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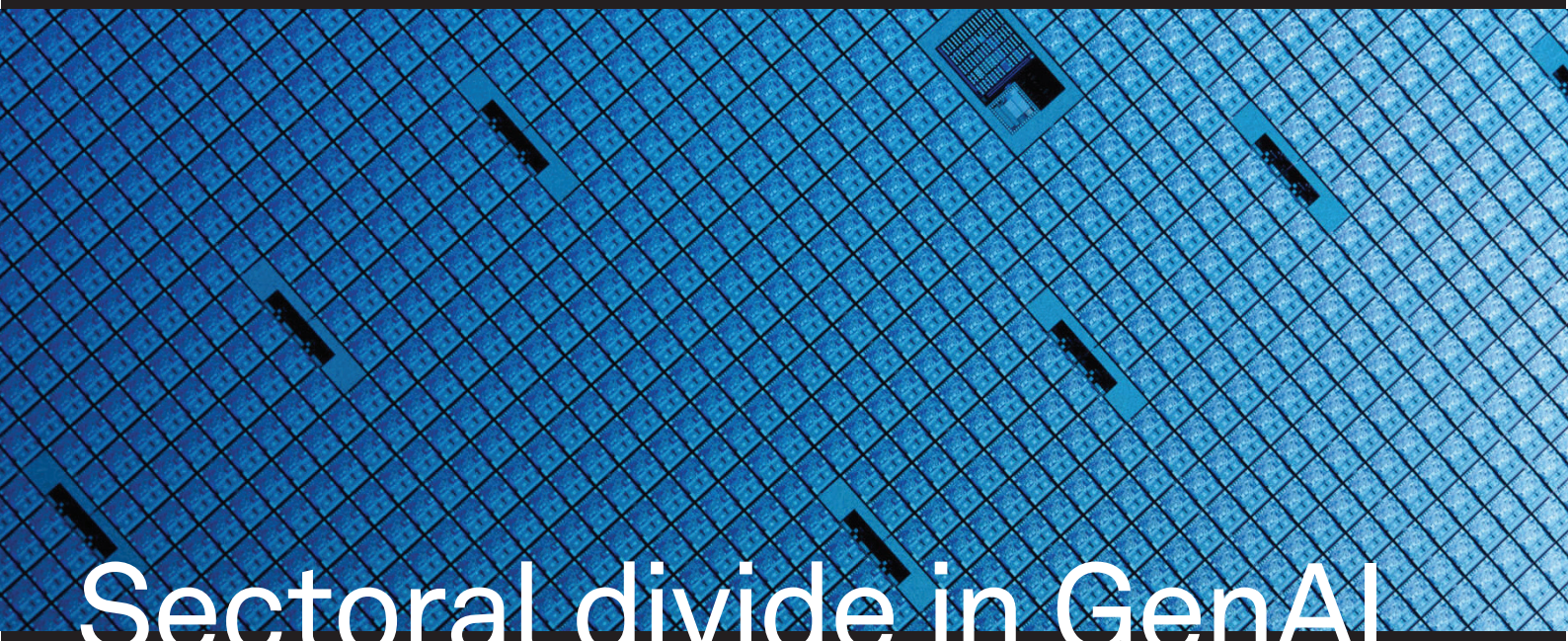


Sectoral divide in GenAI adoption

Pollyanna DeLima, Economics Associate Director

Sophie Malin, Principal Economist

Samuel Parkin, Senior Economist

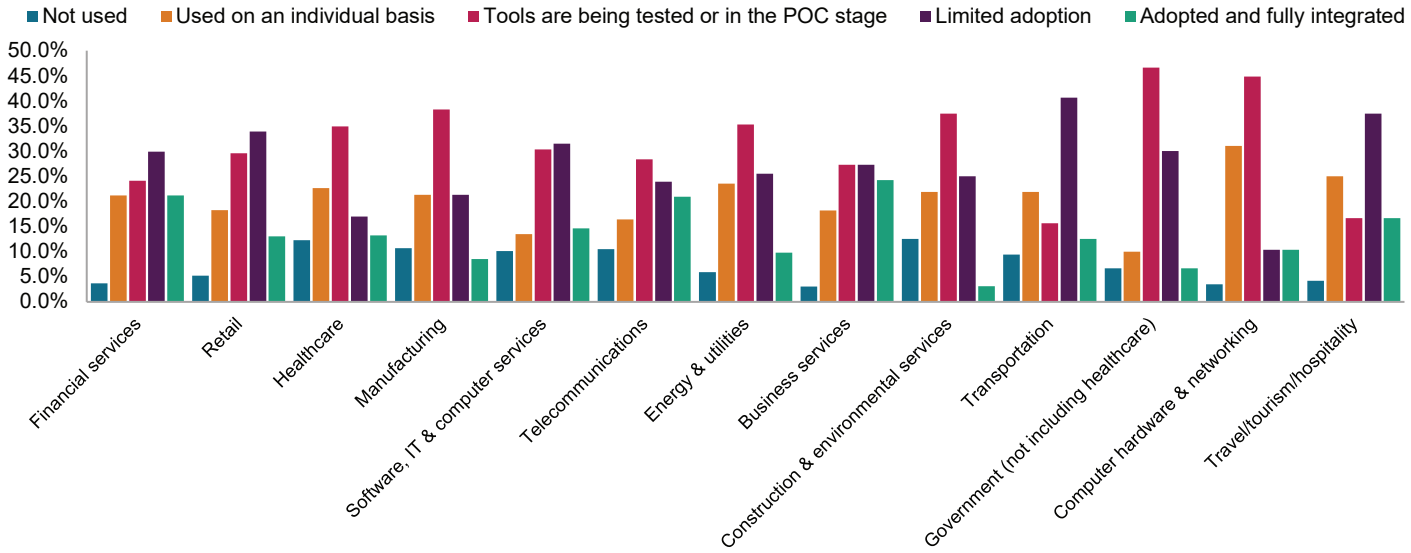
Key findings

- Generative AI (GenAI) offers vast opportunities by performing tasks that previously required human intelligence.
- Adoption of GenAI is uneven across sectors, with professional services benefiting from early integration while industries like agriculture and construction lag.
- Key factors influencing GenAI adoption include the availability of high-quality data, appropriate expertise and relevant use cases.
- Despite its potential, GenAI implementation faces restrictions in sectors requiring human oversight or those dominated by manual processes, such as healthcare and construction. Investment capability is also a key constraint hindering industries characterized by the prevalence of smaller businesses, such as agriculture and retail.

The explosive growth of GenAI offers substantial opportunities for economic growth, risk management and resource optimization. This stems from the capability to generate new content, insights, and solutions, moving beyond traditional data analysis and AI application. However, we are still in the early stages of exploring GenAI capabilities. Even when focusing on organizations that have or plan to invest in AI in the near term, most GenAI uptake is limited to proof-of-concept experimentation. According to S&P Global Purchasing Managers' Index™ (PMI®) Business Outlook surveys, only 15.0% of service and manufacturing organizations have invested in AI in general, although 23.6% intend to invest in the next 12 months. Furthermore, GenAI implementation has been disproportionate across sectors. Consequently, sectors such as professional services are already reaping the rewards of GenAI, while others, including agriculture and construction, are at risk of being left behind.

The disparity in GenAI adoption across industries stems from several factors, such as the availability of abundant, high-quality and sector-specific data that enables effective implementation and the competitive pressure driving industries to adopt GenAI for a strategic advantage. The presence of skilled personnel and the relevance of existing GenAI use cases also significantly influence the speed of adoption. As these factors align, sectors recognizing the value of GenAI are increasingly integrating it into their operations, enhancing efficiency and innovation. Industries with plentiful data and automatable processes have seen a more pronounced adoption. For example, financial services firms leverage GenAI for innovative data analysis, task automation and customer service, enabling rapid and informed decision-making. Business services and telecommunications are also key adopters, with the former quickly producing high-quality content and the latter enhancing customer experiences through chatbots.

Use of Generative AI by organizations



As of Dec. 12, 2024.
Source 451 Research's Voice of the Enterprise: AI & Machine Learning, Use Cases 2024.
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Although the sectors mentioned are early adopters of GenAI, other industries are catching up. In transportation, GenAI is being used to optimize resource and freight allocation, thereby enhancing routing efficiency, reducing fuel consumption and improving delivery times. The software, IT and computer sectors are leveraging GenAI to streamline processes and bolster cybersecurity measures. Meanwhile, the manufacturing sector is harnessing GenAI for supply chain optimization, quality control, identification of maintenance needs and process enhancement, paving the way for greater productivity and efficiency.

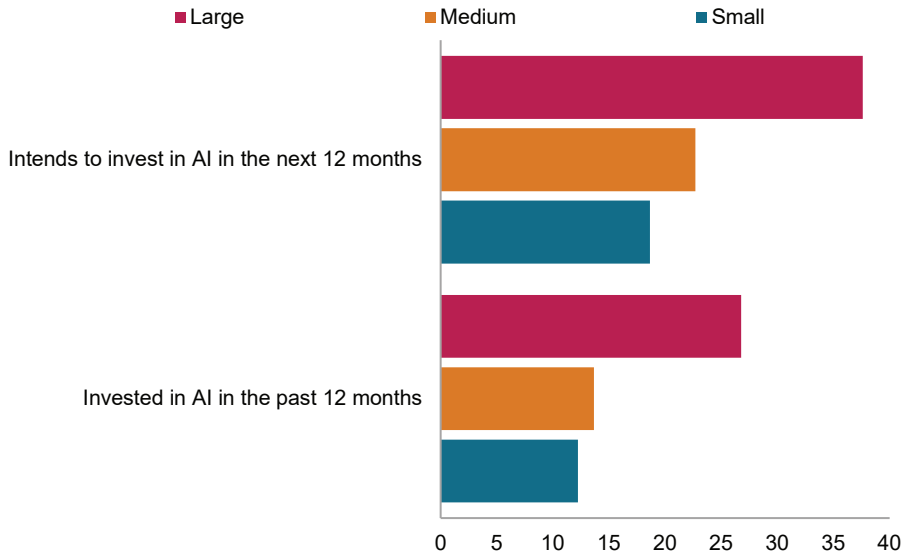
GenAI adoption has been weakest in sectors such as healthcare, governmental services, construction and computer hardware and networking. Two major obstacles hinder adoption: implementation concerns and labor dependency. Where the margin for error is small, GenAI requires careful application and human supervision. For instance, while AI, including GenAI, could theoretically oversee structural and safety assessments in the construction industry, the potential for critical errors means these tasks still rely heavily on human engineers. This also highlights the cultural resistance to trusting AI in certain capacities, which has been most notably showcased through autonomous vehicles. Furthermore, in sectors where life-changing decisions are made, data security and privacy are concerns, or a human touch is required — such as the judiciary, government services, and healthcare — we will see more limited acceptable applications. Thus, capability does not always mean implementation.

The nature of work also limits GenAI's potential impact. GenAI relies on data to make effective predictions; however, sectors like construction, computer hardware and networking, logistics, and, to a lesser extent, manufacturing remain dominated by physical processes. Although GenAI holds significant promise for resource optimization and efficiency, humans are still essential for physical tasks from bricklaying to network cable installation to truck driving. This constrains the potential applications of GenAI in these sectors, thereby limiting the scale of its adoption and subsequent efficiency gains.

Investment and infrastructure capabilities also serve as sector-varying constraints. Professional services are often dominated by larger companies with greater investment resources, making GenAI investment more viable. In contrast, sectors dominated by smaller, localized businesses, such as agriculture, retail or hospitality, face challenges in covering the high costs of GenAI implementation and customization. Meanwhile, infrastructure capabilities further restrict the potential adoption, whether because of a lack of significant IT infrastructure and expertise needed for large-scale adoption seen in retail or a lack of connectivity as seen on building sites.

Bottom line: Although GenAI offers transformative opportunities across various sectors, its adoption remains uneven. Factors such as data availability, ethical concerns and labor dependency may be top of mind, but investment also presents a major hurdle. This will favor larger, data-focused organizations, which are more equipped not only to shoulder the cost of implementation but also to have the infrastructure to support it. As resistance to GenAI is lowered and financial costs reduce, a wider set of sectors will be able to embrace GenAI, achieving greater efficiency and innovation in the future.

Share of companes investing in AI by company size (%)



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CONTACTS

Americas: +1 800 447 2273
Japan: +81 3 6262 1887
Asia-Pacific: +60 4 291 3600
Europe, Middle East, Africa: +44 (0) 134 432 8300

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