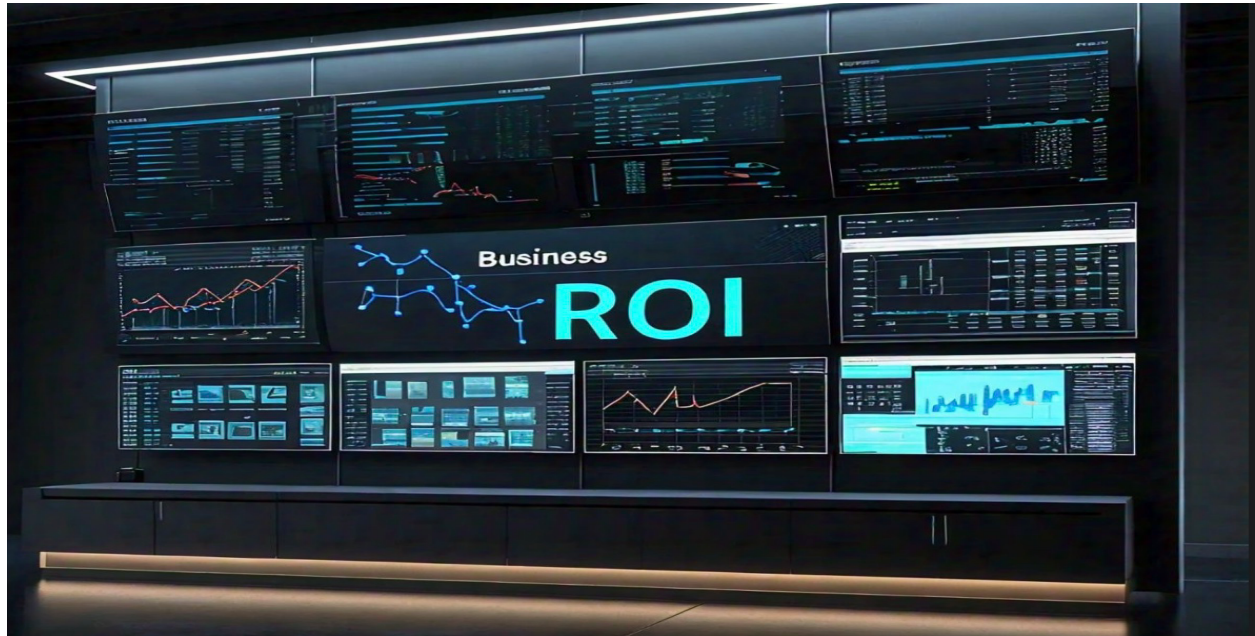


Forrester's top 10 emerging technologies in 2024

GenAI and IoT security are core



Predicting that generative AI (GenAI) for visual content, GenAI for language, TuringBots, and IoT security will be the four technologies that deliver the most immediate ROI in two years, [Forrester's Top 10 Emerging Technologies In 2024](#) reflects the urgency more businesses have for making AI pay while securing their most at-risk endpoints.

Rounding out Forrester's ten emerging technologies are AI agents, autonomous mobility, edge intelligence, quantum security, extended reality (XR), and Zero Trust Edge (ZTE).

Forrester's stack ranking of technologies by ROI potential

Advising clients to include ten emerging technologies on their radar and roadmap, Forrester has segmented them into short-term, medium-, and long-term groups based on their potential to deliver ROI. Three of the ten emerging technologies are cybersecurity related.

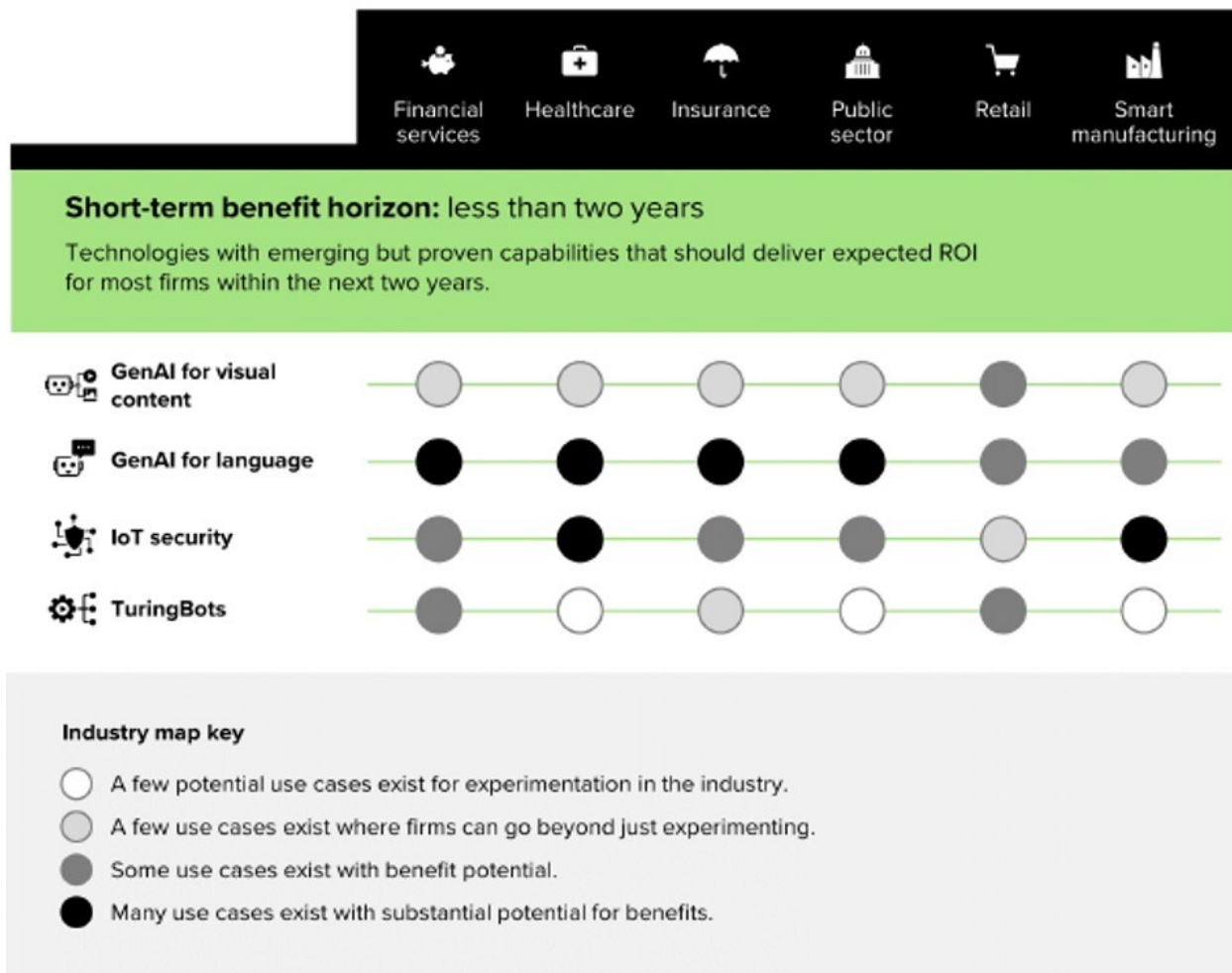
Technologies predicted to deliver the most significant ROI over the next two years

GenAI for visual content and language. Given how quickly GenAI's adoption is accelerating across enterprises via a myriad of cloud-based apps and tools, especially in marketing, digital design, and communications, it's clear why Forrester predicted that GenAI for visual content, GenAI for language have the potential to deliver ROI in two years. Forrester notes that "GenAI for language is already delivering value in customer support and content creation but continues to advance at a blinding pace. It is accelerating many other technologies as it goes."

TuringBots are predicted to accelerate app development. The report states that these AI-powered software robots "help developers build applications that deliver more than just code generation" thanks to

advancements in GenAI for language. TuringBots are defined as "AI-powered software that augments application development teams' automation and semiautonomous capabilities to plan, analyze, design, code, test, deliver, and deploy while providing assistive intelligence on code, development processes, and applications."

IoT Security to secure the proliferating number and variety of endpoint devices. Forrester defines IoT security technology as including components that are "familiar to endpoint management and security: asset management, identity and access management (IAM), data security management, Zero Trust networking, and attack surface risk management." Forrester predicts that deploying IoT security solutions will deliver expected business value within a year as vendors increasingly offer capabilities as part of other cybersecurity platforms.



Source: Forrester's Top 10 Emerging Technologies In 2024

Emerging technologies predicted to deliver ROI in two to five years

AI agents. Forrester is seeing AI agent technology stacks include advanced deep learning techniques, including generative, predictive, and reinforcement learning, that enable greater context, analysis, strategy, and planning. Forrester believes their full realization is two to five years away, predicting that "organizations with large amounts of information and sizable human workforces will likely see the biggest and most immediate benefits."

Autonomous mobility. Manufacturing and logistics are two industries shifting workloads from initial pilots into production, according to Forrester. Both industries are facing continued labor shortages, regulatory pressures, and rising costs and see the potential to improve traffic and supply chain management results. Key benefits include greater operational efficiencies across shop floors, improved regulatory compliance, enhanced worker productivity and safety, and more accurate data to track environmental sustainability efforts.

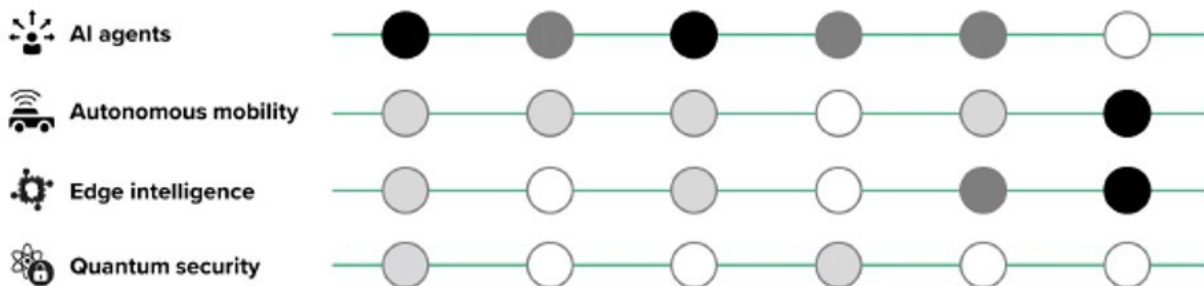
Edge intelligence. Forrester defines edge intelligence as "capabilities that capture data, embed inferencing, and connect insight within a timely response that is relevant, distributed, orchestrated, and contextually driven in a network of application, device, and communication ecosystems." The report further defines the tech stack for edge intelligence as including streaming analytics, edge ML, federated ML, and real-time data management on intelligent devices and edge servers.

Quantum security. Reducing the risk of "harvest now, decrypt later" quantum attacks, providing increased cryptographic agility for the future, and improving digital signatures are a few of the many benefits quantum security delivers. Asymmetric and symmetric key generation, symmetric key distribution via QKD, digital signatures and certificate management, and keeping an accurate list of cryptographic algorithms are some of the most common uses. These benefits and use cases form the basis of Forrester's assigning quantum security into the mid-segment of their stack ranking.



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.



Source: Forrester's Top 10 Emerging Technologies In 2024

Emerging technologies predicted to deliver ROI in over five years

Extended reality (XR). Forrester defines XR as “a technology that overlays computer imagery on a user’s field of vision, with augmented reality (AR), mixed reality, and virtual reality (VR) technologies that are supported by the same developer tools, sensors, cameras, and simulation engines.” Their report notes that only 8% of US online adults own a virtual-reality headset, and just 16% have used an augmented-reality device or app. While XR is advancing in training and onboarding, companies are resisting investing in tools like these until they see broad adoption.

Zero Trust Edge (ZTE). ZTE technology has the potential to protect remote workers, retail outlets, and branch offices with embedded local security. Highly distributed enterprises with little variation between sites are predicted to see the greatest benefit first.

Conclusion

Forrester sees security as core to any organization seeking to maximize the value and ROI of emerging technologies.

Three cybersecurity technologies, IoT security, quantum security, and zero trust edge (ZTE)—form the foundation of the ten emerging technologies. "The inclusion of these security technologies underscores a crucial point: the future belongs to those with the foresight and will to invest in security now. As AI capabilities expand, so do the potential vulnerabilities that malicious actors can exploit," [writes](#) Brian Hopkins, vice president, emerging tech portfolio at Forrester.

Defending endpoints need to start with a **zero-trust framework** that enforces least privileged access and monitors everything happening on the network while also enabling micro-segmentation to reduce the blast radius of a potential cyberattack. Relying on legacy account and identity and access management (IAM) systems that assume trust across systems and within identity management data structures is a breach waiting to happen.

Forrester's top ten emerging technologies show a progression from already having significant use cases and adoption to newer technologies that are nascent in the market. All share a common characteristic with security, however. As technologies get more complex and remain unproven, security technologies need to step up the use of new technologies to counter threats. Quantum security and zero trust edge correspond with the direction of the ten emerging technologies. They reflect the need to keep improving security to protect the best ROI possible with new technologies on the horizon.



<https://www.xenvector.com>

Austin Texas

email : webreach@xenvector.com

XenVector Specializes in Engineering lead project delivery for Platform Engineering (AKS/Azure App Service), Generative AI (OPEN-AI / Azure AI) and Azure Security projects (Entra ID, Defender XDR, Sentinel SIEM) aimed at helping HealthCare and Manufacturing SME companies rapidly solve business problems using proven solution accelerators.