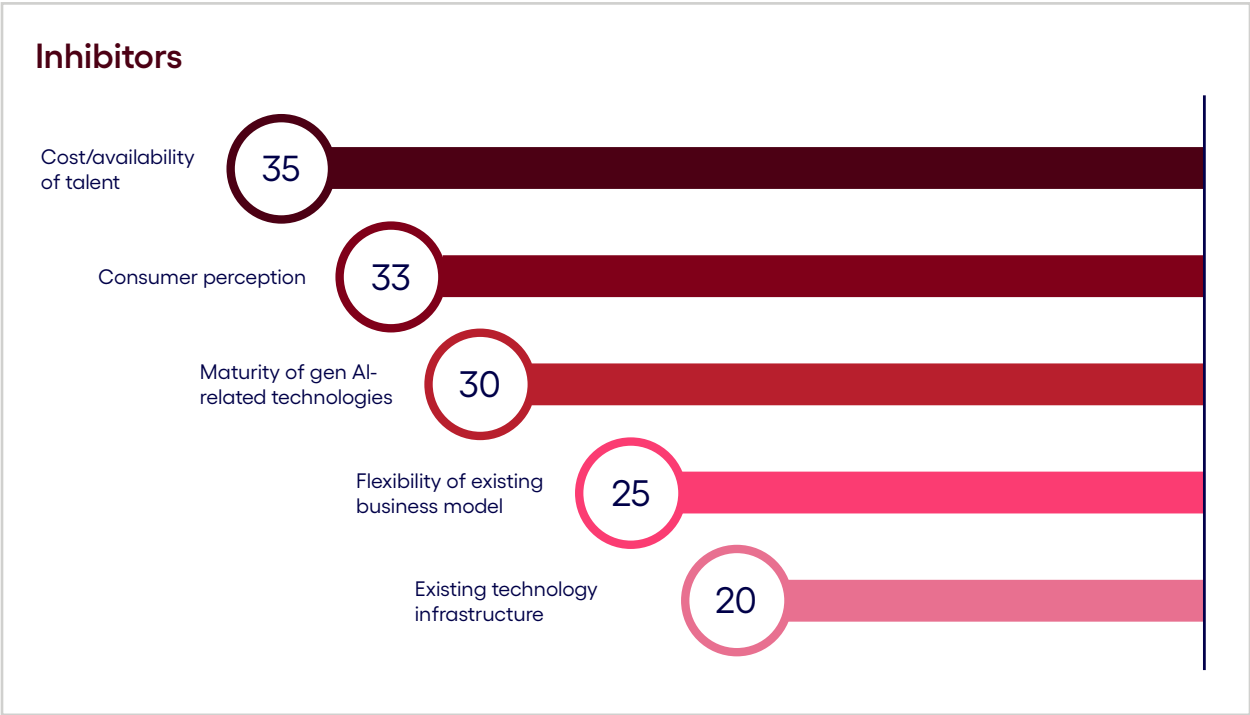
This report identifies the regional and business factors that could either inhibit or accelerate generative AI momentum among companies based in Singapore. It also provides an industry-specific look at how generative AI will be used, a regional focus on business readiness and strategies to successfully implement generative AI in Singapore.



Inhibitors and accelerators: The forces driving gen AI momentum

To dig deeper into these mechanics, rather than comparing to a global average, we'll now examine how business leaders in Singapore rate the inhibitors and accelerators within their country. By doing so, our study provides a detailed temperature check on what respondents view as the main inhibitors and accelerators to generative AI in this country. With this assessment, leaders can take advantage of what's working well in their local environment, while strategizing on overcoming challenges.

Understanding Singapore's generative AI inhibitors



Base: 100 senior business leaders in Singapore
Source: Cognizant and Oxford Economics

Figure 3

Chief among the factors inhibiting generative AI adoption in Singapore is the **cost and availability of talent**. In recent years, this issue has taken on added urgency as the nation grapples with a shrinking workforce, due to both a falling birth rate and a rapidly aging population.

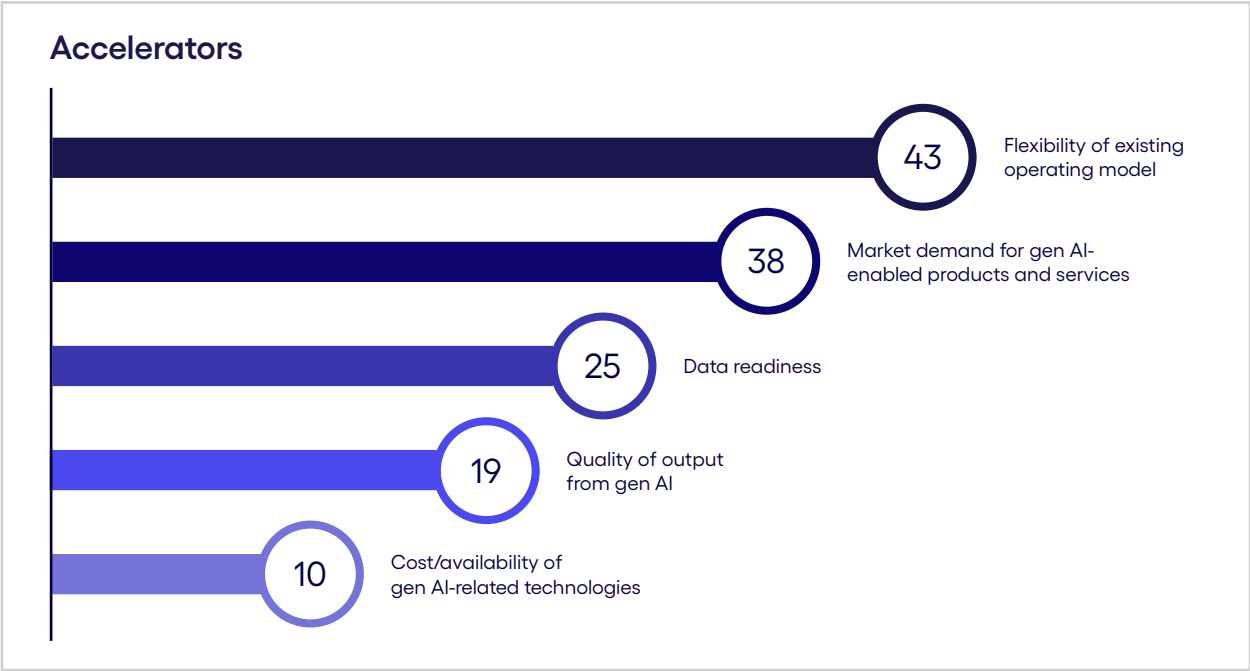
With local talent shortages continuing to pose challenges, the Singapore government's Ministry of Manpower created a [Shortage Occupation List](#) (SOL) that identifies roles high in demand but with insufficient workforce supply. The technology sector has the highest number of roles registered on this list. Although AI talent supply is not directly tracked, the overall low supply of tech talent suggests that companies will likely struggle to fill AI-specific roles.

According to our survey, 52% of businesses in Singapore plan to implement training programs to upskill employees to address the AI skills gap. However, many of these plans depend on external support, with 41% of businesses hoping to receive government funding to help retrain and reskill employees.

Consumer perception is another top inhibitor to gen AI adoption. Recent research conducted by Adobe reveals that Singaporean consumers considered the safe and respectful use of data to be the top factor for building brand trust. Despite this, nearly four in 10 Singaporean brands (43%) do not consider data safety as a “crucial element” for attracting and retaining customers. This suggests that as companies pursue generative AI initiatives, they should take steps to ensure strong data security and be transparent with consumers about how they intend to use this technology and underlying data.

Another area of concern is the **maturity of generative AI-related technologies**. While executives seem bullish about the capabilities of available solutions, they are looking for a wider and deeper array of generative AI solutions to unlock the next level of value and tackle more complex business challenges.

A look at Singapore generative AI accelerators



Base: 100 senior business leaders in Singapore
Source: Cognizant and Oxford Economics

Figure 4

Although many businesses in Singapore are concerned that they aren't moving fast enough when it comes to generative AI, one thing that isn't stopping them is the **flexibility of their operating models**. Singapore businesses believe the agility across their operating structures allows them to quickly adapt to changing generative AI market conditions and integrate innovative solutions into their workflows with relative ease.

Evidence behind this becomes clearer when looking at the recent expansion of the Singapore digital economy, where two-thirds of growth is driven by enterprises across various sectors stepping up on their use of digital tech.

Another adoption accelerator is based on **market demand for generative AI**. As the global market enters a widely expected boom over the next few years, businesses across Singapore are looking at ways to embed the technology into their operations or product and service offerings.

For example, one group that's looking to quickly increase its production capacity because of demand for generative AI is chipmakers. With generative AI applications now running on devices as compact as smartphones, the semiconductor industry has more advanced computing and memory needs. This is driving demand for chipmakers to create increasingly small and powerful chips that can support the significant computing needs of generative AI applications.

Companies in Singapore are equally optimistic about the **readiness of their data** to support generative AI-powered solutions. When asked about the current state of their technology infrastructure, 55% of businesses believe their data quality and cleanliness is in good-to-excellent condition to support generative AI strategies.

At the same time, while companies are confident in their data readiness, other data challenges remain. Organizations in Singapore are less confident in their data accessibility and security, for example. This is due, in part, to reliance on legacy technology applications, which hinder efforts to share data throughout the organization and develop accurate, timely insights. As discussed above, core data challenges are also at the root of negative consumer perceptions about the use of generative AI in Singapore.

Sector spotlight: Stark differences in industries' generative AI adoption priorities

Of course, there are many use cases and strategies for using generative AI. As we've said, Singapore businesses are primarily focused on realizing productivity gains with generative AI, at least in the next two years. However, a look at what's driving their business cases sheds a new light on productivity from how it's been seen historically.

Traditionally, businesses have equated automation productivity gains with cost-cutting: driving down the cost of output by reducing the number of people needed to get the same volume of work done.

While generative AI-driven automation will likely lower headcount to some degree, that is no longer the end goal. Instead, as seen through the metrics respondents will use to drive business cases, we see a shift toward redirecting productivity gains into funding endeavors that increase revenues or lead to entirely new revenue streams.

At least 53% of Singapore respondents say these metrics will be most important for justifying generative AI expenditures (Figure 5):

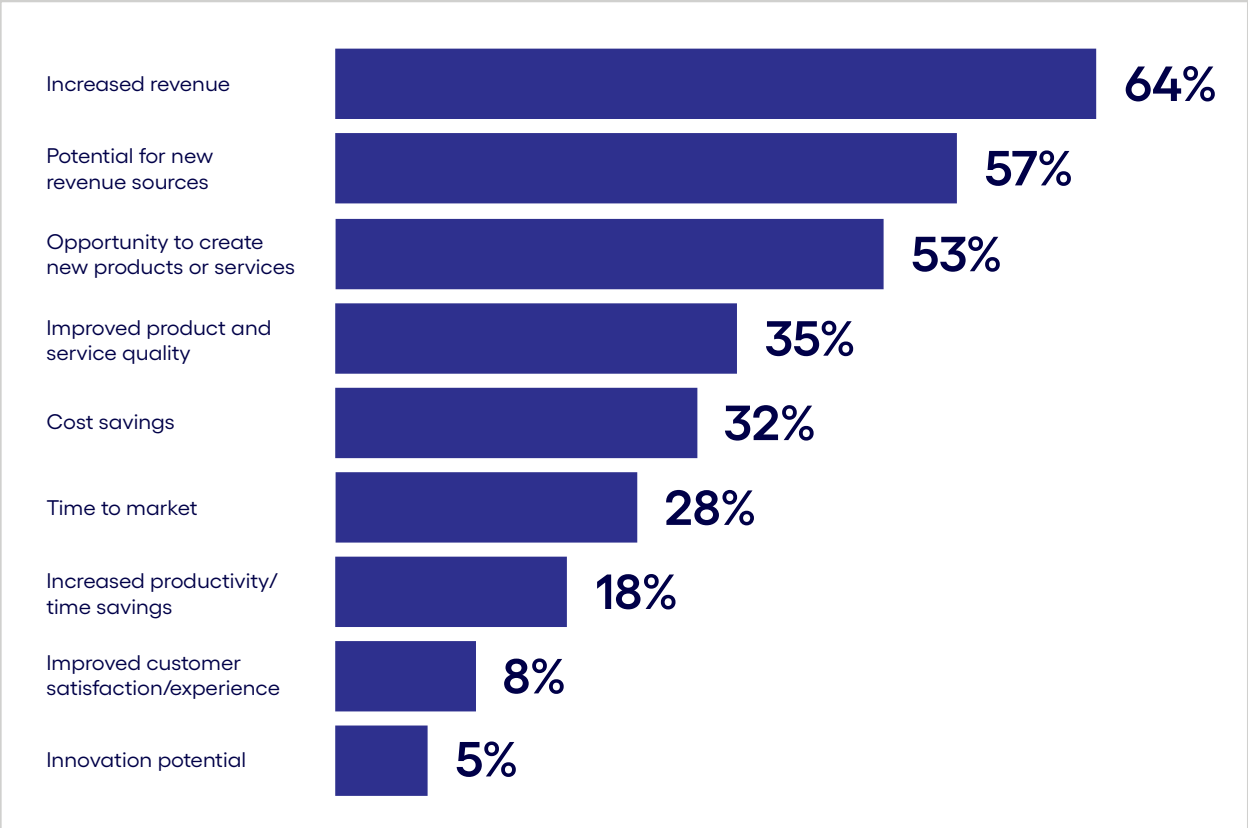
- Increasing revenues
- Discovering new revenue sources
- Creating new products and services

Conversely, metrics like cost savings, time-to-market and productivity were cited by 32% of respondents or fewer. In other words, the concept of productivity no longer stops at cost-cutting—businesses appear to be redirecting productivity gains into initiatives aimed at growth.

The concept of productivity no longer stops at cost-cutting—businesses appear to be redirecting productivity gains into initiatives aimed at growth.

Revenue is a top metric for justifying generative AI use cases

Q: Which of the following metrics are most important in terms of justifying your organization’s generative AI business cases? (Percent of respondents naming each as a top three choice)



Base: 100 senior business leaders in Singapore
Source: Cognizant and Oxford Economics

Figure 5

Using this more granular view of productivity goals and business drivers, we analyzed the differences in how industries intend to use the technology.

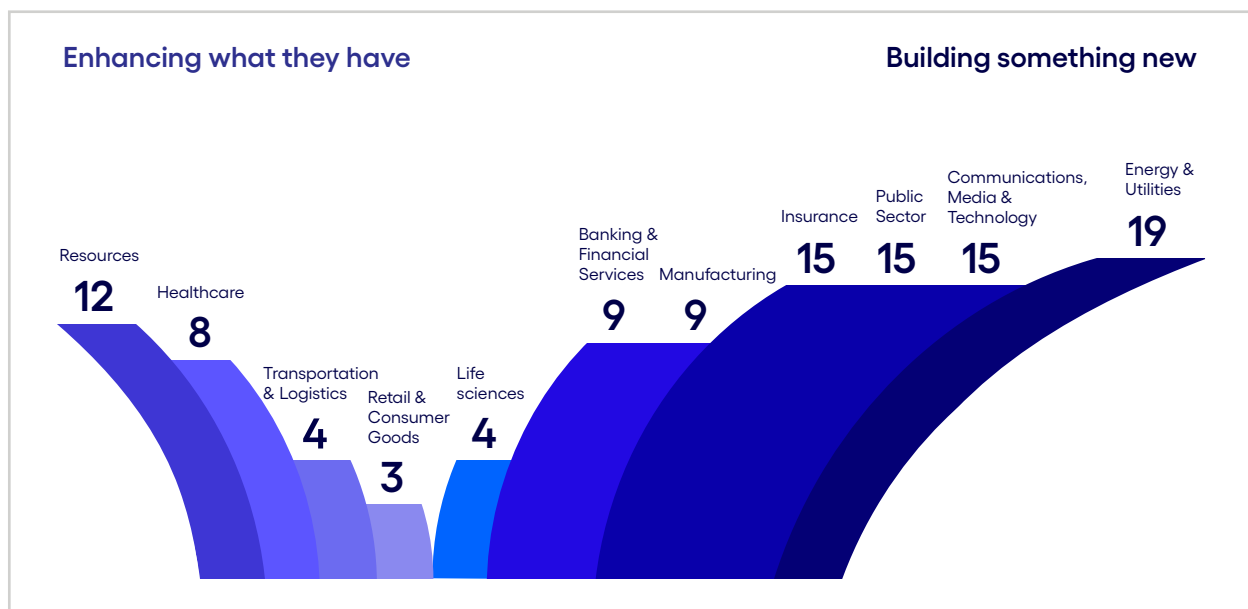
Rather than focusing on the distinction between productivity vs. innovation, we grouped the metrics into two high-level categories of business use cases:

- **Enhancing current business performance**
(revenue, cost savings, time-to-market, productivity)
- **Building something new**
(new revenue sources, new or improved products, innovation)

We then assigned each of the metrics a score to see the relative gap between a number-one-ranking metric and a number-three-ranking metric. By calculating the average score across industries, we could clearly see how each industry’s responses deviated from the baseline.

Our analysis reveals stark differences among Singapore industries in terms of the business use cases they’ll likely prioritize (see Figure 6).

Industries diverge on business cases



Note: This figure depicts each industry's relative deviation from a baseline of "zero," using a ranked scoring of the top three metrics respondents cited as important for justifying their generative AI use cases. It reveals a weighted view of each industry's overall priorities for generative AI deployment.

Base: 100 senior business leaders in Singapore

Source: Cognizant and Oxford Economics

Figure 6

- **The retail and consumer goods sector** is directing much of its generative AI investments toward enhancing current business performance. An example comes from FairPrice Group, Singapore's largest grocer.

Because Singapore imports more than 90% of its food due to its lack of natural resources, food security is vital to the country's grocery retailers. FairPrice Group [has begun using both cloud computing and AI](#) to get the near-real-time supply chain visibility needed to ensure food availability and affordability in the country.

With AI, the grocer can analyze shipment data and external information, such as world news and shipping trends, to preempt unexpected events that would disrupt order shipments. The grocer also now expects to use generative AI for several use cases, including making sure soon-to-expire food items are removed from shelves, marked down or sold to cooked-food suppliers to avoid waste. It also plans to add a natural-language interface to its mobile app so that customers can more easily find desired items.

Meanwhile, Singapore is also home to startup AI Palette, which offers a generative AI-driven platform to help consumer products companies analyze feedback and insights, understand market trends, personalize product recommendations and improve product launches. The startup's location works well given that the country also hosts multimillion-dollar test kitchens and innovation centers for consumer products giants such as Nestlé and Mondelez.

- **The healthcare sector** is similarly focused on enhancing existing capabilities using generative AI. Singapore's public health system is renowned for its performance and quality, [ranking first in the world](#) in the 2023 Legatum Prosperity Index, which measures citizen health and access to healthcare services.

However, especially with the nation's aging population, healthcare costs are expected to rise from around 4% of GDP today to over 5% by 2030. To combat cost growth and ensure continued quality of care, the government has rolled out a nationwide blueprint for shifting from reactive to proactive care [called Healthier SG](#).

Additionally, it's turning to AI to improve healthcare delivery. Singapore's national health-tech agency, Synapxe, for example, recently collaborated with Microsoft to develop [SecureGPT](#), a generative AI-driven system that assists healthcare professionals with tasks like summarizing medical notes and finding relevant information.

Synapxe also recently introduced the [GenAlus Challenge](#), an initiative designed to connect its technology partners with public healthcare professionals to solve daily workflow challenges through generative AI-powered solutions. Both efforts are aimed at reducing administrative tasks and enabling medical professionals to focus on delivering quality care.

- **The energy and utilities sector**, meanwhile, is directing its investments toward improving its product and service quality, as well as identifying new revenue sources.

A recent [example is Sembcorp Industries](#), which is deploying fully automated drones to help inspect pipeline and equipment faster and more accurately. Powered by AI technology, these drones can help the company better manage field assets, predict maintenance needs and mitigate weather risks.

With respect to new revenue sources, generative AI can be used to create personalized energy plans, power energy trading platforms, enable smart home integration services or even serve as a foundational element of sustainability consulting.

- **The insurance sector** is plowing a similar furrow, leveraging generative AI to improve product and service quality, as well as uncover opportunities to build new products or services.

Manulife Singapore is [utilizing generative AI](#) to analyze large volumes of data to help the insurer's financial consultants better detect and predict customer needs. For example, these generative AI-enabled tools can develop talking points and scripts in multiple languages, as well as create personalized customer communications. The company is also using generative AI to identify previously undetected coverage gaps and develop new products and services.

Business constraints: Talent shortages and shaky technology foundations

A remaining question is whether businesses are ready to drive real value from these business cases.

The answer, according to our research, is mixed. To better understand how prepared executives believe their business is to adopt generative AI, we asked respondents to rank their organization's maturity on a scale of 1 to 4 by selecting a statement that best described their organization in the following five areas, from low maturity to high:



**Organizational
agility**



**Leadership
commitment**



**Skills and
talent**



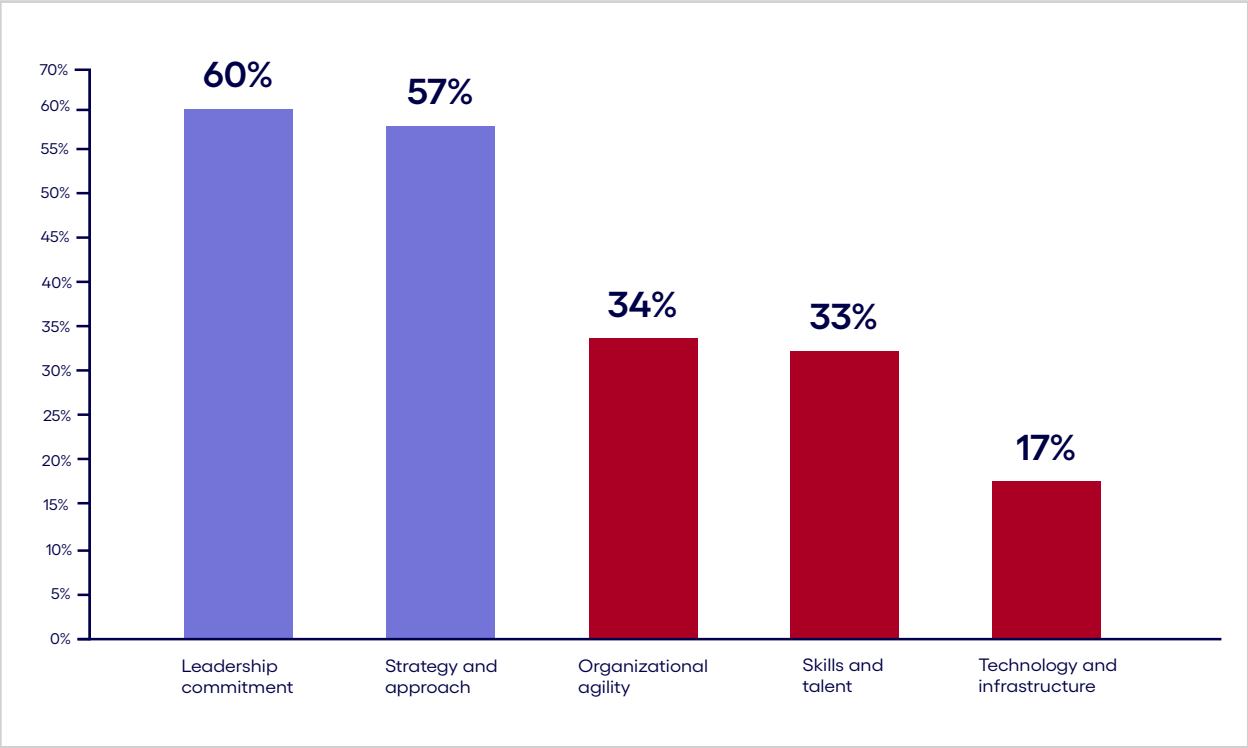
**Strategy and
approach**



**Technology and
infrastructure**

The message from business leaders in Singapore is clear: Leadership commitment is high, and strategies are robust. However, the fundamental operational and technological building blocks necessary to adopt generative AI are lacking (see Figure 7).

Leadership support is sound, but fundamentals are lacking



Base: 100 senior business leaders in Singapore
Source: Cognizant and Oxford Economics

Figure 7

Unsurprisingly, given that talent shortages sit high on the list of the biggest inhibitors impacting Singapore, respondents assign low ratings to the maturity of their business’s skills availability and talent strategy.

When it comes to the underlying tech infrastructure, while data readiness is rated highly as an accelerator, many other foundational aspects are lacking. These include the ability to comply with company rules, policies and frameworks, data security, and data accessibility. All of these technology infrastructure capabilities received a rating of “needs improvement” and even “non-existent” by the majority of respondents.

Path to success:

Strategic recommendations for Singapore businesses

The challenge ahead is to overcome the inhibitors of change, while also taking advantage of the factors that could boost generative AI adoption

To navigate these challenges, executives should prioritize the following actions:

1. Explore partnerships to overcome the talent shortage:

Just over half of businesses in Singapore have plans to implement training programs to upskill employees, yet many of these organizations are counting on funding from the government to launch such initiatives.

While the Singapore government has recently unveiled plans to [invest more than \\$20 million](#) over the next three years to augment the AI talent pool, businesses need to take a proactive leap forward in creating their own ecosystem of partnerships that nurtures a diverse and dynamic network of local AI talent.

Partnerships with educational institutions or government bodies can help businesses move in the right direction. For example, [Google Cloud](#) recently partnered with Singapore's National AI Office to provide dedicated training and certification programs for public sector officers. In addition, Singapore insurance company, [Singlife](#), also recently partnered with Microsoft to support high-growth insurance startups in adopting generative AI.

2. Build trust in the tech:

While Singaporean businesses have a chance to revolutionize their offerings with generative AI, underlying negative perceptions about the safe and respective use of data pose a hurdle.

Businesses need to prioritize strong governance and transparency, as well as educate consumers about how generative AI works and the benefits it offers. Providing users with control over generative AI features and ensuring adherence to data privacy regulations can also build trust.

They can take a lead from Singapore's recently issued [Model AI Governance Framework](#), which seeks to address generative AI concerns while continuing to facilitate innovation. The framework covers nine dimensions, including accountability, data, trusted development and deployment, incident reporting, testing, security, content provenance, safe R&D and public well-being.

By showcasing successful applications and emphasizing the positive impact on efficiency and innovation, businesses can foster a more informed and trusting consumer base, paving the way for wider adoption of generative AI.

3. Invest in a robust technology infrastructure: Respondents are unconvinced of the readiness of their own technological building blocks to embrace generative AI. But there's time to change that if they act quickly.

Our research indicates that most Singaporean businesses expect generative AI to make an impact in less than five years, which gives leaders a window of opportunity to prepare their tech infrastructures. To ready the organization for change, businesses need to prioritize investments in high-performance computing resources for LLM training, leverage secure and scalable cloud solutions for data storage and model deployment, and implement data management practices that ensure security, privacy and efficient access for training.

Learn about the impact of generative AI on jobs and the economy in our report [New Work New World](#).

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