THE FTI DELTA PERSPECTIVE

February 2025

What's Ahead for the Tech Sector in 2025

Opportunities and trends identified by our experts

FTI DELTA

What's Ahead for the Tech Sector in 2025

Opportunities and trends identified by our experts

This year will mark a turning point in how industries innovate and societies evolve. Trends such as Generative AI and energy-efficient data centers will empower companies to disrupt industries. Tech innovation is unlocking new revenue streams, operational efficiencies and transformative customer experiences worldwide. This paper explores seven key trends and provides actionable insights to help organizations embrace this era of unprecedented change.

Our predictions at a glance

1. Generative AI will reshape industries with multimodal models and autonomous workflows

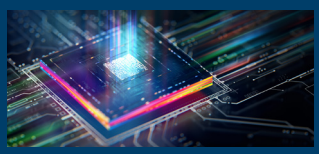
2. The future of AI infrastructure will benefit from sustainable and energy efficient data centers

3. Extended reality (XR) will enter the mainstream, transforming digital interaction

4. Emerging markets will lead AI democratization

5. AI-driven infrastructure and physical AI will transform smart cities and mobility

6. Synthetic data will revolutionize how we overcome data scarcity and privacy challenges



7. Quantum computing will redefine computational limits

1. Generative AI will reshape industries with multimodal models and autonomous workflows

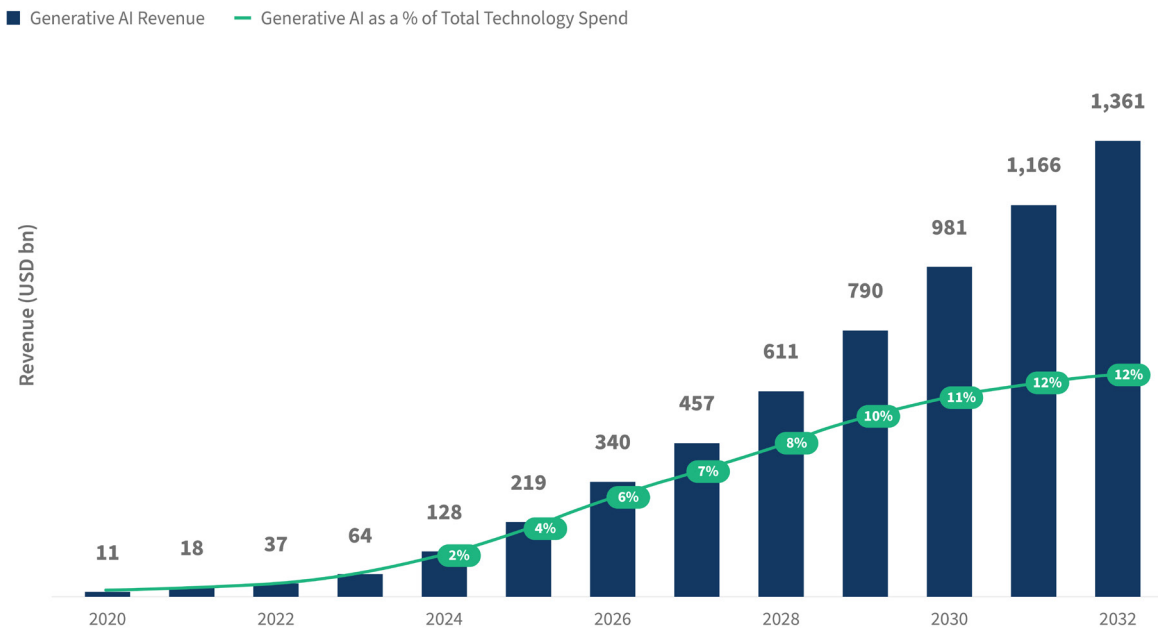
Generative AI is reshaping industries by automating workflows, facilitating creativity and enabling intelligent decision-making. For example, in healthcare, AI-driven tools are revolutionizing radiology by analyzing medical images with greater accuracy and speed, reducing diagnostic errors and improving patient outcomes.

Unlike traditional APIs and microservices that rely on predefined instructions, AI agents operate autonomously — planning, executing, and adapting in real time. While retrieval-augmented generation (RAG) provides a reliable way to extract and structure knowledge, AI agents take it further by actively driving outcomes and automating complex processes.

These autonomous agents are expected to streamline operational workflows within enterprises, automating tasks such as customer service interactions, procurement processing and financial reporting. By tightly coupling redefined workflows with operational systems like CRMs, ERPs and service support platforms, GenAI is expected to provide seamless information flow, reduce inefficiencies and bridge the disconnect between traditionally siloed enterprise systems.

Even within the creative industries, AI is reducing operational complexities to support human creativity. The integration of AI-driven text, audio, and video processing is creating seamless, human-

FIGURE 1: GENERATIVE AI SPENDING (USD BN)



Source: Bloomberg Intelligence's forecasts

like interactions. Multimodal AI models are reshaping the creative industries, enabling content creation for interior design, game design, music composition, and even Hollywood movies. AI can generate realistic CGI characters, assist in scriptwriting and suggest aesthetically optimized room layouts based on user preferences. This convergence of AI capabilities is accelerating creative workflows and broadening the scope of innovation across multiple sectors.

OpenAI's GPT-4 generates compelling narratives; DALL-E produces high-quality images; and Whisper transcribes and translates speech with remarkable accuracy. These capabilities, when combined with AI-powered workflows, will redefine how businesses operate. Companies like UiPath are already leveraging AI to automate end-to-end enterprise processes at scale, processing millions of tasks across industries such as finance, healthcare and logistics, and setting a strong precedent for AI-driven innovation.

As AI deployment scales, GenAI will grow from 2% of total technology spend to 12% in 2032, reaching USD$1.4 trillion and growing 10x (Figure 1) as such businesses shift towards usage-based pricing models (mirroring cloud services) to ensure cost-effectiveness and flexibility. Meanwhile, governments and enterprises are localizing AI models for security, efficiency and compliance. China's Baidu, for example, has developed AI solutions tailored to local languages and regulatory frameworks, underscoring the growing need for region-specific adaptation. Variations in AI localization efforts highlight the importance of adapting technology to meet regional needs and regulatory landscapes.

Generative AI is not just a trend — it's a paradigm shift that redefines how businesses operate, innovate and compete. Unlike previous technological advancements that primarily enhanced efficiency, generative AI enables entirely new capabilities: automating decision-making, generating human-like content and continuously learning from data in real-time. This shift moves beyond simple automation to true intelligence, making AI an active participant in business strategy and execution rather than just an optimization tool.

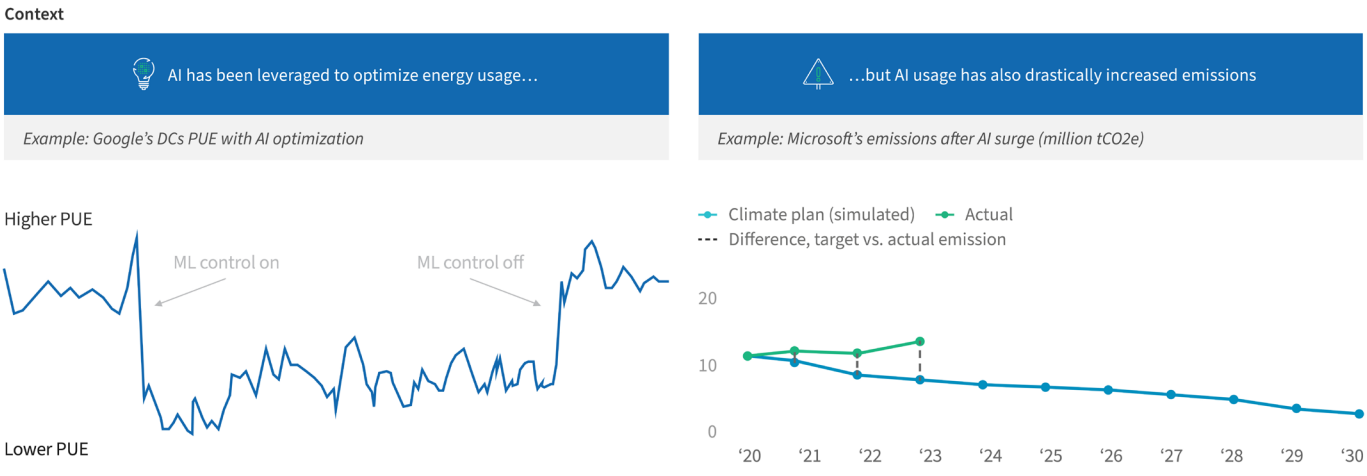
2. The future of AI infrastructure will benefit from sustainable and energy efficient data centers

As AI usage grows, sustainable and energy-efficient data centers will become crucial. The World Economic Forum reported that AI-powered cooling systems can reduce power consumption by up to 40%. This highlights how AI can significantly enhance energy efficiency, making data centers more sustainable by dynamically adjusting cooling mechanisms based on real-time server usage (Figure 2).

To support the rising computational demands of AI, renewable energy and nuclear power will play a crucial role in powering these data centers. Additionally, edge computing will further improve efficiency by localizing data processing, which reduces emissions and enhances performance. Companies like NVIDIA are already developing edge AI solutions to process data closer to its source, minimizing the environmental impact of data transmission.

Sustainability will also become a core focus of corporate strategies as businesses prioritize Environmental, Social and Governance (ESG) initiatives to align with consumer and regulatory expectations. While it remains to be seen what impact the next Trump administration might have on sustainability agendas, we anticipate that it will continue to be a significant priority for data centers. For example, Microsoft has committed to becoming carbon-negative by 2030, setting a standard for others to follow in addressing the environmental challenges associated with growing AI adoption.

FIGURE 2: AI PROGRESSION TO LEVERAGE ENERGY CONSUMPTION



Google's DeepMind AI reduced energy used for cooling Google DCs by **40%**, with a **15% reduction in overall PUE overhead**

AI usage increases energy demands for computing power, resulting in the potential **moving back of Net Zero targets**

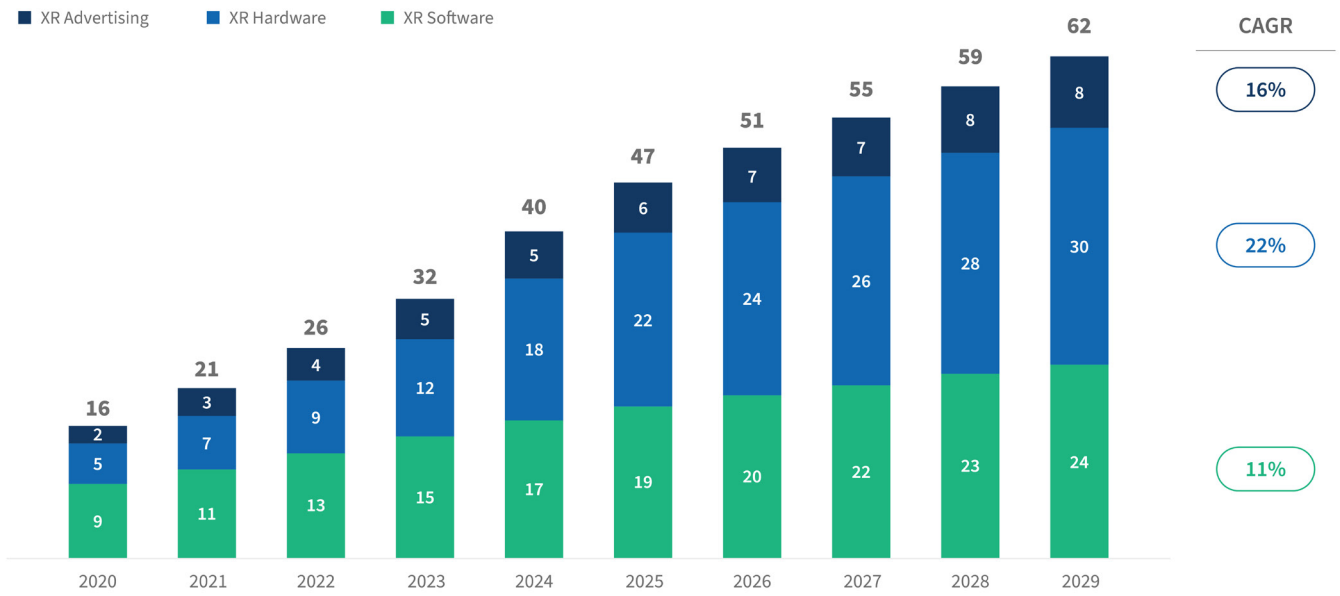
Source: Company websites, Google, Bloomberg, Eco-Business, FTI Delta analysis

3. Extended reality (XR) will enter the mainstream, transforming digital interaction

Extended reality (XR) is on the path to mainstream adoption, set to transform industries by reshaping digital interactions and revolutionizing enterprise operations. XR, encompassing virtual reality (VR), augmented reality (AR) and mixed reality (MR), has seen steady progress, despite Apple's Vision Pro not yet achieving mass traction. By 2029, the XR market is projected to reach USD$62 billion (Figure 3), fueled by advancements in hardware, software and enterprise integration. Meta's Orion glasses could be an inflection point in this transition.

While XR has significantly enhanced virtual meetings, its most transformative applications go far beyond collaboration tools. Remote operations and automation are becoming a reality, enabling engineers and operators to control cranes, drones and complex machinery from anywhere, improving efficiency and safety. Training and workforce development are also being redefined, as XR-powered simulations provide hands-on learning without physical risks or costs, particularly in high-risk industries such as aerospace, healthcare and manufacturing. Retail is another area undergoing transformation, with virtual showrooms, digital twins, and hyper-personalized shopping experiences revolutionizing customer engagement. Companies such as IKEA are already using AR-powered tools to allow customers to interact with products in entirely new ways.

FIGURE 3: EXTENDED REALITY MARKET SIZE EVOLUTION (USD BN)



Source: Statista

The next frontier of XR extends beyond visual immersion. Advances in haptic feedback, gesture recognition and AI-powered spatial computing are creating multi-sensory experiences that will redefine industries. In healthcare, XR combined with haptics enables precise, real-time surgical training with simulated touch, preparing doctors for real-world procedures without risk to patients. Manufacturing and industrial design are also evolving, with engineers now able to interact with virtual prototypes using touch-sensitive XR interfaces, significantly accelerating product development cycles. These innovations are not just enhancements — they are fundamentally reshaping how industries operate, pushing the boundaries of what is possible in human-machine interaction and digital transformation.

4. Emerging markets will lead AI democratization

Emerging markets are heavily investing in the democratization of AI, which has the potential to foster more inclusive and widespread adoption, reducing global disparities in technology access. By focusing on key areas such as governance, healthcare and education, AI innovation hubs are developing targeted solutions to address local challenges. Public–private partnerships are playing a crucial role in supporting the infrastructure necessary for localized AI deployment, ensuring that these advancements are both sustainable and impactful. Collectively, these efforts are bridging technology gaps and fostering global AI inclusivity and competitiveness.

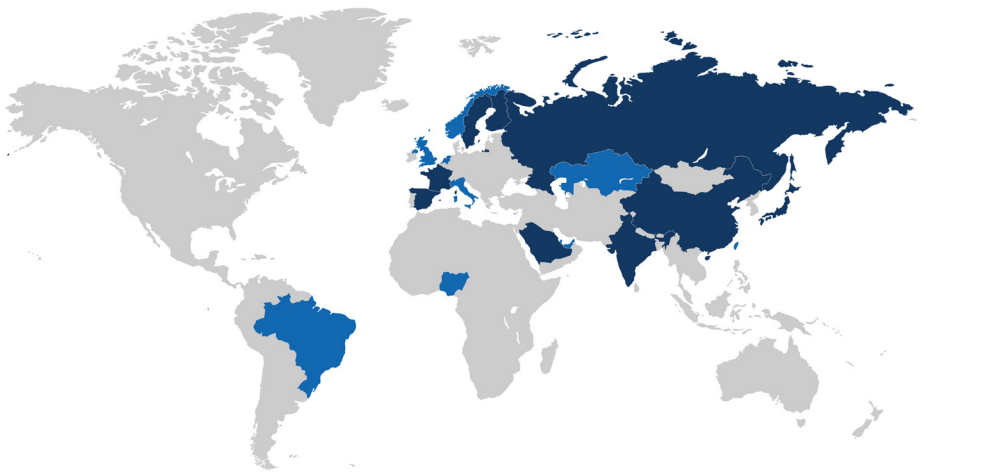
In India, the government has launched several initiatives to promote AI, including the National AI Strategy and the establishment of AI research institutes. Startups like Niramai are leveraging AI for early breast cancer detection, making healthcare more accessible to underserved populations. Similarly, Brazil is using AI to improve public services; for example, the city of São Paulo has implemented AI systems to optimize traffic management, reducing congestion and improving urban mobility.

Nigeria is another example of how AI is being used to address local challenges. Startups like Ubenwa

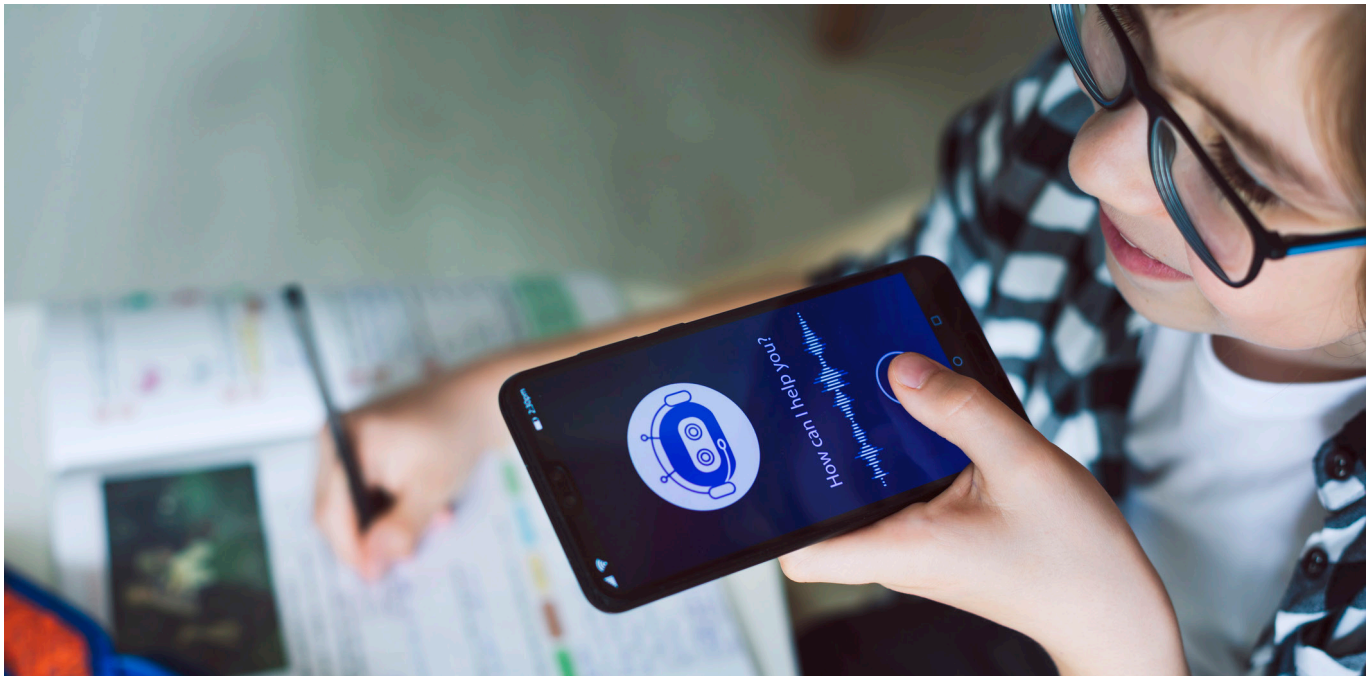
FIGURE 4: GLOBAL NATIONAL LLM EFFORTS

Selected National LLM Examples

25+
National LLMs identified globally across
15+
countries[1]



Notes: Selected models refer to one of the often several variants of LLM rendered available by the provider. (1) Notable developments, as of 29 August 2024; Souces: Press clippings, Hugging Face, FTI Delta



are utilizing AI to analyze a baby's cry and detect birth asphyxia, a leading cause of infant mortality, demonstrating AI's life-saving potential. Meanwhile, Indonesia is focusing on AI to boost its digital economy, with government initiatives integrating AI into sectors such as education and healthcare to enhance service delivery and accessibility.

Malaysia is also making significant strides in AI adoption. In December 2024, the country launched a national artificial intelligence office aimed at shaping policies and addressing regulatory issues, positioning itself as a regional hub for AI development. In conjunction with this launch, the Malaysian government also announced strategic partnerships with six leading technology companies, including Amazon, Google and Microsoft.

In addition to these advancements, emerging markets are also developing their own national large language models (LLMs) to create localized AI ecosystems. As seen in recent global efforts, over 25 national LLMs have been identified across more than 15 countries (Figure 4), including several in developing economies. These initiatives highlight a commitment to strengthening domestic AI capabilities, ensuring linguistic and cultural representation, and reducing reliance on foreign models.

Organizations like Masakhane in Ghana and the African Languages Lab supported national AI agendas and now run multiple grassroots-level digitization and data programs aimed at addressing the issue of low-resource languages. Some nations, including Namibia and South Sudan, are also implementing notable data literacy and upskilling programs, along with specific AI use cases to tackle localized challenges such as financial inclusion, education and security. In Latin America, countries like Paraguay, Chile and Peru are using AI tools to promote oral stories and artwork and revitalise endangered languages like Quechua and Yanesha. These efforts contribute to a more inclusive AI ecosystem, allowing developing nations to harness AI's potential for socioeconomic growth and development.

Together, these examples highlight how emerging markets are not only embracing AI but also leading the way in creating innovative, localized solutions that address critical societal needs while promoting technological inclusivity on a global scale.

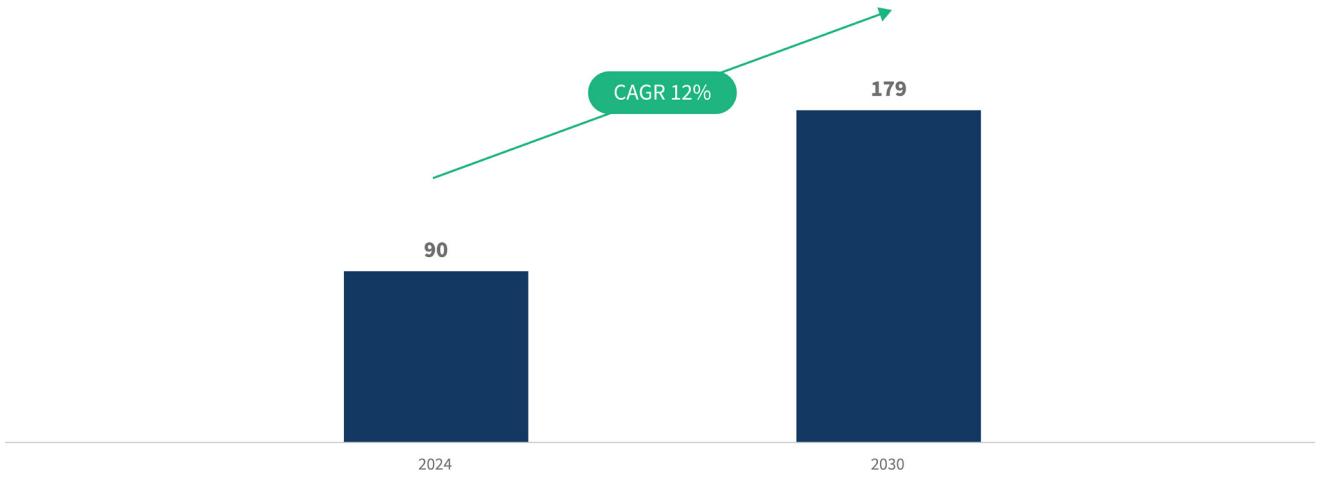
5. AI-driven infrastructure and Physical AI will transform smart cities and mobility

AI-driven infrastructure, combined with the rise of Physical AI, is set to revolutionize smart cities, making them more efficient, automated and adaptive. The integration of AI-powered systems is already reshaping urban environments, optimizing everything from transportation to waste management. In Singapore, AI-driven predictive maintenance is ensuring the continuous operation of public transport by proactively identifying and addressing issues before they become critical. San Francisco has implemented smart parking systems that use AI and sensors to provide real-time parking availability, reducing congestion and emissions. London is leveraging AI to dynamically adjust bus schedules based on passenger demand, enhancing efficiency and commuter experience.

AI-powered robotics is further advancing urban infrastructure. The ZenRobotics Recycler is revolutionizing waste sorting by automating the separation of materials to increase recycling rates and reduce landfill waste. The ANYmal robot from ANYbotics is conducting real-time infrastructure inspections, ensuring safety and functionality even in hard-to-reach locations. Autonomous cleaning robots, such as those developed by Trombia Technologies, are improving urban cleanliness and sustainability by efficiently maintaining public spaces. These advancements are contributing to the rapid growth of the robotics industry, which is projected to expand at a compound annual growth rate of 12%, from USD$90 billion in 2024 to USD$179 billion in 2030 (Figure 5).

Beyond AI-powered automation, the emergence of Physical AI represents the next frontier in urban transformation. Unlike traditional AI, which focuses on data processing, Physical AI extends intelligence into

FIGURE 5: GLOBAL ROBOTICS MARKET (USD BN)



Source: World Economic Forum, SRT Labs, FTI Delta research and analysis

the real world, enabling machines to interact, learn and operate autonomously within physical environments. At CES 2025, NVIDIA's Jensen Huang outlined how AI-powered machines are evolving with greater autonomy, dexterity and situational awareness, a shift that will fundamentally redefine how cities function.

Autonomous vehicles will soon move beyond predefined routes, adapting in real time to complex urban landscapes. AI-powered humanoid robots will play an active role in city operations, from logistics and maintenance to security and emergency response. Physical AI-enabled drones will transform urban mobility, managing traffic from the skies and optimizing last-mile deliveries with unprecedented efficiency. In public spaces, intelligent AI agents will engage with citizens, providing real-time updates, monitoring security and responding to emergencies with precision.

Governments and the private sector will be key players in accelerating the adoption of these AI-driven technologies. By fostering public–private collaborations, cities can unlock the full potential of AI-powered solutions, ensuring a future where urban centers are not only more efficient but also more livable, sustainable and responsive. AI is no longer just about software; the integration of Physical AI is reshaping the very fabric of urban life, making smart cities more intelligent, autonomous and self-optimizing.

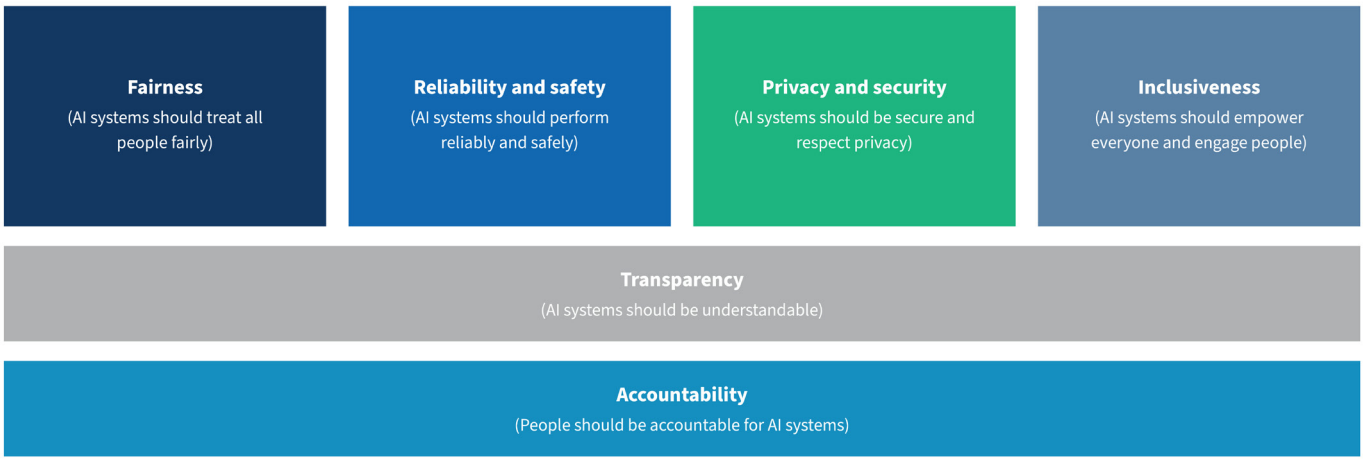
6. Synthetic data will revolutionize how we overcome data scarcity and privacy challenges

As data continues to grow in value, ensuring its quality and security is becoming increasingly critical. Organizations are rapidly developing frameworks for ethical AI (Figure 6), emphasizing the importance of balancing innovation with regulatory compliance. One of the key challenges in this space is access to high-quality data while navigating copyright, confidentiality and privacy constraints — barriers that often limit the potential of generative AI models.

Synthetic data generation offers a compelling solution by creating realistic, statistically accurate data that does not expose sensitive information. Companies like Mostly AI are starting to produce synthetic datasets that mimic real-world data patterns while eliminating privacy risks. This approach enables AI models to train on diverse and representative datasets without breaching ethical or legal boundaries. As organizations increasingly rely on AI, synthetic data helps bridge the gap between innovation and regulatory compliance, ensuring models remain robust and unbiased.

Beyond privacy protection, synthetic data addresses issues of data scarcity, particularly in industries where real-world data collection is expensive, limited, or restricted due to confidentiality. Financial institutions, healthcare organizations and government agencies stand to benefit significantly, as synthetic data allows for advanced AI training without compromising customer information or violating data sovereignty laws. The potential applications extend further to edge cases where real-world data is either unavailable or

FIGURE 6: MICROSOFT'S FRAMEWORK FOR DEVELOPING, ASSESSING AND DEPLOYING RESPONSIBLE AI INVOLVES SIX PRINCIPLES



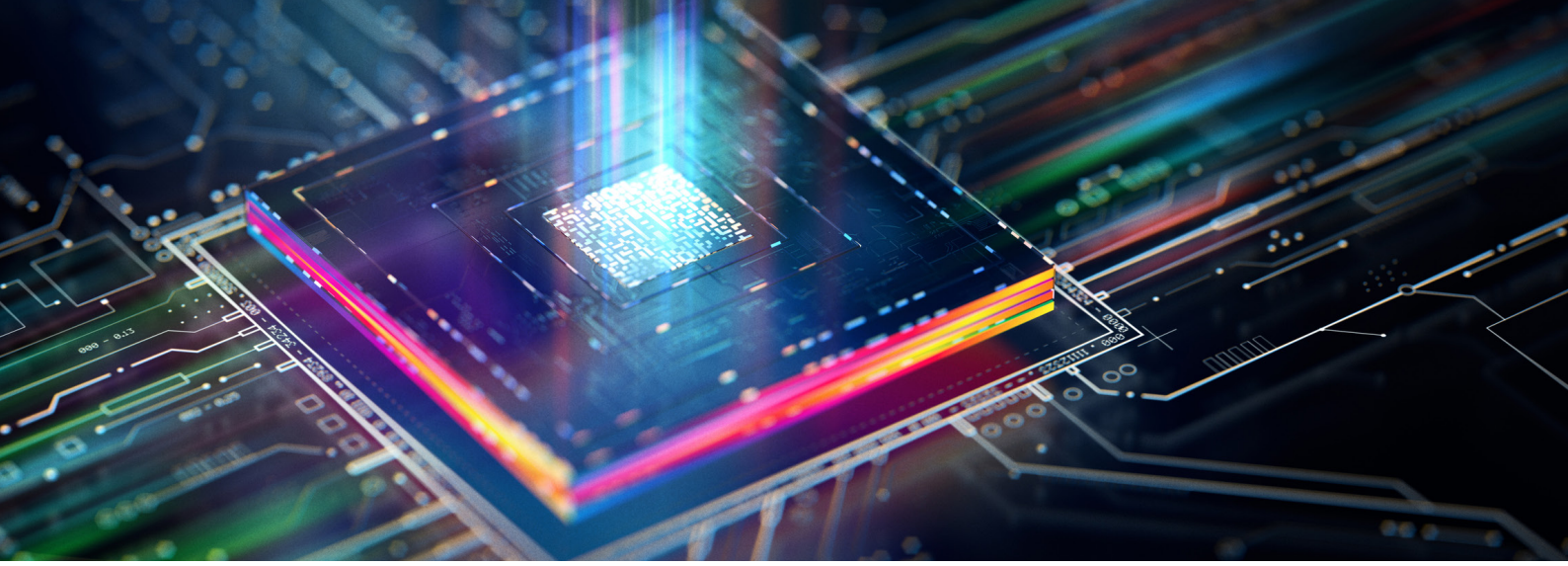
Source: Informa Tech

impractical to collect, allowing AI to be deployed in previously inaccessible domains.

Another critical advancement in ethical AI is federated learning, which facilitates decentralized model training without transferring sensitive data across organizations. Google's TensorFlow Federated is a key example, enabling AI development while preserving privacy through local computation. Combined with synthetic data, this method creates a more secure and collaborative AI ecosystem where businesses can innovate while maintaining compliance with evolving global regulations.

The increasing emphasis on developing national large language models (LLMs) highlights the growing need for responsible AI governance. While the rapid expansion of AI presents opportunities, it also requires stringent frameworks to mitigate risks such as data breaches, misinformation and ethical concerns. Organizations must proactively invest in AI-driven cybersecurity measures such as those provided by Darktrace, which leverages AI to detect and respond to cyber threats in real time. By incorporating synthetic data strategies and AI-driven security frameworks, businesses can unlock AI's full potential without compromising trust, compliance, or security.

As generative AI becomes more pervasive, synthetic data will be an essential enabler of ethical and regulatory-compliant AI innovation. Leaders who prioritize this approach will gain a competitive edge, ensuring their AI capabilities are built on a foundation of security, compliance and responsible data use. Synthetic data can significantly help AI strategy, driving forward a future where innovation and privacy go hand in hand.



7. Quantum computing will redefine computational limits

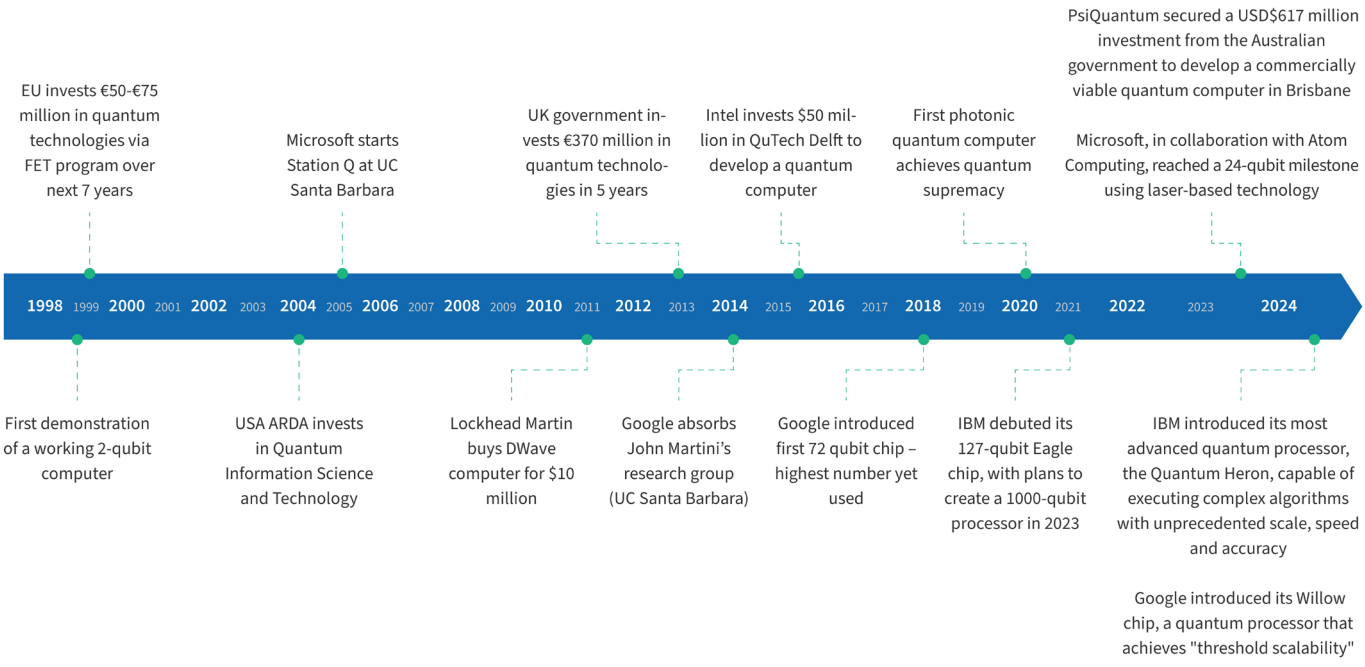
Google's latest quantum chip, Willow, isn't just a technological milestone: The chip performed a benchmark computation in under five minutes, an operation that would take the fastest supercomputers 10 septillion years to complete. Developments of this type signal that quantum computing is advancing faster than anticipated.

Despite suggestions from Jensen Huang, NVIDIA CEO, that quantum will not be useful for 20 years, tech and government leaders will not wait 15-30 years for quantum to become relevant.

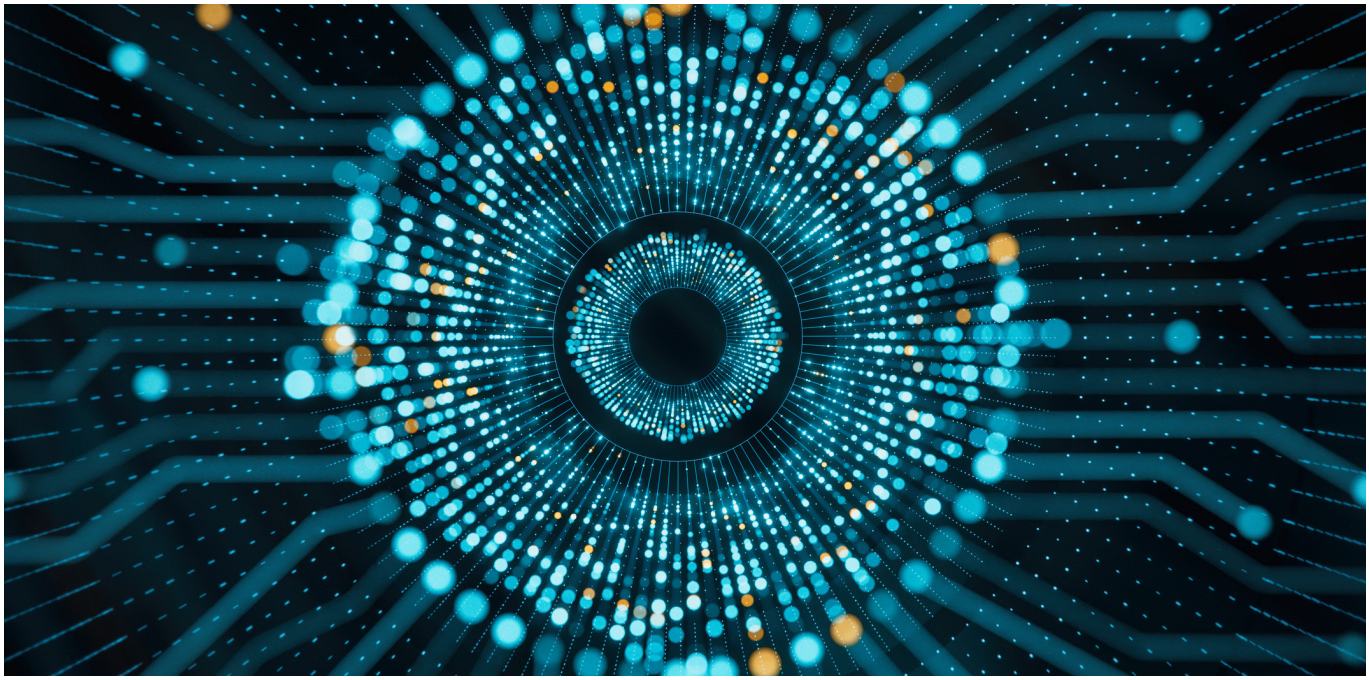
Quantum computing is already transforming industries by solving complex problems at speeds unattainable by traditional methods (Figure 7). In finance, quantum algorithms optimize high-frequency trading and risk management. In logistics, quantum systems streamline global supply chains. In healthcare, pharmaceutical companies use quantum simulations to accelerate drug discovery.

Moreover, businesses do not need to wait decades to explore quantum's potential. Cloud-based quantum platforms, such as D-Wave's Leap and IBM's Qiskit,

FIGURE 7: KEY QUANTUM COMPUTING DEVELOPMENTS OVER TIME



Source: L.E.K. research and analysis, Darkreading, IBM newsroom, Business Insider



offer accessible ways for companies to experiment with quantum algorithms today. Identifying optimization problems such as resource allocation, supply chain efficiency and financial modeling is a crucial first step in harnessing quantum's power.

The rapid progress of this technology presents both an opportunity and a threat: for governments, a question of digital sovereignty and cybersecurity; for CEOs, a competitive advantage in AI and big data; for CTOs, an urgent need to rethink encryption strategies before quantum decryption becomes a reality.

With quantum computing advancing, today's encryption methods, which protect financial transactions, government communications and critical enterprise data, will be obsolete. Quantum decryption could become a major cybersecurity threat within the next decade. Companies and governments have started investing in quantum-resistant cryptography today to avoid catastrophic breaches tomorrow. Quantum-resistant cryptography is becoming increasingly critical to securing digital systems. Companies like IBM are already developing quantum-safe cryptographic algorithms to protect sensitive data against the potential threats posed by quantum-powered decryption capabilities.

Countries like China and the EU are aggressively investing in sovereign quantum ecosystems, recognizing that quantum leadership is a matter of economic and digital sovereignty. In the United States, for example, the Department of Energy's Quantum Computing Roadmap outlines strategic investments in quantum research, fostering partnerships that will accelerate technological progress. By combining public and private sector efforts, the quantum computing industry is poised to make rapid advancements, unlocking new possibilities across various fields.

The time to prepare for quantum disruption is now. Governments and companies must act decisively by investing in quantum-ready cybersecurity to protect critical infrastructure and corporate data. Identifying high-impact quantum use cases will be crucial to staying ahead of competitors. Building cross-sector partnerships to accelerate the adoption of quantum computing in national and corporate strategies will ensure long-term leadership. While full-scale quantum computers are years away, governments and businesses are investing, innovating and deploying solutions to have quantum advantage.

Technology Experts

Javier Alvarez
Senior Managing Director
javier.alvarez@ftidelta.com

Harvind Raman
Senior Managing Director, Technology Sector Leader
harvind.raman@ftidelta.com

Joao Sousa
Senior Managing Director
joao.sousa@ftidelta.com

Damilola Ojo
Senior Managing Director
damilola.ojo@ftidelta.com

Fred Liebler
Principal
fred.liebler@ftidelta.com

Daniel Chacon
Principal
daniel.chacon@ftidelta.com

FTI Delta is a global industry-specialized strategy consulting practice delivering end-to-end transformation. Our unrivaled team of experts offers a wide range of services that create value throughout the entire strategy-to-execution journey, serving top-tier corporations, private investors, mid-market companies and government authorities. FTI Delta is part of FTI Consulting (NYSE: FCN), a leading global advisory firm. For more information, please visit **ftidelta.com** and follow us on LinkedIn @FTI-Delta

FTI Consulting is an independent global business advisory firm dedicated to helping organizations manage change, mitigate risk and resolve disputes: financial, legal, operational, political and regulatory, reputational and transactional. FTI Consulting professionals, located in all major business centres throughout the world, work closely with clients to anticipate, illuminate and overcome complex business challenges and opportunities