
Top 10 tech trends to watch out for in 2022

► Generative AI, autonomic systems, digital finance, EVs and smart connectivity will all come to the fore in the next 12 months



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BUSINESS



Alkesh Sharma

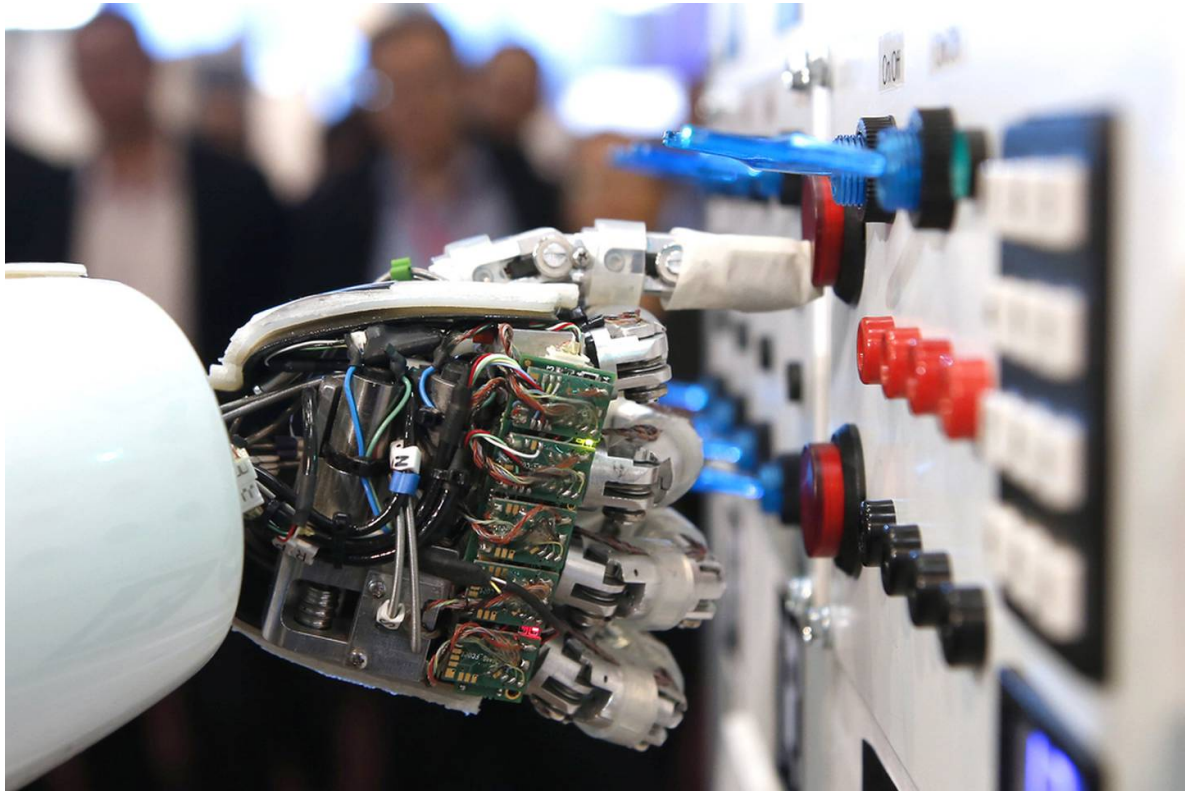
2021
the year
in review

Global spending on digital transformation is predicted to jump 20 per cent annually to \$1.8 trillion next year, according to Statista.

Covid-induced market disruptions and widespread adoption of hybrid work models have accelerated the process. Many businesses are more inclined towards developing in-house technologies to reduce their dependence on third-party service providers and ensure they are less affected in case of future supply chain disruptions, industry experts said.

“Digital tech initiatives remain a top strategic business priority for companies as they continue to reinvent the future of work ... focusing spending on making their infrastructure bulletproof and accommodating increasingly complex hybrid work for employees going into 2022,” said Jon-David Lovelock, research vice president at Gartner.

Amid the increasing digital transformation budgets and emergence of latest innovations, *The National* looks at the 10 top technology trends for the year ahead.



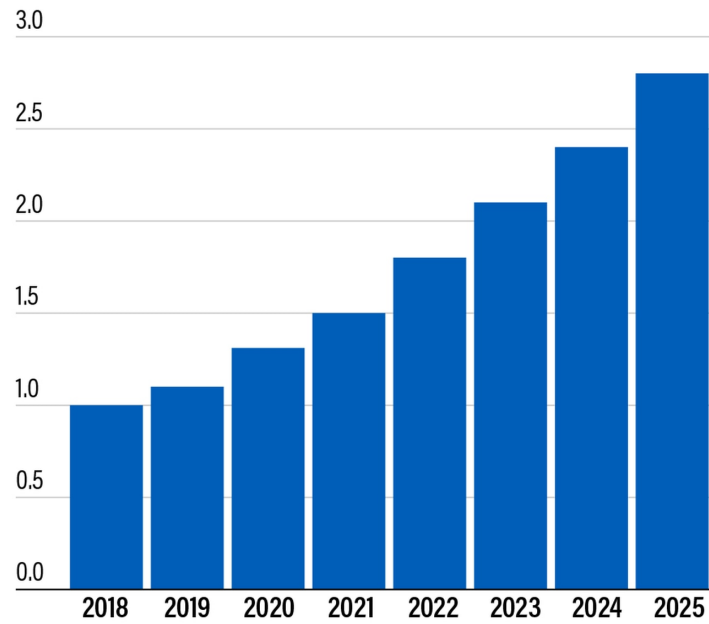
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Generative artificial intelligence

One of the most powerful artificial intelligence techniques coming to market is generative AI. It involves a set of machine learning methods that learn about content or objects from their data and use the knowledge to produce totally new and more realistic products.

Connecticut-based technology research and consulting company Gartner expects generative AI to account for nearly 10 per cent of all data produced, up from less than 1 per cent today.

DIGITAL TRANSFORMATION SPENDING WORLDWIDE (\$ Trillion)

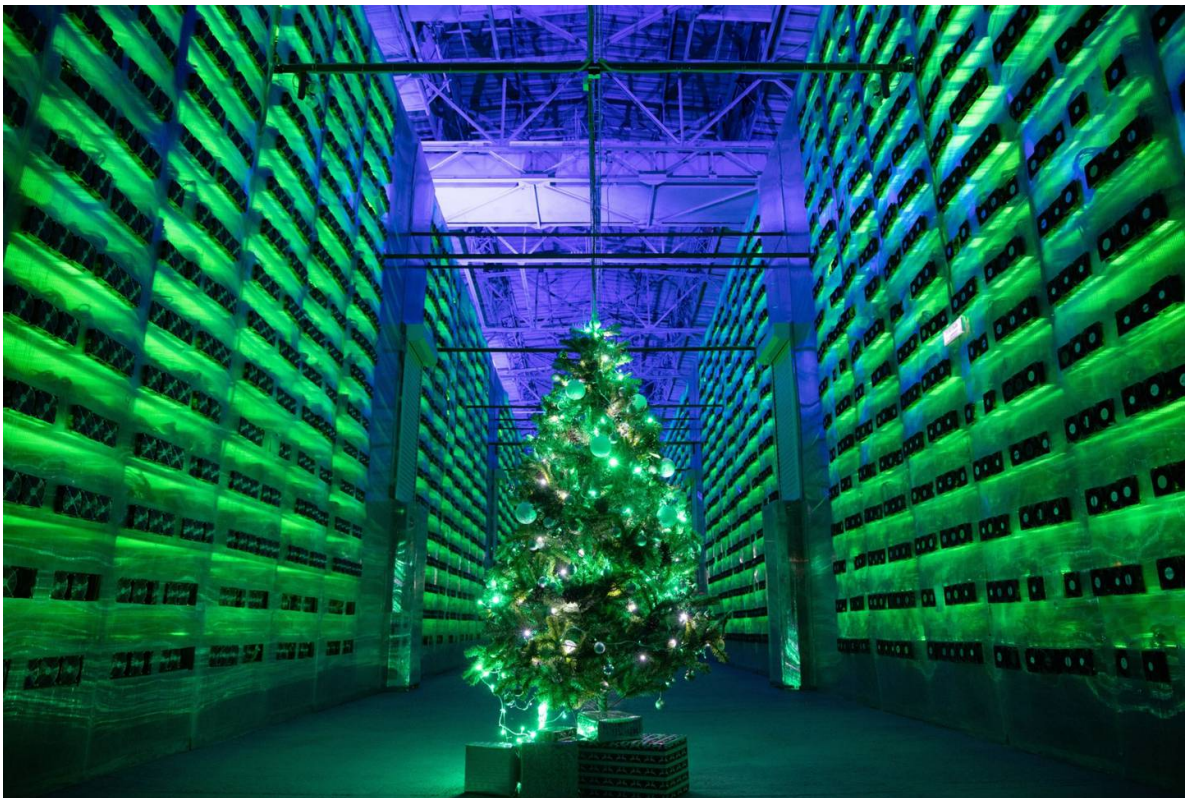


Source: Statista

This technology can be used for a range of activities such as creating software code, accelerating new drug development and targeted marketing. However, industry analysts cautioned it can also be misused for scams, spreading political disinformation and creating forged identities.

Digital finance to become mainstream

Digital finance innovations, such as cryptocurrencies and central bank-backed digital currencies (CBDCs), will boost financial inclusion and improve cross-border payments.



Blockchain

In October, the International Monetary Fund said it was looking at both the risks and opportunities that digital currencies pose.

Central banks across the world are increasingly assessing the potential of digital currencies amid a growing interest in cryptocurrencies and other online payment channels.

The number of countries developing CBDCs has dramatically increased as consumers shifted to digital payments during the coronavirus pandemic, a report by Moody's Investors Service said.

"For many consumers and businesses that made the switch to digital payments, there is probably no going back, even if the pandemic-related concerns about the tactile nature of cash were to recede," Eswar Prasad, a professor of economics at Cornell University and author of the book, *The Future of Money: How the Digital Revolution is Transforming Currencies and Finance*, told CNBC.

Autonomic systems

As businesses continue to transform, traditional programming or simple automation will not scale enough.

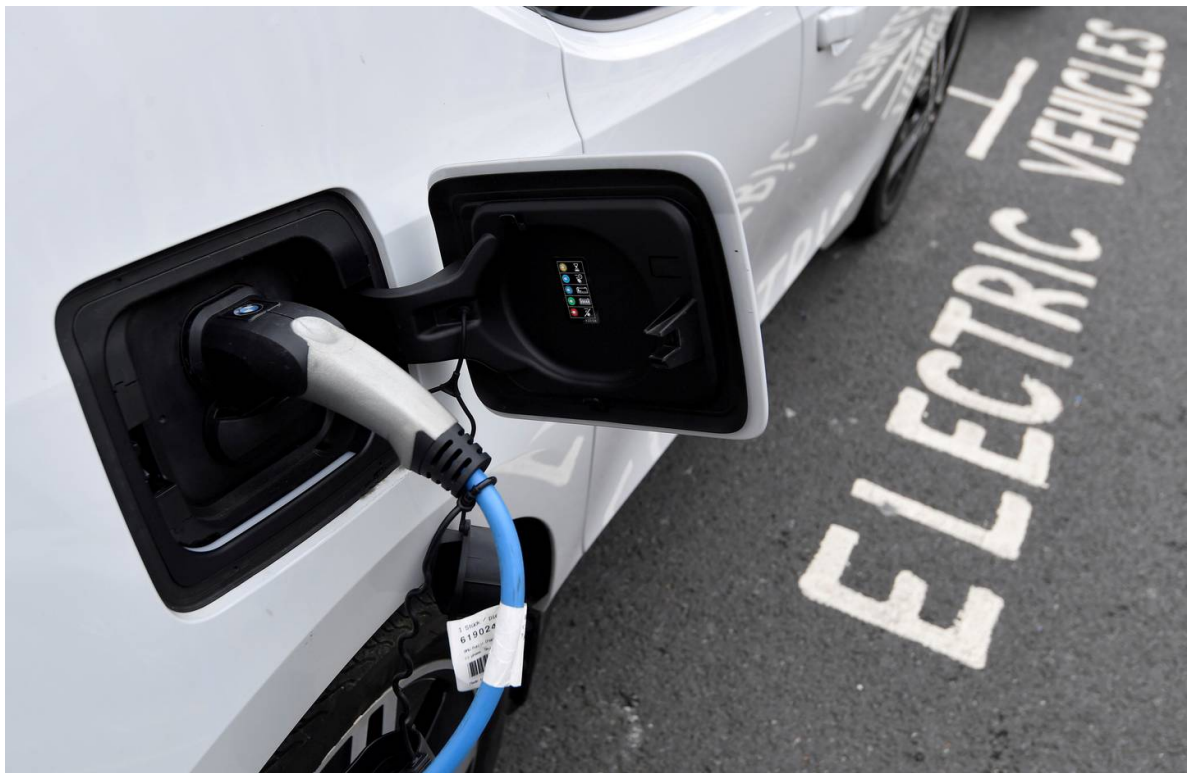


Autonomic systems are self-managing physical or software systems that learn from their environments. Unlike automated or even autonomous systems, autonomic systems can modify their own algorithms without an external software update, enabling them to rapidly adapt to new conditions in the field, much like humans can.

“Autonomic behaviour has already made itself known through recent deployments in complex security environments, but in the longer term will become common in physical systems such as robots, drones, manufacturing machines and smart spaces,” said David Groombridge, research vice president at Gartner.

EV charging network interoperability

Electric vehicles are fast gaining popularity as government incentives and subsidies drive their adoption.



But charging is still a problem as public EV charging networks usually have a low level of interoperability – it involves different access methods, payment types and accounts.

UK-based Juniper Research said it will begin to break down in 2022.

The world's biggest EV maker Tesla is already opening its supercharger network and other large charging networks are expected to follow, to make the technology mainstream.

“End users will gain significantly ... they will have better, more comprehensive charging network options, making EV ownership more viable,” Juniper said.

“More EV charging networks will enable interoperability and work to develop common ways to access and pay. Vehicle manufacturers will offer aggregator apps that enable easier charging options,” it added.

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Quantum computing

Quantum computers represent a massive acceleration in computing speed and performance. It is expected to deliver extraordinary advances across a multitude of industries including pharmaceutical development, nuclear energy, materials science, renewable energy, climate change mitigation, sustainable agriculture and more.

The world's biggest economies – the US, Russia, China and Japan – as well as tech titans IBM, Alibaba, Google and Microsoft, are all battling for supremacy in the field. Companies such as Visa, JP Morgan and Volkswagen are also experimenting with early-stage quantum technology.

In May, Google said it aims to build a commercial-grade quantum computer by 2029 that can perform error-free complex calculations in tiny fractions of a second.

In March, Abu Dhabi said it will build its own quantum computer, the first in the country, which will be able to process information at much faster speeds than classic technology.



Dr. Groombridge (left) and Dr. Daniel Sank (right) examine a quantum computing device in the Santa Barbara State University Photonics Research Center.

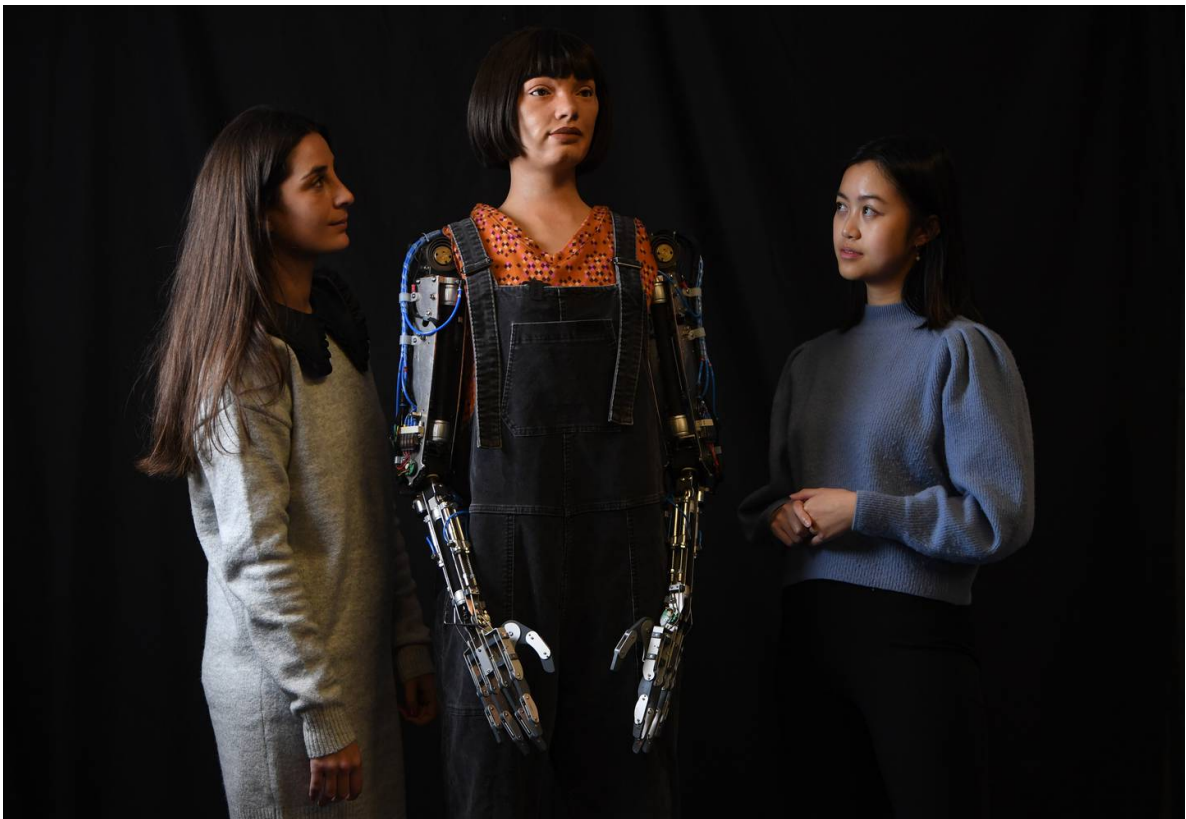
Hyperautomation

Hyperautomation is a process in which businesses automate as many tasks as possible using tools like AI, machine learning and robotics.

It enables fast growth and business resilience by quickly finding, testing and automating as many processes as possible.

Top-performing hyperautomation teams focus on three key priorities – improving the quality of work, speeding up business processes and enhancing the agility of decision-making, Mr Groombridge said.

By 2022, nearly 45 per cent of repetitive work tasks will be automated and augmented by using digital co-workers, powered by AI and robotics, according to International Data Corporation.



Industry workers pose with the Arda Robot at the Smithsonian Museum in the US. It is an ultra-realistic robot with artificial intelligence capabilities. Photo: AP

Smart connectivity to drive growth

Faster digital connections, powered by 5G and the Internet of Things, will unlock the untapped potential and add to the world economy, industry experts said.

Ensuring faster connections in areas such as mobility, healthcare, manufacturing and retail could increase the global gross domestic product by \$1.2tn to \$2tn by 2030, according to McKinsey.

Cyber security mesh

Cyber security mesh is a strategy that independently secures each device with its own perimeter. Most of the traditional security practices use a single perimeter to secure an entire IT environment, but a cyber security mesh uses a more rounded and an all-inclusive approach.

“Data is only useful if enterprises can trust it,” Mr Groombridge said.

“Today, assets and users can be anywhere, meaning the traditional security perimeter is gone ... this requires a cyber security mesh architecture.”



By 2024, organisations adopting cyber security mesh to integrate security tools to work as a co-operative ecosystem will reduce the financial impact of individual security incidents by an average of 90 per cent, Gartner predicted.

Supply chains to use latest technologies to become resilient

Covid-induced disruptions and cyber attacks have put the spotlight on the necessity to have a resilient network of supply chains.

Supply-chain cyber security will become a concern for all industries, not just those that deal with the software directly, Juniper predicted.

“Legislative pressure, particularly from the US, is driving cyber security reform for the software supply chain ... increased availability of AI, blockchain and other digital technologies will be leveraged for increased security following several high-profile data breaches in 2021,” it added.



By [Gaurav Kumar](#) and [Siddhant Chakrabarti](#) | [Published 12/15/2020](#) | [Share](#) | [Print](#) | [Feedback](#)

Cloud computing

The pandemic and the surge in digital services are making cloud the centrepiece of new digital experiences.

In 2022, global cloud revenue is estimated to total \$474 billion, up from \$408bn this year, according to Gartner.

“There is no business strategy without a cloud strategy,” said Milind Govejar, vice president at Gartner.

“Cloud has enabled new digital experiences such as mobile payment systems where banks have invested in start-ups, energy companies using cloud to improve their customers' retail experiences or car companies launching new personalisation services for customers' safety and infotainment,” he added.

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