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TOP TECH TRENDS FOR 2024

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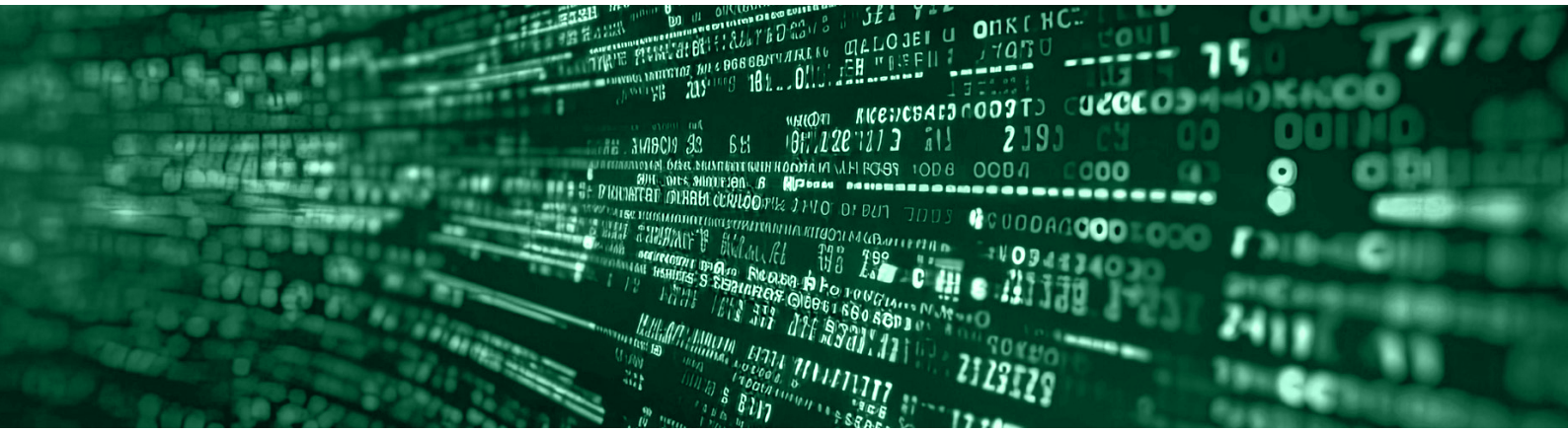
There is little doubt that 2024 will be a year in which AI dominates the tech scene. Since the advent of generative AI in 2022 with the launch of Open AIs generative large language model (LLM) Chat GPT, some of the largest companies in the world have locked horns in an arms race to develop even better models, including CHPT-4 integration with Microsoft Windows and Gemini AI from Google's Deep Mind, which can analyse and generate multimedia including audio, text and video. However, although AI is undoubtedly a dominant force throughout the tech sector, it is not the only tech trend to note. Other developing technologies are essential for maximising the potential advantages of AI while ensuring parallel improvements in infrastructure, governance and tooling needed for future resilience and growth.

Here, we examine some of the dominant trends for 2024 and the future, as also identified by Gartner 2024. These include:

- AI TRiSM
- Continuous Threat Exposure Management (CTEM)
- Sustainable Technology
- Platform Engineering
- AI Augmented Development
- Industry cloud platforms
- Intelligent Applications
- Democratised Generative AI

These trends will profoundly affect the jobs market. There is a talent shortage across many of these sectors, while, as has often been noted, there will likely be job losses in readily automated sectors.



AI TRiSM

The applications of AI are far-reaching and impact many aspects of our working lives and leisure. Advocates of AI are already demonstrating many ways AI will improve our lives, yet there is no shortage of warning of the many dangers AI poses.

The primary concerns regarding AI relate to risk, trust, and security. The question is, how do we ensure the reliability and trustworthiness of AI? A potential answer is the AI Trust, Risk and Security Management (AI TRiSM) framework proposed by Gartner, which successfully supports innovation, develops trust, and increases value.

The AI TRiSM framework has three elements:

- AI Trust includes transparency and explicability, for instance, if and how the AI model achieved the targeted outcomes.
- AI Risk – the application of governance for managing AI risks, including development and process stages to guarantee the model integrity and compliance.
- AI Security Management – to ensure security at every stage of the process throughout the entire machine learning pipeline, including handling anomalies and vulnerabilities.

It is built on four pillars:

- Explainability/Model Monitoring - making AI decisions transparent and understandable by describing how models function, documenting their strengths and weaknesses, and examining potential biases.
- ModelOps covers managing AI models across their lifecycle, maintaining optimal performance and ethical standards.
- AI Application Security aims to protect models from cyber attacks.
- Privacy ensures data protection, focusing on individual privacy where sensitive data is prevalent.

Thus, AI TRiSM is pivotal in AI model deployment and management. Gartner claims that organisations deploying AI TRiSM will see an 80% improvement in decision-making accuracy.

Continuous Threat Exposure Management (CTEM)

Continuous Threat Exposure Management (CTEM) is an ongoing and proactive process to identify, assess, and mitigate cybersecurity threats and vulnerabilities systematically and continuously. CTEM aims to provide organisations with a real-time understanding of their security posture, enabling them to detect and respond to threats promptly.

The critical components of CTEM include:

- Vulnerability Assessment - Regularly scanning and identifying vulnerabilities in an organisation's systems, networks, and applications using automated tools to discover potential weaknesses that attackers could exploit.
- Threat Intelligence Integration - Incorporating threat intelligence feeds to stay informed about the latest cybersecurity threats, trends, and tactics malicious actors use.
- Risk Prioritisation - Analysing and prioritising identified vulnerabilities based on their severity and potential impact on the organisation.
- Continuous Monitoring - Implementing real-time monitoring solutions to detect and respond to security incidents as they occur. This involves tracking network activities, user behaviour, and system logs to identify anomalies or signs of a potential breach.
- Remediation and Patch Management - Developing and implementing strategies for addressing and mitigating identified vulnerabilities.
- Automation and Orchestration - Leveraging automation to streamline and accelerate security processes in scanning, analysing, and responding to threats more efficiently, reducing the time between detection and mitigation.
- Compliance Monitoring - Ensuring security practices align with regulatory requirements and industry standards.

With CTEM, organisations can move away from the traditional approach of periodic security assessments and instead establish a dynamic and adaptive security posture that responds to the evolving threat landscape. This approach is crucial in today's rapidly changing cybersecurity environment, where new vulnerabilities and threats emerge regularly. According to Gartner, CTEM can reduce security breaches by 66%.

Sustainable Technology

Sustainable technology within the framework of digital solutions for environmental, social, and governance (ESG) outcomes applies technological innovations to ecological challenges, promoting social equity and upholding governance principles. It aims to support long-term ecological balance and human rights by integrating digital solutions into various aspects of business and society. Sustainable technology can be conceptualised within this framework by:

Environment

- Renewable Energy Solutions - Implementing digital technologies to enhance the efficiency and adoption of renewable energy sources such as solar, wind, and hydropower
- Smart Grids - Utilising digital tools to create intelligent energy distribution systems
- IoT (Internet of Things) for Environmental Monitoring -

Social

- Digital Inclusion - Ensuring equitable access to digital technologies
- Health Tech for Social Impact - Leveraging digital health solutions to improve healthcare accessibility, telemedicine, and health data management
- Education Technology - Implementing digital tools to enhance education and skill development

Governance

- Blockchain for Transparency
- Data Privacy and Security - Implementing robust cybersecurity measures to protect sensitive data
- Digital Governance Platforms - for efficient and transparent governance processes, enhancing public participation and facilitating data-driven decision-making.

Human Rights

- Ethical AI and Algorithms - Ensuring that artificial intelligence and algorithms adhere to ethical principles, avoiding biases and discriminatory practices.
- Supply Chain Traceability

A comprehensive approach to sustainable technology involves the integration of these digital solutions across industries, fostering collaboration between businesses, governments, and communities.

Platform Engineering

Platform engineering involves creating and maintaining robust infrastructure and services that enable developers and teams within an organisation to build, deploy, and manage their applications efficiently. This approach emphasises the concept of internal platforms, each managed by a dedicated product team, to cater to the specific needs of its users. Critical aspects of platform engineering include:

Self-Service Philosophy

- Empowering Development Teams - The core principle of self-service platforms is to empower development teams by providing them with tools and services to manage their application lifecycle independently.
- Automated Workflows - Designing platforms with computerised workflows for everyday tasks such as application deployment, scaling, and monitoring, reducing the manual effort required from development teams.

Layered Architecture

- Modular Design - Platforms are structured in layers, each serving a specific purpose. This allows flexibility, scalability, and the ability to update individual components without disrupting the entire system.
- Abstraction of Complexity - Each layer abstracts the complexity of underlying infrastructure and provides a simplified interface for users. Dedicated Product Teams

Interface with Tools and Processes

- Integration with CI/CD Pipelines - Seamless integration with continuous integration and continuous deployment (CI/CD) pipelines, ensuring that applications can be quickly built, tested, and deployed on the platform.
- Monitoring and Logging Integration - Built-in support for monitoring and logging tools to provide visibility into the performance and health of applications running on the platform
- Scalability and Elasticity - Platforms scale horizontally and elastically to accommodate varying workloads and resource demands

User-Centric Approach

- User Experience (UX) Design - Prioritising user experience in platform design, ensuring that developers and teams find it intuitive to use the provided tools and services.
- Documentation and Training - Offering comprehensive documentation and training resources to help users understand the capabilities and best practices associated with the platform.

By adopting platform engineering with self-service internal platforms, organisations can accelerate the development process, improve collaboration between development and operations teams, and foster innovation by allowing teams to focus on building features rather than managing infrastructure. This approach aligns with the principles of DevOps and supports the overall agility and efficiency of the organisation.

According to Gartner, 80% of software engineering teams will be platform-based.

AI Augmented Development

AI-augmented development involves the integration of AI technologies, including generative AI and machine learning, to assist and enhance various aspects of the software development lifecycle. The goal is to improve software engineering processes' efficiency, speed, and quality by leveraging AI capabilities. Some key elements include:

- Code Generation - Generative AI can automatically generate code snippets or even entire functions based on high-level specifications provided by developers. This accelerates the coding process and reduces the manual effort required for routine or boilerplate code.
- Natural Language Processing (NLP) - AI models with NLP capabilities can understand and interpret natural language descriptions. This enables developers to express their intentions in a more human-readable format, translatable into functional code.
- Automated Testing - ML algorithms can create intelligent test automation tools that learn from historical testing data.
- Predictive analytics - ML models can predict potential code areas prone to defects, helping developers focus their testing efforts on critical sections of the application.
- Automated Code Review - AI tools can analyse code for adherence to coding standards, best practices, and potential vulnerabilities.

Other capabilities include performance optimisation, project planning and resource allocation, automated task assignment, continuous integration and deployment, release management, user interface design, and more.

AI-augmented development is an evolving field that promises to make software development more efficient, collaborative, and accessible.

According to Gartner, 75% of software engineers will use AI coding assistants by 2028.

Industry cloud platforms

Industry cloud platforms are specialised cloud computing solutions designed to address particular industries' specific needs and challenges. These platforms go beyond generic cloud services by integrating industry-specific Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) components into a comprehensive offering with composable capabilities. Key features of this approach include:

- Industry Focus - Industry cloud platforms are built with a deep understanding of the unique requirements and regulations of specific sectors such as healthcare, finance, manufacturing, or retail
- Pre-configured SaaS applications, PaaS tools, and IaaS resources are tailored to the needs of the industry, reducing the complexity of deployment and customisation.
- These platforms are designed with a modular, composable architecture, allowing organisations to select and integrate specific services based on their unique requirements.
- Users can compose their applications and workflows by combining and configuring different components, creating a flexible and customised solution.
- The platforms seamlessly integrate SaaS applications, PaaS tools, and underlying infrastructure. This ensures that data flows smoothly across various components, enhancing interoperability.
- Platforms often include tools and services for handling industry-specific data types, such as patient health records or financial transactions, while ensuring compliance with regulations

Industry cloud platforms offer many advantages over legacy methods. For instance, they deeply understand the specific challenges, processes, and regulations within a particular sector, which is reflected in the platform's design and features. Seamless integration, flexible scaling, and the Pay-as-You-Go model maximise efficiency; additionally, platforms are designed with industry-specific security measures and compliance features, helping organisations meet regulatory requirements

According to Gartner, by 2027, over half of enterprises will use this technology.

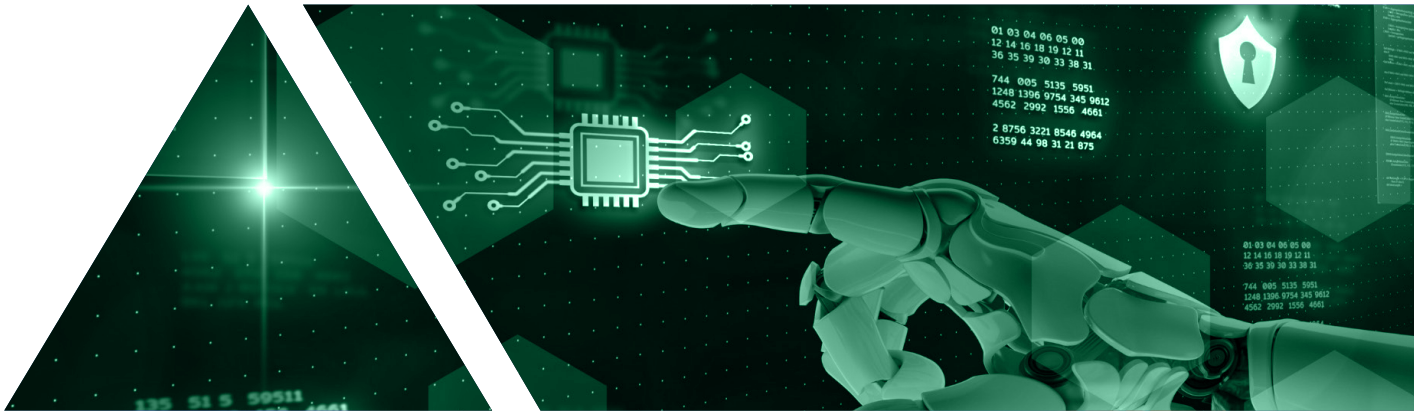
Intelligent Applications

Intelligent applications leverage AI and other advanced technologies to enhance functionality, learning capabilities, and automation. These applications analyse data, adapt to user behaviour, and make informed decisions without explicit programming. In terms of their nuts and bolts:

- Data Collection - Intelligent applications gather and process large volumes of data from various sources, including user interactions, historical records, and real-time inputs.
- Feature Extraction - Relevant features are extracted from the data to build a comprehensive understanding of the context and patterns.
- Machine learning algorithms are trained on historical data to recognise patterns, relationships, and trends. Intelligent applications often use models that can adapt and learn continuously, improving their accuracy over time as more data becomes available.
- User inputs and continuous user feedback refine models and improve the application's ability to understand and respond to user needs.
- Applications can make informed decisions, predictions, or recommendations based on the analysis of data and learned patterns.
- Such applications often incorporate NLP and computer vision for communication and object recognition.

Thus, intelligent applications can enhance and personalise user experience, understand and respond to user context, and improve the relevance of recommendations and interactions. Intelligent applications are a pivotal part of the evolving technology landscape, contributing to the digital transformation of various industries by leveraging AI and data-driven insights to deliver smarter, more efficient solutions.

According to Gartner, by 2026, a third of new apps will be AI-driven.



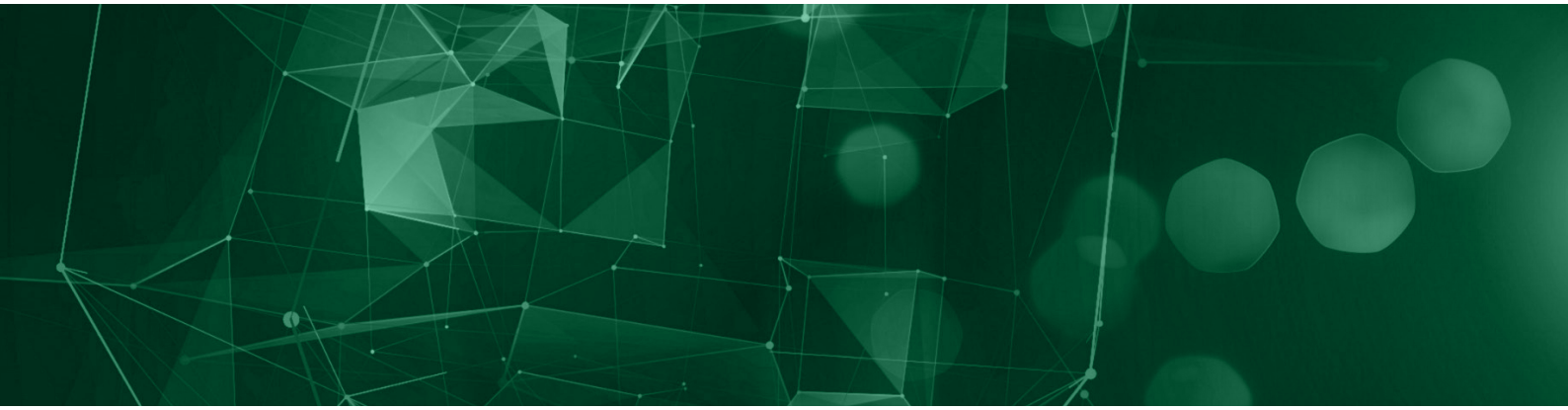
Democratised Generative AI

Democratised Generative AI involves the broad accessibility and usage of generative AI tools and technologies across various users within an organisation and across multiple industries. Thus, the power and benefits of generative AI are distributed widely, making these advanced capabilities available to a larger and more diverse audience. Key features include:

- Widespread availability makes generative AI tools accessible to a broad audience, including individuals, small businesses, and organisations with varying technical expertise.
- Intuitive Tools - The tools associated with Democratized Generative AI are designed with user-friendly interfaces, minimising the need for advanced technical skills to use and understand the technology.
- Democratised Generative AI platforms often incorporate no-code or low-code approaches, allowing users to harness the power of AI without extensive programming knowledge.
- Democratised Generative AI encourages collaboration and knowledge sharing within a community of users, fostering a collective understanding and development of AI applications.
- Some Democratized Generative AI efforts involve open-source initiatives, allowing users to contribute to improving and expanding AI tools.

Democratised Generative AI holds the potential to unlock new possibilities, foster creativity, and democratise the benefits of AI technologies across various domains. By making these tools accessible and user-friendly, it encourages a broader audience to participate in and contribute to the advancement of generative AI applications.

According to Gartner, most enterprises will have used generative AI by 2026.



Finally

From the trends we have analysed, AI and related technologies are undoubtedly on a path to transform industry significantly across multiple domains by introducing innovative capabilities, improving efficiency, and enabling new solutions. Automated creativity, generative design, process and supply chain optimisation, finance, customer service, cyber security, HR, environmental monitoring, education and healthcare are just some sectors that will feel its impact. While timelines are difficult to predict, experts agree that many changes will occur in the next 36 months.

The effect on jobs will be profound. The shortage of AI expertise is manifested in enhanced opportunities and rewards for the top talent in these fields. At the same time, technology will replace many jobs that can be automated.

Author info

Dr. Monika Becker, a seasoned Executive Search Consultant since 2001, specialises in filling key roles for the IT Industry, focusing on AI & Analytics, ERP, and Cybersecurity. Her expertise spans C-Level, Sales & Marketing, Product, and Finance & HR.

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