

Industry and market trends tskhinvali

Despite challenging overall market conditions in 2023, continuing investments in frontier technologies promise substantial future growth in enterprise adoption. Generative AI (gen AI) has been a standout trend since 2022, with the extraordinary uptick in interest and investment in this technology unlocking innovative possibilities across interconnected trends such as robotics and immersive reality. While the macroeconomic environment with elevated interest rates has affected equity capital investment and hiring, underlying indicators—including optimism, innovation, and longer-term talent needs—reflect a positive long-term trajectory in the 15 technology trends we analyzed.

This year, we reflected the shifts in the technology landscape with two changes on the list of trends: digital trust and cybersecurity (integrating what we had previously described as Web3 and trust architectures) and the future of robotics. Robotics technologies' synergy with AI is paving the way for groundbreaking innovations and operational shifts across the economic and workforce landscapes. We also deployed a survey to measure adoption levels across trends.

These are among the findings in the latest McKinsey Technology Trends Outlook, in which the McKinsey Technology Council identified the most significant technology trends unfolding today. This research is intended to help executives plan ahead by developing an understanding of potential use cases, sources of value, adoption drivers, and the critical skills needed to bring these opportunities to fruition.

Our analysis examines quantitative measures of interest, innovation, investment, and talent to gauge the momentum of each trend. Recognizing the long-term nature and interdependence of these trends, we also delve into the underlying technologies, uncertainties, and questions surrounding each trend. (For more about new developments in our research, please see the sidebar "What's new in this year's analysis"; for more about the research itself, please see the sidebar "Research methodology.")

Data sources for the scores include the following:

In addition, we updated the selection and definition of trends from last year's report to reflect the evolution of technology trends:

Finally, we used survey data to calculate the enterprise-wide adoption scores for each trend:

Electrification and renewables was the other trend that bucked the economic headwinds, posting the highest investment and interest scores among all the trends we evaluated. Job postings for this sector also showed a modest increase.

Although many trends faced declines in investment and hiring in 2023, the long-term outlook remains

positive. This optimism is supported by the continued longer-term growth in job postings for the analyzed trends (up 8 percent from 2021 to 2023) and enterprises' continued innovation and heightened interest in harnessing these technologies, particularly for future growth.

Even with the short-term vicissitudes in talent demand, our analysis of 4.3 million job postings across our 15 tech trends underscored a wide skills gap. Compared with the global average, fewer than half the number of potential candidates have the high-demand tech skills specified in job postings. Despite the year-on-year decreases for job postings in many trends from 2022 to 2023, the number of tech-related job postings in 2023 still represented an 8 percent increase from 2021, suggesting the potential for longer-term growth (Exhibit 1).

The trajectory of enterprise technology adoption is often described as an S-curve that traces the following pattern: technical innovation and exploration, experimenting with the technology, initial pilots in the business, scaling the impact throughout the business, and eventual fully scaled adoption (Exhibit 2). This pattern is evident in this year's survey analysis of enterprise adoption conducted across our 15 technologies. Adoption levels vary across different industries and company sizes, as does the perceived progress toward adoption.

A graph depicts the adoption curve of technology trends, scored from 1 to 5, where 1 represents frontier innovation, located at the bottom left corner of the curve; 2 is experimenting, located slightly above frontier innovation; 3 is piloting, which follows the upward trajectory of the curve; 4 is scaling, marked by a vertical ascent as adoption increases; and 5 is fully scaled, positioned at the top of the curve, indicating near-complete adoption.

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