

The Top 10 Emerging Technologies Of 2025

This year's list emphasizes the value of a secure, trusted foundation for AI success.



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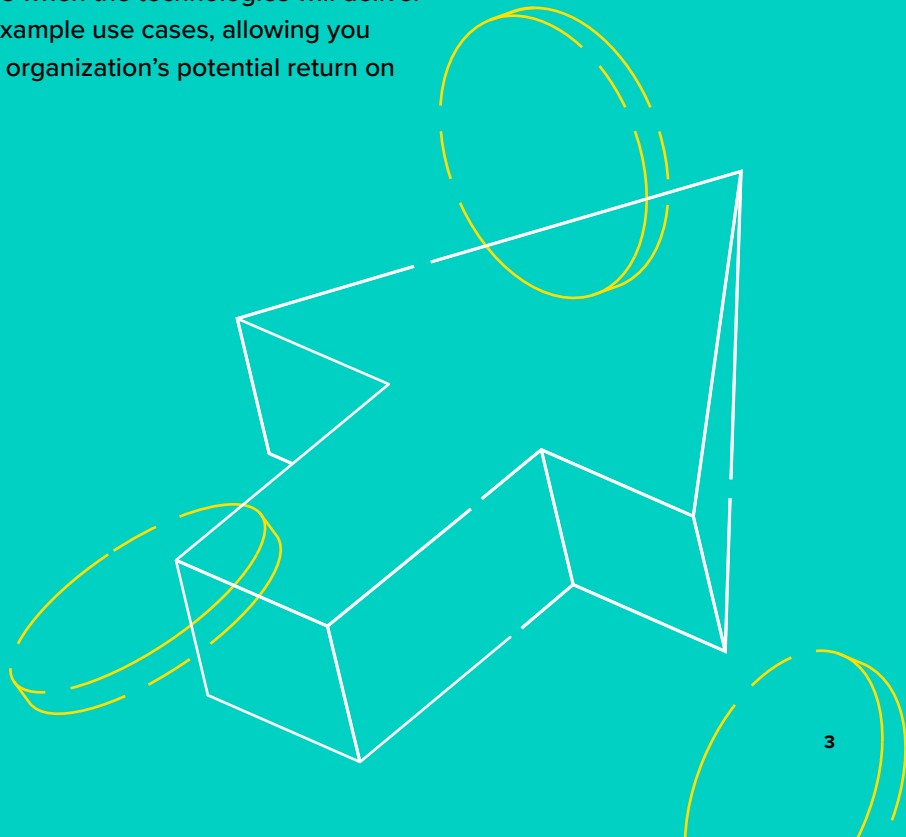
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Each year, new technologies emerge that can dramatically impact business. The challenge for business and technology leaders is separating the hype from the reality. Understanding which technologies will deliver true benefit for your business and when can be difficult. Make the right choice, and your business could be well ahead of its competitors. Make the wrong choice, and you could waste a big chunk of your tech budget for little gain.

Navigating this process has only become more critical amid today's market volatility. Rapid economic shifts, evolving customer expectations, and the unpredictable pace of technological innovation create an unprecedented level of uncertainty for businesses. Making informed, timely decisions about which technologies to invest in is no longer just advantageous but essential to staying competitive and minimizing risks in such a dynamic landscape.

This guide details the 10 emerging technologies that Forrester's research team has identified as the most important technologies to know about in 2025. The final top 10 emerging technologies are identified after an exhaustive review of literally hundreds of technologies by Forrester's research team.

But this is more than just a list — the guide describes when the technologies will deliver value and how in the form of benefit horizons and example use cases, allowing you to better understand the manner and timing of your organization's potential return on investment for each.



The Concept Of Benefit Horizons

One of the biggest challenges in evaluating emerging technologies is understanding how close a certain technology is to delivering on its promise. Business history is filled with stories of companies that invested in the right technology but at the wrong time for their business.

The secret to technology roadmap success is knowing exactly what returns your technology spend is going to deliver. In some cases, that may mean becoming an early adopter of a relatively immature technology because your industry has a strong need for it. In other cases, it may mean passing on a tech that others are jumping on because it's not ready to deliver what you need from it. The key is to not get blinded by hype and take a pragmatic and data-driven approach to emerging technology investment.

To help you do that, this guide groups our top 10 emerging technologies by benefit horizon, a unique approach to help you understand the advantages that the technology will deliver and when.

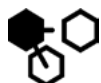
FORRESTER USES THREE BENEFIT HORIZONS

1. **Short-term benefit horizon:** less than two years. Technologies in this category are still emerging but have proven capabilities and use cases and should deliver return for most firms within two years.
2. **Medium-term benefit horizon:** two to five years. These technologies have emerging capabilities that are not entirely proven but are rapidly evolving. Most firms should expect to see ROI on these technologies within two to five years.
3. **Long-term benefit horizon:** five or more years. This group has definite potential, but they're less proven and have fewer established use cases. They may not produce ROI for more than five years but are still worthy of review and attention.

Viewing these technologies through this lens helps you prioritize them and understand where they may fit into your technology roadmap and budget planning.

The Short-Term Benefit Horizon

Four of our 10 technologies this year fit into the short-term benefit horizon, indicating that they should produce ROI for most companies in less than two years. Three of these technologies have been on the list in the past, but the first one is a newcomer to the top 10.



SYNTHETIC DATA

Forrester defines synthetic data as: Generated data of any type (e.g., structured, transactional, image, audio) that duplicates, mimics, or extrapolates from the real world but maintains no direct link to it, particularly for scenarios where real-world data is unavailable, unusable, or strictly regulated or where large volumes of data are needed.

A newcomer to our top 10 list, synthetic data has shown benefits for both technical advancement as well as for risk avoidance in the age of AI. It enables organizations to artificially create completely new datasets or enrich existing datasets efficiently. Using synthetic data for testing and training AI models eliminates privacy and security risks, so it is particularly useful in regulated industries where data privacy is a top priority.

Synthetic data enables organizations to enjoy more freedom in the way they use, share, and store data. Some organizations are already starting to use synthetic data for classic analytics use cases in marketing and CX and for code development and testing. Soon, it will be more commonly used to enrich datasets for AI training and advanced analytics.

Example use cases:

- Data augmentation to create look-alike models
- Simulation of “real-world scenarios” used for code development and testing
- Enriched datasets and imagery for AI training
- Performance enhancement for conversational AI/chatbots



TURINGBOTS

Forrester defines TuringBots as: AI and generative AI-powered software, in the form of assistants, bots, or components, that empower development teams across the software development lifecycle (SDLC) to create better software, faster.

AI-powered tools like TuringBots are revolutionizing software development by streamlining the entire lifecycle from design and coding to testing. By handling routine tasks that developers often find tedious, these tools free up teams to focus on creative, high-value work. Advanced features such as predictive AI, generative AI, and retrieval-augmented generation enable TuringBots to learn an organization’s unique processes, including



The Short-Term Benefit Horizon



TURINGBOTS CONTINUED

development standards, API patterns, and libraries. This ensures the creation of assets that align perfectly with technical requirements, driving efficiency and innovation across development teams.

Example use cases:

- Full-stack code generation for increased developer productivity
- Application and architecture modernization
- Legacy code documentation
- Autonomous code testing and test case improvement



GENERATIVE AI FOR LANGUAGE

Forrester defines generative AI for language (genAI for language) as: A set of technologies and techniques that leverage massive corpora of data to generate new text (including code) in response to natural language prompts or other noncode and nontraditional inputs.

GenAI for language is delivering value to many industries and organizations, and it has enormous potential to scale even further as new use cases are identified. Enterprises have enthusiastically adopted this technology recently, but there are still many best practices to be learned on how best to implement, integrate, and address concerns of enterprise accuracy, validity, and security. And there remain risks such as hallucinations, which can lead to inaccurate or fabricated outputs. To ensure successful enterprise adoption, organizations must invest in robust validation processes, establish clear guidelines for use, and continuously evaluate outputs to minimize errors and uphold trust in the technology.

Example use cases:

- Text summarization, generation, and analysis
- Knowledge retrieval
- Data quality support (data definitions, documentation)

The Short-Term Benefit Horizon



IOT SECURITY

Forrester defines internet-of-things (IoT) security as: Safeguarding IoT devices, networks, and the data they transmit from unauthorized access, cyberattacks, and vulnerabilities while ensuring that the devices function as intended, data remains confidential and accurate, and privacy and system reliability are maintained.

As more data is transferred across a wide variety of devices and new IoT use cases emerge, security of that data becomes a bigger challenge. Not only can IoT security technologies reduce the chances of critical data being compromised, but they can accelerate the value delivery of edge intelligence technology rather than relying solely on centralized cloud servers.

IoT security technology includes components of endpoint management and security but is tailored to the wide variety of IoT devices that an enterprise will typically deploy. Since some legacy IoT devices will not be able to install software updates or security patches needed to resolve known inherent security flaws, IoT security solutions can be used to notify security teams about threats targeting the devices.

Example use cases:

- Data protection and privacy
- Risk posture management
- Asset discovery and identification
- Threat and anomaly detection

The Medium-Term Benefit Horizon

This year, there are five emerging technologies in the medium-term benefit horizon, indicating that they show real promise but won't produce return for two to five years for most organizations. Some are new to this category, while others have been in this stage for a few years but have hit technical implementation or regulatory barriers that delay their benefits.



AGENTIC AI

Forrester defines agentic AI as: Systems of foundation models, rules, architectures, and tools that enable software to flexibly plan and adapt to resolve goals by taking action in their environment, with increasing levels of autonomy.

The excitement around agentic AI is due to its potential to make processes more autonomous and organizations more efficient. Once AI agents emerged, the focus shifted to the emerging techniques and architectures that are enabling those agents. This includes foundation models (usually large language models today), more traditional machine learning models, code generation, software integrations, and more that all come together to enable agentic AI.

There is immediate potential for agentic AI to add increased flexibility and adaptability into automation processes, but the long-term value lies in deeply transforming automation through new designs of software stacks and application architectures. While most organizations stand to benefit from agentic AI, those that run business processes requiring nuanced and complex decisioning with enormous amounts of (particularly unstructured) information, and with a sizable human workforce responsible for managing and supporting operational processes, will benefit the most (and the most quickly).

Example use cases:

- Customer self-service
- Personalized marketing content creation and distribution
- Consumer digital doubles
- Digital workers for enterprise processes



QUANTUM SECURITY

Forrester defines quantum security as: The use of quantum mechanics principles and quantum-computing-resistant algorithms to perform cryptographic tasks or secure communication.

Quantum security is a way to protect information using advanced technology designed to resist powerful quantum computers expected in the future. The potential impact of quantum security on business and technology



The Medium-Term Benefit Horizon



QUANTUM SECURITY CONTINUED

cannot be overstated. It includes postquantum or quantum-computing-resistant key exchange, digital signatures, key generation and management, cryptographic algorithm discovery and inventory, certificate management, cryptographic algorithm change management (cryptographic agility), and quantum key distribution (QKD). In the future, quantum-safe and resistant encryption will be the primary force behind a major overhaul of security systems. The financial services industry's need for sensitive data protection means this sector will have to invest significantly to upgrade its infrastructure for a postquantum world.

Example use cases:

- Asymmetric and symmetric key generation
- Inventory of cryptographic algorithms
- Digital signatures and certificate management
- Rapid change of cryptographic algorithms



AUTONOMOUS MOBILITY TECHNOLOGIES

Forrester defines autonomous mobility technologies as: A combination of hardware, software, data, and communications infrastructure on and around vehicles that enable them to perceive and respond to their environment with little or no human input.

Autonomous mobility technologies are already delivering value in many controlled environments. This group of technologies (computer vision, internet of things, robotics, edge intelligence, etc.) powers self-driving vehicles such as robotaxis as well as other forms of autonomous mobility, including autonomous mobile robots (AMRs) in factories and warehouses and autonomous drones, trucks, tractors, trains, ships, and aircraft. Autonomous mobility technologies will increase efficiency and improve safety in industries like manufacturing and logistics.

Example use cases:

- Transporting people, goods, and materials
- Monitoring indoor and outdoor environments
- Completing discrete tasks such as cleaning floors, painting lines on sports grounds, or spotting gaps on a supermarket shelf

The Medium-Term Benefit Horizon



EDGE INTELLIGENCE

Forrester defines edge intelligence as: Capabilities that capture data, embed inferencing, and connect insight within a timely response that is relevant, distributed, orchestrated, and contextually driven in a network of application, device, and communication ecosystems.

Edge intelligence processes data closer to its source, such as on smart devices or sensors, instead of relying on distant servers. This enables faster, more efficient, and context-aware responses. Its true potential lies in driving localized, personalized experiences by utilizing technologies such as streaming analytics, edge and federated machine learning, generative AI, compact models, and real-time data management. As these technologies advance, edge intelligence will empower businesses to anticipate customer needs, act proactively, and operate effectively in localized, IoT-enabled contexts.

Example use cases:

- Immersive retail
- Smart buildings
- Factory automation
- Remote worker applications



GENERATIVE AI FOR VISUAL CONTENT

Forrester defines generative AI for visual content as: Advanced AI systems that generate, modify, or enhance images, videos, and 3D motion graphics by learning patterns from existing data, producing contextually relevant and immersive content and experiences.

This technology, which includes generative adversarial networks, diffusion models, and transformer-based architectures, is revolutionizing the way companies create and deploy photorealistic images, videos, and motion graphics. Beyond time and cost savings, breakthroughs in generative technology now enable highly responsive, immersive interactions across gaming, augmented reality (AR), and virtual reality (VR). These cutting-edge advancements are tailoring content to individual preferences, fostering personalized engagement and boosting consumer satisfaction.

Example use cases:

- Marketing visual generation
- Automated data visualization
- Virtual production
- Personalized customer visualization
- Automated design and layout
- Virtual simulation

The Long-Term Benefit Horizon

For 2025, we present only a single long-term technology.



HUMANOID ROBOTS

Forrester defines humanoid robots as: An autonomous or semi-autonomous robot designed to resemble the human body in appearance, functionality, and behaviors equipped with advanced sensors, artificial intelligence, and actuators to perform tasks.

The rapid advancement of genAI in recent years, combined with decreasing hardware costs, is driving the swift development of humanoid robots, which typically feature a head, torso, two arms, and two legs, enabling tasks such as walking, grasping objects, and interacting with humans and environments. They can adapt to various conditions, perform diverse human tasks, use existing human tools, and learn from environments, allowing them to better navigate and operate with improved experiences, especially in human-centric environments. They can also be programmed for diverse tasks across different work environments, making them versatile and cost-effective assets. In 2024, over 25% of global automation leaders accelerated robot investments across all robot categories as a result of genAI.

Example use cases:

- Manufacturing and assembly operations automation
- Inventory management in logistics
- Healthcare and medical assistance
- Customer service and hospitality
- Security and surveillance operations

Top 10 Emerging Technologies For 2025

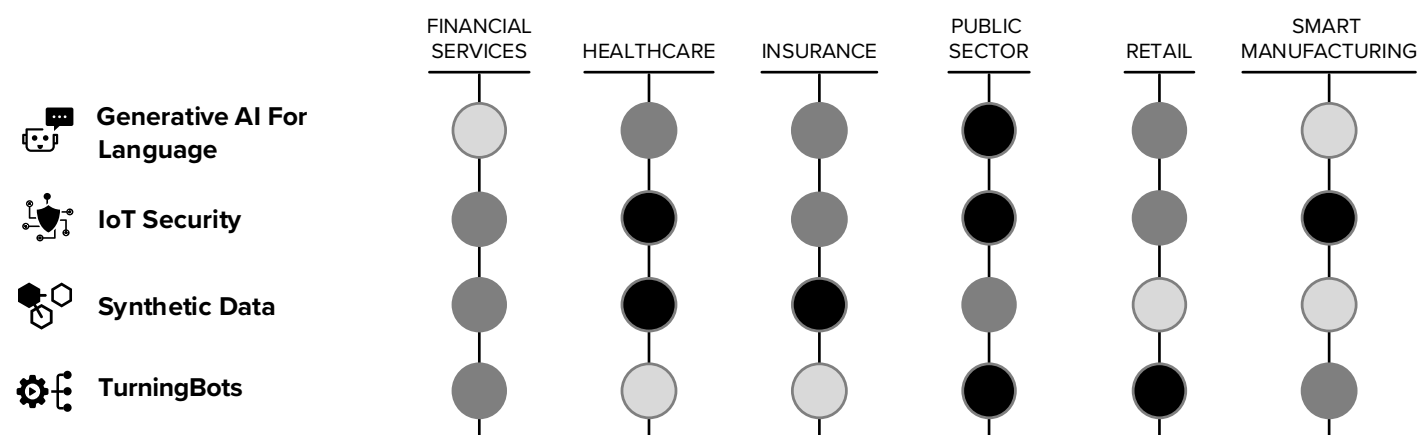
By Industry Use Case

Industry Map Key

-  A few potential use cases exist for experimentation in the industry
-  A few use cases exist where firms can go beyond just experimenting
-  Some use cases exist with benefit potential
-  Many use cases exist with substantial potential for benefits

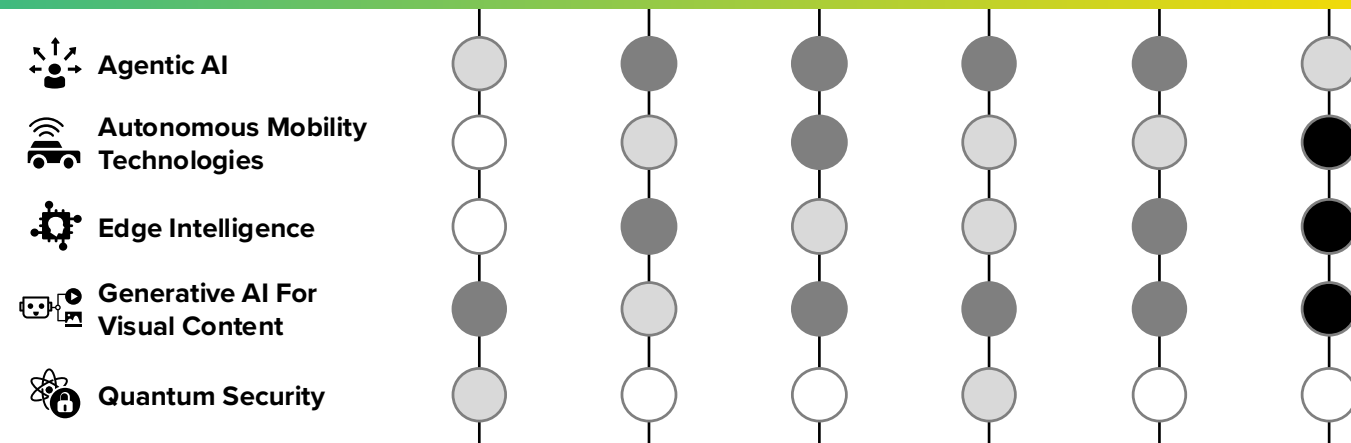
Short-term benefit horizon: less than two years

Technologies with emerging but proven capabilities that should deliver expected ROI for most firms within the next two years.



Medium-term benefit horizon: two to five years

Technologies with emerging capabilities that are not entirely proven and rapidly evolving. Most clients should expect to see significant benefits in two to five years.



Long-term benefit horizon: five-plus years

Technologies that will take five-plus years to deliver tangible value for most firms.



How Forrester Can Help

WEBINAR

Unveiling The Top 10 Emerging Technologies For 2025

Watch Brian Hopkins, VP of emerging technology, dive deep into each of this year's technologies in this webinar.

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GUIDE

Stop Experimenting And Start Scaling Your AI Efforts

Take your AI initiatives from promising experiments to measurable business outcomes with our exclusive guide, designed for technology executives and leaders who are ready to pave the way.

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RESEARCH

Forrester clients get access to the full report, The Top 10 Emerging Technologies In 2025, as well as an additional report on the 11–20 technologies when available.

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