# AI Trends and use cases

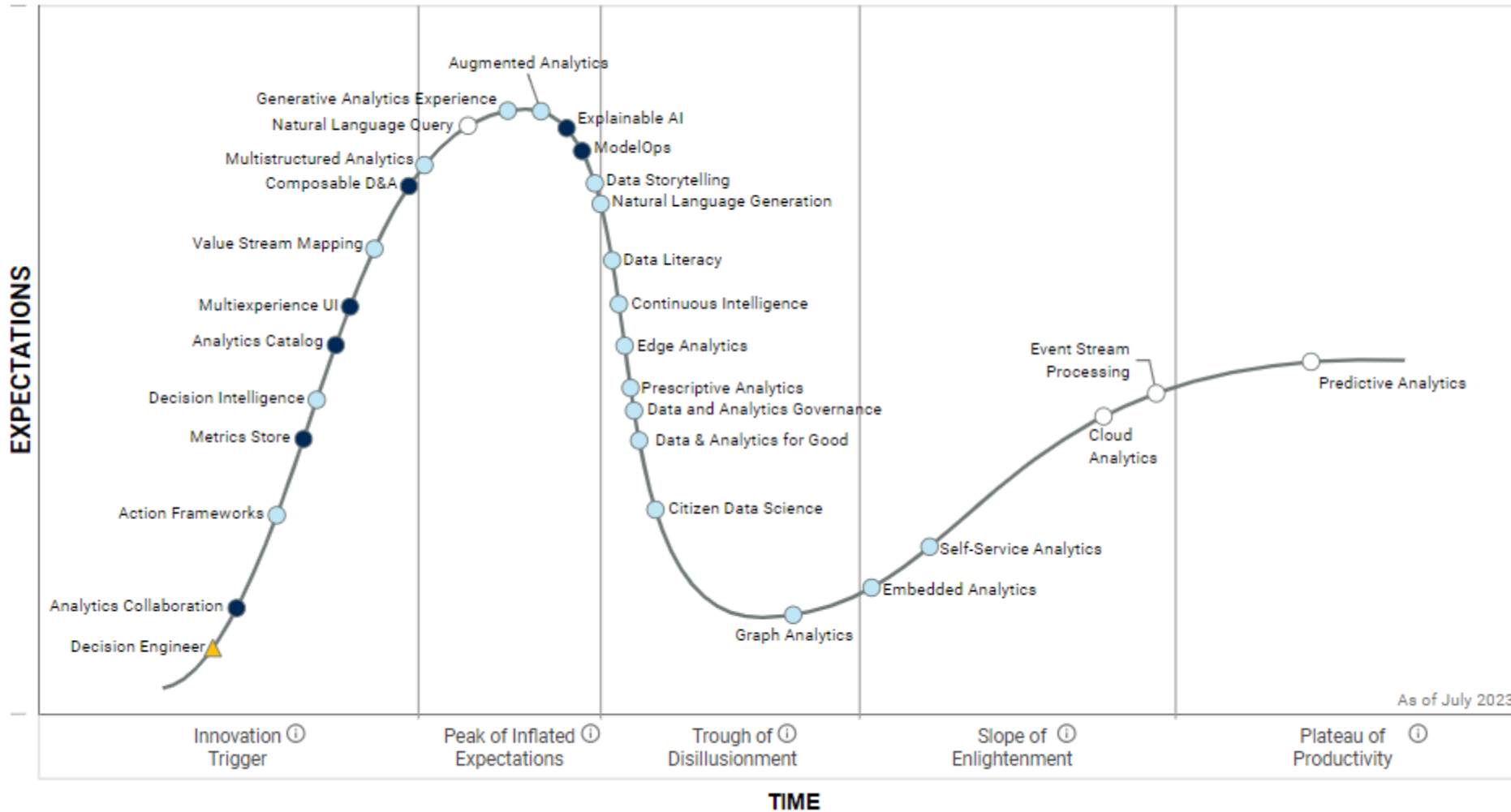Václav Špáňa
Sr.Executive Partner

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AI – What types of capability?

- Machine Learning
  - Classification, soft-matching, risk assessments, anomalies, fraud, diagnosis, voice recognition
  - Deep Learning is a subset of Machine Learning

- Predictive Analytics
  - Prediction of flow, modelling complex systems, simulations, protein folding, drug development

- Generative
  - Creates outputs that *look like* they came from an original dataset
  - May be text, voice, video or image

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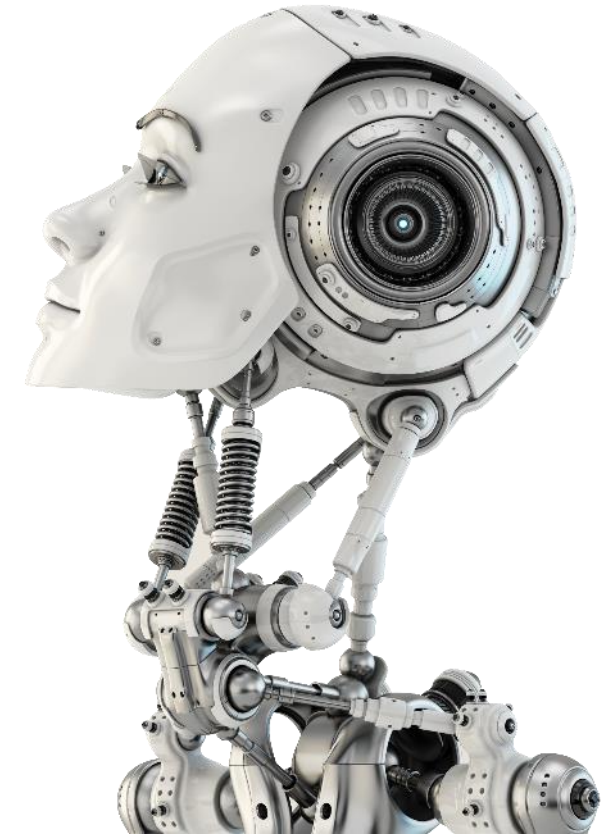
Use of Data → Analytics and Business Intelligence

Hype Cycle for Analytics and Business Intelligence, 2023

Insight from Data → Artificial Intelligence

Hype Cycle for Artificial Intelligence, 2023
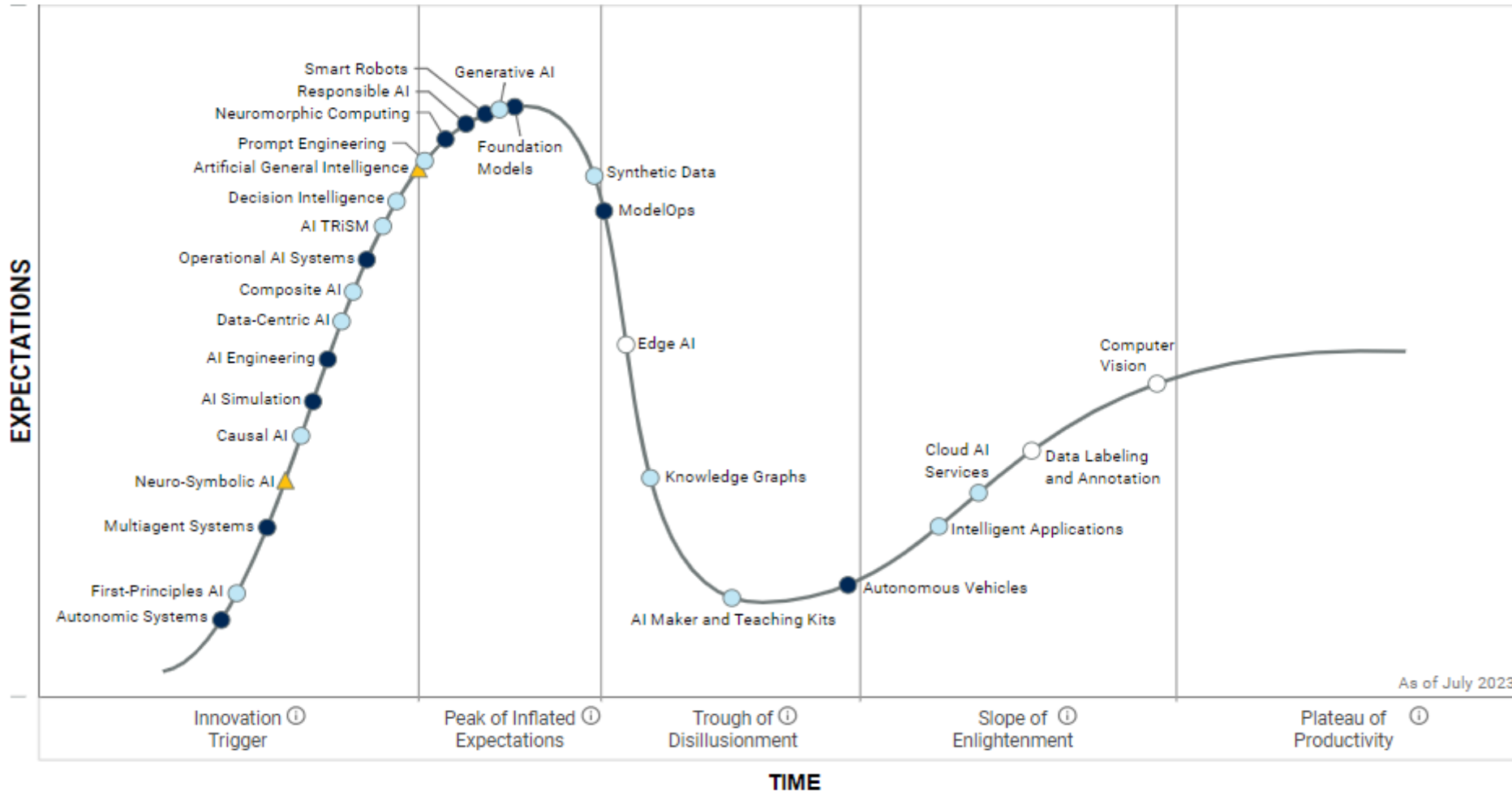
Generating Content and Response → Gen AI

These are the GenAI technologies mature enough to use confidently at scale
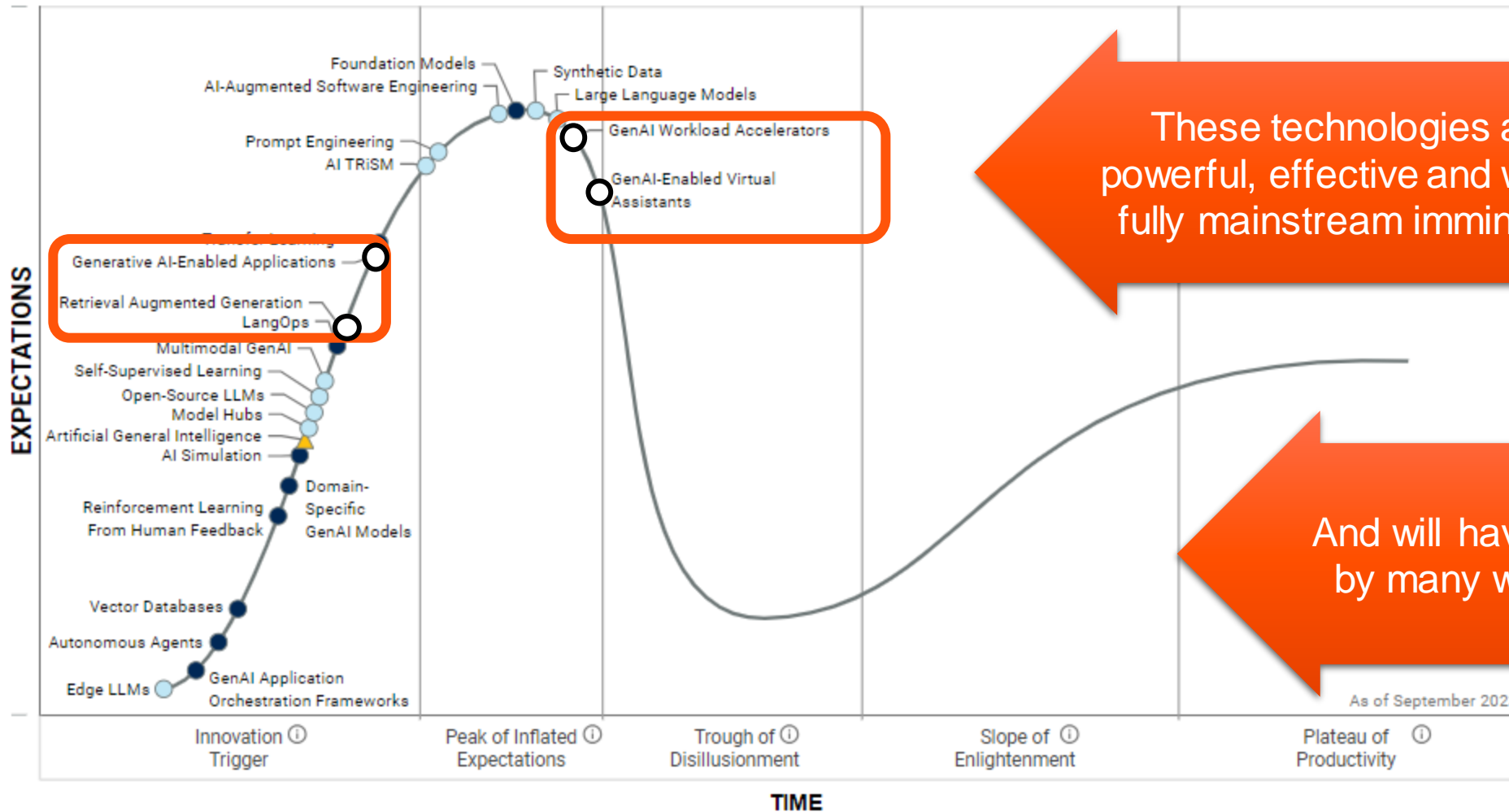
Hype Cycle for Generative AI, 2023

Generating Content and Response → Gen AI

As of September 2023

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What does a Large Language Model Do?

- Has read a lot

- Is very articulate

- Can speak multiple languages

- Can draft rapidly

- Has no real-world experience

- Is somewhat naive

- May be able to produce interesting ideas

- Will learn from what they are given

- May or may not understand sensitivity and privacy

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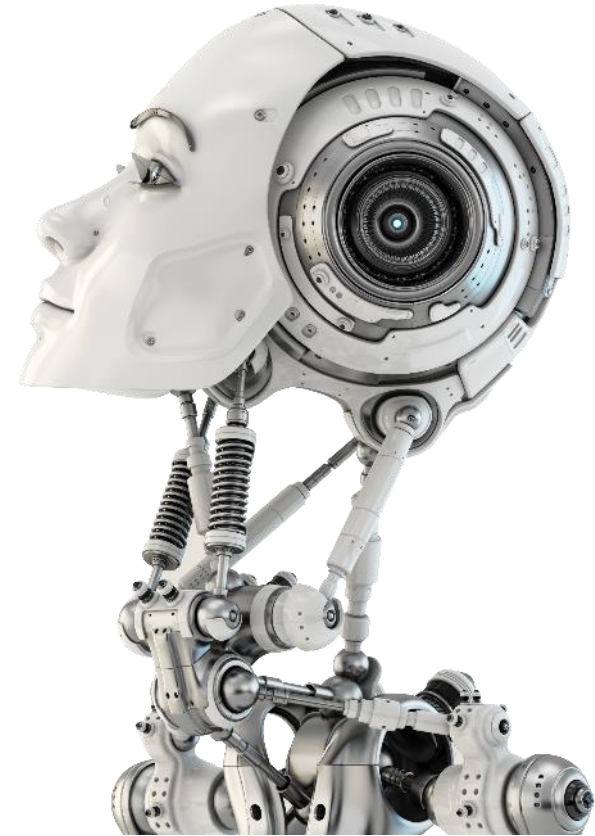
.... And what might that remind you of?

- Has read a lot

- Is very articulate

- Can speak multiple languages

- Can draft rapidly

- Has no real-world experience

- Is somewhat naive

- May be able to produce interesting ideas

- Will learn from what they are given

- May or may not understand sensitivity and privacy

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Top 10 Strategic Predictions for 2024 and Beyond

Charisma	Productivity	Neurodiversity	Energy	Legacy
30% leverage "charisma filters"	**AI** productivity boosts national power	**25%** hire for neurodiversity	**50%** experience monthly electricity rationing	**70%** of legacy applications explained by AI
2026	2027	2027	2026	2027

Workers	Customers	Malinformation	Power	Unions
Smart robots outnumber human workers	**Machine** customers get their own channels	**$30B** diverted from budgets to fight malinformation	**45%** of CISOs get more power	**1,000%** increase in unionization
2028	2026	2028	2027	2028

Source: Gartner
801295_C

Gartner's Top Strategic Predictions for 2024 and Beyond — Living With the Year Everything Changed

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Predicts 2024: CSP Technology and Operations Strategies

- Through 2027, **30% of CSPs will include a software engineering practice** in their organization, which is an increase from 5% in 3Q23.

- By 2028, a global market for communications equipment will devolve into **two or more regional markets**, **each with its own technology stack**.

- By 2028, **70% of current CSP workforce technical skills will be made obsolete** by automation, augmented intelligence and delayering.

- By 2028, CSPs will adopt **cloud-native technologies for 50% of network functions**, compared with fewer than 5% in 2022.

- By 2025, **70% of CSPs will implement optimization tools** and practices to **reduce cloud operations cost**, compared with 5% in 2022.

Predicts 2024: CSP Technology and Operations Strategies

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Top Strategic Technology Trends for 2024

Rise of the Builders

Protect Your Investment

Deliver the Value

Platform Engineering

AI-Augmented Development

AI Trust, Risk, Security Management

Industry Cloud Platforms

Intelligent Applications

Machine Customers

Continuous Threat Exposure Management

Sustainable Technology

Democratized Generative AI

Augmented Connected Workforce
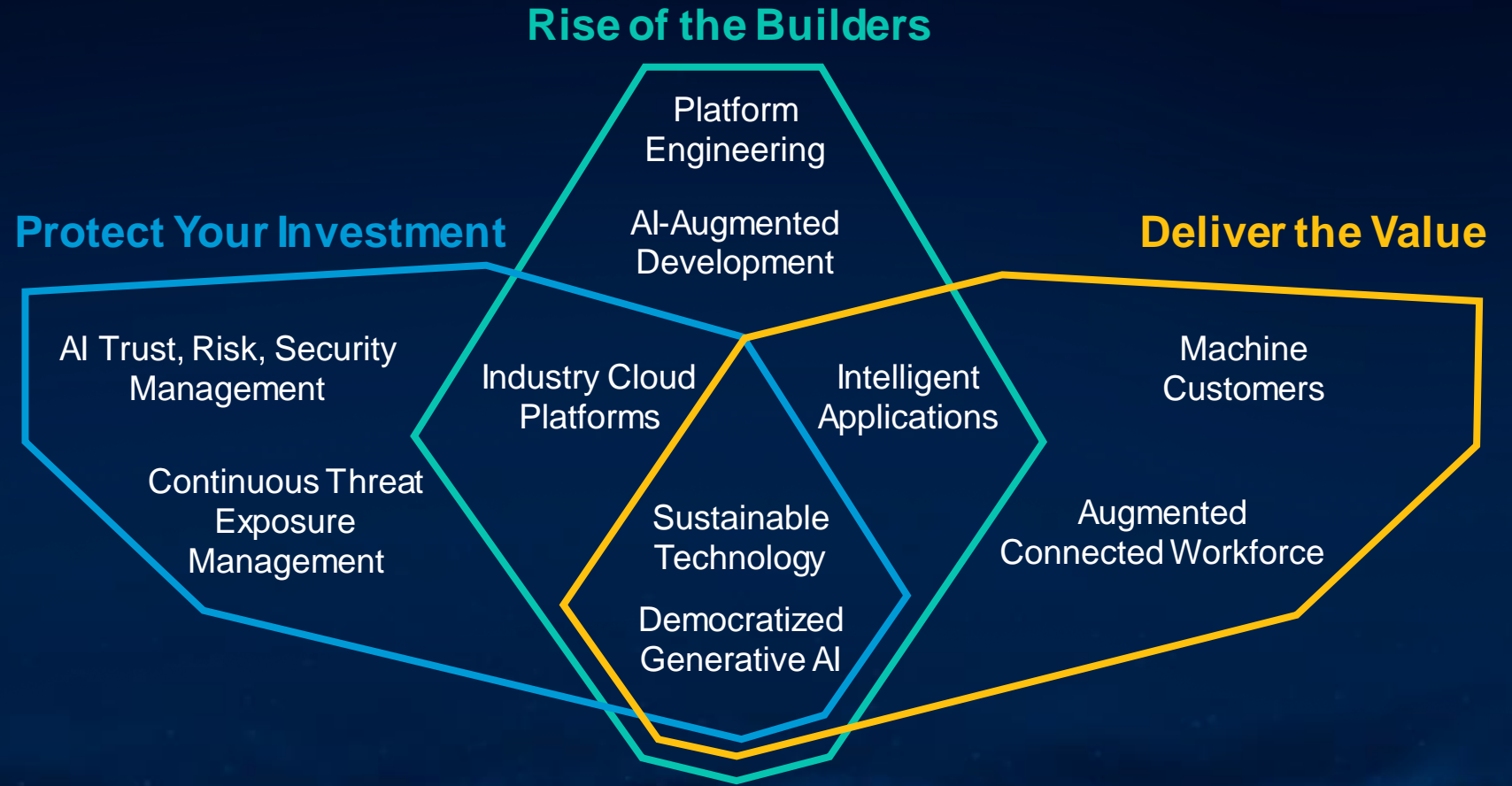
7+1 DISRUPTIONS FOR 2023-2028 on the Digital Disruption Scale

NOTABLE DIGITAL DISRUPTIONS — 2023 / 2028

MAGNITUDE (High / Low)
- Revolutionize
- Reinvent
- Transform — Generative AI
- Extend
- Enhance

- Engineering Innovation Pace (1)
- AI-Driven Modernizations (2)
- Laggards Leapfrog Leaders (3)
- "Silver Workers" (4)
- Space Race 2.0 (5)
- Regulated AI (6)
- Geomagnetic Storms Impact (7)
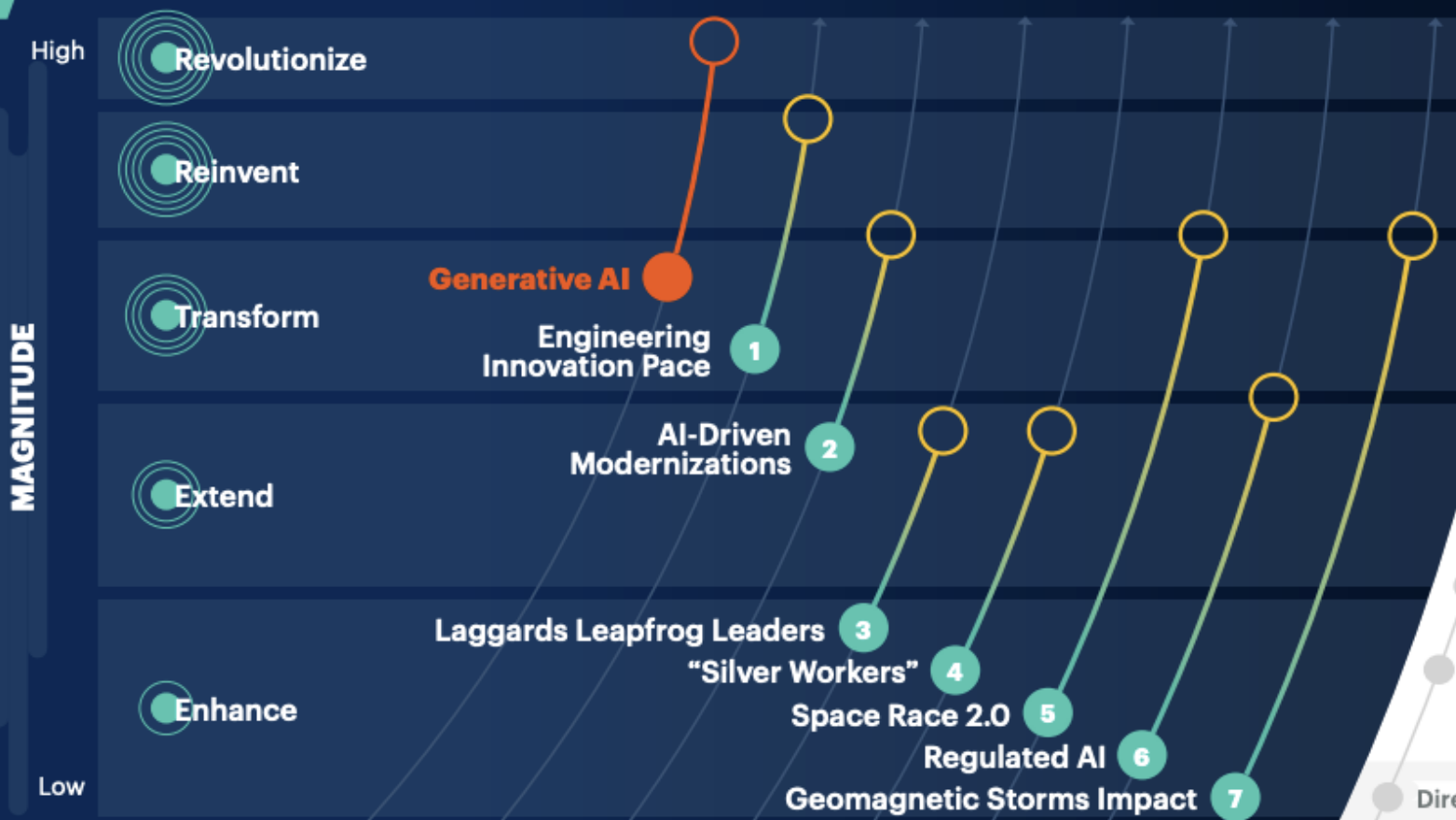
HISTORICAL DISRUPTION EQUIVALENTS
- WWW
- World War II
- The Industrial Revolution
- Semiconductors
- Television
- Digital Television
- Antibiotics
- U.S. Civil Rights Movement
- Radio Broadcasts
- Smartphone Navigation
- Direct Access Storage

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The 4Q23 Risk Meteors

Top Emerging Risks for 4Q23
By Risk Score[1]
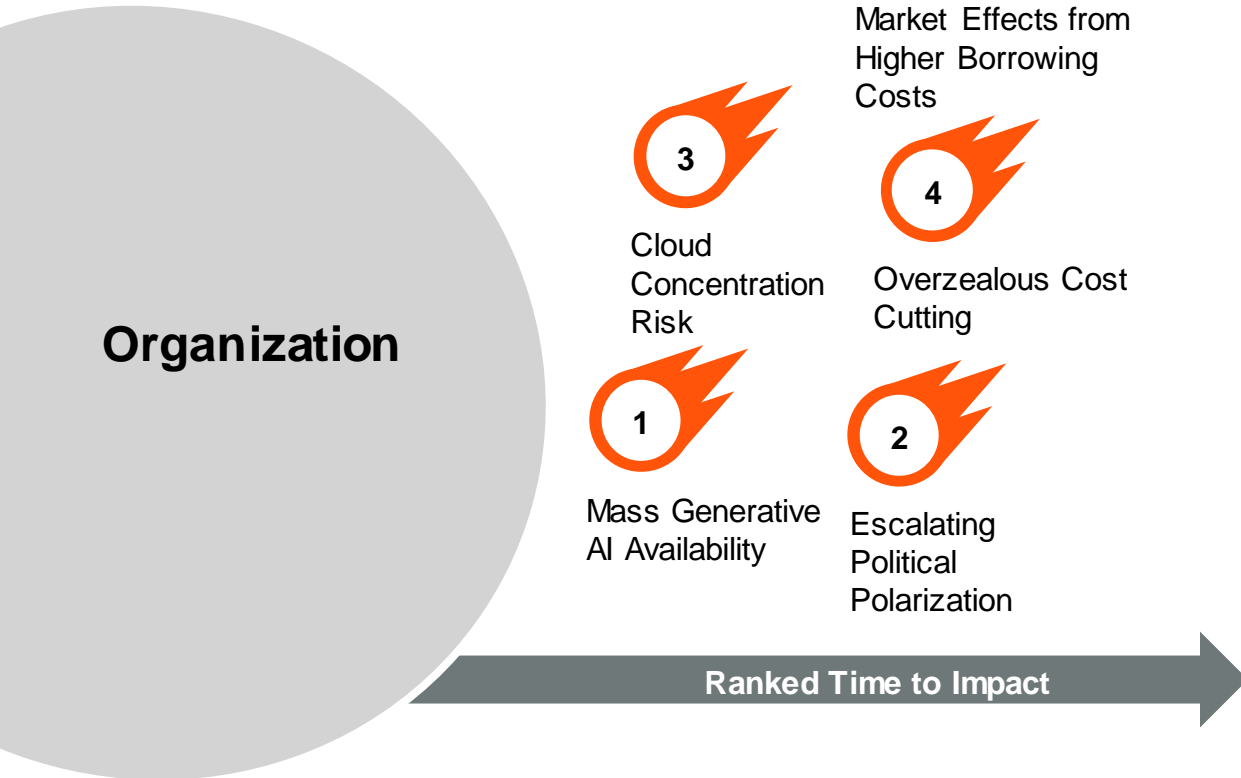
Score Rank	Risk Name	Impact Score	Time Frame Score	Frequency
1	Mass Generative AI Availability	2.91	2.05	76%
2	Escalating Political Polarization	2.67	1.71	69%
3	Cloud Concentration Risk	2.95	2.12	64%
4	Overzealous Cost Cutting	2.87	1.76	52%
5	Market Effects from Higher Borrowing Costs	2.77	1.73	53%

n = 347

[1] Risk Score: Risk Score = Cube Root (Impact x Inverse Time Frame x Frequency Selected as a Top 10 Emerging Risk Rescaled)

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The 1Q24 Risk Meteors

Top Emerging Risks for 1Q24
By Risk Score[1]

Organization

2
AI-Assisted
Misinformation

5
Misaligned
Organizational
Talent Profile

4
Globally
Consequential
Elections

3
Escalating
Political
Polarization

1
AI-Enhanced
Malicious Attacks

Ranked Time to Impact

Score Rank	Risk Name	Impact Score	Time Frame Score	Frequency
1	AI-Enhanced Malicious Attacks	3.17	1.68	80%
2	AI-Assisted Misinformation	2.73	1.83	66%
3	Escalating Political Polarization	2.68	1.92	66%
4	Globally Consequential Elections	2.51	1.70	61%
5	Misaligned Organizational Talent Profile	2.76	2.27	60%

n = 345

Source: 1Q24 Gartner Emerging Risks Survey
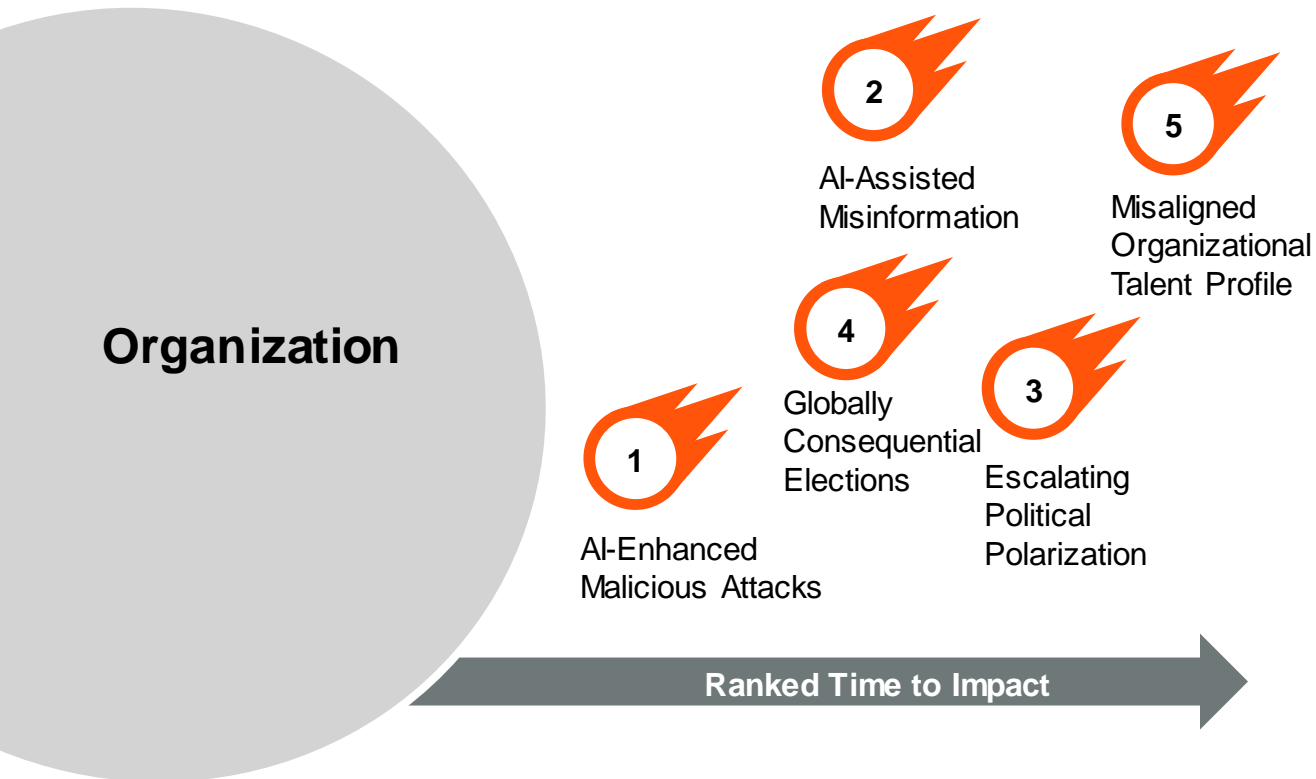
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Tak co s tím

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How Do You Compare With Other Enterprises in GenAI?

47% of boards are investing in early-stage education on GenAI for the board; 45% are **encouraging employees to test it.**[a]

CIOs see the potential value in GenAI, with 90% indicating a **moderate or extensive potential value.**[b]

One in five executive leaders are **already piloting or producing** GenAI.[c]

30% of surveyed CIOs and tech leaders rank AI as **a top priority** or among their top priorities.[d]

68% of executives see **more benefits than risks** from GenAI.[c]

Board Note

Encourage safe experimentation with GenAI but require outcome-driven intention. Better emails and prettier slides won't deliver the deep productivity and strong growth organizations need to remain competitive.

Help your executive team manage the balance between the fear of missing out on GenAI and ensuring adequate forward action with appropriate levels of rigor.

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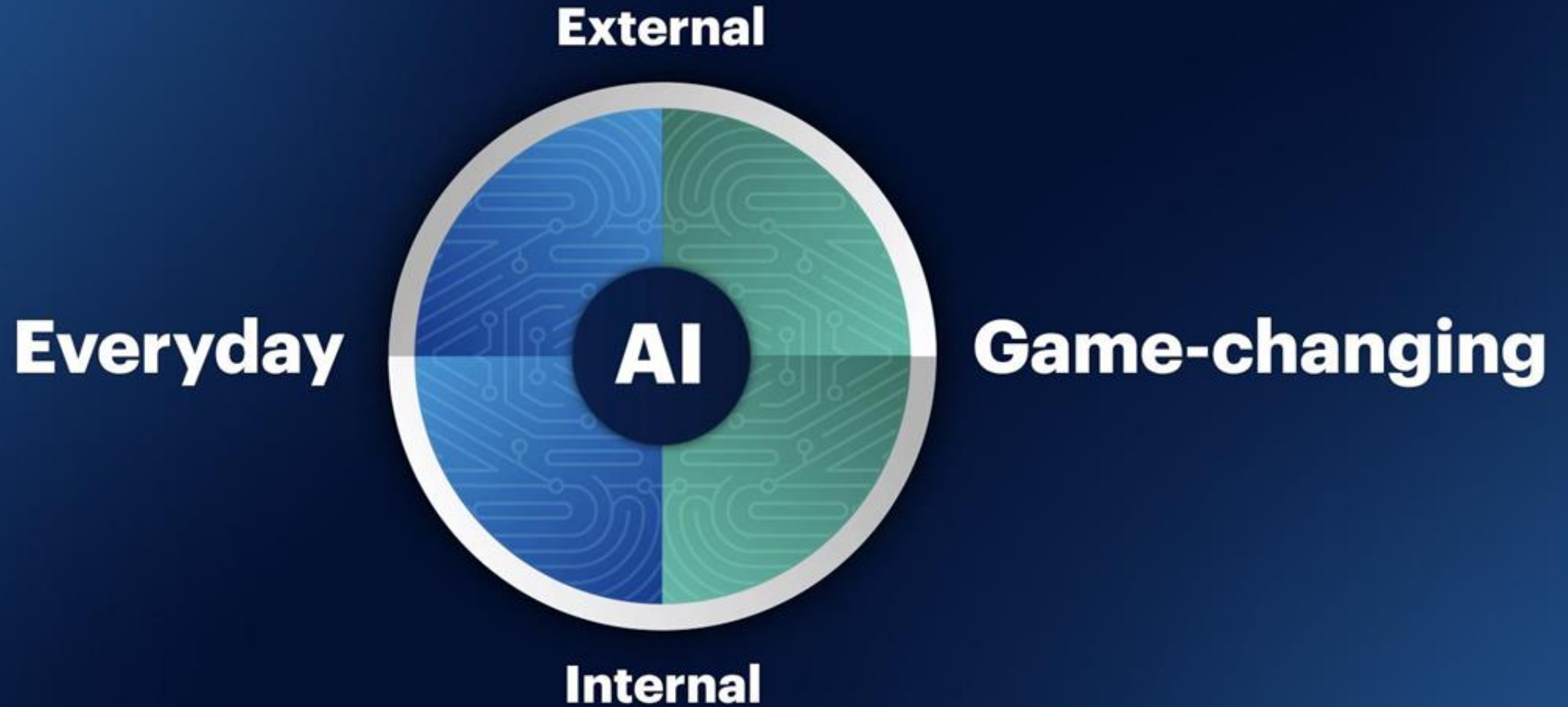
AI Opportunity Radar

AI Opportunity Radar

External Customer Facing

Front Office
CX, Sales/Mkt, Customer Service

Product/Service
AI Enhanced, Value Proposition

Everyday AI

Game-Changing AI

Back Office
Admin, HR, Legal, Finance, IT

Core Capabilities
R&D, Mfg., Supply Chain, Operations

Internal Operations

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AI Opportunity Radar, CSP

External Customer-Facing

Front Office
CX, Sales/Mkt, Customer Service

Product/Services
AI Enhanced, Value Proposition

Sales and Marketing Content Generation

Chatbot Creation

Customer Engagement

Packaging Optimization

Fraud Detection

Pricing Optimization

Everyday AI

Game-Changing AI

Software Development Team Productivity

Data Management Productivity

Product Development

Network Optimization

Sales, Marketing Productivity

Synthetic Data Generation (Network Operations)

Back Office
Admin, HR, Legal, Finance, IT

Core Capabilities
R&D, Supply Chain, Operations

Internal Operations

Low
Medium
High

Feasibility is combination of
- Technical Feasibility
- Internal Readiness
- External Readiness

Source: Use-Case Prism: Generative AI for CSPs

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For each proposed initiative:

- Which are feasible?
- Which result in real return?
- Which look nice, but in reality....

Caution!

Selectively invest!

Avoid!?

Business Value — High — Medium — Low — Medium — High — Feasibility
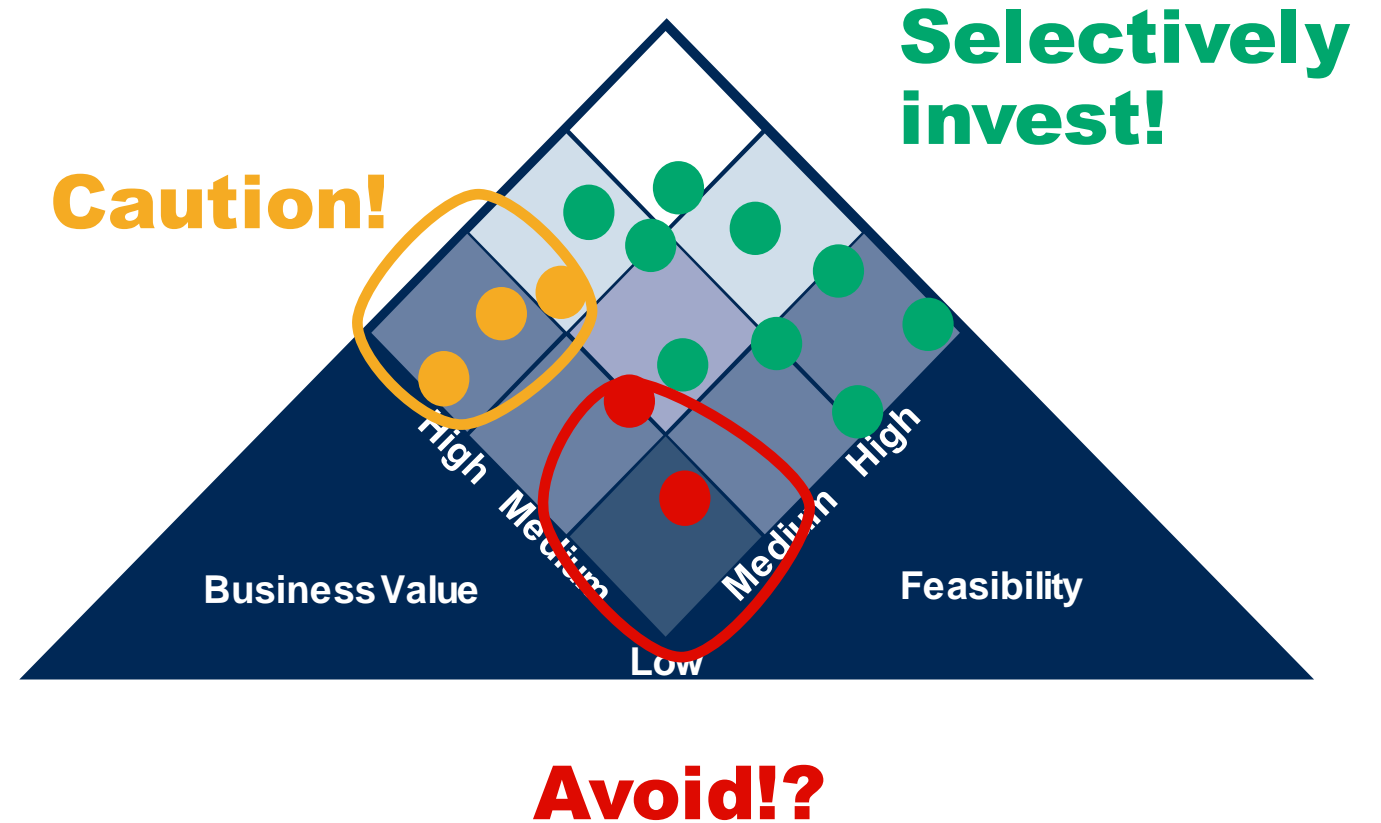
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Example Prisms for Government

- Human and Social services
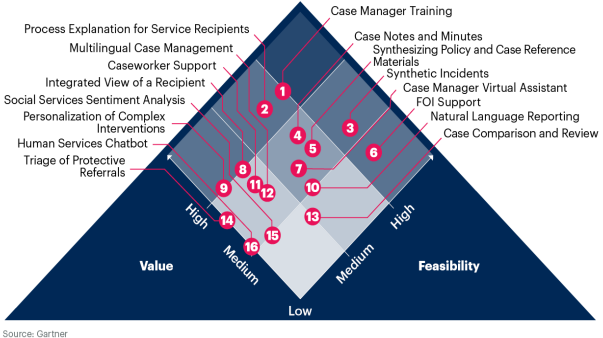
- Transport

- Government Contact Centres
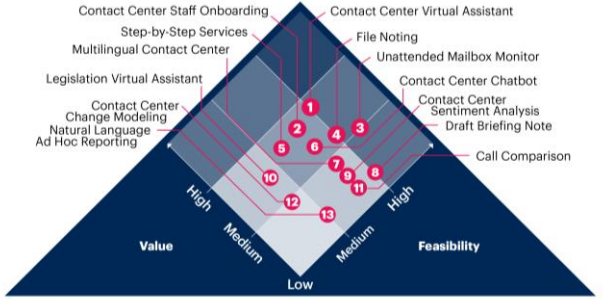
- Education
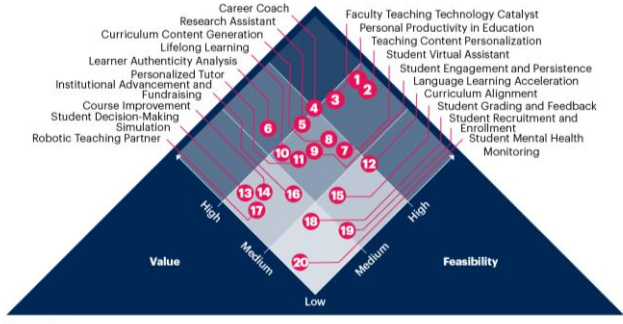
Creating an Opportunity Radar
....for Human and Social Services

Source: Gartner
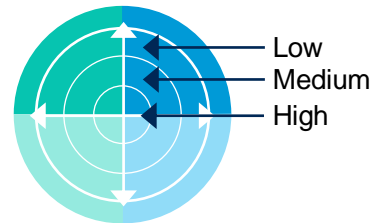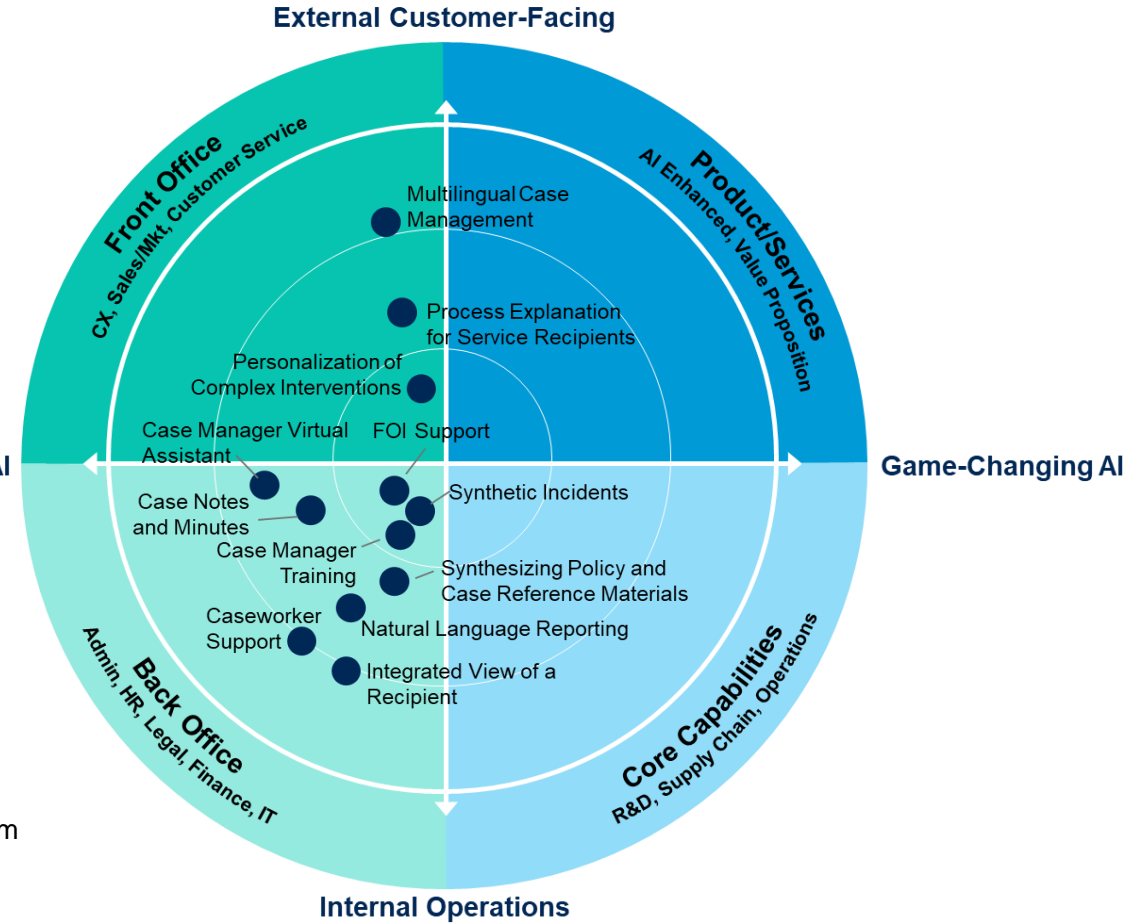
Feasibility is combination of
- Technical Feasibility
- Internal Readiness
- External Readiness

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Push to implement generative AI is coming primarily from the CEO/ C-suite or a steering committee

Mostly Bottom-Up (organically developing within each siloed business function) vs. Mostly Top-Down (coming primarily from the CEO/C-suite or a steering committee) Push for Generative AI

Percentage of respondents

■ Mostly top down   ■ Mostly bottom up

	Mostly top down	Mostly bottom up
Sales (n = 115)	87%	13%
Supply Chain (n = 102)	79%	21%
Finance (n = 100)	74%	26%
Customer Service (n = 100)	69%	31%
HR (n = 99)	68%	32%
Legal, Risk and Compliance (n = 98)	64%	36%
Marketing (n = 99)	63%	37%
Procurement (n = 99)	62%	38%

0%   50%   100%
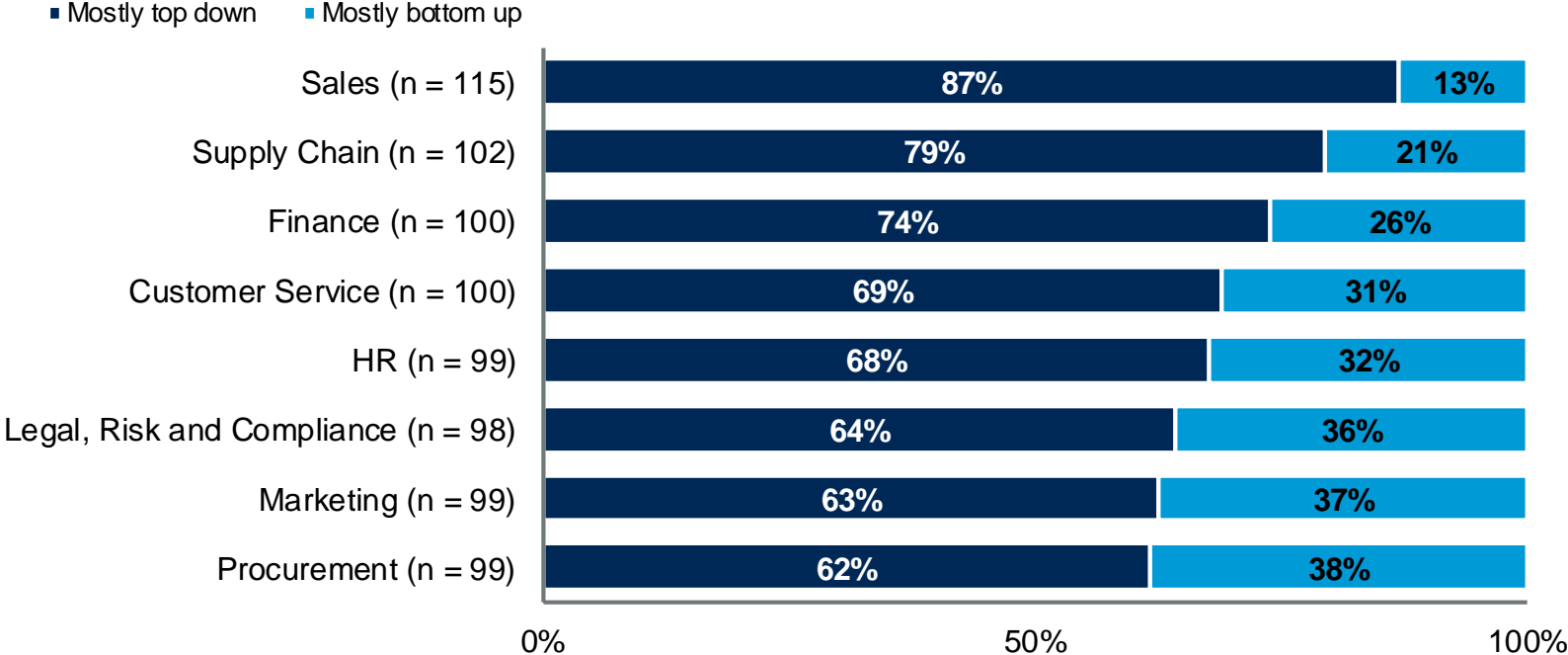
n varies, all respondents, excluding "don't know"
Q: Who is driving the push to implement generative AI within your company?
Source: 2024 Gartner Generative AI Planning Survey

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Generative AI use cases currently being implemented (i.e., in production, rolling out formally or piloting for rollout)

Currently implementing or implemented
Percentage of Respondents — Top 5

Customer Service (n = 102)

Real-time Speech and Text Translation	40%
Virtual Customer Assistant	38%
Content Analytics	35%
Virtual Agent Assistant	30%
Call Summarization	27%

Marketing (n = 100)

Channel Chatbots & Digital Humans	38%
Search & Advertising Optimization	32%
Content Copilot	29%
Localization	17%
Analytics Accelerator	16%

HR (n = 101)

Job descriptions & skills data	29%
Administrative tasks, policies generation	25%
Search for content	24%
Marketing messages, email communications	24%
Employee facing chatbot	23%

Sales (n = 116)

Generative Business Intelligence	34%
Pipeline & Forecast Intelligence	25%
AI Seller Assistant	20%
Generative Value Messaging	17%
Sales Decision Intelligence	17%

Finance (n = 100)

Coding Assistance	22%
Revenue/Spend Data Classification	18%
Management Reporting Draft Creation	17%
Financial/Regulatory Reporting Draft Creation	17%
Contract and Document Review	16%

Supply Chain (n = 102)

Staff assistance chatbots	30%
Code generation	30%
Interface with tech solutions	26%
New hire onboarding	26%
KPI Discovery and Diagnostics	23%

Procurement (n = 101)

Sourcing and Contract Lifecycle Management	18%
Supplier Information Discovery & Mngmt.	17%
Supplier Communications	15%
Sourcing Advisory Desk Chatbot	14%
Summarization of Proposal Reviews	10%

Legal, Risk and Compliance (n = 100)

Conduct legal research and analysis	17%
Draft contracts and other legal documents	16%
Conduct due diligence	15%
Review and compare contracts	15%
Streamline intake and self-service systems	15%

n varies, all respondents
Q: What are the potential use cases for generative AI that you foresee utilizing for your organization and in what time frame?
Source: 2024 Gartner Generative AI Planning Survey

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Coding assistance is the most frequently implemented generative AI use case; forecast and contract review expected in the next 6 months

Finance Use Cases for Generative AI

- Currently implementing or implemented
- Planning to implement in the next 6-12 months
- Not currently under consideration
- Planning to implement within 6 months
- Will explore implementation at some point in the future

Use Case	Currently implementing or implemented	Planning to implement within 6 months	Planning to implement in the next 6-12 months	Will explore implementation at some point in the future	Not currently under consideration
Coding Assistance	22%	19%	20%	24%	15%
Revenue/Spend Data Classification	18%	22%	35%	18%	6%
Management Reporting Draft Creation	17%	22%	39%	20%	2%
Financial/Regulatory Reporting Draft Creation	17%	17%	23%	29%	14%
Contract and Document Review	16%	25%	25%	23%	10%
Market/Competitor Research and Analysis	16%	19%	34%	20%	11%
Translation of Policies	14%	17%	29%	24%	15%
Forecast/Budget Variance Explanation	14%	30%	34%	16%	5%
Finance Support Staff Response Augmentation	14%	18%	32%	24%	11%
Generation and Interpretation of Policies	13%	16%	28%	26%	17%

0%   50%   100%

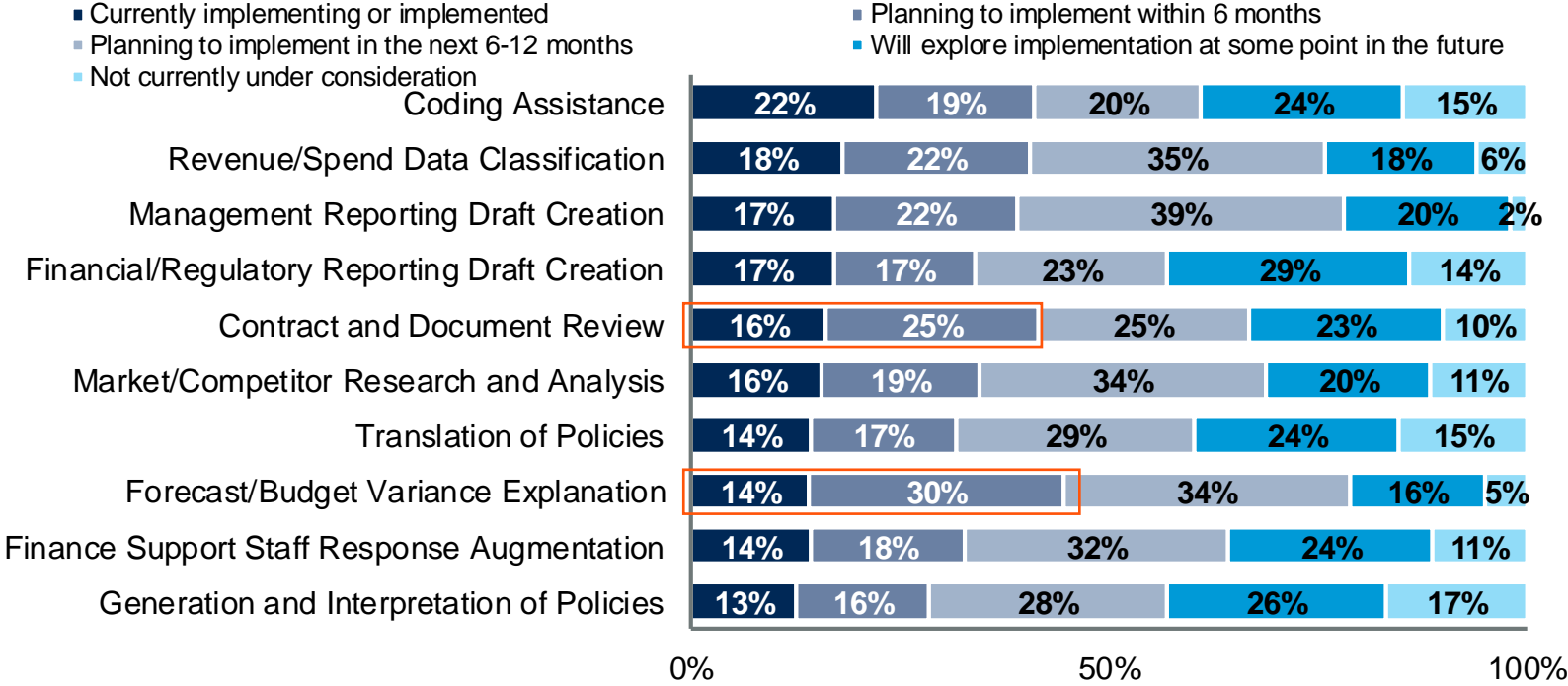n = 100 respondents in finance, excluding "don't know"

Q: What are the potential finance use cases for generative AI that you foresee utilizing for your organization and in what time frame?
Source: 2024 Gartner Generative AI Planning Survey

Back to index

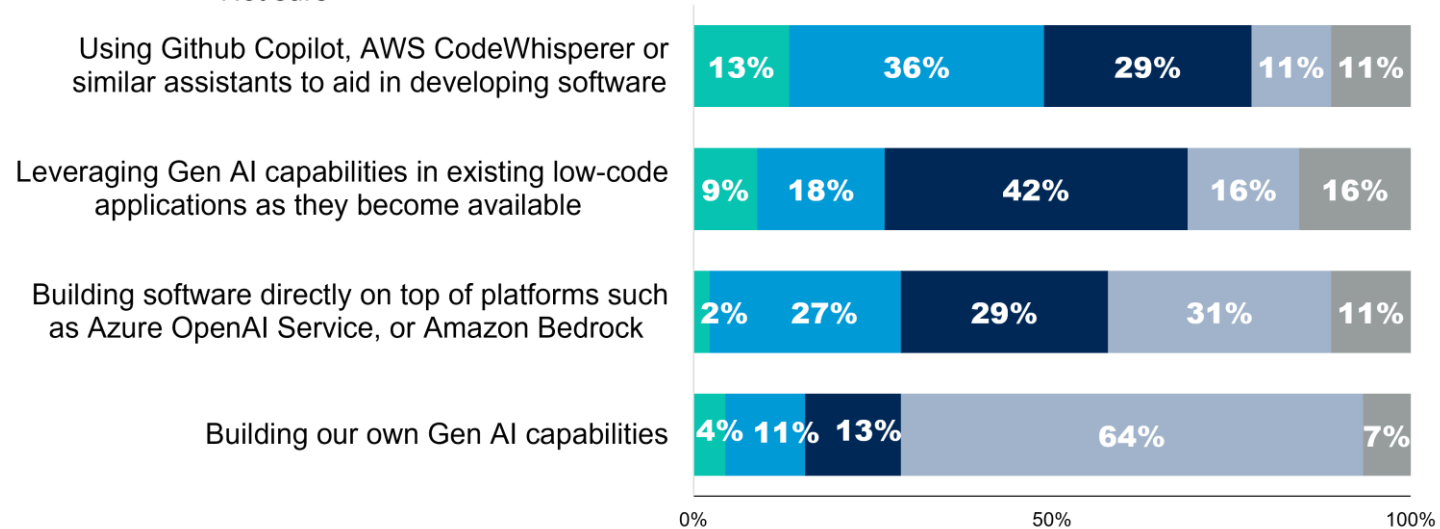**Gartner**

IT Leader Plans for Building Software Using GenAI

IT Leader Plans for Building Software Using GenAI

Percentage of respondents

■ Using / implementing now   ■ Investigating now
■ Expect to investigate in next year   ■ No expectation in next year
■ Not sure

	Using / implementing now	Investigating now	Expect to investigate in next year	No expectation in next year	Not sure
Using Github Copilot, AWS CodeWhisperer or similar assistants to aid in developing software	13%	36%	29%	11%	11%
Leveraging Gen AI capabilities in existing low-code applications as they become available	9%	18%	42%	16%	16%
Building software directly on top of platforms such as Azure OpenAI Service, or Amazon Bedrock	2%	27%	29%	31%	11%
Building our own Gen AI capabilities	4%	11%	13%	64%	7%

0%   50%   100%

n = 45 IT leaders who expect Generative AI will be used to build software (2 May through 8 May 2023)
Q: What are your organization's plans for building software using Generative AI?
Source: 2023 Gartner IT Leader Poll on Generative AI for Software Engineering
Note: Numbers may not add to 100% due to rounding

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GenAI Use-Case Comparison for Information Technology

Calculated Risks

- Threat & Anomaly Analysis
- Process Automation
- Synthetic Data
- Vendor Analysis & Management
- Virtual IT Support Agent
- Sentiment Analysis
- Reference Architecture Generation

Likely Wins

- Job Description/Skills Analysis
- Data Quality Management
- Training & Development
- Test Cases & Data Support
- Code Generation
- Budgeting & Spending Analysis
- Marketing & Communications
- Strategic Planning

Marginal Gains

- Unstructured Data Processing
- Log Monitoring
- Policy & Documentation Generation
- Code Planning
- Code Explanation & Clarification

Value

Feasibility

Source: Gartner
803242

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Recommendations

1
Exploit the hype to drive policy

- Many are **excited**
- ChatGPT is **only one** large language model
- There are **many other uses of AI**
- This is an **opportunity**

2
Prioritize Initiatives

- **Value** to Purpose
  - Mission
  - Costs
  - Risk Reduction
- **Feasibility**
  - Technical
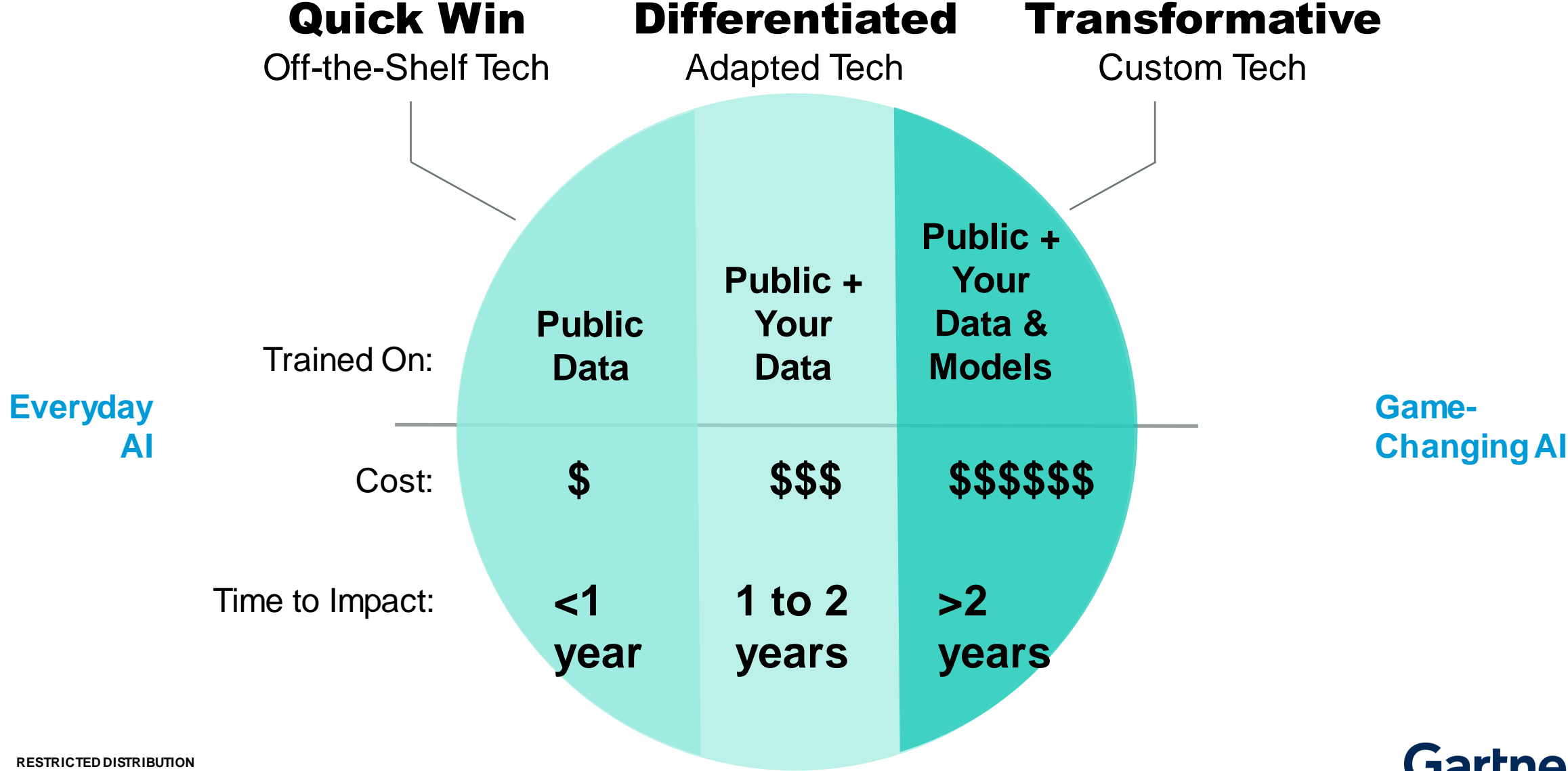 - Organizational
  - AND Societal

3
Mitigate Risk

- Provide a **safe space** for experimentation
- Deliver in **stages**
- Start with human-in-the-loop
- **Scale** when residual risk is shown to be acceptable

4
Develop Capability

- Assess **current** capability
- **Build a path** to develop to your needs
- Don't forget **external threat**

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GenAI Deployment Options

Quick Win
Off-the-Shelf Tech

Differentiated
Adapted Tech

Transformative
Custom Tech

Everyday AI

Game-Changing AI

	Quick Win	Differentiated	Transformative
Trained On:	Public Data	Public + Your Data	Public + Your Data & Models
Cost:	$	$$$	$$$$$$
Time to Impact:	<1 year	1 to 2 years	>2 years

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End

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Backup

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What Is the Likely Path for GenAI Beyond 2024?

Gartner Prediction of GenAI Adoption

2024

40% of enterprise applications will have **embedded conversational AI**, up from less than 5% in 2020.

2025

- The top five vendors **across all enterprise software categories** will use GenAI in their pipeline.
- 30% of enterprises will have implemented an **AI-augmented development and testing strategy**, up from 5% in 2021.

2026

Over 100 million humans will engage **robocolleagues** (synthetic virtual colleagues) at work.

2027

- Nearly 15% of new applications will be automatically **generated by AI without a human in the loop**, up from 0% today.
- AI-powered innovation teams will deliver **projects that are up to 75% more successful** compared to traditional human teams.

2028

- 75% of enterprise software engineers will use **AI code assistants**, up from less than 10% in early 2023.
- GenAI-enabled tools will reduce electronics design (e.g., chip manufacturing) and test effort **and improve design efficiency by five times.**

Source: Gartner

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What Are the Top GenAI Risks Boards of Directors Are Concerned About?

Areas of Concerns/Risks With Generative AI in the Next Two Years

Sum of top 4, coded responses

Concern	Sum of Top 4
Information integrity	41%
Data privacy or security risks	37%
Knowledge/capability barrier	22%
Workforce related risks	21%
Competitive threats	19%
Intellectual property protection/IP leakage concerns	19%
Ethical issues (unethical usage/fraud)	17%
Business disruption	13%
Cost-related risks	13%
Legal/regulatory/compliance risk	13%
Disrupting creativity/innovation	10%
Lack of control	10%
Customer dissatisfaction	7%
Lack of trust	7%
Other risk (managing, operational, reputation)	6%
Lack of human interaction/touch	4%
Other	10%

■ Sum of Top 4
■ 1st choice

Board Note

NEDs' top three concerns
(ranked No. 1 most often by NEDs)
all focus on data:
- Information integrity
- Data privacy or security risks
- IP protection and leakage concerns

n = 218, Non-Executive Board of Directors, Excluding None/Unsure/ Don't know
Q14. In the context of your business model or industry, what are the four biggest areas of concerns / risks you see with Generative AI (i.e., OpenAI ChatGPT, Google Bard etc.) in the next 2 years (2024-2025)?
Source: 2024 Gartner Board of Directors Survey on Driving Business Success in an Uncertain World

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Which Countries Have a Dedicated Governmental AI Body and Strategy?

- While governments are moving quickly to create policy and regulations regarding GenAI and AI more broadly, regulation always lags technical progress. This has never been truer as AI development continues to move at an extraordinary pace.

- Enterprises seeking protection from regulations are unlikely to find it. Those who choose to move more quickly will need to adapt as regulations do.

Source: Gartner

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What Are the Current GenAI Deployment Options?

Comparison of Generative AI Deployment Approaches

Magnitude: Low ○ ◔ ◔ ◑ ◑ ◑ ◕ ◕ ● Very High

Decision Factors	Approach				
	Consume Generative AI Embedded in Apps	**Embed** Generative AI APIs in a Custom App Frame	**Extend** Generative AI Models via Data Retrieval	**Extend** Generative AI Models via Fine-Tuning	**Build** Custom Models From scratch
Cost	◔	◑	◐	◕	●
Organizational/ Domain Knowledge	◔	◑	◐	◕	●
Security and Privacy	◕	◐	◐	◕	◕
Control of Model Output	◔	◑	◐	◕	◕
Implementation Simplicity	◕	◑	◐	◔	◔

Board Note

Options range from GenAI embedded in vendor applications to building your own custom models.

Each approach represents a range of costs and different sets of risks.

For further information on choosing a GenAI deployment approach, use this research.

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What Are the Different Deployment Approaches?

Generative AI Use-Case Categories
Illustrative

Value and competitive impact (vertical axis, Low to High)

GenAI total cost, complexity and risk (horizontal axis, Low to High)

Defend task specific improvement, competitive parity
- Business assistants/copilots
- Marketing copy generation
- Coding assistants

Extend an existing process for differentiation
- GenAI in customer support applications
- GenAI in sales applications
- GenAI document search and summary

Upend to create new products, markets and core processes

Industry or domain GenAI enabled applications:
- Fine-tuned
- Custom foundation models

? Questions to Consider

- How aggressively are your competitors investing in GenAI?
- Are your competitors yielding material business results?
- What approach do you need to take to maintain your market position or move ahead?

Source: Gartner
8O5323_C

For further information on assumptions and tools for making cost and return calculations, use this research.

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What Are the Relative Costs of Different Deployment Approaches?

Costs of GenAI Deployment Approaches

	Defend	Extend	Upend
Upfront Cost	$100K-$500K	$750K-$1M	$5M-$20M
Additional Monthly Costs	$200-$2K per user	$790-$11K per user	$8K-$21K per user
Value Generated Monthly	$1,600-$16K per user	$4K-$16K per user	Use-case-specific
Sample Vendors/ Products	Adobe Firefly, Amazon Q, ChatGPT Enterprise	Amazon Bedrock, Einstein GPT, Azure OpenAI Service	Amazon Bedrock, Cohere, MosaicML, Vertex AI, OpenAI

Board Note

The cost of all GenAI deployment approaches is currently in flux. Gartner expects vendor prices to continue to evolve quickly during the next 12 months.

For further information on assumptions and tools for making cost and return calculations, use this research.

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How Do You Compare With Other Enterprises in GenAI?

47% of boards are investing in early-stage education on GenAI for the board; 45% are **encouraging employees to test it.**[a]

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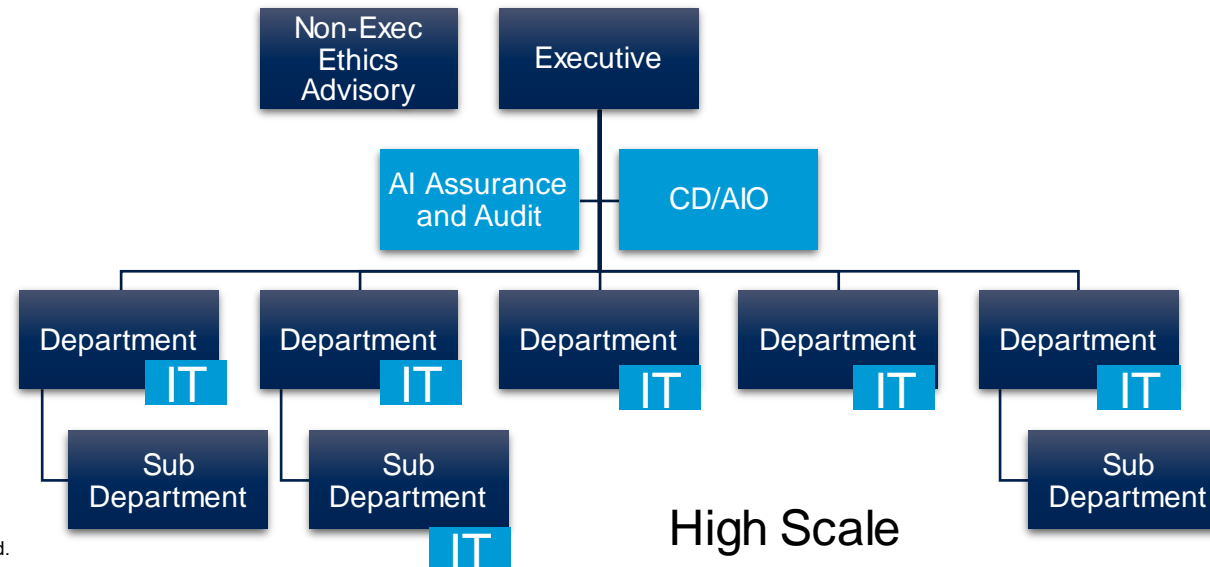68% of executives see **more benefits than risks** from GenAI.[c]
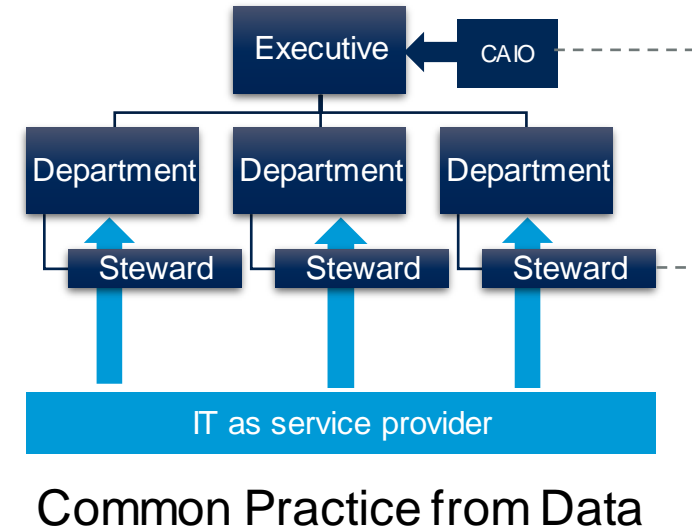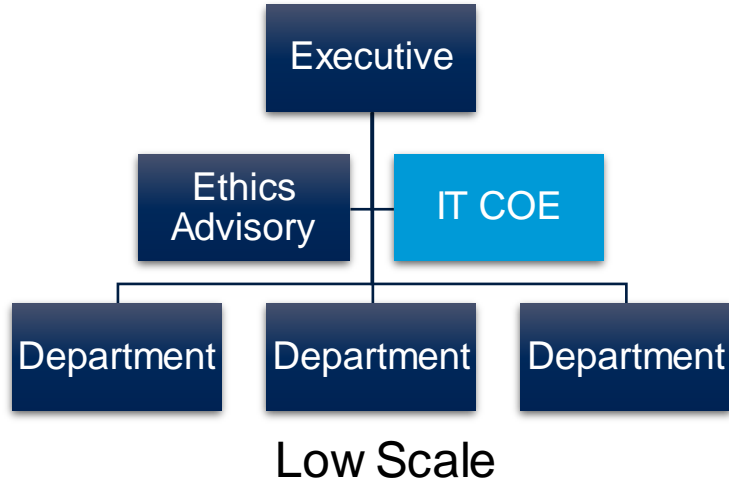
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Advisory/Governance Structures

Low Scale

Common Practice from Data

High Scale

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AI Organization Should Align With AI Maturity

Level 1 Awareness	Level 2 Active	Level 3 Operational	Level 4 Systemic	Level 5 Transformational

Level 1 Awareness:
- Early AI interest with risk of over-hyping
- First AI (speculative) use cases identified
- Pioneering & Orientation

Level 2 Active:
- AI experimentation, mostly in data science context
- Application of e.g. image recognition or deep learning for predictive analytics
- Successful AI PoCs
- Experimentation
- Now?

Level 3 Operational:
- AI in production, creating value by e.g. process optimization or product/service innovations
- Real-time AI with IoT or social media, prescriptive analytics, continuous intelligence
- NLP and chatbots for customer interaction
- Cross-enterprise data management & platform for AI
- AI complementing advanced analytics and R&D teams
- 2025?

Level 4 Systemic:
- AI is pervasively used for digital process & chain transformation, and disruptive new digital business models
- Decision automation, (virtual) personal assistants & augmentation, smart robots
- C-level ownership of AI
- AI ethics, governance & risk management
- Strategies and ongoing innovations with AI as a given
- Significant impact on workforce, roles & skills
- 2027?

Level 5 Transformational:
- AI is part of business DNA
- Synergy of human & artificial intelligence
- AI deeply and seamlessly integrated into every process, product and service
- Abundant autonomous systems & processes
- Orchestration of complex ecosystems with swarm intelligence
- Profound impact on people, culture and society at large

AI Special Interest Group + AI Laboratory + AI Center of Excellence + Hybrid AI Organization + Omnipresent AI Orchestration

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Recommendations

1
Exploit the hype to drive policy

- Many are **excited**
- ChatGPT is **only one** large language model
- There are **many other uses of AI**
- This is an **opportunity**

2
Prioritize Initiatives

- **Value** to Purpose
  – Mission
  – Costs
  – Risk Reduction
- **Feasibility**
  – Technical
  – Organizational
  – AND Societal

3
Mitigate Risk

- Provide a **safe space** for experimentation
- Deliver in **stages**
- Start with human-in-the-loop
- **Scale** when residual risk is shown to be acceptable
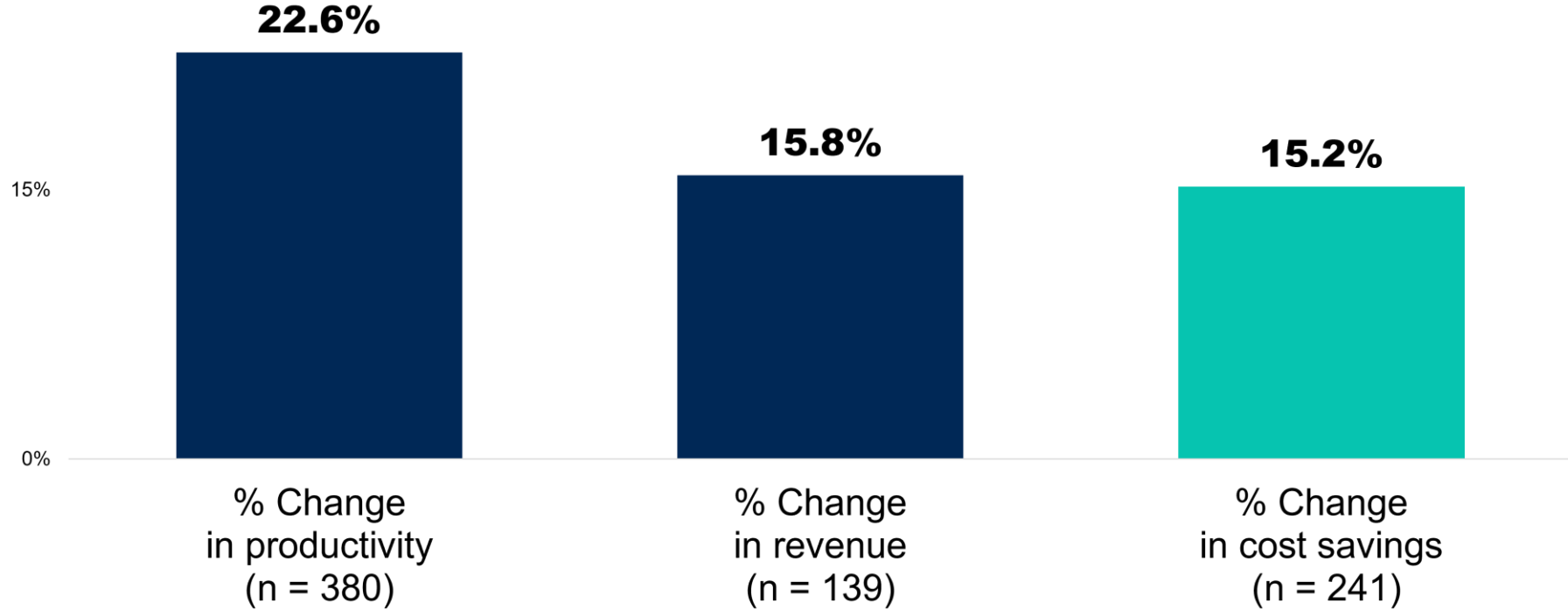
4
Develop Capability

- Assess **current** capability
- **Build a path** to develop to your needs
- Don't forget **external threat**

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Projected cost, productivity or revenue change in the next 12-18 months

Projected Percent Changes Over Next 12-18 Months Due to Generative AI

Mean

n = varies, Respondents who seek these changes as a top benefit or already realized by using generative AI, excluding "Don't know"
Q: On average, what percentage change in cost, productivity, or revenue do you expect to see from the use of Generative AI in your organization over the next 12-18 months?
Source: Gartner Generative AI 2024 Planning Survey

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Related Gartner Research