IDC

FEBRUARY 2024

REGION FOCUS: EUROPE, THE MIDDLE EAST & AFRICA

CIO Playbook 2024

It's all About Smarter AI

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Executive Summary

As businesses look ahead to 2024, a notable wave of interest, planning, and investment is evident regarding the implementation of artificial intelligence (AI) across organizations in Europe, the Middle East, and Africa (EMEA). This shift reflects organizations' recognition of AI's potential to enhance efficiency and competitiveness.

This eBook draws insights from custom research commissioned by Lenovo, which surveyed 600 IT and business decision-makers (ITBDMs) from select organizations across EMEA. The research offers insights into prevailing attitudes and approaches toward AI adoption in EMEA, as well as business and IT investment priorities, key challenges, and spending imperatives to accelerate their digital business agenda in 2024.

The following pages summarize the key insights and takeaways for CIOs to consider in 2024.

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Executive Summary

CIO Strategic Imperatives (1/2)

Here are four top-level key insights observed from IDC's research of 600 IT and business decision makers (ITBDMs):

Research results	Key insights

1 — **40%** of business leaders see AI as a game changer.

Game changer · Distraction · Hygiene factor

10% · 40% · 50%

Delivering on the AI promise
CIOs and ITDMs are enthusiastically embracing emerging AI technologies such as generative AI (GenAI). However, they face a significant challenge in delivering on the promise of technology while ensuring it delivers business value in line with broader strategy and policy.

2 — Spending on AI by enterprises in Europe will grow by **61%** YoY in 2024.

61%

2023 · 2024

Multiple areas of AI impact
AI promises to enable significant improvement across sophisticated, specific, novel, and highly generic processes. For organizations in certain markets and industry sectors, AI-led innovation will be market-defining. In contrast, in others, AI will be a technology that organizations will need to embrace to stay competitive — whether they want to or not.

3 — **45%** of organizations say they lack the needed support from IT to deploy AI successfully.

45%

Multi-faceted AI
AI implementation is far from "one size fits all." Many AI use cases can be implemented via traditional software consumption models, but others require significant customization or extensive training — which is significantly more challenging. Organizations looking to maximize AI value must embrace multiple approaches — each of which brings unique skills, strategies, infrastructure, data, and software tooling requirements.

4 — **38%** of EMEA organizations say adapting to changing regulations and compliance requirements is a top challenge for 2024.

38% · 32% · 16%

EMEA · NA · AP

Regulatory compliance for AI
EMEA differs from other regions because national legislation activity and industry regulation are more prevalent than in other global regions. There's a push to make all industries and technologies more sustainable through regulation, and AI is no different.

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eBook, CIO Playbook 2024: It's all About Smarter AI, February 2024, IDC Doc#EUR242470IB

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Executive Summary

CIO Strategic Imperatives (2/2)

IDC's four top-level key insights align with four strategic imperatives for CIOs that will help EMEA organizations gain a competitive edge with AI in 2024.

Imperatives for CIOs in 2024

1

Delivering on the AI promise

Develop a **top-down AI strategy** that includes how the business will address and implement **GenAI** alongside other AI investments. Be prepared to **reconceptualize entire domains or processes** instead of focusing explorations purely on individual use cases.

2

Multiple areas of AI impact

Don't hold back from **empowering teams within the business** to take responsibility for AI and data science activities. Instead of centralizing AI work to a single team, one step removed from business problems and processes and only capable of producing proofs of concept, work to distribute and grow AI capabilities throughout the organization.

3

Multi-faceted AI

Invest selectively and strategically in core enabling technologies, such as targeted computing infrastructure and AI software platforms, that can be utilized across the organization in a scalable and efficient manner. Embrace the need to pursue multiple implementation approaches, depending on the AI use case.

4

Regulatory compliance for AI

Develop a broad **AI governance framework** with associated policies and principles to ensure that any AI introduced or used by your organization is compliant, trustworthy, and safe.

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The Backdrop: Top Business Priorities and Challenges for CIOs in 2024

Top business PRIORITIES for CIOs in 2024	Top business CHALLENGES CIOs foresee in 2024

	Priorities		Challenges
#1	Higher customer experience & satisfaction	**#1**	Cybersecurity & data privacy
#2	Adopting emerging technologies (e.g., GenAI)	**#2**	Talent acquisition & retention
#3	Improved sustainability	**#3**	Digital transformation implementation
#4	Driving digital business innovation	**#4**	Evolving regulatory landscape
#5	Increased business agility & responsiveness	**#5**	Enhancing customer experience

AI is front and center in organizations' 2024 agendas across EMEA, but AI interest does not exist in a vacuum: organizations are compelled to explore and implement AI technologies and solutions because they serve broader business priorities and help organizations deal with key business challenges.

EMEA Organizations Are Keen to Embrace AI

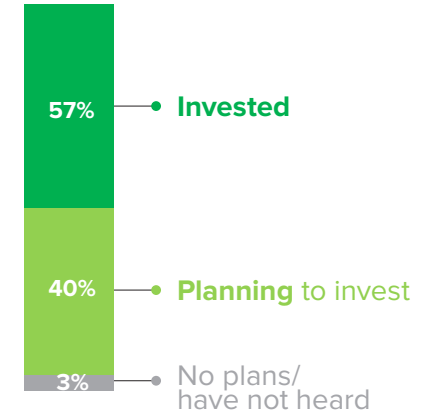| Top technology investment priorities in 2024	Importance of AI on organizations	GenAI investment

Top technology investment priorities are enabled by or directly related to AI

#1 Better cyber resiliency to address ransomware and malware attacks

#2 Modernizing infrastructure for microservices-oriented architecture

#3 Automating digital infrastructure management & security

#4 Unified management control plane for all digital infrastructure resources

#5 High-performance compute platforms for AI/ML workloads

40% — **Game changer** Will transform how we run our business.

50% — **Hygiene factor** It is something we need to do to keep up with the competition.

10% — **Distraction** It is not something we need to be distracted by.

57% — **Invested**

40% — **Planning** to invest

3% — No plans/ have not heard

Key use cases for AI are prompting companies to prioritize adopting AI technology and, along with it, the modernization of the IT stack.

AI use cases requiring a degree of customization are often the most transformative for organizations to implement. More generic use cases can result in substantial operational improvements but typically offer competitors similar advantages. Consequently, enthusiasm for AI investments varies across industries. For 40% of organizations involved in IDC's EMEA research, AI capabilities are already defining the competitive landscape (AI is flagged as a "game-changer"). In comparison, another 50% of EMEA organizations see AI investment as crucial for maintaining market position (AI is flagged as a "hygiene factor").

GenAI has seen significant adoption among European organizations, with nearly 60% of EMEA survey respondents having already invested in the technology. Much of AI-related tech spending is focused on enhancing data quality and delivery or establishing the groundwork for introducing GenAI.

CIOs understand that organizations with mature data strategies and management capabilities have a competitive edge when leveraging AI. Many organizations have previously struggled with rationalizing data technologies, resulting in inertia in some sectors and complex legacies of data systems.

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AI Spending Will Rise Rapidly, With GenAI the Big Beneficiary

Spending on AI technologies
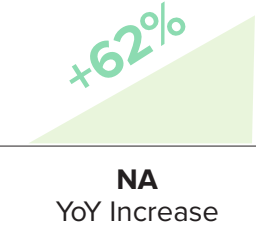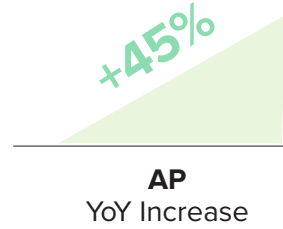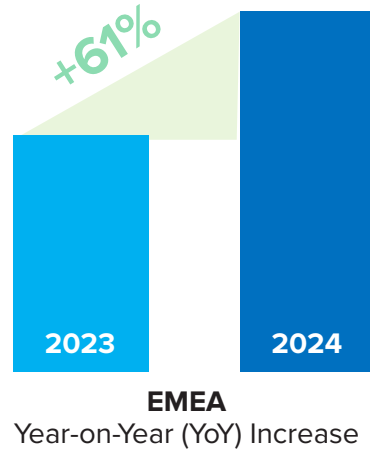
Distribution of planned AI spending

+61%

+45%

+62%

2023 **2024**

AP
YoY Increase

NA
YoY Increase

EMEA
Year-on-Year (YoY) Increase

25.0%	Robotics
24.7%	GenAI
25.4%	Deep learning for interpretation
24.9%	Machine learning (ML)
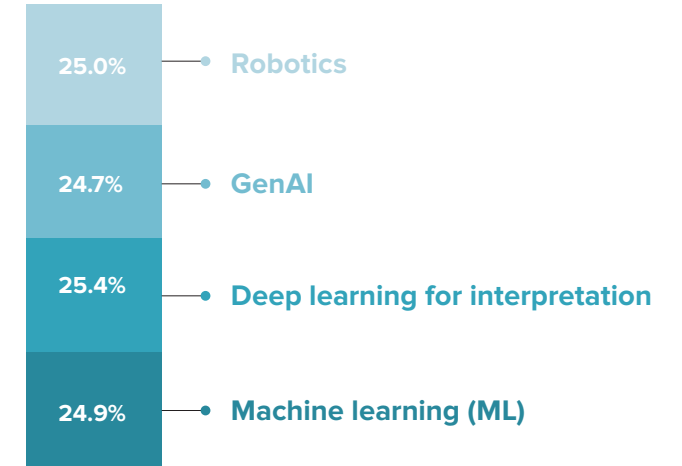
CIOs and senior IT leaders in EMEA indicate that they will significantly increase AI technology spending in 2024. According to IDC's survey, there is a 61% rise in planned AI spending for 2024 compared to 2023. This trend is similar to organizations in North America (NA) but shows substantially higher growth than organizations in Asia/Pacific (AP).

GenAI will primarily benefit from this increased spending. This AI spending category, which received a much smaller share of investment and attention until the end of 2022, is now experiencing a surge. Despite the rise in GenAI investment, funding for other AI categories also appears to be increasing. Interest in GenAI has boosted planned investment across all AI categories.

According to a separate IDC research*, organizations are allocating increased budgets to AI projects by shifting funds from digital transformation and application modernization projects, with a smaller group looking to individual business units for additional funding.

*Source: IDC GenAI ARC Survey, IDC, August, 2023

AI Implementations Leverage Infrastructure Diversity, and Also Have Potential to Drive Modernization

Preference for AI workload deployment

	AP	NA	EMEA
Public cloud	31%	21%	17%
Hybrid cloud (public/private)	28%	41%	48%
Private cloud	28%	29%	24%
End-user/endpoint	13%	9%	11%
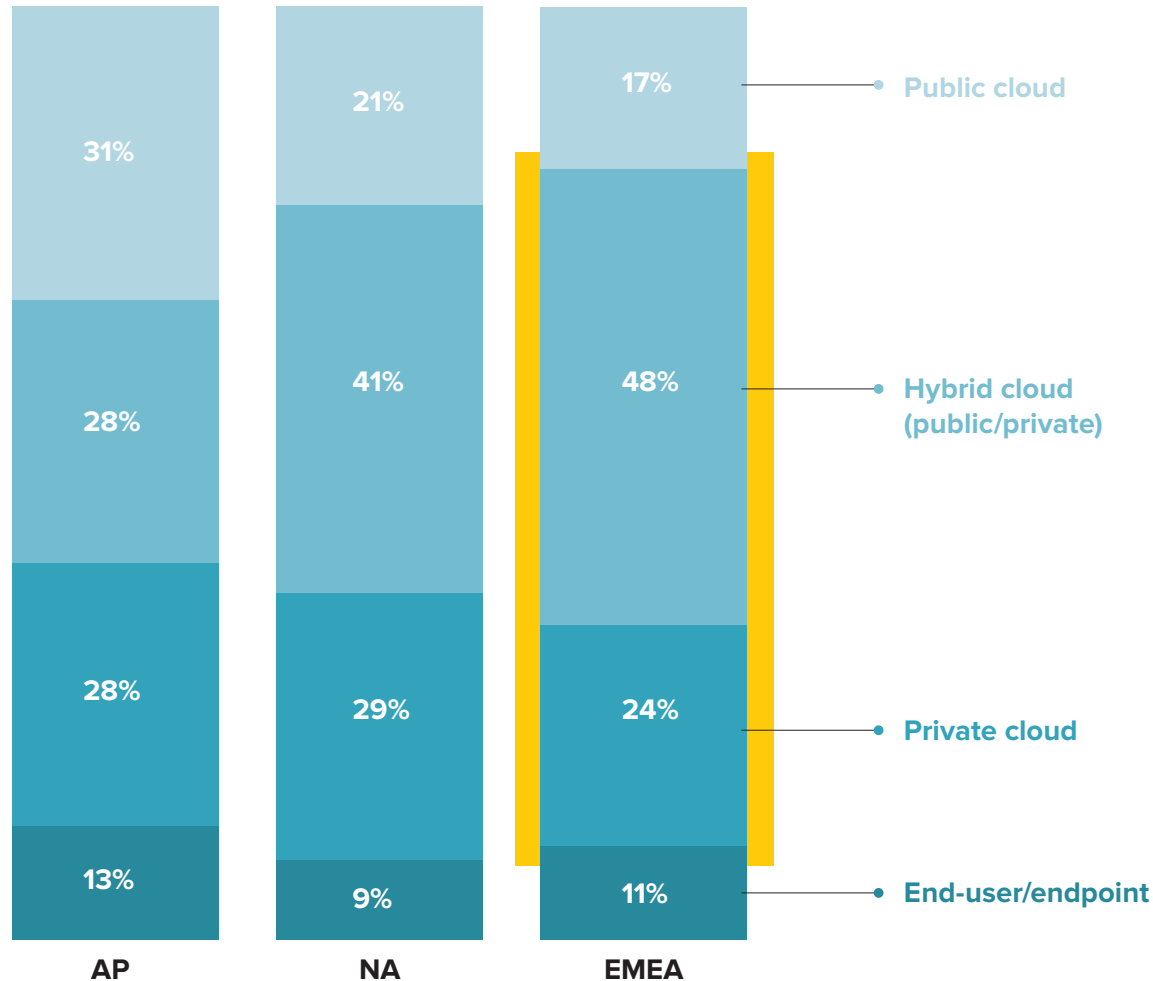
Organizations in EMEA plan to implement AI strategies favoring hybrid or private cloud environments, with public cloud options hosting a smaller proportion of workloads compared to other regions, such as NA. This tendency is mainly due to stringent regulations in Europe posing challenges to public cloud deployments from a data privacy compliance standpoint.

These organizations have also indicated that they will leverage substantially larger volumes of on-premises technology for AI systems. This could be through internally managed on-premises infrastructure or on-premises as a service system, alleviating some infrastructure management burdens while providing access to cloud vendors' software services.

In examining the link between AI adoption and technology workloads, it is essential to look beyond the location of AI workloads and consider how AI capabilities can affect technology workloads more broadly.

Specifically, the introduction of GenAI brings the promise of using AI-powered tools to accelerate code translation and application modernization efforts. This enables organizations to expedite their roadmaps to retire, re-platform, or transform legacy systems.

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Edge AI Will Play a Larger Role in EMEA

Edge computing spending in 2023 and 2024

+38%

| 2023 | 2024 |

EMEA
YoY Increase

+39%

| 2023 | 2024 |

NA
YoY Increase

+25%

| 2023 | 2024 |
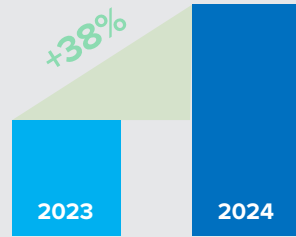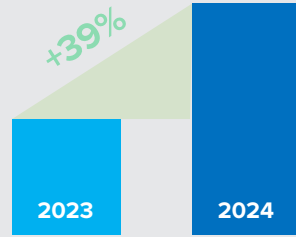
AP
YoY Increase

Edge use cases most impacted by AI

1 Industrial automation & manufacturing

2 Retail and customer experience

3 Real-time analytics & insights

Edge technology is now sufficiently capable to enable AI models to run locally on edge devices, facilitating a range of new use cases, primarily of interest to organizations in industries such as retail and manufacturing. Edge devices generate significant volumes of data in operation, often capturing and recording events and signals in real-time. Organizations can either process this data at the edge or transfer it to other infrastructure, supporting a host of new use cases.

Centralized architectures can introduce major latency issues when inferencing on edge-created data. Flexible combinations of cloud and edge platforms will be increasingly deployed to meet the needs of operations-focused industry use cases.

AI from Pocket to Cloud to Datacenter

Edge/Endpoints	Edge Infrastructure	Communications	Primary Client	Datacenter
Automotive	Heavy Edge	Network Infrastructure	PC	Servers
Enterprise IoT				
Industrial IoT	Light Edge	Wireless Infrastructure	Phones	Storage Systems
Consumer IoT			Tablets	

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AI Is Reshaping DevOps, SecOps, and DataOps

Parts of DevOps transformed by AI	Top focus areas for AI deployment in security/trust	AI usage in DataOps
1 Intelligent infrastructure resource utilization & management	**1** Data discovery & identification	**1** Data governance framework & processes
2 Troubleshooting errors & anomalies improving the DevOps credibility	**2** Curated recovery	**2** Data access & data quality through self-service
3 Shorter time for testing & QA	**3** Anomaly detection	**3** Metadata management

The use of AI is already transforming the role of developers, as IDC's survey results show. GenAI will push this further with:

- Code generation
- Code explanation
- Code documentation
- Automation of testing & quality control
- Code language translation

This shift will require time to absorb, understand, and accept. Nevertheless, the ultimate impact will be substantial, giving rise to new roles centered on prompt engineering, fine-tuning, and enhancing model outputs through the incorporation of third-party data feeds.

The use of AI in the security and trust domain is already widespread: for example, nearly 70% of EMEA respondents to IDC's survey said they have already deployed or, or are deploying AI to improve data discovery and identification.

AI embedded within security vendors' offerings will deliver significant improvements and experiences. The design and development requirements in this field are highly specialized and demand access to significant data volumes, a resource typically available only to the largest security vendors.

The shift from static to dynamic security is the driving force behind this adoption. The necessity for continuous situational awareness in the face of thousands of risks per second makes it an industry concern best addressed by specialized vendors.

Robust DataOps capabilities are relied upon by AI, but AI can also enhance DataOps processes and activities. EMEA organizations are making significant progress on this journey. Still, there is more work to be done: although 82% of EMEA survey respondents are already using AI to enhance DataOps, only 30% of EMEA organizations have implemented an enterprise-wide DataOps strategy — a key foundational element for any comprehensive enterprise AI implementation effort.

With a strong DataOps foundation in place, organizations must implement a continuous process of 'classify at ingestion' to ensure that all data sources can be properly indexed and leveraged by AI models in a timely fashion.

Data Platforms, Quality and Trust are Key Challenges for AI in 2024

Top TECHNOLOGY challenges when adopting GenAI

40%	37%	36%	35%
Model capability limitations (in terms of required training data and token limit)	Monitoring for potential misuse and AI hallucinations	Reliable data platform	High dependence on third-party
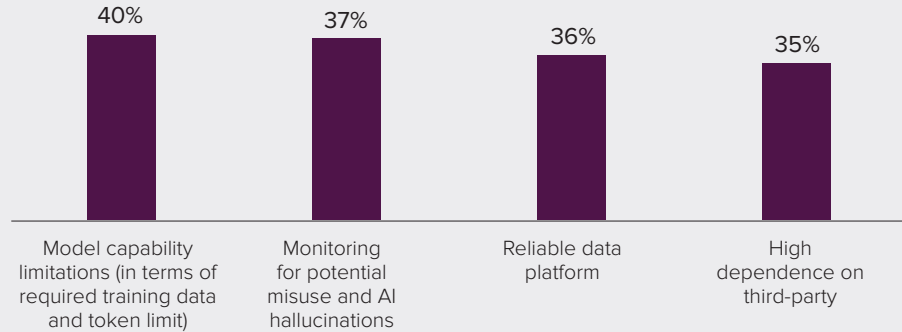
Training a GenAI model demands significant computational power and data resources. Moreover, even trained models may have limitations relating to how much data they can be provided in operation, impacting practical applications. Investments in GenAI technology can be substantial and carry considerable risks of failure.

GenAI models are known for commonly producing "hallucinations", which are responses that seem plausible but are factually incorrect. Even the most advanced GenAI models are prone to such errors, undermining confidence in the technology and leading organizations to question the viability of deploying it for external use.

Existing data platforms in many organizations fall short of meeting the demands for scalable implementation of AI use cases.

Confronted with these hurdles and a shortage of skilled professionals in GenAI development, organizations often seek third-party support for their initiatives, leading to a dependency on external parties for GenAI development.

Top BUSINESS challenges when deploying AI in general

47%	45%	44%	43%
Employees are concerned that AI will threaten their jobs	Lack needed support from IT for successful automation deployment	Challenge in making a business case for AI tech	Difficulty keeping up with AI tech requirements
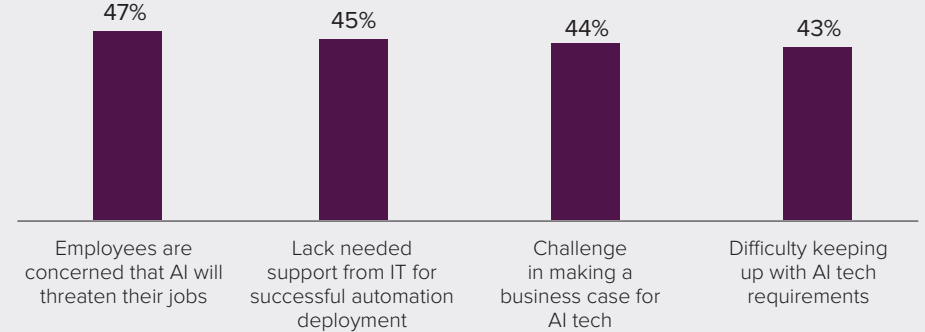
Responses to the IDC survey in EMEA underscore the need to establish a culture of trust in AI:

Impact on employment – A common challenge of AI deployment in EMEA is the fear of job displacement. Implementing AI in business processes can lead to significant changes to tasks and working patterns, causing unease among employees.

Information technology challenges – IT is often cited as a major barrier to adopting AI. Business leaders are eager to innovate but face resistance from IT teams that may lack familiarity with AI technologies. Additionally, the rapidly evolving nature of AI tools and technologies can further complicate coordination with IT departments.

Developing AI use cases – Organizations also require assistance building compelling business cases for AI technologies. While capabilities such as image recognition are theoretically advantageous, finding practical and meaningful business applications can be challenging for many organizations.

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GenAI Skill Requirements Amplify AI Talent Development Challenges

Organizations across regions recognize the pivotal role employees will play in making the most out of their GenAI investments. The majority are investing in and developing employee skill sets to enable them to thrive in this new environment.
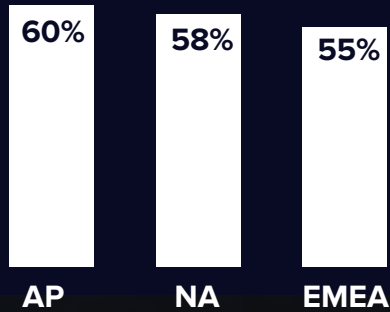
60% AP
58% NA
55% EMEA

Preparation for GenAI	Recruitment difficulty	Training for GenAI implementation

1 Employee skill development

2 Inbuilding high computing capacity

3 End-to-end network security

Respondents selected extremely or moderately difficult

30% For non-AI positions

56% For AI-related positions

1 Communication & collaboration skills

2 Strong foundation in statistics & probability

3 Programming languages & frameworks

Enterprises in EMEA are making strategic investments to prepare for the adoption of GenAI systems. Organizations are investing in computing capacity to manage GenAI's substantial workload requirements. They are upgrading their end-to-end network security to defend against misuse of GenAI technologies and to protect their systems from vulnerabilities.

A top priority is finding talent with a deep understanding of AI technologies, including the transformer-based neural network architectures at the heart of new GenAI innovations. As GenAI is an emerging field yet to be fully grasped by many data scientists, the intense competition for skilled professionals is driving up costs. IDC survey respondents reflect this: whereas 30% report that recruiting for non-AI roles is either moderately or extremely difficult, nearly twice that number (56%) say recruiting for AI-related positions is either moderately or extremely difficult.

To address the fierce competition for AI talent, companies are not solely relying on external hiring. They have initiated training programs to upskill existing employees, facilitating smoother AI implementation processes. These programs aim to broadly educate employees on leveraging AI technologies and emphasize enhancing technical skills in statistics, probability, and programming.

Guidance: Understand GenAI's Position As Part of a Broader AI Landscape

Survey results show that slightly less than 25% of AI investment in 2024 will go toward GenAI. That said, there needs to be more management clarity about AI in general and GenAI in particular.

The table below explains the **differences** in **technologies**, their **business impacts**, and their potential **economic** implications:

	Characteristics of **PREDICTIVE** & **INTERPRETIVE AI**	Characteristics of **GENERATIVE AI**
TECHNOLOGIES	▪ **Outputs predictions**/classifications, learning from large data sets about past actions' consequences ▪ **Models** have **hundreds - thousands** of parameters ▪ Requires thousands - millions of data points	▪ **Outputs** large complex **content** exhibiting characteristics similar to training data (e.g., text, audio, video, images, code) ▪ **Models** have **billions - trillions** of parameters ▪ Requires billions **-** trillions of data points
BUSINESS IMPACTS	▪ **Highly accurate** outputs Low transparency (white/grey box) ▪ **Examples**: Credit scoring, fault assessment ▪ **Challenges**: Data quality, availability, timeliness, model explainability, downsides, bias, fairness	▪ **Broad** and **sophisticated** outputs. Very low transparency (black box) ▪ **Examples**: knowledge management, marketing, code generation. product design ▪ **Challenges**: Lack of data, explainability, impacts on process outcomes, lack of trust, iP, skills, employment
ECONOMIC IMPACTS	▪ Makes **predictions easy** and **cost-effective** ▪ Decreases value of human substitutes for prediction (e.g., sight, experience) ▪ Increases value of complements for prediction (e.g., judgement)	▪ Makes **content generation** easy and **cost-effective** ▪ Decreases value of human substitutes for content generation (e.g., language, imagination) ▪ Increases value of complements for content generation (e.g., trust, explainability, and real creativity)

Guidance: Culture Is Key In Delivering AI Value

What is most important to building an AI friendly culture?

1 Building a culture of using data across every decision made

2 Collaboration between business functions/units

3 Tools and technologies to support AI

4 Strong AI leadership

35% AP
21% NA
16% EMEA

Over a third of AP organizations surveyed emphasized the importance of a top-down approach with strong AI leadership for fostering an AI-friendly culture. In contrast, significantly fewer organizations in NA (21%) and EMEA (16%) shared this perspective, highlighting distinct approaches to creating AI-friendly cultures across regions.

When considering the key elements of building an AI-friendly culture, EMEA survey respondents ranked the need to foster collaboration across business teams and promote data-driven decision-making above tools and technologies in terms of importance.

In EMEA, a successful and safe AI deployment necessitates a comprehensive approach that begins with culture and includes a blend of technical and organizational capabilities, extending into and beyond the technology stack.

The opaque nature of many AI models underscores the need for enterprises to establish trust in their use of AI and the data that feeds AI systems. CIOs should focus on fostering cross-departmental collaboration and investing in AI capabilities that enhance model management and explainability.

Key Activities
- Responsible AI Policy
- Strategy & Roadmap
- Intelligence Architecture
- Reskilling & Training

Core Technologies
Business Impacts

INGEST / TRAIN / TUNE / INFER / RUN

DATA: Text, Code, Audio, Video, Structures, Images

Generative Foundation Models

Industry use cases
Business function use cases
Productivity use cases

External / Internal

Infrastructure & Platforms

Trust & Oversight

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Guidance: With GenAI, Adopt Productivity Use Cases First

IDC's survey results show that EMEA organizations are most interested in GenAI use cases focused on automation, workforce management, and cybersecurity. Organizations are exploring three distinct categories of GenAI use cases, and each category aligns with a particular approach to implementation.

		Business Impact	Adoption Drivers	Consequences	Use Case Examples
In the immediate term, most organizations can readily adopt **productivity use cases** to reduce costs and enhance the focus of expensive knowledge workers, particularly within IT and the front office. These often involve low-cost, low-risk, off-the-shelf solutions for areas such as business intelligence, software development, and marketing.	**Productivity use cases**	▪ Increase task productivity ▪ Drives operational efficiencies	▪ Limited skills ▪ Limited budget ▪ Lower risk appetite ▪ Limited amount of data	▪ Cost savings & increased productivity ▪ Quick time to value ▪ Low control of model governance, security, privacy & data	▪ Summarizing documents ▪ Generating code ▪ Generating promotional content
Over the medium term, organizations should explore **functional use cases** to drive improvement in business functions such as HR, marketing, legal, engineering, and design. While these create more value, they require a greater upfront investment in IT platforms, data, and business process redesign.	**Functional use cases**	▪ Increase functional effectiveness ▪ Contextualized experiences	▪ Institutional data ▪ Skills and budgets are available ▪ Longer time to value ▪ Some risk appetite	▪ Drives operational efficiencies & greater business focus ▪ Moderate control over model governance, security & privacy	▪ Engineering knowledge management ▪ Legal document management ▪ Generative product design and prototyping
Several larger enterprises and consortia are already investing in building advanced **industry-specific use cases** using proprietary data to create innovative products and services and gain a competitive edge, but this approach brings higher risks, complexity, and substantial investment requirements.	**Industry-specific use cases**	▪ Enable new digital business models, products and services ▪ Industry specific competitive moats	▪ Quality and quantity institutional data ▪ Ample skills and budget ▪ Longer time to value	▪ Potential competitive differentiation ▪ Complete control over model governance	▪ Generative drug discovery in life science ▪ Generative material design for manufacturing

CIO Playbook 2024
Vertical insights

Overall

Vertical Insights Overview (1/2)

The survey showed a significant degree of agreement on AI investment interest across industries, but separate from that, industry responses vary quite widely. BFSI organizations, for example, show a strong interest in building their in-house AI systems, whereas Telco respondents were particularly likely to favor solutions with AI embedded.

Impressions of AI
■ Game changer　■ Hygiene factor　■ Distraction

	Manufacturing	Retail	BFSI	Telco	Government	Healthcare
Distraction	13%	15%	10%	4%	10%	14%
Hygiene factor	40%	51%	50%	74%	63%	42%
Game changer	47%	34%	40%	22%	27%	44%

GenAI investment status
■ Invested　■ Planning to invest　■ No planning / not considered

	Manufacturing	Retail	BFSI	Telco	Government	Healthcare
No planning / not considered	5%	2%	4%	4%	5%	
Planning to invest	43%	34%	29%	31%	45%	37%
Invested	52%	64%	67%	65%	50%	63%

AI adoption strategy
■ Build　■ Buy　■ Embedded

	Manufacturing	Retail	BFSI	Telco	Government	Healthcare
Embedded	21%	19%	24%	45%	24%	28%
Buy	28%	23%	9%	23%	36%	33%
Build	51%	58%	67%	32%	40%	39%

Difficulty recruiting AI-related positions
■ Respondent selected "Extremely/moderately difficult"

Manufacturing	Retail	BFSI	Telco	Government	Healthcare
55%	57%	40%	39%	59%	70%

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Overall

Vertical Insights Overview (2/2)

Survey results indicate a notable surge in edge computing investments across various industries in the coming year as EMEA organizations recognize the pivotal role that edge computing plays in harnessing the power of AI. BFSI, healthcare, and telco organizations are expected to see the highest increase in edge spending, while manufacturing, retail, and government organizations, which have already significantly invested in edge computing, are also expected to increase their spending by more than 20% in 2024. The top edge computing use cases most impacted by AI identified by organizations - including enhancing automation, improving customer experience, and enabling real-time analytics/insights - also underscore the diverse applications and transformative potential of AI-driven edge computing across industries.

Edge computing spending increase

Manufacturing	Retail	BFSI	Telco	Healthcare	Government
29%	34%	49%	60%	49%	29%
2023 / 2024	2023 / 2024	2023 / 2024	2023 / 2024	2023 / 2024	2023 / 2024
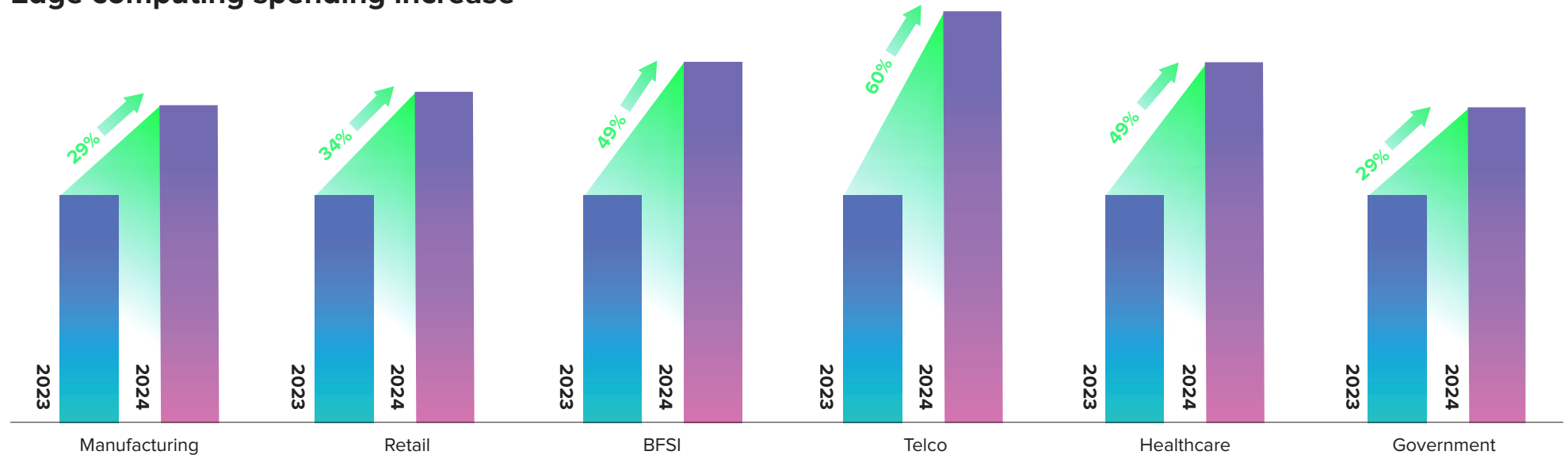
Industry Specific

Manufacturing Overview (1/2)

Manufacturing CIOs are particularly interested in improving customer experience and having an expected focus on cost optimization. Aligned with these priorities, manufacturing firms will lead with investments in intelligent automation and robotics technologies edge AI use cases. Much of the anticipated investment in AI by manufacturing firms will go towards high-performance computing platforms to lay a platform for using AI models.

Top **business priorities** in 2024

1 Higher customer experience & satisfaction

2 Cost optimization & savings

3 Emerging technologies (e.g., GenAI, etc.)

Top **tech investment priorities** in 2024

1 High-performance compute platforms for AI/ML workloads

2 Automating digital infrastructure management & security

3 Modernizing infrastructure for microservices-oriented architecture

Anticipated challenges in 2024

1 Business continuity & disaster recovery

2 Digital transformation

3 Evolving regulatory landscape

Impact of AI on organizations

Distraction 13%
Hygiene factor 40%
Game changer 47%
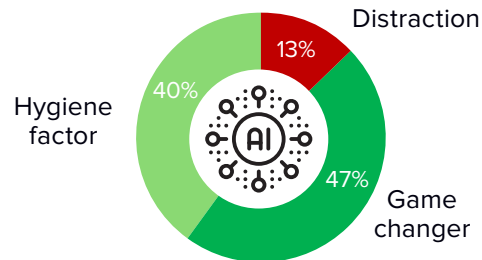
Top **tech/business areas** most **impacted by AI**

1 Intelligent automation & robotics

2 Automation & efficiency

3 Personalization & customer experience

Top **challenges** when **deploying AI**

1 Challenge in making business case for AI tech

2 Lack needed support from IT for successful automation deployment

3 Employees are concerned that AI will threaten their jobs

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Industry Specific

Manufacturing Overview (2/2)

Manufacturing firms often have complex, entrenched production processes, which can be expensive and challenging to change. As a result, it can often take a lot of work to solidify a clear business case for AI, which can justify the upheaval of existing processes and operations. GenAI is presently seen as a tool that can fuel improvements in employee productivity, which is unsurprising given the tightening labor market in EMEA. GenAI will also support organizations in improving their approach to business intelligence, helping them to better structure systems and more deeply understand their processes.

GenAI investment

5% — No plans/have not heard

43% — **Planning** to invest

52% — **Invested**

GenAI types of interest

1 Productivity (personal, developer (code generation) and data analysts)

2 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

3 Customer interaction management
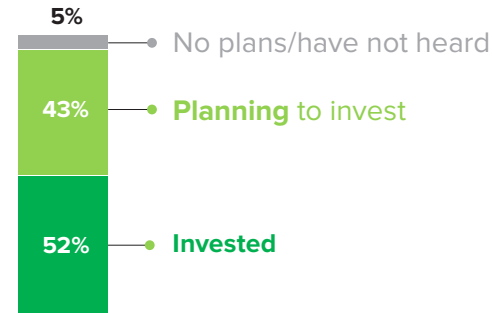
Preparation for GenAI

1 Higher customer experience & satisfaction

2 Cost optimization & savings

3 Emerging technologies (e.g., GenAI, etc.)

Top challenges when adopting GenAI

1 Reliable data platform

2 High dependence on third-party

3 Model capability limitations (in terms of training data required, token limit)

Featured use case
A leading automotive manufacturer has developed in-house AI tools to help supervisors manage factory schedules. The AI scheduler can analyze all key variables and provide suggested schedule changes within minutes of a request – saving the manufacturer significant time and money when plans and forecasts change.

Why Lenovo & NVIDIA

Industry Specific

Retail Overview (1/2)

Retail CIOs are particularly interested in exploring and employing emerging technologies and innovation, with associated technology investment priorities focused on application modernization and generative AI. Retail firms commonly struggle with legacy IT estates and technology processes, and leaders are clearly signaling a desire to reinvent. A focus on talent & workforce management implications of AI is no surprise, given the dispersed and fast-changing nature of many retail workforces.

Top **business priorities** in 2024

1 Emerging technologies (e.g., GenAI, etc.)

2 Driving digital business innovation

3 Employee productivity improvement

Top **tech investment priorities** in 2024

1 Modernizing Infrastructure for microservices-oriented architecture

2 GenAI implementation

3 Better cyber resiliency to address ransomware & malware attacks

Anticipated challenges in 2024

1 Digital transformation

2 Cybersecurity & data privacy

3 Customer experience
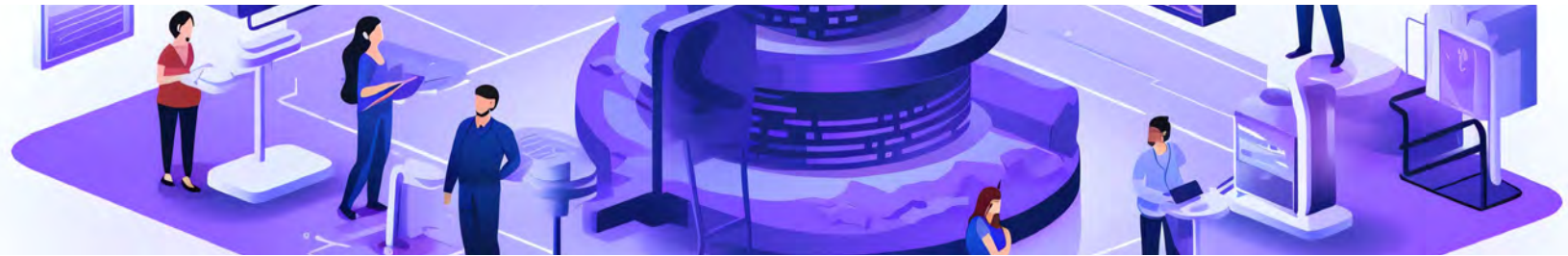
Impact of AI on organizations

Distraction 15%
Game changer 34%
Hygiene factor 51%
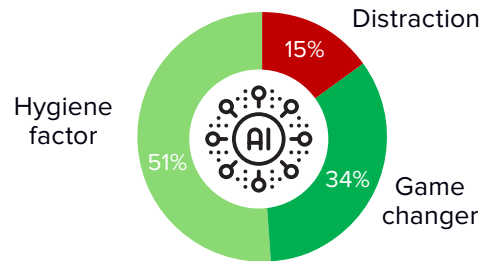
Top **tech/business areas** most **impacted by AI**

1 Talent & workforce management

2 Intelligent automation & robotics

3 Cybersecurity & threat detection

Top **challenges** when **deploying AI**

1 Employees are concerned that AI will threaten their jobs

2 Lack needed support from IT for successful automation deployment

3 Difficulty keeping up with AI tech requirements

Industry Specific

Retail Overview (2/2)

Retail CIOs clearly understand the need to work through employee change management when implementing AI and see that support from IT is critical. A strikingly high percentage of retail CIOs report investing in GenAI. Respondents reveal here that although the desire to modernize and embrace new technologies is strong, implementation can be very challenging in retail.

GenAI investment

2% — No plans/have not heard

34% — **Planning** to invest

64% — **Invested**

GenAI types of interest

1 Conversational AI

2 Productivity (personal, developer (code generation) and data analysts)

3 Design & writing assistants

Preparation for GenAI

1 Networking infrastructure

2 Inbuilding high computing capacity

3 Employee skill development

Top challenges when adopting GenAI

1 Monitoring for potential misuse & AI hallucinations

2 Reliable data platform

3 Model capability limitations (in terms of training data required, token limit)

Featured use case
A large multinational grocery retailer has developed an enhanced advice chatbot using GenAI-powered language processing to assist customers using its online grocery shopping channel. It has also used GenAI technologies to automatically review and improve the quality of product description sheets for its huge range of own-brand products.

Why Lenovo & NVIDIA

Why Lenovo & NVIDIA

Industry Specific

BFSI Overview (1/2)

Unsurprisingly, BFSI CIOs have a strong focus on regulatory compliance and innovation: balancing the needs of these competing priorities is at the core of the BFSI CIOs day-to-day. Understanding of the impacts of AI across automation agendas, customer experience delivery, and workforce management is a positive. AI adoption is already quite widespread in BFSI, explaining the comparatively low percentage of CIOs citing AI as a true "game changer" in 2024.

Top **business priorities** in 2024

1 Regulatory compliance

2 Driving digital business innovation

3 Increased business agility & responsiveness

Top **tech investment priorities** in 2024

1 Unified management control plane for all digital infrastructure resources

2 Better cyber resiliency to address ransomware & malware attacks

3 Modernizing Infrastructure for microservices-oriented architecture

Anticipated challenges in 2024

1 Customer experience

2 Data management & analytics

3 Cybersecurity & data privacy

Impact of AI on organizations

Distraction 10%
Hygiene factor 50%
Game changer 40%
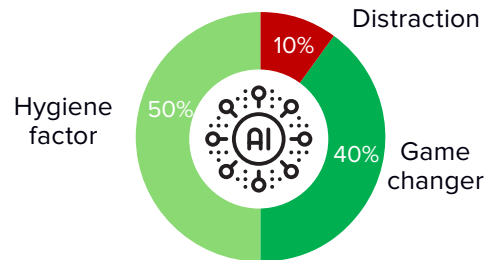
Top **tech/business areas** most **impacted by AI**

1 Intelligent automation & robotics

2 Personalization & customer experience

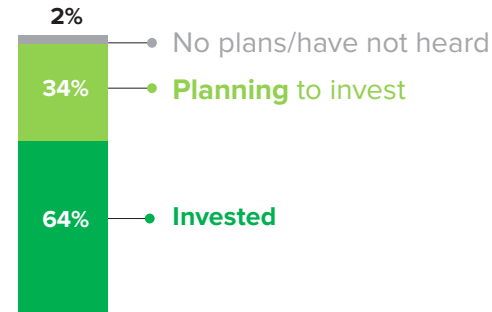3 Talent & workforce management

Top **challenges** when **deploying AI**

1 Employees are concerned that AI will threaten their jobs

2 Lack needed support from IT for successful automation deployment

3 Challenge in making business case for AI tech

Industry Specific

BFSI Overview (2/2)

BFSI CIOs demonstrate their industry's embrace of AI, with a high proportion of respondents having already invested in GenAI. The twin priorities of regulatory compliance and innovation — focusing on customer experience improvement — are reflected in BFSI organizations' interest in leveraging GenAI to improve business intelligence and drive automated conversations.

GenAI investment
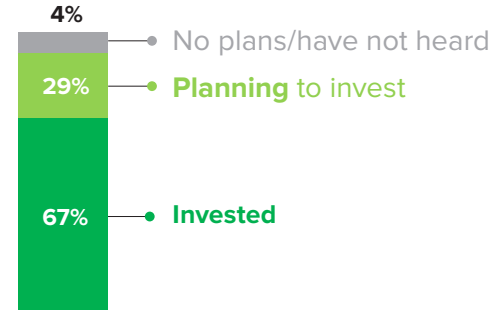
- **4%** No plans/have not heard
- **29%** **Planning** to invest
- **67%** **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Conversational AI

3 Productivity (personal, developer (code generation) and data analysts)

Preparation for GenAI

1 Employee skill development

2 Inbuilding high computing capacity

3 End-to-end network security

Top challenges when adopting GenAI

1 Reshaping workforces

2 Government regulations

3 Monitoring for potential misuse & AI hallucinations

Featured use case
A payment processing service provider is leveraging AI technology to improve the modeling of fraud risks using behavior analysis. The system allows card payment providers to minimize false positives when detecting fraud, reduce fraud losses, reduce operational costs, and improve the customer experience.

Why Lenovo & NVIDIA

Industry Specific

Telecommunications Overview (1/2)

Telecommunications businesses in EMEA see AI more as a hygiene factor (a necessary investment to keep up with competitors) than a game-changer. Telecommunications businesses are already heavily invested in data-specific technologies, and many have already explored many potential AI use cases. Edge technologies are already playing a large role and are set to expand further. Telco CIOs also clearly signal a need to unify and integrate infrastructure investments.

Top business priorities in 2024

1 Higher customer experience & satisfaction

2 Cost optimization & savings

3 Emerging technologies (e.g., GenAI, etc.)

Top tech investment priorities in 2024

1 Unified management control plane for all digital infrastructure resources

2 Modernizing Infrastructure for microservices-oriented architecture

3 GenAI implementation

Anticipated challenges in 2024

1 Digital transformation

2 Talent acquisition & retention

3 Evolving regulatory landscape

Impact of AI on organizations

Distraction 4%
Game changer 22%
Hygiene factor 74%
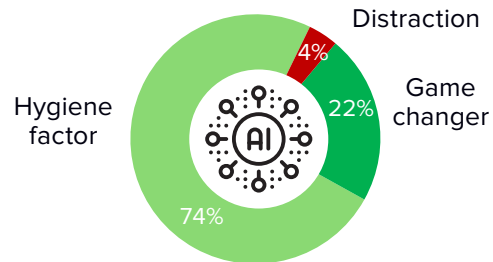
Top tech/business areas most impacted by AI

1 Talent & workforce management

2 Automation & efficiency

**3** Intelligent automation & robotics

Top challenges when deploying AI

1 Employees are concerned that AI will threaten their jobs

2 Lack needed support from IT for successful automation deployment

3 Lack of data structure and integrity

Industry Specific

Telecommunications Overview (2/2)

Approximately 65% of telecommunications businesses in EMEA have already invested in GenAI, and almost all the rest are close behind. Unsurprisingly, conversational AI is the most commonly-cited type of GenAI software being explored; improving the quality and cost of customer-facing interactions with digital technologies has been a key target for the industry for some time. Concerns about potential bias in GenAI systems and model capability limitations rank significantly higher among survey respondents in telecommunications than in any other industry surveyed.

GenAI investment

4% — No plans/have not heard

31% — **Planning** to invest

65% — **Invested**
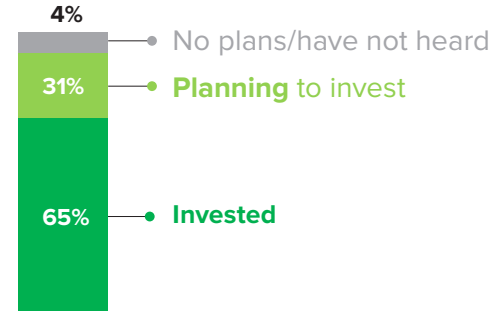
GenAI types of interest

1 Conversational AI

2 Design & writing assistants

3 Enhancing cost efficiency

Preparation for GenAI

1 Employee skill development

2 End-to-end network security

3 Storage capacity

Top challenges when adopting GenAI

1 Biasness of algorithms

2 Model capability limitations (in terms of training data required, token limit)

3 Monitoring for potential misuse & AI hallucinations

Featured use case
A large multinational telecoms and media player is using GenAI technology to advance productivity and effectiveness of agents in its contact centers. The system automatically creates, analyzes and summarizes contact transcripts for case management, quality management, and knowledge management purposes – and saves agents significant time at the end of each session.

Why Lenovo & NVIDIA

Why Lenovo & NVIDIA

Industry Specific

Government Overview (1/2)

As is also the case with the retail industries, many government organizations struggle with legacy IT systems and application estates – and this is reflected in IDC's survey findings. Government respondents highlight a desire to invest in infrastructure automation, application modernization, and data platforms. The importance of improving citizen engagement filters through in responses to questions about business priorities, high-level challenges, as well as AI business impact and edge computing business impact areas.

Top **business priorities** in 2024

1 Higher customer experience & satisfaction

2 Increased business agility & responsiveness

3 Cost optimization & savings

Top **tech investment priorities** in 2024

1 Automating digital infrastructure management & security

2 Modernizing legacy business-critical applications

3 Common data management platform

Anticipated challenges in 2024

1 Talent acquisition & retention

2 Customer experience

3 Cybersecurity & data privacy

Impact of AI on organizations

Distraction
10%

Game changer
27%

Hygiene factor
63%
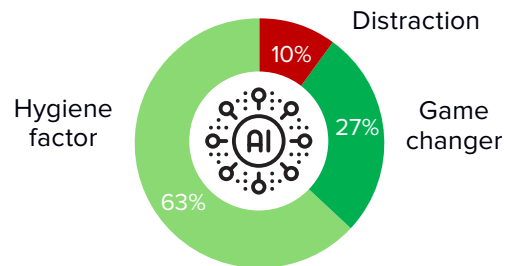
Top **tech/business areas** most **impacted by AI**

1 Talent & workforce management

2 Personalization & customer experience

3 Cybersecurity & threat detection

Top **challenges** when **deploying AI**

1 Lack needed support from IT for successful automation deployment

2 Lack of training for use of self-service AI tools (low/no code apps)

3 Difficulty keeping up with AI tech requirements

Industry Specific

Government Overview (2/2)

Government organizations are less likely than others to have already invested in GenAI, but overall, 95% of respondents still expect to invest at some point. Lack of data maturity in many government organizations – compared with other industries – is reflected in the high level of interest here in using GenAI to improve business intelligence. With common challenges around legacy IT estates and reliance on third-party service providers to 'keep the lights on,' it is no surprise to see government organizations concerned about platform reliability or the requirement to depend on third parties.

GenAI investment
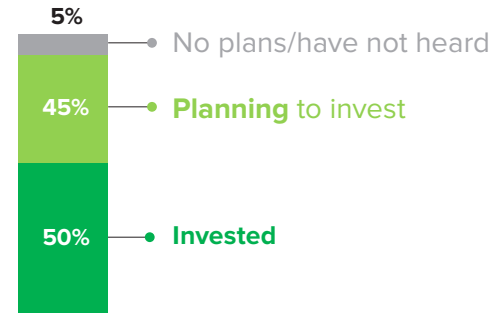
5% — No plans/have not heard

45% — **Planning** to invest

50% — **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Design & writing assistants

3 Productivity (personal, developer (code generation) and data analysts)

Preparation for GenAI

1 Employee skill development

2 End-to-end network security

3 Inbuilding high computing capacity

Top challenges when adopting GenAI

1 Reliable data platform

2 Model capability limitations (in terms of training data required, token limit)

3 High dependence on third-party

Featured use case
A European Government Ministry of Education and Research uses an AI-powered system to perform document management audits to identify documents that have been published without authorization (e.g. internal documents, documents containing personal data, etc.) and automatically remove personal or confidential information.

Why Lenovo & NVIDIA

Industry Specific

Healthcare Overview (1/2)

Healthcare respondents to IDC's survey were particularly likely to highlight sustainability as a top business priority, and significantly more likely than those from other industries to cite improved cyber-resiliency as a top tech investment priority (in line with their highlighting of security and privacy as a top challenge). Healthcare organizations are more likely than most to cite AI as a game-changer, and are particularly focused on improving the patient experience (as well as using AI to address those security challenges).

Top **business priorities** in 2024

1 Improved sustainability

2 Higher customer experience & satisfaction

3 Supply chain/inventory optimization

Top **tech investment priorities** in 2024

1 Better cyber resiliency to address ransomware & malware attacks

2 GenAI implementation

3 Unified management control plane for all digital infrastructure resources

Anticipated challenges in 2024

1 Cybersecurity & data privacy

2 Digital transformation

3 Talent acquisition & retention

Impact of AI on organizations

Distraction 14%
Hygiene factor 42%
Game changer 44%
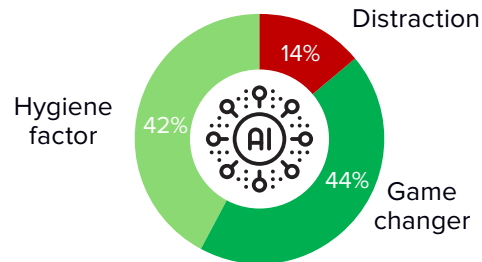
Top **tech/business areas** most **impacted by AI**

1 Personalization & customer experience

2 Cybersecurity & threat detection

3 Talent & workforce management

Top **challenges** when **deploying AI**

1 Challenge in making business case for AI tech

2 Employees are concerned that AI will threaten their jobs

3 Lack needed support from IT for successful automation deployment

Industry Specific

Healthcare Overview (2/2)

Healthcare organizations often face challenges in integrating data silos to gain essential operational and strategic insights. Therefore, it's unsurprising that healthcare survey respondents show a keen interest in how GenAI could enhance business intelligence. Moreover, the emphasis on digital transformation to enhance patient experiences frequently aligns with interest in conversational AI and leveraging GenAI to lower operational expenses. The lack of efficient data governance and literacy emerges as a common obstacle to GenAI adoption.

GenAI investment

37% ● **Planning** to invest

63% ● **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Conversational AI

3 Enhancing cost efficiency
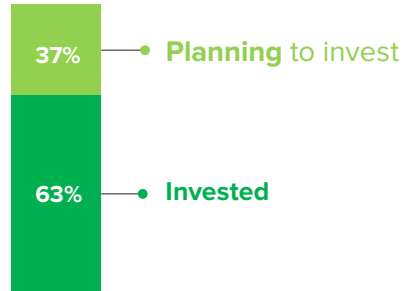
Preparation for GenAI

1 Employee skill development

2 End-to-end network security

3 Networking infrastructure

Top challenges when adopting GenAI

1 Model capability limitations (in terms of training data required, token limit)

2 High dependence on third-party

3 Poor data governance/literacy

Featured use case
The healthcare system in a major European capital is using an AI-based speech analysis system to analyze live emergency medical services calls in real-time and make instant predictions to detect out-of-hospital cardiac arrests with up to 95% accuracy. Used in conjunction with human call-takers and dispatchers, it significantly reduces error rates and makes critical diagnoses faster.

CIO Playbook 2024
Market Insights

Why Lenovo & NVIDIA

Overall

Regional Market Insights Overview (1/2)

Naturally, the IDC research clearly identified differences in attitudes between countries in the EMEA region. For example: respondents in the Netherlands and France were clearly more likely to describe AI as a "game-changer" than others; whereas respondents from the most mature technology markets (UK, Germany) were most likely to label AI as a "distraction". Respondents from Denmark were overall least likely to focus on building custom AI systems, and least likely to have already invested in GenAI.

Impressions of AI

Legend: Game changer, Hygiene factor, Distraction

Country	Distraction (top)	Hygiene factor	Game changer
Czech Republic/Slovakia	16%	52%	32%
Denmark	10%	56%	34%
France	8%	34%	58%
Germany	16%	49%	35%
Italy	2%	62%	36%
Middle East	4%	66%	30%
Netherlands	4%	40%	56%
Spain	6%	56%	38%
UK	19%	50%	31%

GenAI investment status

Legend: Invested, Planning to invest, No planning / not considered

Country	No planning / not considered (top)	Planning to invest	Invested
Czech Republic/Slovakia	4%	48%	48%
Denmark	4%	64%	32%
France	3%	38%	59%
Germany	4%	39%	57%
Italy	2%	30%	68%
Middle East	2%	34%	64%
Netherlands	4%	28%	68%
Spain	2%	44%	54%
UK	4%	36%	60%

AI adoption strategy

Legend: Build, Buy, Embedded

Country	Embedded (top)	Buy	Build
Czech Republic/Slovakia	17%	21%	62%
Denmark	23%	42%	35%
France	30%	15%	55%
Germany	23%	28%	49%
Italy	20%	27%	53%
Middle East	14%	21%	65%
Netherlands	27%	25%	48%
Spain	31%	18%	51%
UK	22%	32%	46%

Difficulty recruiting AI-related positions

Legend: Respondent selected "Extremely/moderately difficult"

Country	Selected "Extremely/moderately difficult"
Czech Republic/Slovakia	62%
Denmark	50%
France	54%
Germany	61%
Italy	34%
Middle East	58%
Netherlands	58%
Spain	68%
UK	53%

Overall

Regional Market Insights Overview (2/2)

Survey results indicate strong growth in edge compute investments across EMEA countries and regions in the coming year, as organizations recognize the pivotal role that edge computing plays in harnessing the power of AI. Spain, France, and Denmark are expected to see the highest increase in edge spending, while all other surveyed countries and regions are also expected to increase their spending by more than 20% in 2024.

Edge computing spending increase

Country	Increase
Czech Republic/Slovakia	24%
Denmark	44%
France	50%
Germany	20%
Italy	40%
Middle East	43%
Netherlands	37%
Spain	53%
UK	38%

Each country shows 2023 and 2024 bars.

Why Lenovo & NVIDIA
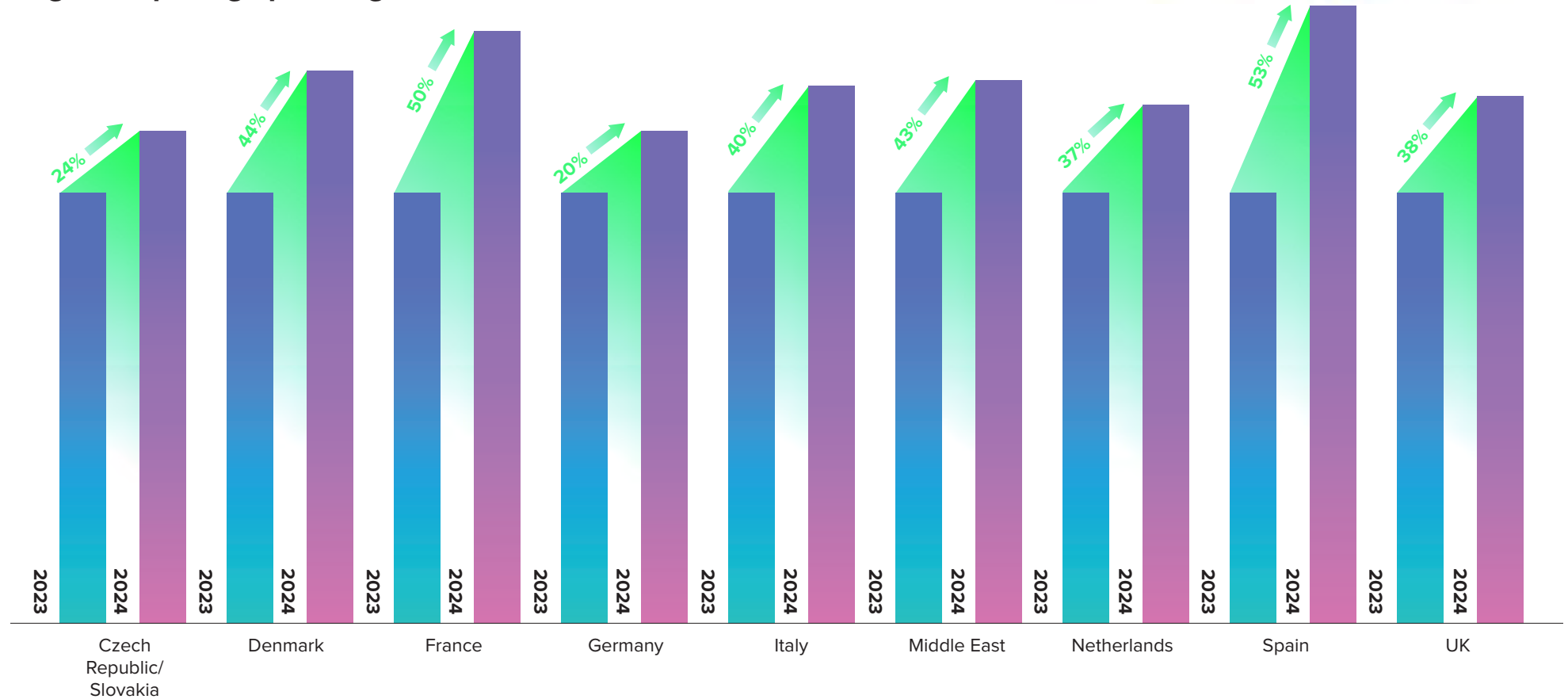
Market Specific

Czech Republic/Slovakia Overview (1/2)

Survey respondents from the Czech Republic and Slovakia are more likely than many others to be focused on platform foundations when considering tech investment priorities (edge buildout, app modernization, and data platform modernization). Sustainability as a business priority focus stands out here, with respondents from the Czech Republic and Slovakia significantly more likely to cite sustainability as a business priority than respondents from any other EMEA territory.

Top **business priorities** in 2024

1 Improved sustainability

2 Higher customer experience & satisfaction

3 Supply chain/inventory optimization

Top **tech investment priorities** in 2024

1 Edge infrastructure buildout & management

2 Modernizing infrastructure for microservices-oriented architecture

3 Common data management platform

Anticipated challenges in 2024

1 Business continuity & disaster recovery

2 Evolving regulatory landscape

3 Customer experience

Impact of AI on organizations

Distraction 16%

Hygiene factor 52%

Game changer 32%
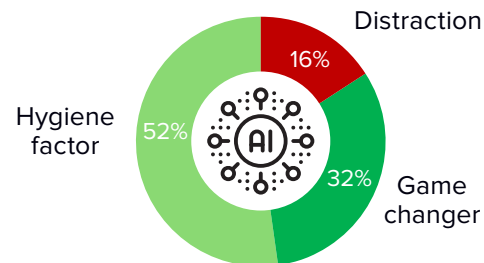
Top **tech/business areas** most **impacted by AI**

1 Personalization & customer experience

2 Automation & efficiency

3 Intelligent automation & robotics

Top **challenges** when **deploying AI**

1 Lack needed support from IT for successful automation deployment

2 Employees are concerned that AI will threaten their jobs

3 Challenge in making business case for AI tech

Why Lenovo & NVIDIA

Market Specific

Czech Republic/Slovakia Overview (2/2)

48% of respondents from the Czech Republic and Slovakia have already invested in GenAI, which is a lower percentage than average – although almost all respondents expect to invest at some point. Productivity, improved business intelligence, and customer interaction management are all in the spotlight. Concerns about the potential lack of data maturity to hold GenAI adoption back echo wider regional interest in data platform modernization.
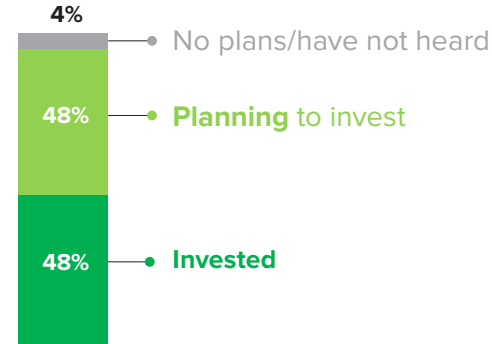
GenAI investment

4%
● No plans/have not heard

48%
● **Planning** to invest

48%
● **Invested**

GenAI types of interest

1 Productivity (personal, developer (code generation) and data analysts)

2 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

3 Customer interaction management

Preparation for GenAI

1 Inbuilding high computing capacity

2 Networking infrastructure

3 Storage capacity

Top challenges when adopting GenAI

1 Model capability limitations (in terms of training data required, token limit)

2 Reliable data platform

3 Monitoring for potential misuse & AI hallucinations

Market Specific
Denmark Overview (1/2)

Danish respondents are particularly likely to be focused on the need to increase business agility and responsiveness; and they are more likely than most across EMEA to cite AI as a hygiene factor (rather than a "game-changer"). In line with this, Danish respondents are particularly likely to be focused on tech priorities that relate to IT modernization and cyber resiliency, rather than priorities such as edge buildout, AI/GenAI platforms, and infrastructure automation.

Top **business priorities** in 2024

1. Higher customer experience & satisfaction
2. Increased business agility & responsiveness
3. Employee productivity improvement

Top **tech investment priorities** in 2024

1. Better cyber resiliency to address ransomware & malware attacks
2. Modernizing infrastructure for microservices-oriented architecture
3. Modernizing legacy business-critical applications

Anticipated challenges in 2024

1. Data management & analytics
2. Customer experience
3. Cybersecurity & data privacy

Impact of AI on organizations

Distraction 10%
Game changer 34%
Hygiene factor 56%
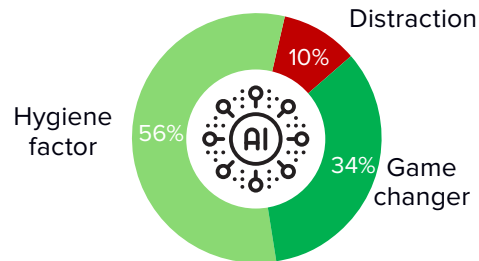
Top **tech/business areas** most **impacted by AI**

1. Intelligent automation & robotics
2. Talent & workforce management
3. Personalization & customer experience

Top **challenges** when **deploying AI**

1. Employees are concerned that AI will threaten their jobs
2. Challenge in making business case for AI tech
3. Lack of training for use of self-service AI tools (low/no code apps)

Market Specific

Denmark Overview (2/2)

Respondents from Denmark are markedly less likely than any others to have already invested in GenAI; however, almost all expect they will invest at some point. Denmark is a mature developed economy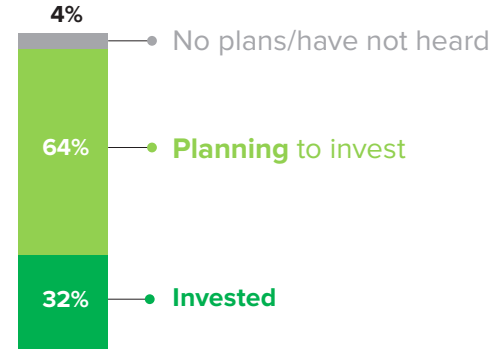 with strong labor protections, and these factors show through in respondents' focus on employee skills and workforce change management when thinking about GenAI implementation.

GenAI investment

4% — No plans/have not heard

64% — **Planning** to invest

32% — **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Design & writing assistants

3 Customer interaction management

Preparation for GenAI

1 Storage capacity

2 Employee skill development

3 End-to-end network security

Top challenges when adopting GenAI

1 Reshaping workforces

2 Model capability limitations (in terms of training data required, token limit)

3 High dependence on third-party

Why Lenovo & NVIDIA

Why Lenovo & NVIDIA

Market Specific

France Overview (1/2)

With a focus particularly on emerging technologies and sustainability, French CIOs stand a little apart from those of other EMEA countries and regions – although the technology investment focus, as well as key challenges, revolving around infrastructure modernization and security is more common. When it comes to attitudes to AI, French respondents stand clearly separate from almost all others: nearly three out of five say that AI is a "game-changer" (compared to around 40% for EMEA as a whole).

Top **business priorities** in 2024

1 Emerging technologies (e.g., GenAI, etc.)

2 Improved sustainability

3 Faster time to market

Top **tech investment priorities** in 2024

1 Automating digital infrastructure management & security

2 Better cyber resiliency to address ransomware & malware attacks

3 Common data management platform

Anticipated **challenges** in 2024

1 Cybersecurity & data privacy

2 Business continuity & disaster recovery

3 Digital transformation

Impact of AI on organizations
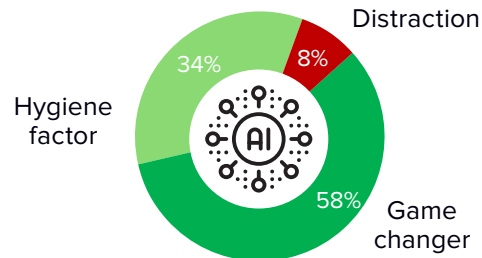
Distraction 8%

34% Hygiene factor

58% Game changer

Top **tech/business areas** most **impacted by AI**

1 Talent & workforce management

2 Natural language processing & chatbots

3 Intelligent automation & robotics

Top **challenges** when **deploying AI**

1 Lack needed support from IT for successful automation deployment

2 Employees are concerned that AI will threaten their jobs

3 Lack of training for use of self-service AI tools (low/no code apps)

Why Lenovo & NVIDIA

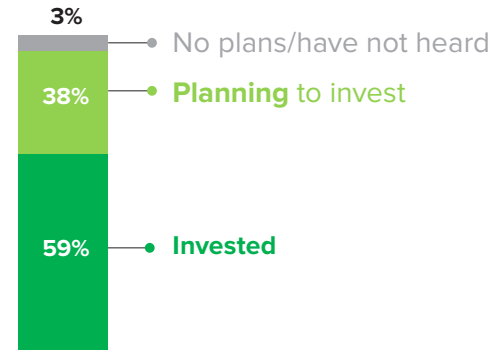Market Specific

France Overview (2/2)

France is a mature developed economy with strong labor protections, and these factors show through in respondents' focus on employee skills and workforce change management when thinking about GenAI implementation. French organizations often demonstrate a strong tendency to favor technology sovereignty and have strong levels of concern over security and privacy, and these are also reflected in the survey results relating to GenAI.

GenAI investment

- 3% — No plans/have not heard
- 38% — **Planning** to invest
- 59% — **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Conversational AI

3 Productivity (personal, developer (code generation) and data analysts)

Preparation for GenAI

1 Employee skill development

2 Inbuilding high computing capacity

3 End-to-end network security

Top challenges when adopting GenAI

1 Reshaping workforces

2 Monitoring for potential misuse & AI hallucinations

3 High dependence on third-party

Why Lenovo & NVIDIA

Market Specific

Germany Overview (1/2)

As is the case with the other highly mature technology markets, CIOs from Germany have a clear business focus on emerging technologies and time-to-market – though with the strong representation from manufacturing-related industries in Germany, a focus on supply chain issues sets these respondents apart. Technology investment priorities also echo those from other established markets: namely, a focus on infrastructure modernization and security.

Top **business priorities** in 2024

1. Emerging technologies (e.g., GenAI, etc.)
2. Faster time to market
3. Supply chain/inventory optimization

Top **tech investment priorities** in 2024

1. Modernizing infrastructure for microservices-oriented architecture
2. Better cyber resiliency to address ransomware & malware attacks
3. High-performance compute platforms for AI/ML workloads

Anticipated challenges in 2024

1. Cybersecurity & data privacy
2. Talent acquisition & retention
3. Customer experience

Impact of AI on organizations

Distraction 16%
Game changer 35%
Hygiene factor 49%
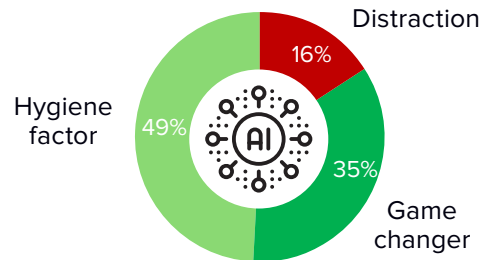
Top **tech/business areas** most **impacted by AI**

1. Enhanced analytics & insights
2. Cybersecurity & threat detection
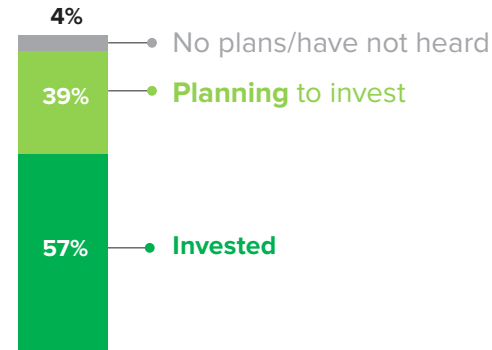3. Automation & efficiency

Top **challenges** when **deploying AI**

1. Challenge in making business case for AI tech
2. Employees are concerned that AI will threaten their jobs
3. Lack needed support from IT for successful automation deployment

Why Lenovo & NVIDIA

Market Specific

Germany Overview (2/2)

Germany is a mature developed economy with strong labor protections, and these factors show through in respondents' focus on employee skills and workforce change management when thinking about GenAI implementation. German organizations often demonstrate a strong tendency to favor technology sovereignty and have strong levels of concern over security and privacy, and these are also reflected in the survey results relating to GenAI.

GenAI investment

4% — No plans/have not heard
39% — **Planning** to invest
57% — **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Sales & marketing support

3 Design & writing assistants

Preparation for GenAI

1 End-to-end network security

2 Inbuilding high computing capacity

3 Employee skill development

Top challenges when adopting GenAI

1 Model capability limitations (in terms of training data required, token limit)

2 Reliable data platform

3 Monitoring for potential misuse & AI hallucinations

Why Lenovo & NVIDIA

Market Specific

Italy Overview (1/2)

Italian survey respondents place a strong business priority focus on emerging technologies, and Italy is the only EMEA country to highlight GenAI adoption as the number one technology investment priority. In combination with the comparatively modest degree to which Italian respondents see AI as a "game-changer," we can see a country that clearly wants to embrace AI – but for very pragmatic reasons. This pragmatism is reflected in the strength of interest in platform modernization and AI infrastructure investment.

Top **business priorities** in 2024

1. Emerging technologies (e.g., GenAI, etc)
2. Employee productivity improvement
3. Improved sustainability

Top **tech investment priorities** in 2024

1. GenAI implementation
2. Modernizing infrastructure for microservices-oriented architecture
3. High-performance compute platforms for AI/ML workloads

Anticipated challenges in 2024

1. Data management & analytics
2. Digital transformation
3. Evolving regulatory landscape

Impact of AI on organizations

Distraction
2%
Game changer
36%
Hygiene factor
62%
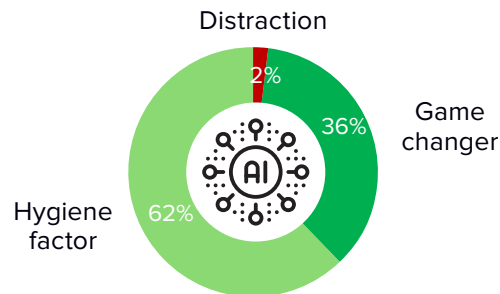
Top **tech/business areas** most **impacted by AI**

1. Automation & efficiency
2. Intelligent automation & robotics
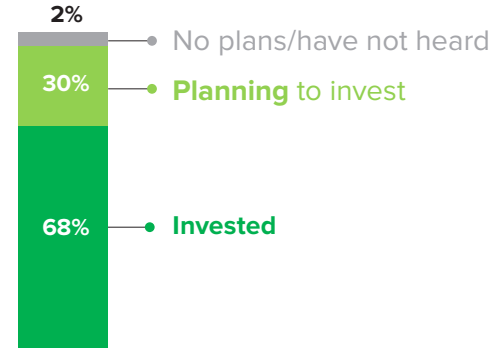3. Cybersecurity & threat detection

Top **challenges** when **deploying AI**

1. Employees are concerned that AI will threaten their jobs
2. Challenge in making business case for AI tech
3. Lack needed support from IT for successful automation deployment

Why Lenovo & NVIDIA

Market Specific

Italy Overview (2/2)

Further reflecting generally high levels of interest in AI, Italian survey respondents are more likely than most to say their organizations have already invested in GenAI, and there is a marked focus among Italian organizations on customer-facing GenAI use cases. Italian industry sectors have strong labor protections, and this shows through in respondents' focus on workforce change management and employee impact when thinking about GenAI implementation.

GenAI investment

- **2%** No plans/have not heard
- **30%** **Planning** to invest
- **68%** **Invested**

GenAI types of interest

1. Sales & marketing support
2. Conversational AI
3. Customer interaction management

Preparation for GenAI

1. Storage capacity
2. End-to-end network security
3. Inbuilding high computing capacity

Top challenges when adopting GenAI

1. Reliable data platform
2. Reshaping workforces
3. Government regulations

Why Lenovo & NVIDIA

Market Specific
Middle East Overview (1/2)

Middle Eastern survey respondents are more likely than any others to see improved customer experience as a business priority. Additionally, they are more likely than almost all others to focus on digital business innovation, digital transformation, and cyber-resiliency as investment priorities. The Middle East is also the region least likely to see AI as a game-changer, and most likely to consider it a "hygiene factor"—a core cost of being competitive.

Top **business priorities** in 2024

1 Higher customer experience & satisfaction

2 Driving digital business innovation

3 Cost optimization & savings

## Top **tech investment priorities** in 2024

1 Better cyber resiliency to address ransomware & malware attacks

2 Modernizing infrastructure for microservices-oriented architecture

3 Unified management control plane for all digital infrastructure resources

Anticipated challenges in 2024

1 Digital transformation

2 Business continuity & disaster recovery

3 Evolving regulatory landscape
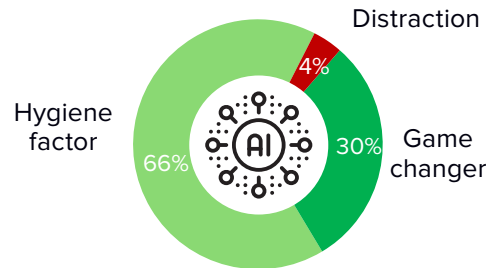
Impact of AI on organizations

Distraction
4%
Hygiene factor
66%
Game changer
30%

Top **tech/business areas** most **impacted by AI**

1 Talent & workforce management

2 Natural language processing & chatbots

3 Intelligent automation & robotics

## Top **challenges** when **deploying AI**

1 Difficulty keeping up with AI tech requirements

2 Employees are concerned that AI will threaten their jobs

3 Lack of training for use of self-service AI tools (low/no code apps)

Why Lenovo & NVIDIA

Market Specific

Middle East Overview (2/2)

The Middle East is a region with many large, innovative organizations but a relatively immature technology industry, and responses from this region reflect this. A high percentage of organizations have already invested in GenAI, organizations are focused on building out AI infrastructure and skills, and organizations are concerned about the potential challenge of depending on third parties.

GenAI investment
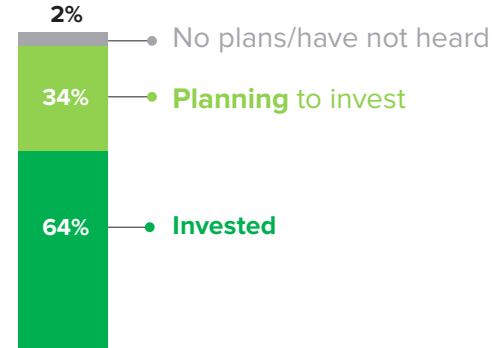
2% ● No plans/have not heard

34% ● **Planning** to invest

64% ● **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Customer interaction management

3 Productivity (personal, developer (code generation) and data analysts)

Preparation for GenAI

1 Inbuilding high computing capacity

2 Networking infrastructure

3 Employee skill development

Top challenges when adopting GenAI

1 High dependence on third-party

2 Monitoring for potential misuse & AI hallucinations

3 Model capability limitations (in terms of training data required, token limit)

Why Lenovo & NVIDIA

Market Specific

Netherlands Overview (1/2)

Along with France, respondents from the Netherlands are the most likely – by far – to view AI as a "game-changer" for organizations. All three top investment priorities revolve around elements of software platform architecture, which has been a common feature of Dutch organizations' strategies for many years. Interestingly, a focus on investment in GenAI for 2024 was quite low on Dutch respondents' agendas; but this is largely because so many Dutch organizations, which are commonly quite advanced in adoption of software trends, have already made that investment.

Top **business priorities** in 2024

1 Better data-driven decision making

2 Improved sustainability

3 Employee productivity improvement

Top **tech investment priorities** in 2024

1 Modernizing infrastructure for microservices-oriented architecture

2 Modernizing legacy business-critical applications

3 Common data management platform

Anticipated challenges in 2024

1 Cybersecurity & data privacy

2 Talent acquisition & retention

3 Business continuity & disaster recovery

Impact of AI on organizations

Distraction
4%
40%
Hygiene factor
56%
Game changer
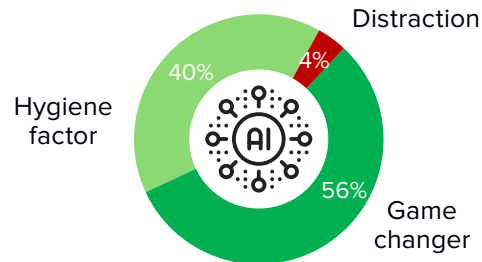
Top **tech/business areas** most **impacted by AI**

1 Natural language processing & chatbots

2 Cybersecurity & threat detection

3 Intelligent automation & robotics

Top **challenges** when **deploying AI**

1 Challenge in making business case for AI tech

2 Lack needed support from IT for successful automation deployment

3 Difficulty keeping up with AI tech requirements

Why Lenovo & NVIDIA

Market Specific
Netherlands Overview (2/2)

A high proportion of organizations from the Netherlands have already invested in GenAI, in line with its status as one of the countries in EMEA typically at the forefront of technology adoption. As is the case for many European countries, respondents from the Netherlands are particularly interested in building out their own AI infrastructure and skill base. Dutch organizations are particularly likely to be concerned about poor data foundations for GenAI, and the quality implications of that weakness.

GenAI investment
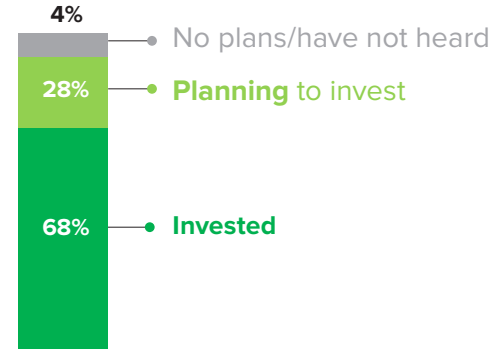
4% No plans/have not heard
28% **Planning** to invest
68% **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Conversational AI

3 Productivity (personal, developer (code generation) and data analysts)

Preparation for GenAI

1 Inbuilding high computing capacity

2 Employee skill development

3 Networking infrastructure

Top challenges when adopting GenAI

1 Poor data governance/literacy

2 Biasness of algorithms

3 Monitoring for potential misuse & AI hallucinations

Why Lenovo & NVIDIA

Market Specific

Spain Overview (1/2)

Survey respondents from Spain are more likely than all others across EMEA to be focused on digital business innovation; Spanish organizations are also more likely than most to be focused on emerging technology adoption as a business priority. Despite this interest, few Spanish organizations see AI as a potential game-changer; meaning Spanish organizations in general see AI investment as a necessary cost of remaining competitive. Modernizing application and software platform architecture is the dominant focus of technology priorities.

Top **business priorities** in 2024

1. Driving digital business innovation
2. Emerging technologies (e.g., GenAI, etc)
3. Higher customer experience & satisfaction

Top **tech investment priorities** in 2024

1. Automating digital infrastructure management & security
2. Common data management platform
3. Modernizing legacy business-critical applications

Anticipated challenges in 2024

1. Talent acquisition & retention
2. Customer experience
3. Cybersecurity & data privacy

Impact of AI on organizations

Distraction 6%
Game changer 38%
Hygiene factor 56%
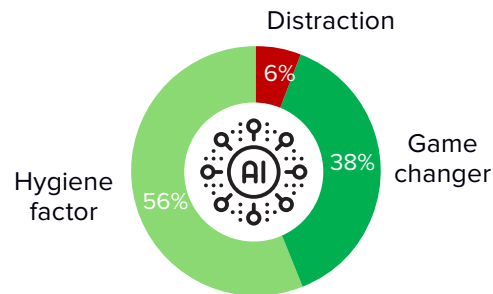
Top **tech/business areas** most **impacted by AI**

1. Intelligent automation & robotics
2. Natural language processing & chatbots
3. Predictive maintenance & IoT

Top **challenges** when **deploying AI**

1. Employees are concerned that AI will threaten their jobs
2. Difficulty keeping up with AI tech requirements
3. Lack needed support from IT for successful automation deployment

Market Specific

Spain Overview (2/2)

Compared to respondents from other EMEA countries and regions, GenAI investment activity in Spain so far is modest. Spanish organizations are particularly concerned about poor GenAI technology quality – whether those potential quality problems stem from inherent technology limitations or from weakness in data foundations. Spanish organizations are particularly focused on building out their own sovereign GenAI technology and skills capabilities; more Spanish respondents than any others (71%) highlighted employee skill development as a preparation priority.

GenAI investment
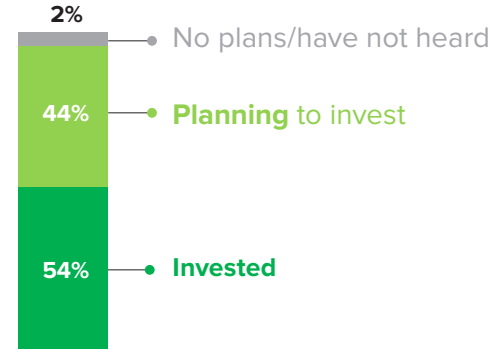
2% ── No plans/have not heard

44% ── **Planning** to invest

54% ── **Invested**

GenAI types of interest

1 Business intelligence (by finding patterns, surfacing insights and making ad hoc queries easier)

2 Productivity (personal, developer (code generation) and data analysts)

3 Sales & marketing support

Preparation for GenAI

1 Employee skill development

2 End-to-end network security

3 Inbuilding high computing capacity

Top challenges when adopting GenAI

1 Model capability limitations (in terms of training data required, token limit)

2 Reliable data platform

3 Monitoring for potential misuse & AI hallucinations

Why Lenovo & NVIDIA

Why Lenovo & NVIDIA

Market Specific

United Kingdom Overview (1/2)

Technology investment priorities in the UK focus on advanced technology adoption items. From a business perspective, UK respondents were more diverse in their priority selections than respondents from any other country or region; no single business priority was highlighted by more than 31% of UK respondents. AI was highlighted as a "game-changer" by only a modest proportion of UK survey respondents.

Top **business priorities** in 2024

1. Increased business agility & responsiveness
2. Higher customer experience & satisfaction
3. Improved sustainability

Top **tech investment priorities** in 2024

1. Automating digital infrastructure management & security
2. Unified management control plane for all digital infrastructure resources
3. GenAI implementation

Anticipated challenges in 2024

1. Cybersecurity & data privacy
2. Digital transformation
3. Evolving regulatory landscape

Impact of AI on organizations

Distraction 19%
Game changer 31%
Hygiene factor 50%
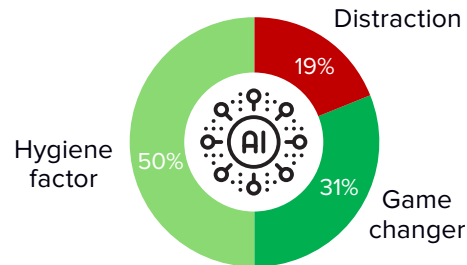
Top **tech/business areas** most **impacted by AI**

1. Cybersecurity & threat detection
2. Intelligent automation & robotics
3. Automation & efficiency

Top **challenges** when **deploying AI**

1. Difficulty keeping up with AI tech requirements
2. Lack needed support from IT for successful automation deployment
3. Lack of training for use of self-service AI tools (low/no code apps)

Why Lenovo & NVIDIA

Market Specific
United Kingdom Overview (2/2)

In contrast to respondents from across EMEA, a healthy number of UK organizations have invested in GenAI. However, UK organizations show a notable concern regarding the quality of GenAI technology, whether stemming from inherent limitations or data foundation weaknesses. The strong emphasis on GenAI applications tailored to knowledge work in the UK mirrors the country's heavily service-oriented economy.

GenAI investment
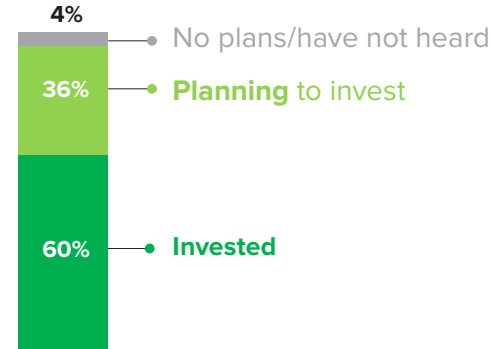
4% — No plans/have not heard
36% — **Planning** to invest
60% — **Invested**

GenAI types of interest

1 Productivity (personal, developer (code generation) and data analysts)

2 Design & writing assistants

3 Knowledge management

Preparation for GenAI

1 Employee skill development

2 Inbuilding high computing capacity

3 End-to-end network security

Top challenges when adopting GenAI

1 Model capability limitations (in terms of training data required, token limit)

2 Reliable data platform

3 Monitoring for potential misuse & AI hallucinations

CIO Playbook 2024
Research Methodology

Why Lenovo & NVIDIA
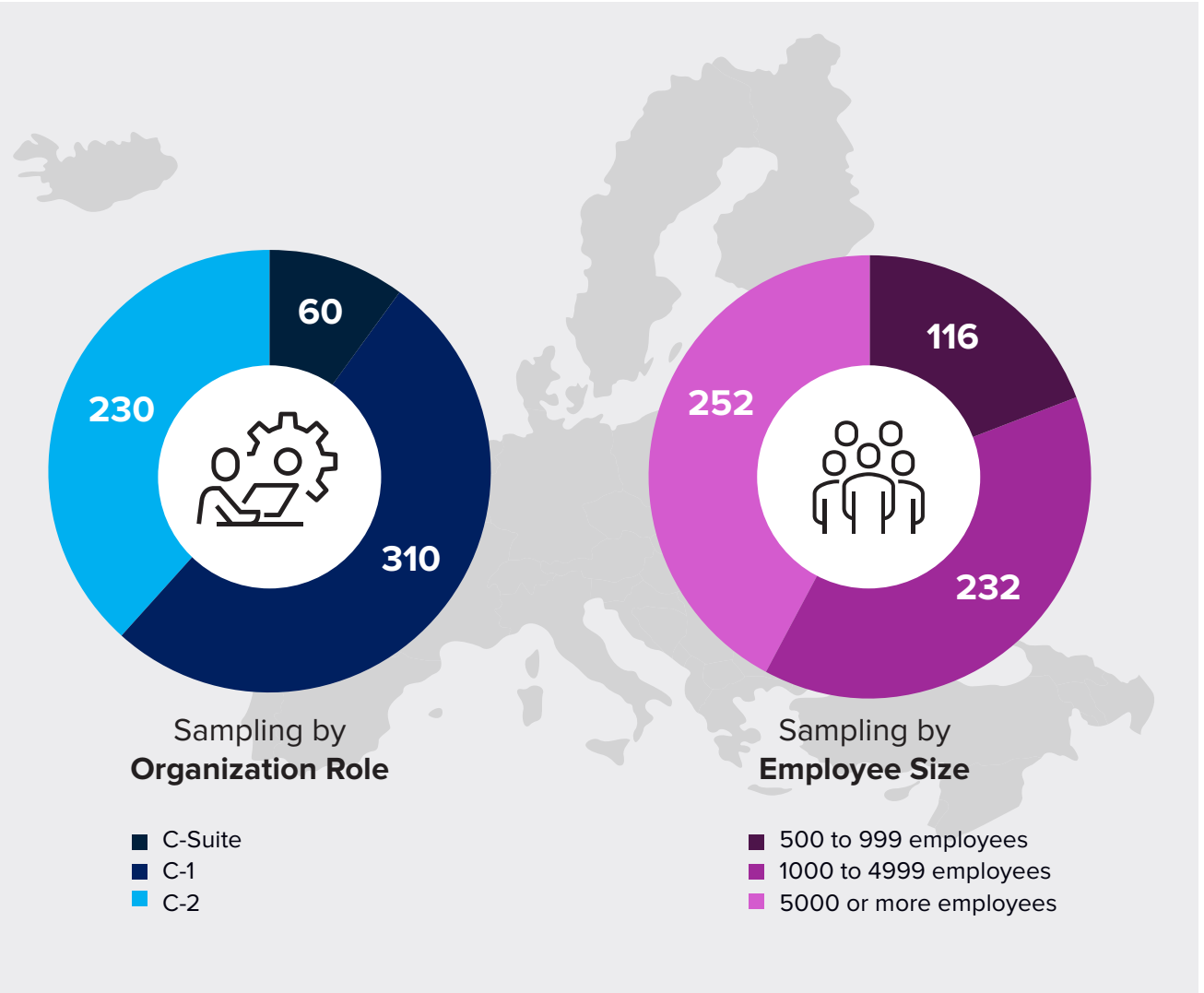
CIO Technology Playbook 2024 Research Methodology

The playbook was developed based on **600** surveys, with the following sampling breakdown:

MARKETS COVERED	SAMPLE SIZE
Czech Republic/Slovakia	50
Denmark	50
France	100
Germany	100
Italy	50
Middle East	50
Netherlands	50
Spain	50
United Kingdom	100

INDUSTRIES COVERED	SAMPLE SIZE
Manufacturing	60
Retail	53
BFSI	48
Telco	23
Government	56
Healthcare	57
Other Industries	303

60

230

310

**Sampling by
Organization Role**

- C-Suite
- C-1
- C-2

116

252

232

**Sampling by
Employee Size**

- 500 to 999 employees
- 1000 to 4999 employees
- 5000 or more employees

CIO Playbook 2024
Message from Sponsor

LENOVO

Lenovo AI for All

Bringing AI to your Data, when and where you need it.

At Lenovo, we recognize the challenges that come with adopting AI as a business imperative, and we also acknowledge the immense potential AI can bring to your business and people. Our robust infrastructure solutions, coupled with our deep ecosystem of independent software vendors (ISVs) ensures the seamless and scalable AI solutions that are suitable for organizations of all shapes and sizes.

Lenovo AI Infrastructure

8	**80+**
Platform Categories	AI-Ready Platforms

Rely on a high-performance storage & compute data enter and edge portfolio that scales with your demand.

Lenovo AI Discover
Center of Excellence

4	**180+**
Global COEs	Countries Served

Achieve faster time to value for your AI project by leveraging the Lenovo AI Center of Excellence.

Lenovo AI Innovators
Partner Ecosystem

50+	**165+**
AI Solution Partners	Enterprise AI Solutions

Leverage certified AI solution partners to confidently address your requirements.

Commitment to Honest AI

We believe technology should help solve some of humanity's toughest challenges and that's why we have launched Lenovo's Responsible AI Committee to oversee our AI product roadmap and design.

Explore the Possibilities of AI and Lenovo

Smart Manufacturing

Make Zero Incidents A Priority in Your Organization with Lenovo AI

Lenovo and NVIDIA partnered with Graymatics™ to offer a leading solution for video-based analytics. LabVista is their multi-industry solution, leveraging existing CCTV cameras to detect workplace hazards such as accidents, machinery issues, and fires.

Smart Retail

Lenovo AI Shapes the Self-checkout of Tomorrow

Happy customers and loss prevention is a receipt for success for retailers! The Everseen Visual AI™ platform powered by Lenovo and NVIDIA enables retail solutions that create a better customer experience while reducing loss.

Smart Travel

Peace Of Mind: Lenovo AI Enhances the Safety of Air Travel

To help it rapidly deploy its automated anti-birdstrike solution, The Edge Company used Lenovo AI ThinkSystem SR650 servers with NVIDIA GPUs to create a high-performance appliance – enabling airports around the world to protect their airspace.

Kickstart your AI journey

Contact us at AIDiscover@lenovo.com or learn more at www.lenovo.com/ai

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Lenovo and NVIDIA

## Bringing AI data to where you need it the most – from pocket to cloud

Organizations of all sizes make faster, data-driven decisions with deeper insights, producing competitive advantages. Inspired by our joint vision and supported by NVIDIA, we bring customers scalable, secure, end-to-end solutions to establish or expand their AI, data center, edge computing, and remote work capabilities.

Together, we deliver innovative solutions and intelligent infrastructures used to solve great challenges.

GenAI infrastructure that's ready to go
Accelerate your GenAI transformation to gain a competitive advantage with AI-optimized Lenovo & NVIDIA solutions.
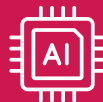
Accelerate your edge AI workflows
Get powerful data-center-like computing performance at your network's Edge by leveraging Lenovo NVIDIA-Certified Systems for edge solutions.

Digital Twin Solutions
Power real-time remote work, and complex digital twin workloads, with NVIDIA Omniverse™ Enterprise software and Lenovo ThinkSystem platforms.

Faster AI data insights
Enable faster data insights, simplify business operations and maximize data resiliency for AI workloads.

Lenovo and NVIDIA: Enabling AI for the Enterprise

NVIDIA AI Enterprise deployed on Lenovo ThinkSystem solutions enables AI by combining the latest NVIDIA GPUs and software with Lenovo's infrastructure solutions.

Lenovo ThinkSystem SR680a V3
The ThinkSystem SR680a V3 is an air cooled, two socket system, featuring the world's most powerful GPUs including the NVIDIA H100, NVIDIA H200 and all-new NVIDIA B200 architecture for supercharging AI and PC workloads.

Lenovo ThinkSystem SR685a V3
The ThinkSystem SR685a V3 is a 2-socket, 8U system accelerated for maximum compute with NVIDIA NVLink at 900GB/sec and support for NVIDIA H100 or NVIDIA H200 GPUs.

Lenovo ThinkSystem SR780a V3
The ThinkSystem SR780a is a powerful 2-socket, 5U direct water-cooled system tailored to handed compute intensive AI workloads, delivering maximum acceleration using 8 NVIDIA GPUs.

Get powerful data-center-like computing performance at your network's edge by leveraging Lenovo's NVIDIA-Certified Systems for edge solutions.

Lenovo ThinkEdge SE455 V3	Lenovo ThinkEdge SE360 V2	Lenovo ThinkEdge SE450
Our new flagship server is ideal for large edge AI and Telco workloads, featuring best-in-class performance. Available with the NVIDIA L40 and L4 GPU.	Our new server provides support the NVIDIA AI platform, including the NVIDIA L4 Tensor Core GPUs and NVIDIA AI Enterprise software platform.	A right-sized compact server designed to meet remote location needs and built with the optimal security for running AI applications at the edge.

Lenovo and NVIDIA
Working together to deliver smarter technology for all.

IDC Custom Solutions

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