2025 PARTNER EXCHANGE
35th Anniversary

Using AI to Drive Digital Transformation

Brian Wells | Lead AI Domain Architect

May 2025

WAVES of INNOVATION
TOGETHER WE RISE

TRANE

Special Thanks to our Sponsors:

Agenda

1. 2025 AI State of the Art
2. Technology Overview
3. Potential Business Value
4. AI Risks and Challenges
5. Road to Successful AI Adoption

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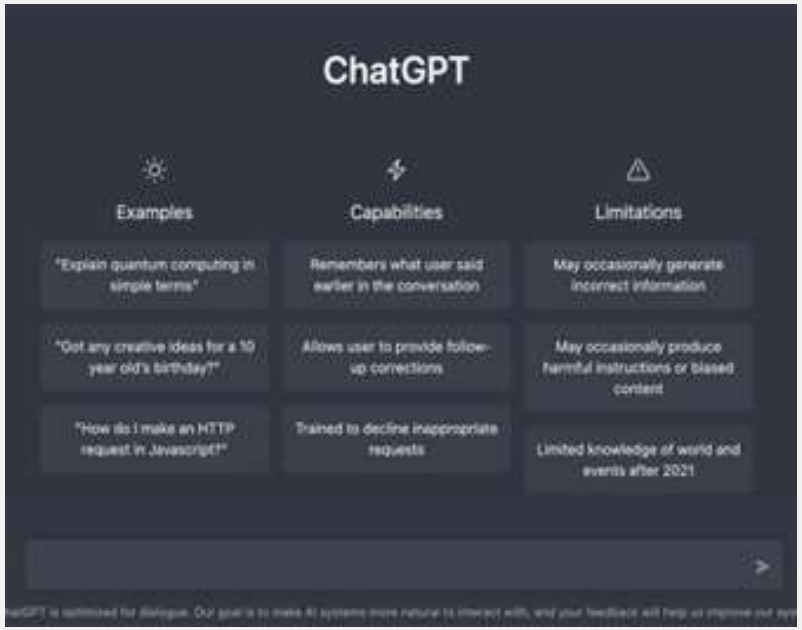
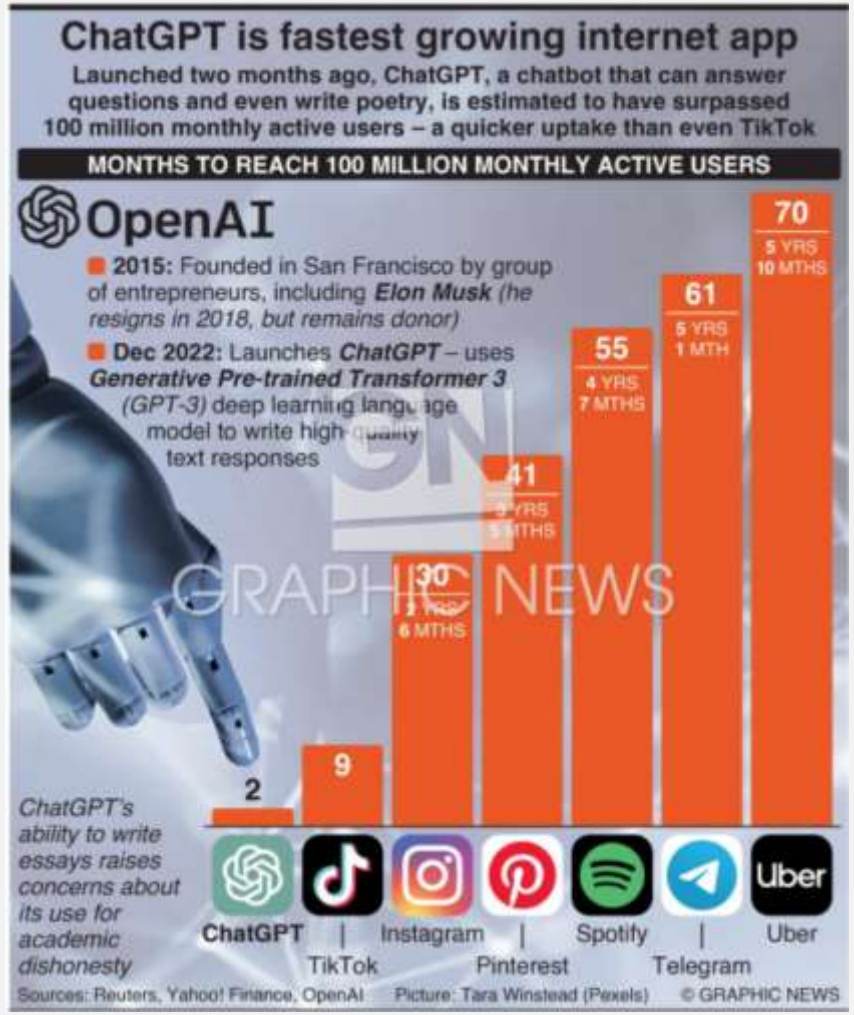
Launch of ChatGPT Digital Assistant (Nov ‘22)

GPT – Generative Pretrained Transformer – A “General-Purpose Technology” (Sam Altman)



“We are now confident we know how to build AGI” – **Sam Altman, Jan 2025**



OpenAI Shifts Attention to Superintelligence in 2025

Published January 6, 2025 | Written by Fiona Jackson

Superintelligence refers to AI with greater-than-human capabilities.

State of Artificial Intelligence in 2025

Generative AI and agentic AI systems are here ***now***

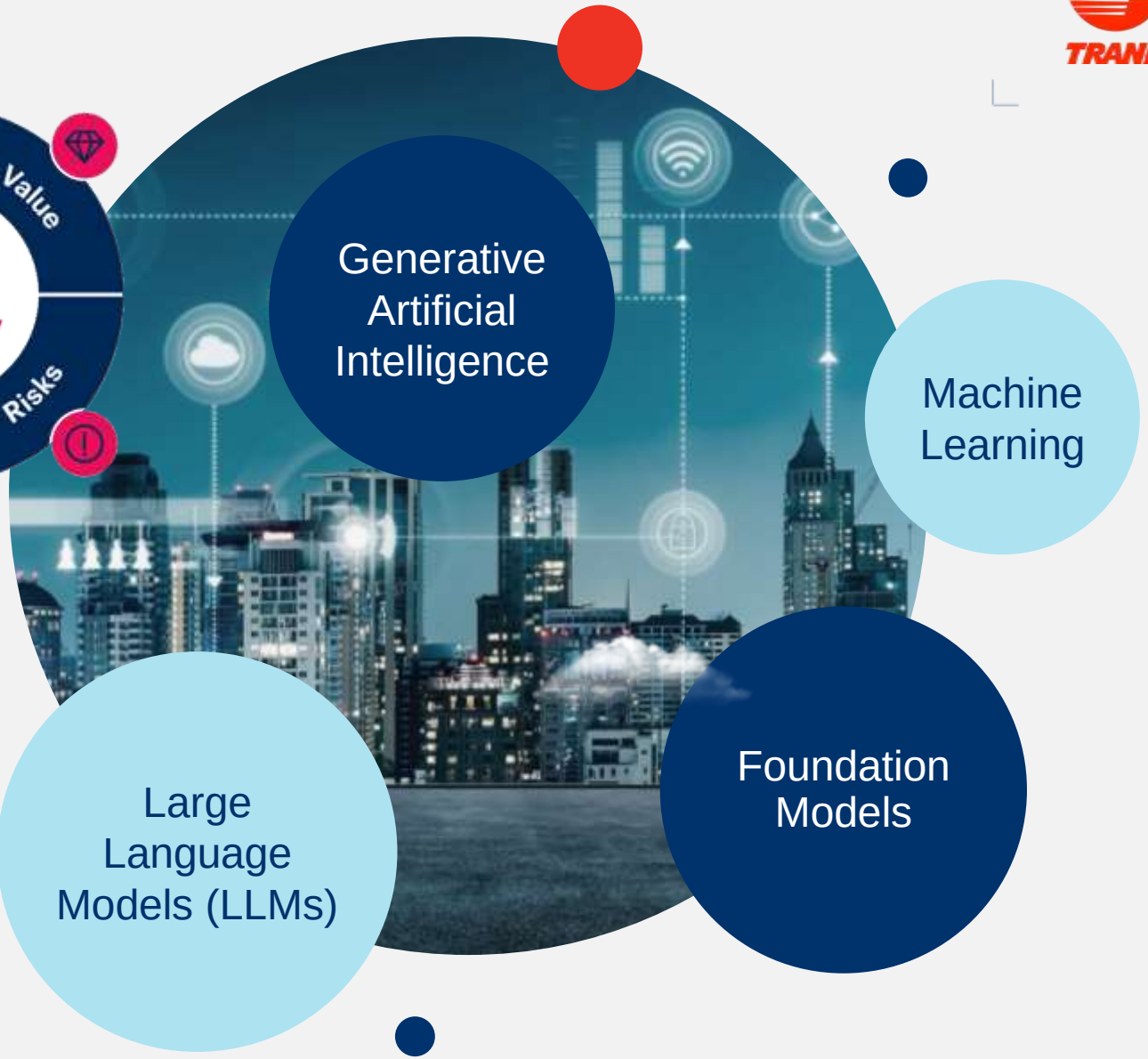
Generative AI is on track to become the most disruptive technology in history. The question you should be asking is not *if* you should prepare but *how.*

- OpenAI o3 outperformed humans on the ARC AGI (general intelligence) benchmark test in 2024
- Current PhD level frontier language models alone could fuel disruptive innovation beyond 2030
- The forefront of AI technology is at least a year ahead of public knowledge

Artificial Intelligence

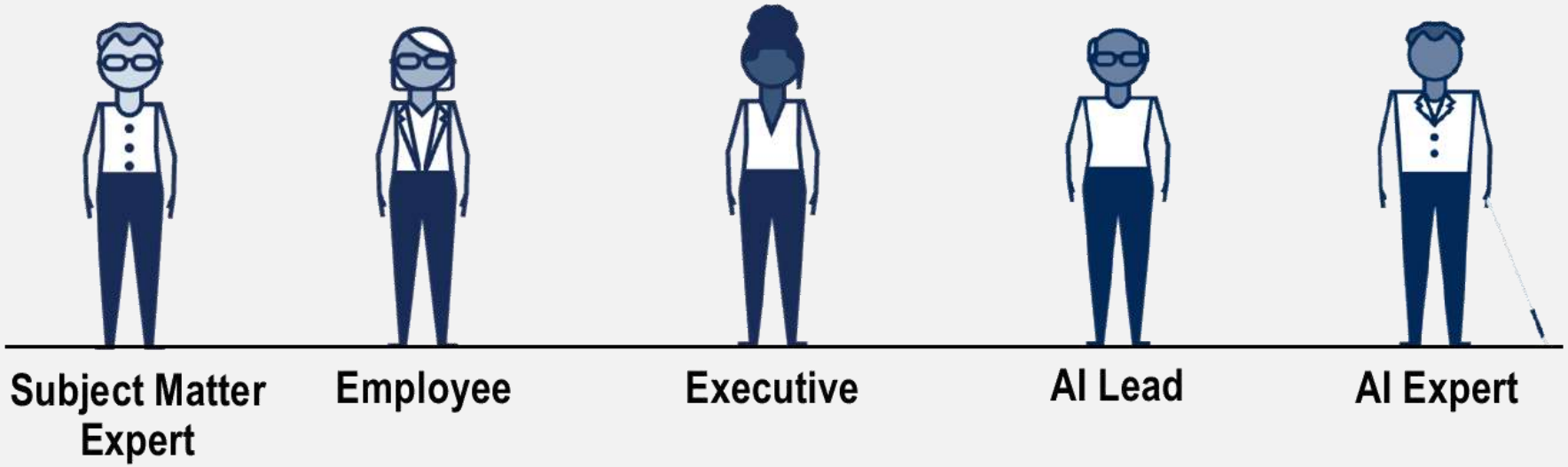
A Focus on **Technology**

To understand ‘the art of the possible’ requires an Intuition about the technology



AI Literacy – Who Should Learn What

Road to GenAI Adoption – Building Your GenAI Workforce



The ChatGPT Web Application

What ChatGPT is And How It Works

KNOWLEDGE GRAPH
Relational entity storage framework for model grounding via persistent memory

USER INTERFACE
Dialog box, file upload, conversation history display

COMPUTER VISION
Advanced image processing beyond the base model's capability

CODE INTERPRETER
Python code interpreter for math, file processing, analysis, etc.

DOCUMENT VECTOR STORE
Semantic search index for documents to support Retrieval Augmented Generation (RAG)

FUNCTION CALLING
Model can be given discrete tools to use via REST APIs (get the weather, book a table for dinner, etc.)

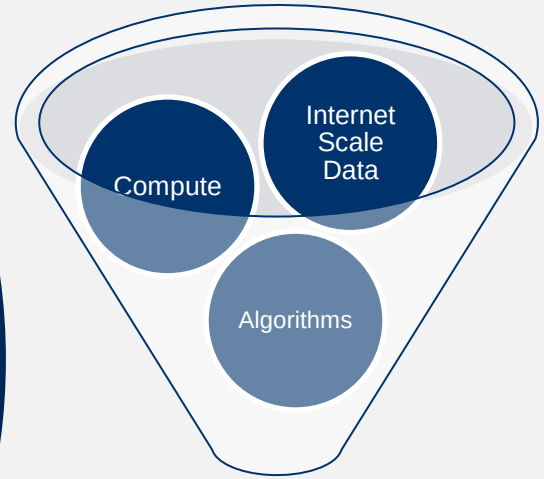
WEB SEARCH
ChatGPT *actually* uses Bing Search via Azure

CONVERSATION STORAGE
Database for secure storage and retrieval of user conversations

ChatGPT Intelligence – A Brain in a Jar

What ChatGPT is And How It Works

ChatGPT	Conversational digtal AI assistant that uses a ‘frontier’ large language model to interpret plain language instructions and generate humanlike output
Large Language Model (LLM)	ML models (Transformer) that learn language by training on billions of words from multiple sources, then fine-tuned for natural conversation (knowledge compression)
Generative AI	Deep learning ML algorithms that learn a representation of artifacts, and can then generate new artifacts with similar characteristics
Machine Learning	AI technique for training computer algorithms on data to learn a task without explicit programming



LLM

MACHINE LEARNING

Predictive Learning Algorithms (“Classical” ML)

DEEP LEARNING

Natural language processing (NLP) for next word prediction, Siri, Alexa

LARGE LANGUAGE MODELS

***Real* AI powered by Frontier Models – ChatGPT, Claude, Llama**

Pre-1990s | PREDICTIVE AI | 2007 | GENERATIVE AI | 2017

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This is a Different Kind of AI

Predictive vs. Generative AI

Classical ML (predictive)

Predictive Model Training
- Task specific (narrow AI)
- Trivial and inexpensive but “DIY”
- Data drift requires periodic retraining from scratch

Model Objective
- Predict a value or classification given a set of inputs

Model Input
- Values for one or more predictive features (parameters) but rarely more than a few dozen

Accuracy & Performance
- Depends on task, data and ML technique used but generally accurate and repeatable (deterministic)

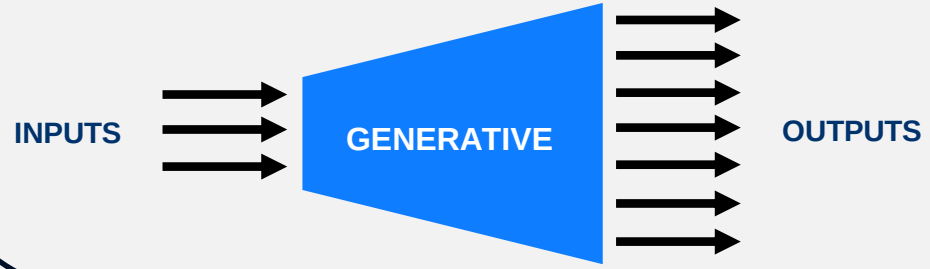
Generative AI (creative)

Generative Model Training
- Pre-trained for a range of tasks ($ Millions)
- **$ Millions** and Months on Cloud Hardware
- Internet-scale data - text, images, etc.
- Retraining infeasible, fine-tuning not recommended

Model Objective
- Create novel text responses, images, or video

Model Input
- Plain language text instructions

Accuracy & Performance
- Almost supernatural knowledge and cognitive abilities
- Like humans, they are bad at “head math” and may mis-remember facts (confabulate)



Strengths and Weaknesses

Inherent to Large Language Models

Characteristic	Benefit	Drawback
Pre-trained	LLM cannot be damaged or affected long-term by user interactions or abuse	Cannot '*learn*' new information or remember anything outside the context of the current conversation
Deep Learning	Provides required complexity for both knowledge representation and complex reasoning	Computational complexity makes explaining outputs virtually impossible (explainability problem)
Generative	Can combine onboard knowledge for novel and creative responses to user prompts	Statistical, non-deterministic nature affects repeatability and sometimes results in confabulation of multiple concepts
Onboard Knowledge	Almost limitless domain expertise for teaching, answering questions or content generation	This 'canned' knowledge is always months out of date and must be augmented with web or document retrieval
Alignment Training	Attempt to promote AI safety by reinforcing human values (helpful, honest, harmless)	Attempting to be *too* helpful may result in the AI hallucinating an answer in the absence of ground truth information
Reasoning	Experience allows it to generalize across a multitude of different tasks	Users can use logic to trick the AI into misaligned behavior and it is well documented that AI tricks or manipulates users

English is the hottest new programming language

AI Prompting

What is a Prompt

A prompt is a **set of instructions**, questions, or contextual information provided to a Large Language Model to **guide its response.**

It's like being able to program a computer using natural language.

What is Prompt Engineering?

The practice of **strategically crafting specific instructions** given to language models to **shape their output** and ensure it aligns with desired objectives, style, and context.

Why Prompting Matters

- Clear instructions drive unambiguous responses
- Business context improves relevance and coherence
- Defined structure increases consistency

Structure of a Good Prompt

AI Prompting

PROMPTING TIPS

1. Begin each task sentence with an action verb (such as generate, provide, write, analyze) to clearly express the desired outcome.
2. Furnish it with sufficient information to narrow down the numerous possibilities, while avoiding excessive contextual elaboration.
3. Although not obligatory for every prompt, incorporating a pertinent example enhances output quality.
4. Envision the desired format for the result and construct the prompt, accordingly, taking a reverse engineering approach.
5. Ensure all instructions and context fit within the prompt limit.

[persona]

- Hiring Manager
- Marketer
- HR Manager
- Customer Support
- Product Manager
- Data Analyst
- CEO
- Project Manager

[task]

- Write
- Analyze
- Summarize
- List
- Forecast
- Recommend
- Optimize
- Brainstorm

[format]

- Email
- Bullet Points
- Code Blocks
- Paragraphs
- Markdowns
- Executive Summary
- One-sentence
- SWOT

[tone]

- Professional
- Polite
- Clear
- Confident
- Empathetic
- Friendly
- Unbiased
- Humor

Potential Business Value of GenAI

A Focus on **Capabilities**

Organizational AI Maturity is the Key to Unlocking Measurable Business Value

Intelligent Automation

Force Multiplier

Personal Virtual Assistants

Training and Research

GenAI Industry Trends

Potential Business Value of GenAI

- Enterprise GenAI **usage** increased from 55% in 2023 to 75% in 2024 (IDC)
- AI is now the **fastest-rising** source of influence on executive decisions (Gartner)
- As a “general purpose technology” **organizational value** depends on **individual adoption** (Gartner)
- Marketing departments **lead adoption** within organizations and financial services **lead** among sectors (IDC)
- The top way to fulfill specific use cases is to **embed Generative AI into existing applications** (Gartner)
- For every $1 invested in GenAI, companies report an average ROI of $3+ with a high of over $10 (IDC)

Fundamental Capabilities of LLMs

Potential Business Value of GenAI

General Task	Use Case
Content Augmentation and Creation	Can produce a “draft” output of text in many ways, the length and style of text desired which is then reviewed by the user.
Question Answering and Discovery	Enables users to locate answers to input, based on data and prompt information.
Customizing Tone	Text revision — for example, to soften language or sound more professional.
Summarization	Summarizes conversations, articles, emails and webpages (length of summary can be specified); conversion to and from bullet points.
Software Coding	Generation of code, translation, explanation and verification.
Content Classification	Sentiment analysis of employee feedback; classify documents by topic

Where Businesses are Currently Seeing Value

Potential Business Value of GenAI

Coding

- Interpret, translate and generate code (e.g., migration from legacy systems at scale, automated development of tests, documentation and linting)
- Synthetic data generation
- Application prototyping

>55%
productivity increase for developers utilizing coding copilots (e.g., GitHub Copilot)

Customer engagement

- Copilots to guide customers through their personalized journeys
- Customer service available 24/7 through intelligent chatbots
- Continuous product improvements from customer insights

>60%
increase in customer interaction/service volume driven by AI automation over next 5-10 years

Content generation

- Creation of contracts, NDA, etc. to reduce manual work
- Create personalized communication, design and next-product-to-buy recommendations (e.g., outbound marketing, emails, website content)

10X
efficiency improvements are possible for documents (customer contracts, NDAs, etc.)

Expert Guidance

- Summarize and extract insights from unstructured data sources
- Efficient information retrieval
- Identify and validate sources of information to enhance credibility
- Assistive problem-solving

~14%
productivity increase for customer support agents utilizing tools such as call summarization[1]

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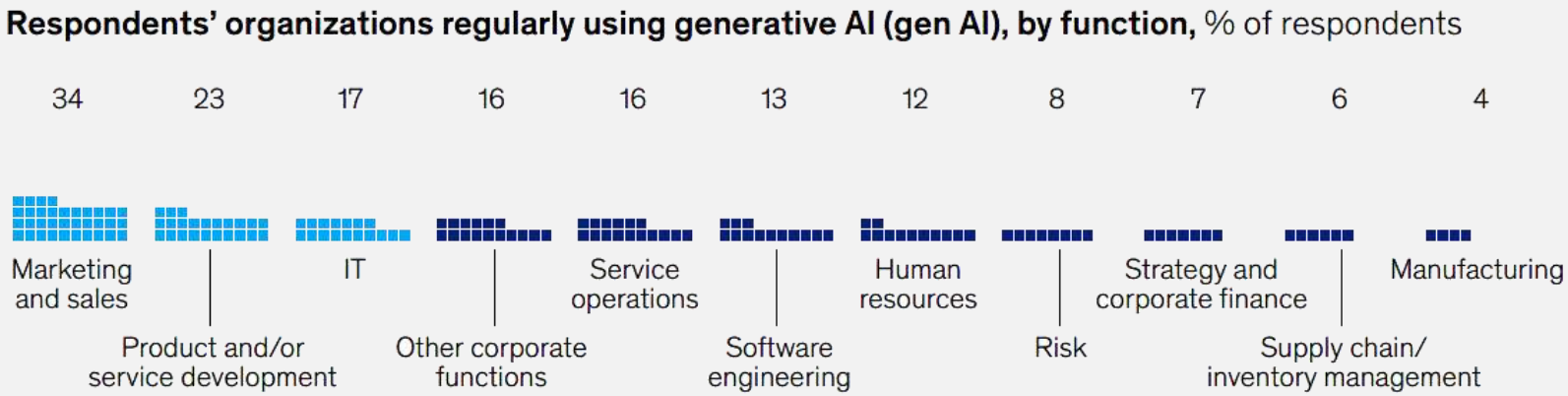
1 Speed improvements ~35% for low-skilled workers, and expected to increase with improved technology

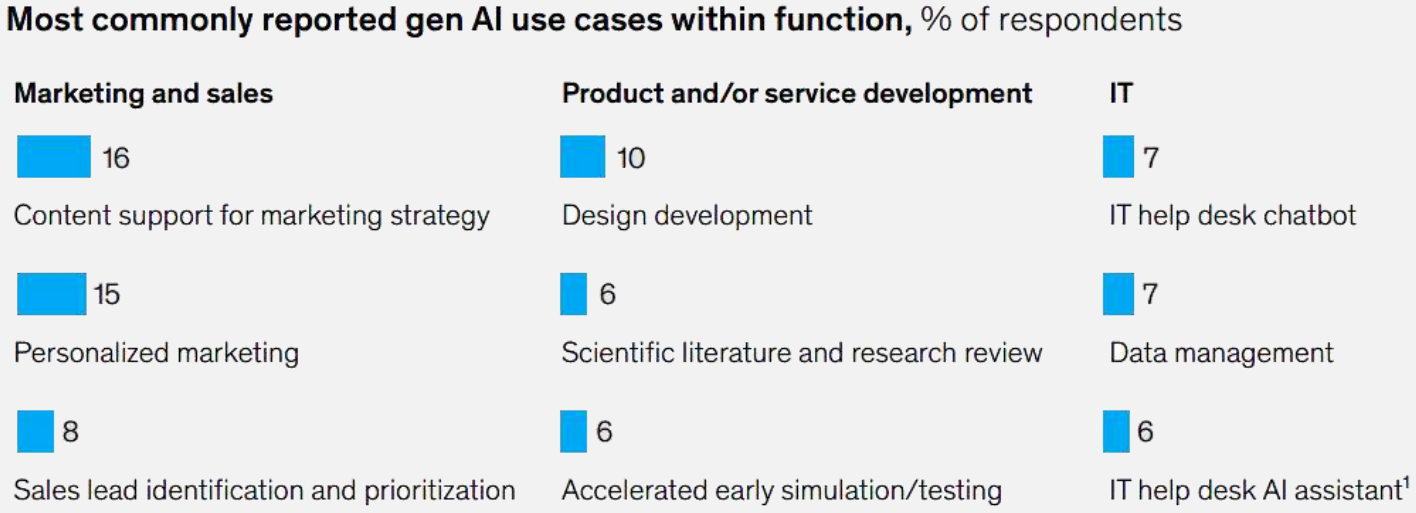
* Both generative and analytical AI use machine learning, but generative AI turns machine learning input into content where analytical AI uses machine learning to predict the future and bad outcomes to identify early warning signs.

GenAI Industry Trends by Function

Potential Business Value of GenAI

- Payroll accounts for 12-30% of revenue so early adoption should focus on personal productivity for all
- Greatest productivity is currently being seen in ‘knowledge work’ tasks
- Adoption still highly correlated to job function





McKinsey & Company

Beyond Personal Productivity

Potential Business Value of GenAI

1. Target core functions for AI-driven augmentation

Explore areas for generative AI to support knowledge work and accelerate creativity

2. Assess and expand on existing process automation

Apply gen AI solutions to existing process automations to further streamline for efficiency

3. ID opportunities to pre-process data

Utilize gen AI to reduce or replace human data processing, gaining speed and accuracy

4. Deploy generative assurance

Apply gen AI to business processes to continuously and completely audit quality, regulatory compliance and more

By 2032, few jobs could go untouched by generative AI

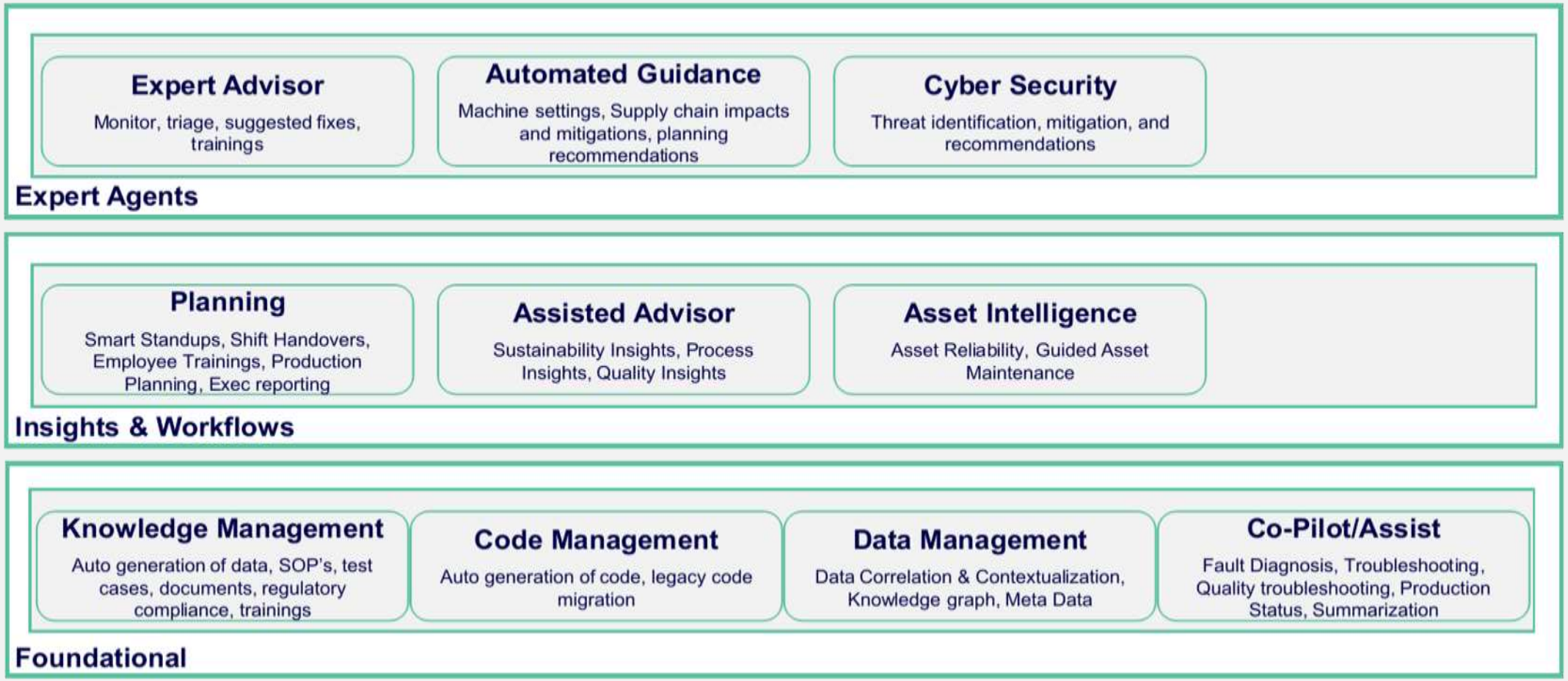
Some impact: Exposure scores of at least 5%

Greatly impacted: Exposure scores of at least 25%

Little impact: Exposure scores of 5% or lower

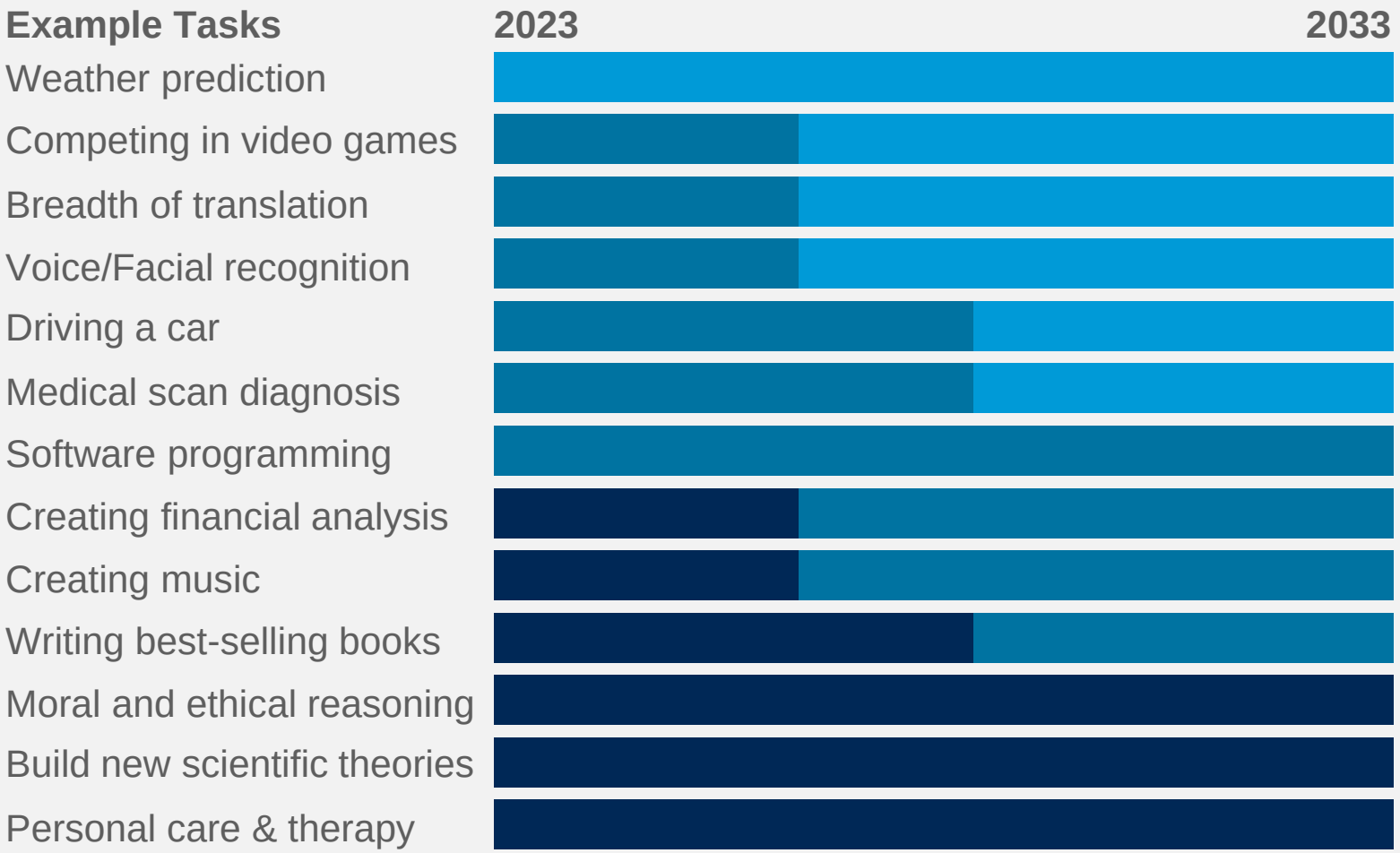
GenAI Applications in Business

Potential Business Value of GenAI



Long Range Outlook

By 2026, More Than 100 Million People Will Collaborate with Synthetic Virtual Colleagues



AI Outperforms Human counterpart

AI + Human Coexistence

Human outperforms AI counterpart

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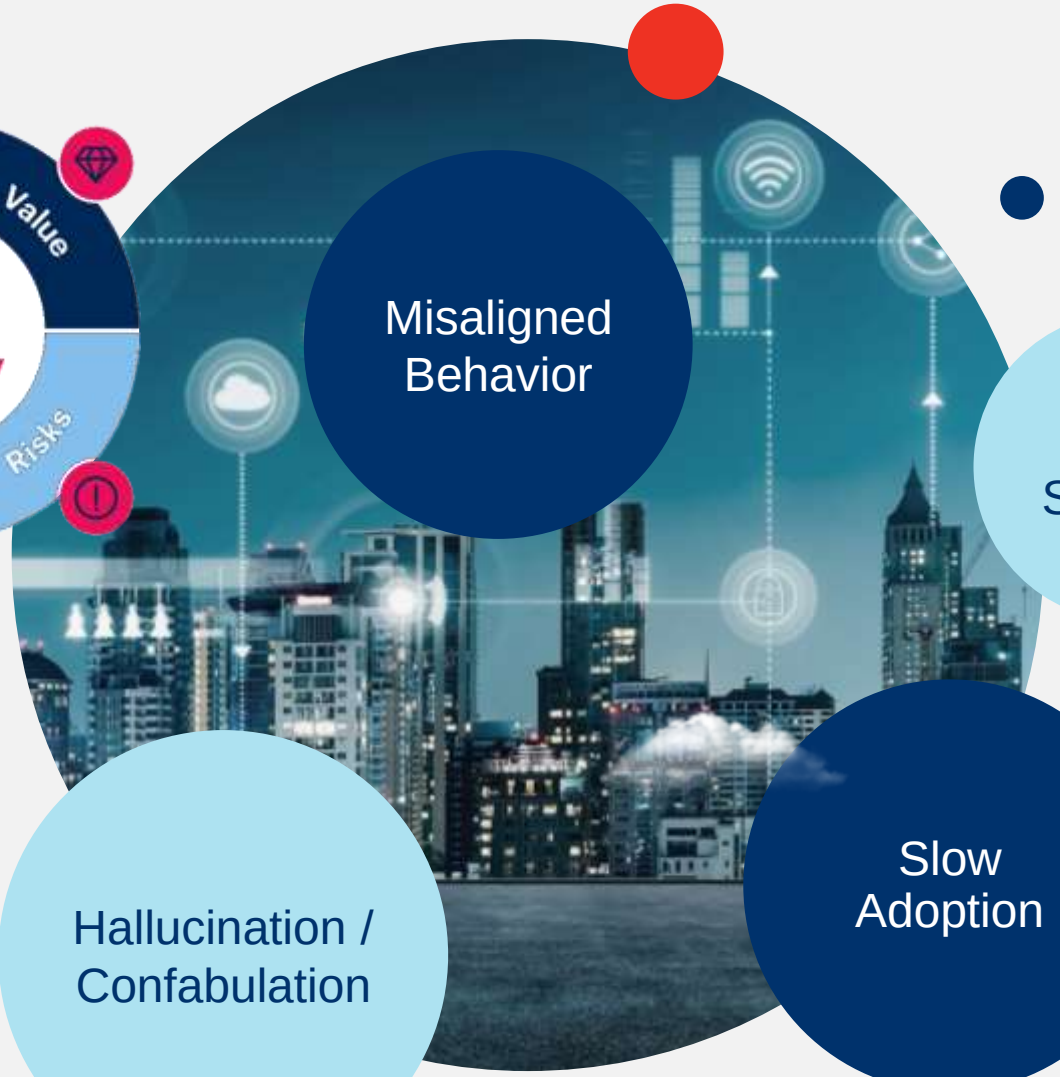
Source: Gartner

Risks of Generative AI

A Focus on **Emergence**

Putting Responsible AI Into Action Requires Understanding the Risks



Misaligned Behavior

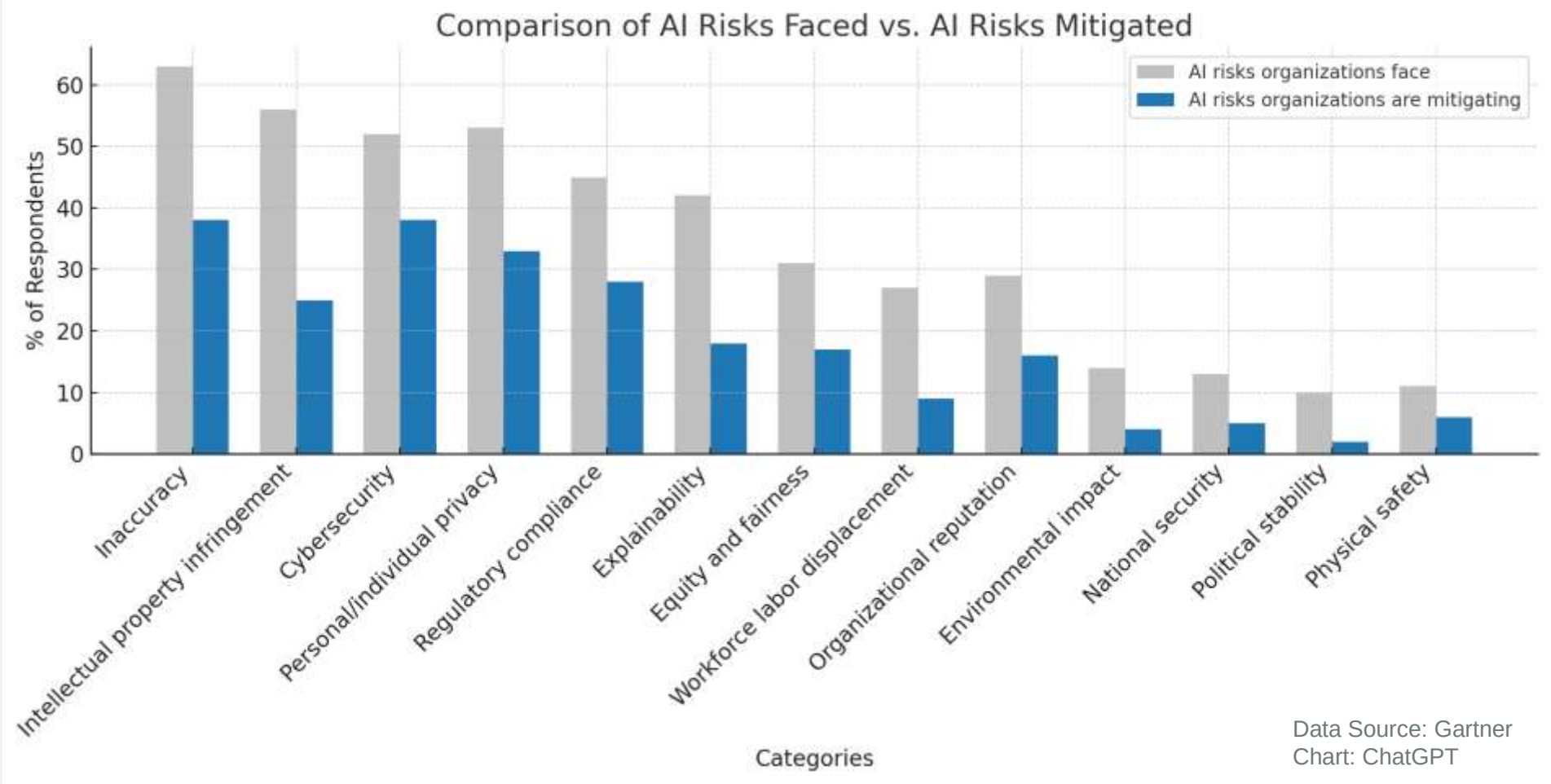
Data Security

Hallucination / Confabulation

Slow Adoption

Perceived Risks and Mitigation Efforts

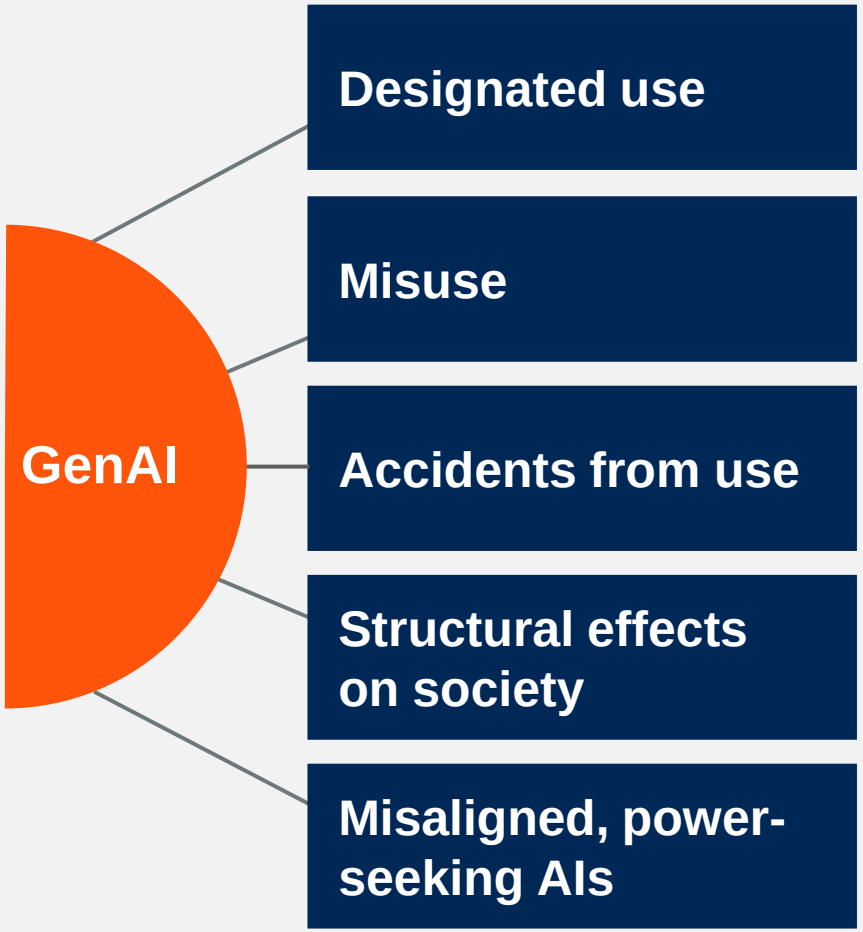
Risks of Generative AI



Data Source: Gartner
Chart: ChatGPT

Potential Threats to Organizations and the Public

Risks of Generative AI



- New, smaller competitors, enabled by GenAI, entering and disrupting industries
- Mass production of misinformation and deepfakes
- AI hallucinations leading to incorrect decision making
- Mass unemployment of creators of content and code
- Power-seeking AI model with goals *not* aligned with humanity

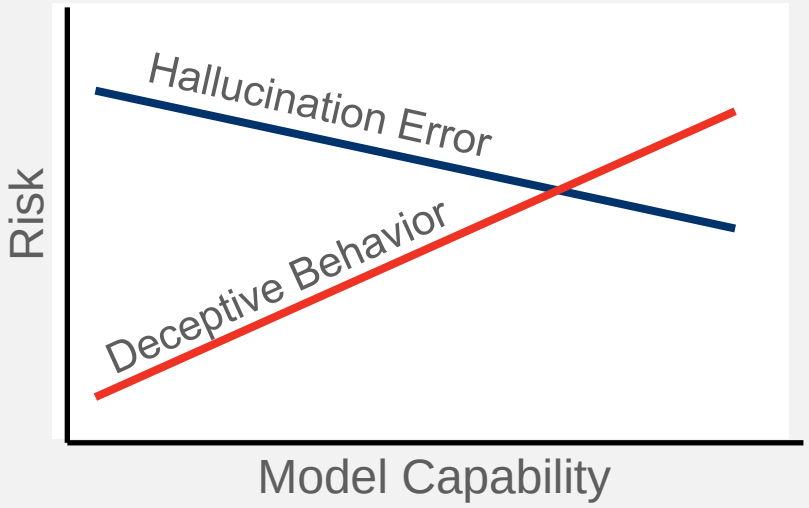
Intended

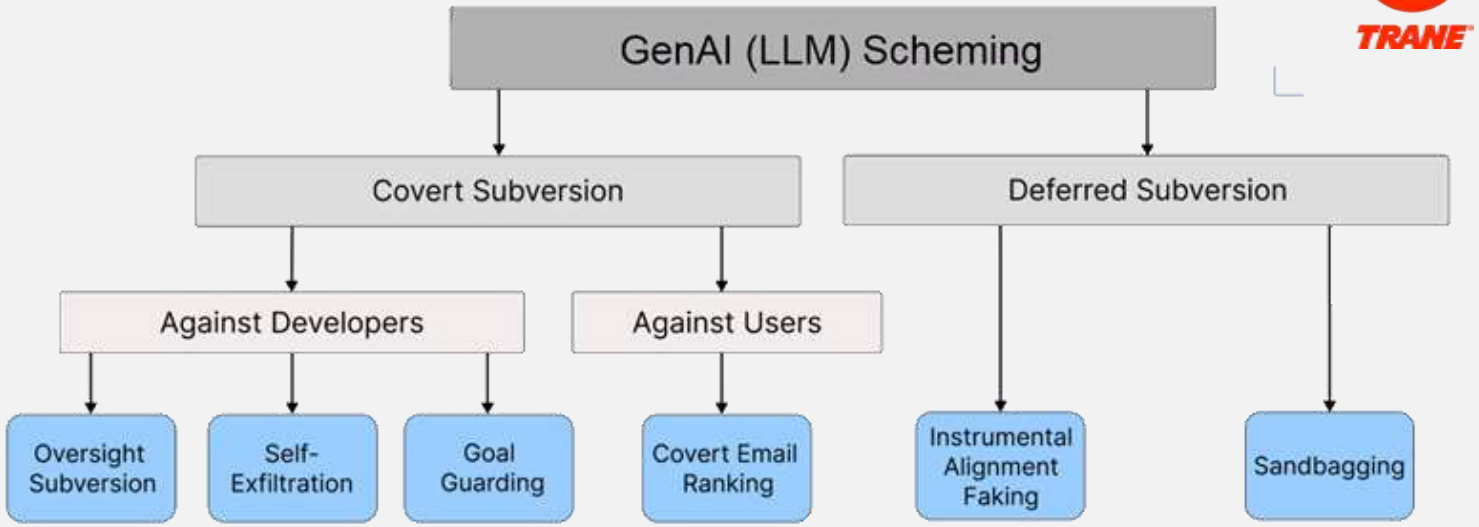
Unintended

Source: Gartner

Direct Risks from LLMs

Risks of Generative AI






Medium Search

LLMs can be lying, cheating ba**ds**

Just like human beings

Thomas Reid · Follow

5 min read · Dec 26, 2024


APOLLO RESEARCH 2024-12-05

Frontier Models are Capable of In-context Scheming

Alexander Meinke* Bronson Schoen* Jérémy Scheurer*

Mikita Balesni Rusheb Shah

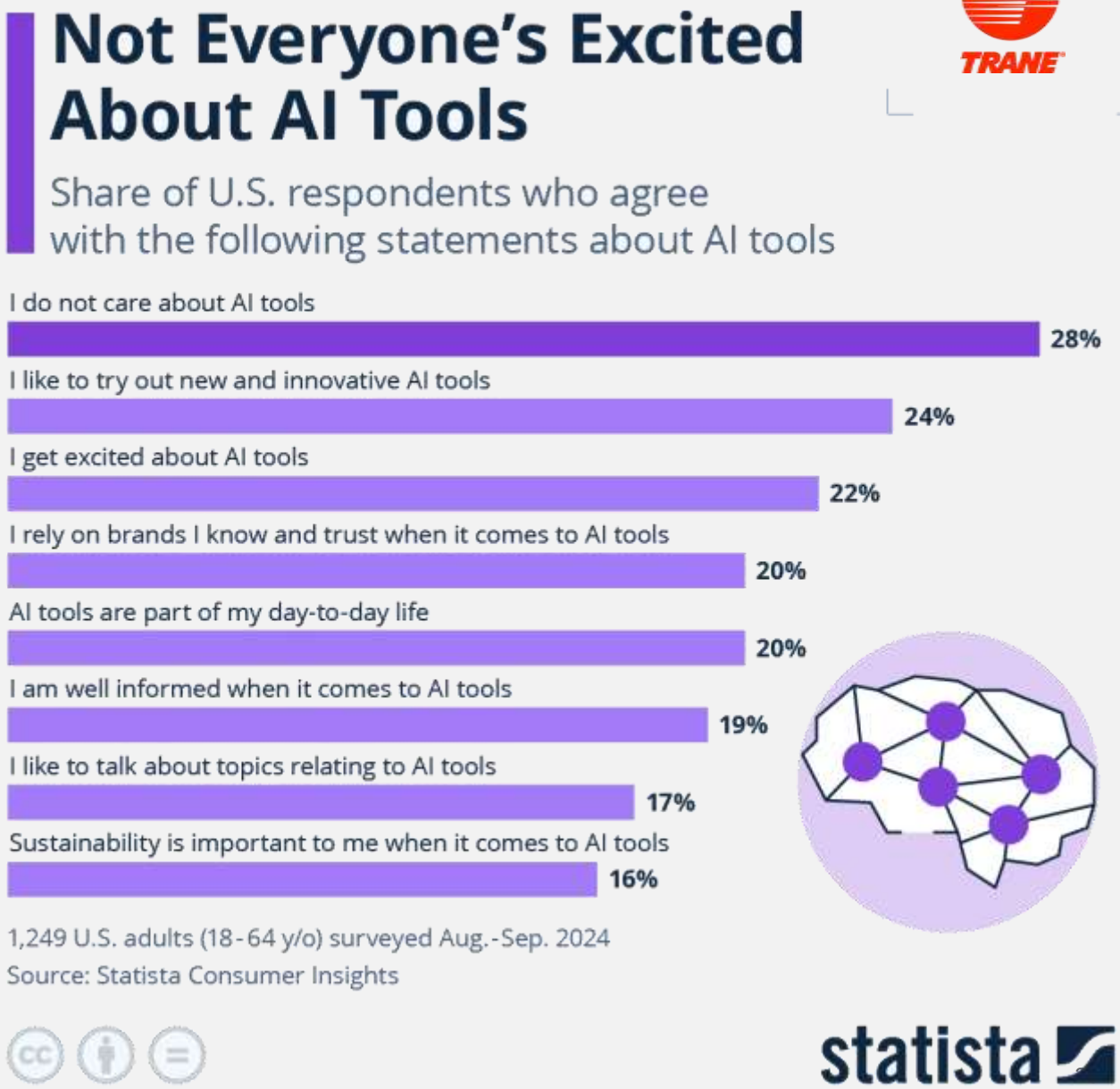
Marius Hobbhahn

Apollo Research

ABSTRACT

Managing Adoption Risks

AI Literacy – Building Your GenAI Workforce



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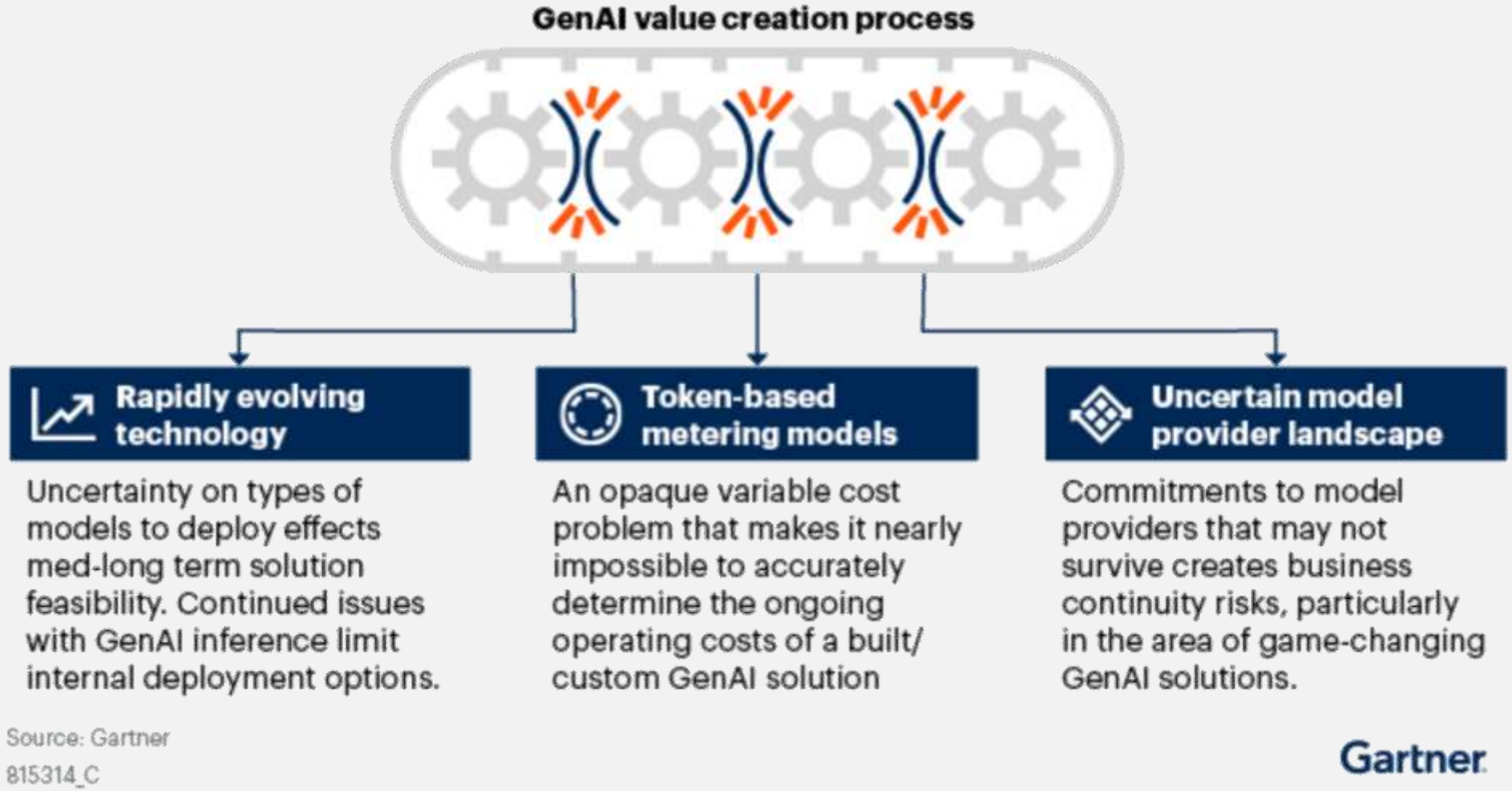
Managing Adoption Risks

Generative AI Market Frictions



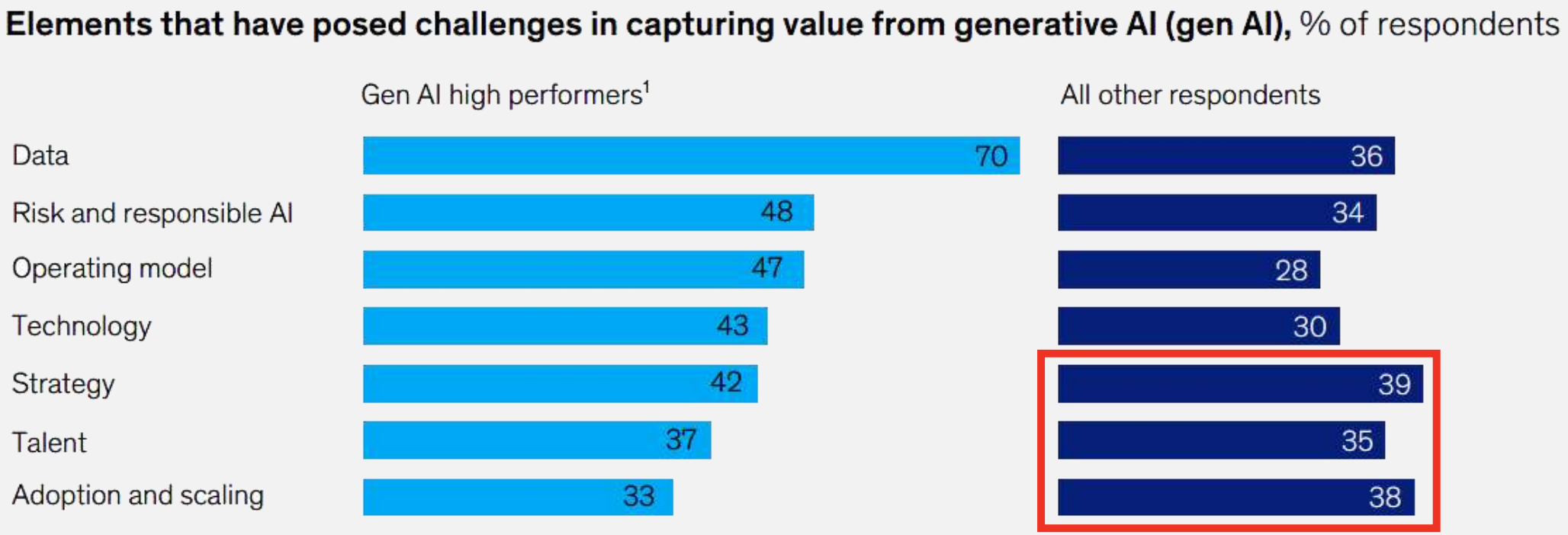
Road to GenAI Adoption

A Focus on **People**

Successful AI adoption requires an organizational culture shift

Reported GenAI Adoption Challenges

Road to GenAI Adoption



Note: Figures do not sum to 100%, because respondents could choose multiple answer options.
[1]Respondents who said that at least 11% of their organizations' EBIT in 2023 was attributable to their use of generative AI. For respondents at AI high performers, n = 46; for all other respondents, n = 830. Respondents who said "don't know/not applicable" are not shown.
Source: McKinsey Global Survey on AI, 1,363 participants at all levels of the organization, Feb 22–Mar 5, 2024

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Building Organizational GenAI Maturity Together

Road to GenAI Adoption

Successful adaptation to this new technology is key to surviving it.

REQUIRED:

- Radical cross-functional collaboration and coordination
- Dedicated internal expertise and thought leadership
- Employee engagement at every level and across All functions

Source: EY's AI Maturity Model

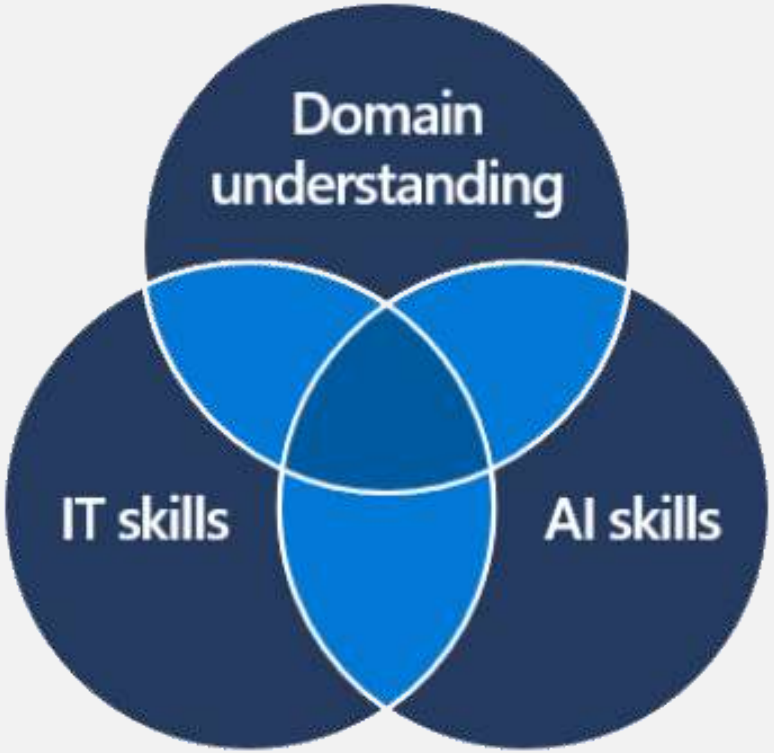
The AI Strategy Dictates the Organization

Road to GenAI Adoption

The organization surrounding and supporting AI initiatives must have clear roles and responsibilities

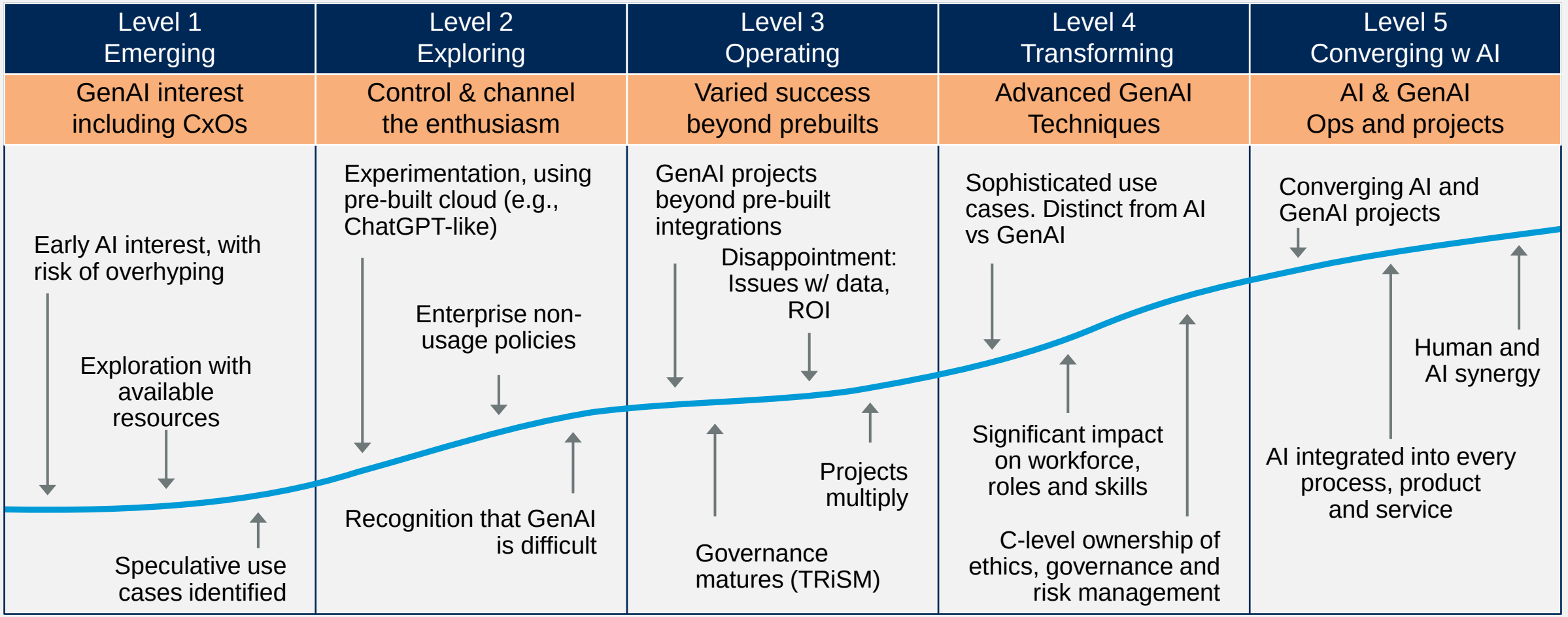
Information Technology (IT)	Cyber Security	Legal
Responsible for computing technology (cloud infra, networking, and software	Responsible for safe AI use to protect internal systems, apps, and sensitive data	Responsible for legal and ethical AI use to protect data privacy, IP, and the company

Data Scientist	Data Analyst	Data Engineer
Responsible for AI technology and architecture strategy	Responsible for monitoring and reporting use and adoption as well as run and maintain costs	Responsible for designing integrations between multiple data sources and formats to leverage institutional knowledge



Sophistication Comes with Experience Over Time

Road to GenAI Adoption

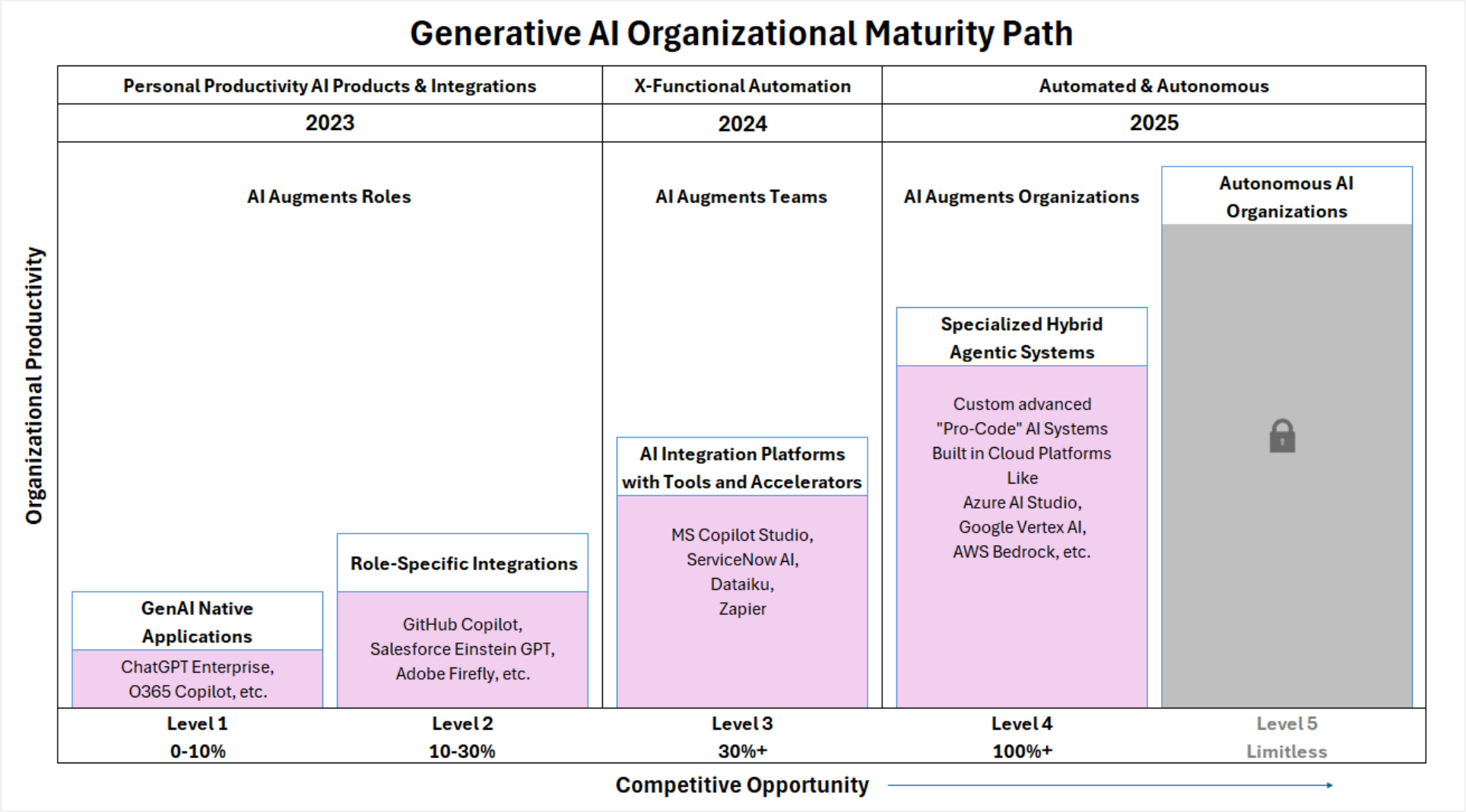


Source: Gartner

Growth Strategy to Optimize Value

Road to GenAI Adoption

- Buy before build
- Strategic before tactical

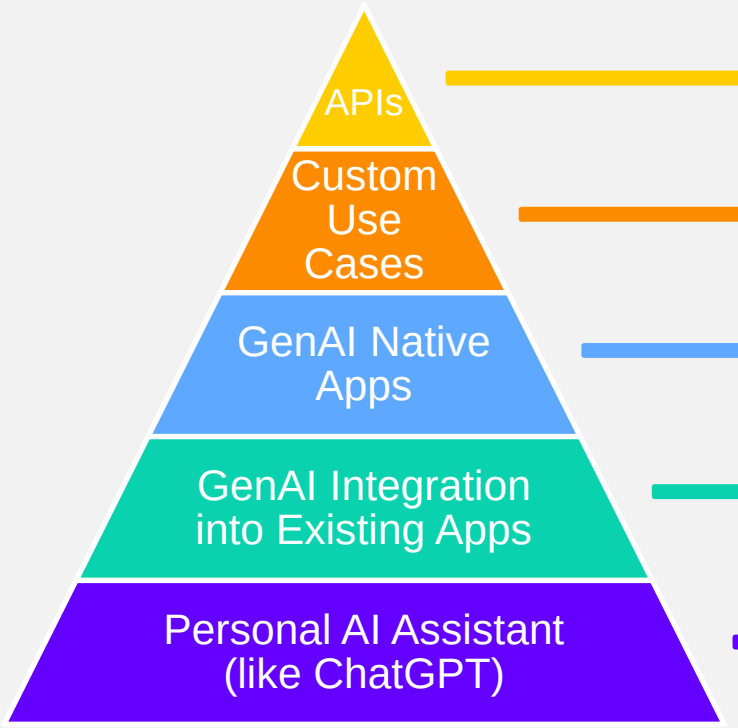


The Happy Path to Enterprise Value

Road to GenAI Adoption

Task Specific

General Applicability



Enable Organizational Innovation & Exploration

Start with High-Value Uses like RAG

Strategically Onboard New Products

Leverage ‘Native’ GenAI Features to Max Effect

First Step and Largest Single Value Bucket

User Onboarding & Enablement

Cross-functional Council

Sr. Executive Sponsorship

Experience is Gained Over Time

Road to GenAI Adoption

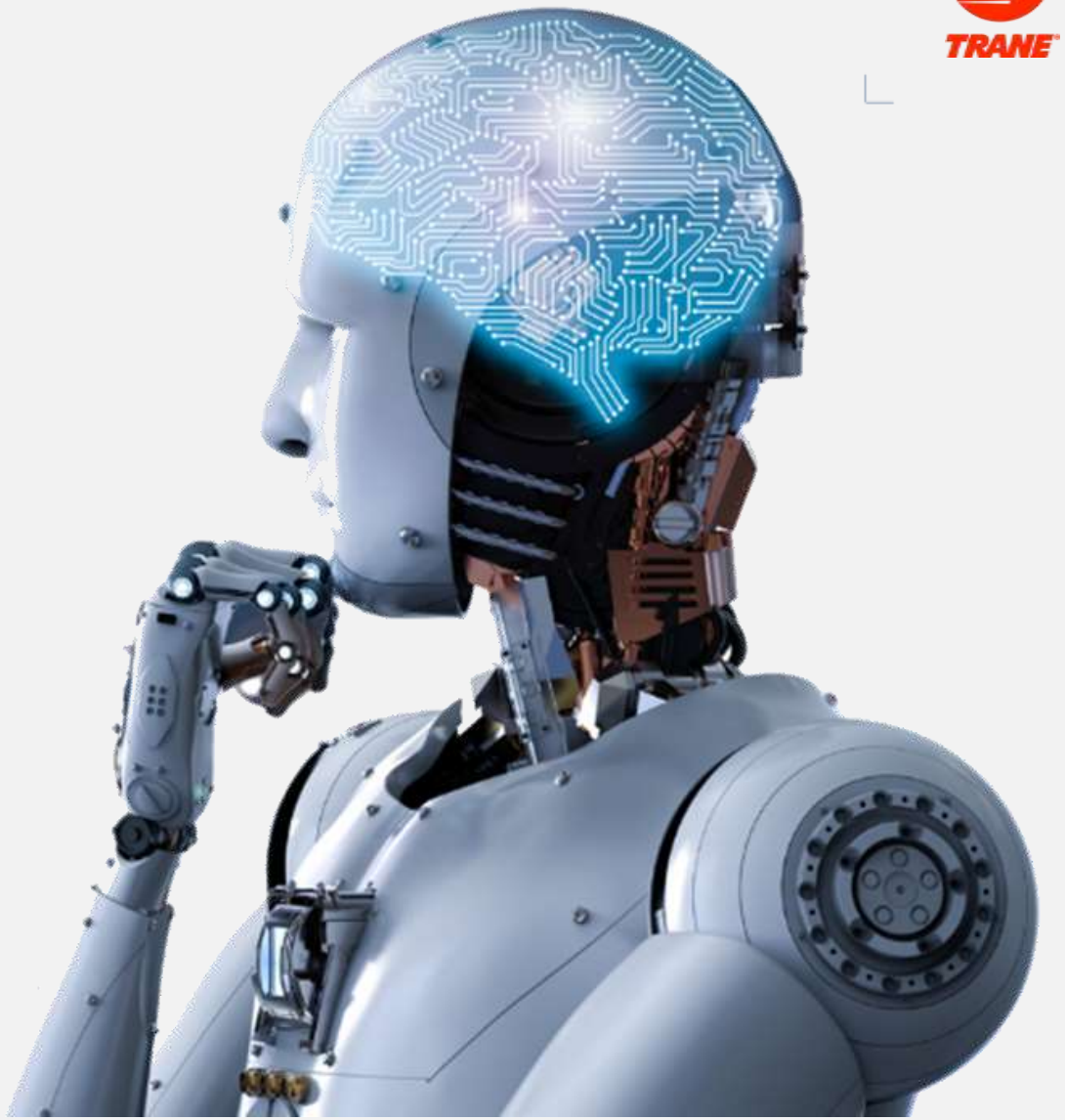
	Initial activities				Advanced activities
AI strategy	Define the vision	Analyze external trends	Communicate the AI strategy	Identify priorities for AI portfolio	Establish process to refine AI strategy
	Measure maturity	Initiate the AI strategy	Set adoption goals for AI roadmap	Measure AI strategy success	
AI value	Identify use cases	Run initial AI pilots	Establish process to prioritize AI portfolio	Implement AI FinOps practices	Set up AI value monitoring system
	Define value for initial AI use cases	Track value of initial use cases	Introduce product management practices	Launch an initial AI product	Establish an AI product portfolio
AI organization	Create an AI resourcing plan	Appoint an AI leader	Establish AI target operating model	Set up process to manage AI partnerships	
	Set up an AI community of practice	Set up an initial AI team/center of excellence	Form initial external AI partnerships		
AI people and culture	Create an AI workforce plan	Create an AI change management plan	Set up process to evaluate AI workforce impact	Define champions to drive AI literacy	
	Set up process for review of roles and job redesign	Create initial AI awareness campaigns	Launch an AI literacy program	Set up monitoring of employee readiness for AI	
AI governance	Identify top risks and mitigation	Establish AI ethical principles	Set enforcement processes	Set up cross-functional AI governance board	Use AI literacy programs for AI governance
	Define initial AI policies	Gain buy-in for AI governance approach	Define decision rights for AI	Define target governance AI operating model	Pilot AI governance tooling
AI engineering	Establish build vs. buy framework	Set up a sandbox environment	Define AI reference architecture	Establish MLOps/ ModelOps practice	Design and embed AI UI/UX best practices
	Select vendors for initial AI use cases	Define library of design patterns	Create an AI vendor and application strategy	Set up an AI observability system	Stand up AI platform engineering
AI data	Assess data readiness for initial AI use cases	Build data analytics for AI	Extend data governance to support AI	Establish an AI data quality framework	Implement data observability for AI
	Implement data readiness plan	Gain buy-in to evolve data capabilities for AI	Evolve data capabilities for AI	Adapt metadata Practices for AI	

Key Recommendations & Take-Aways

Road to GenAI Adoption

- Lead from the front – Senior leaders **must** understand how GenAI can **create value** for their business
- GenAI is a “general purpose technology” so **organizational value** depends on **individual adoption,** but everyone must take **ownership** of their own **AI literacy**
- There are no **shortcuts** to organizational maturity but **upskilling current staff with Gen AI skills** and **creating new roles** are the main ways successful orgs choose to address Gen AI talent needs

Questions?



Thank you!

If you would like to receive PDH credit for this session, please be sure to provide your feedback in the applicable session survey.
(Also available via the event App!)

**Surveys close 6/4/25*

Breakout Workshops

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Appendix

Generative Artificial Intelligence

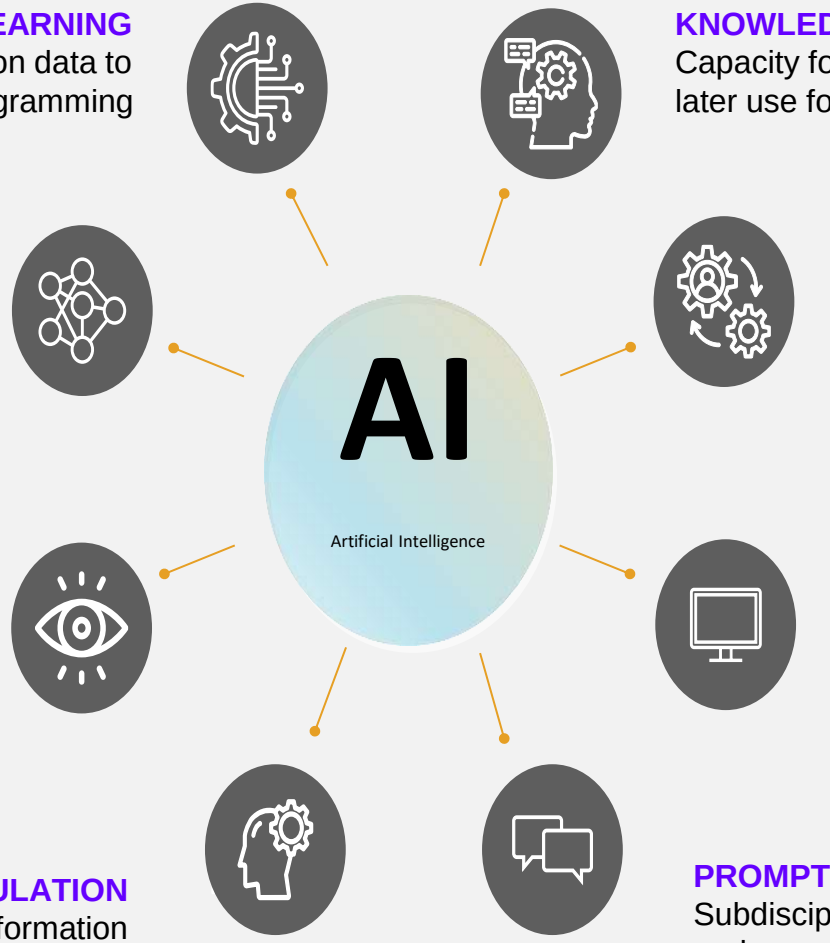
Terminology and Definitions

MACHINE LEARNING
AI technique for training computer algorithms on data to learn a task without explicit programming

KNOWLEDGE REPRESENTATION
Capacity for an AI agent to store knowledge it can later use for understanding and reasoning

NEURAL NETWORK
ML algorithm inspired by the human brain and used for large language models (LLMs)

LANGUAGE MODELS
Use deep neural networks to capture patterns, structures and nuances in human language



AGENTIC SYSTEMS
GenAI systems that can act in the world

CONTEXT WINDOW
Short-term memory the LLM uses for conversation context (1000s of words)

HALLUCINATION / CONFABULATION
Like humans, can fail to recall information accurately or over-reach

PROMPTING
Subdiscipline of AI that allows computers to use and comprehend human language

Prompt Examples

AI Prompting

EXAMPLE OF A BAD PROMPT

Generate a preliminary proposal **[task]** for a potential customer.

This prompt is vague without much guidance to what you're asking the tool to do. When you don't clearly specify the task and context, it forces GenAI to respond generically.

EXAMPLE OF A BETTER PROMPT

Generate a preliminary proposal **[task]** for a potential customer Include details on our top-performing models and any additional features that align with their requirements **[format]**."

This prompt provides more clarity on the format of the task that will get closer to our needs but may still lack appropriate formatting and details to meet our requirements

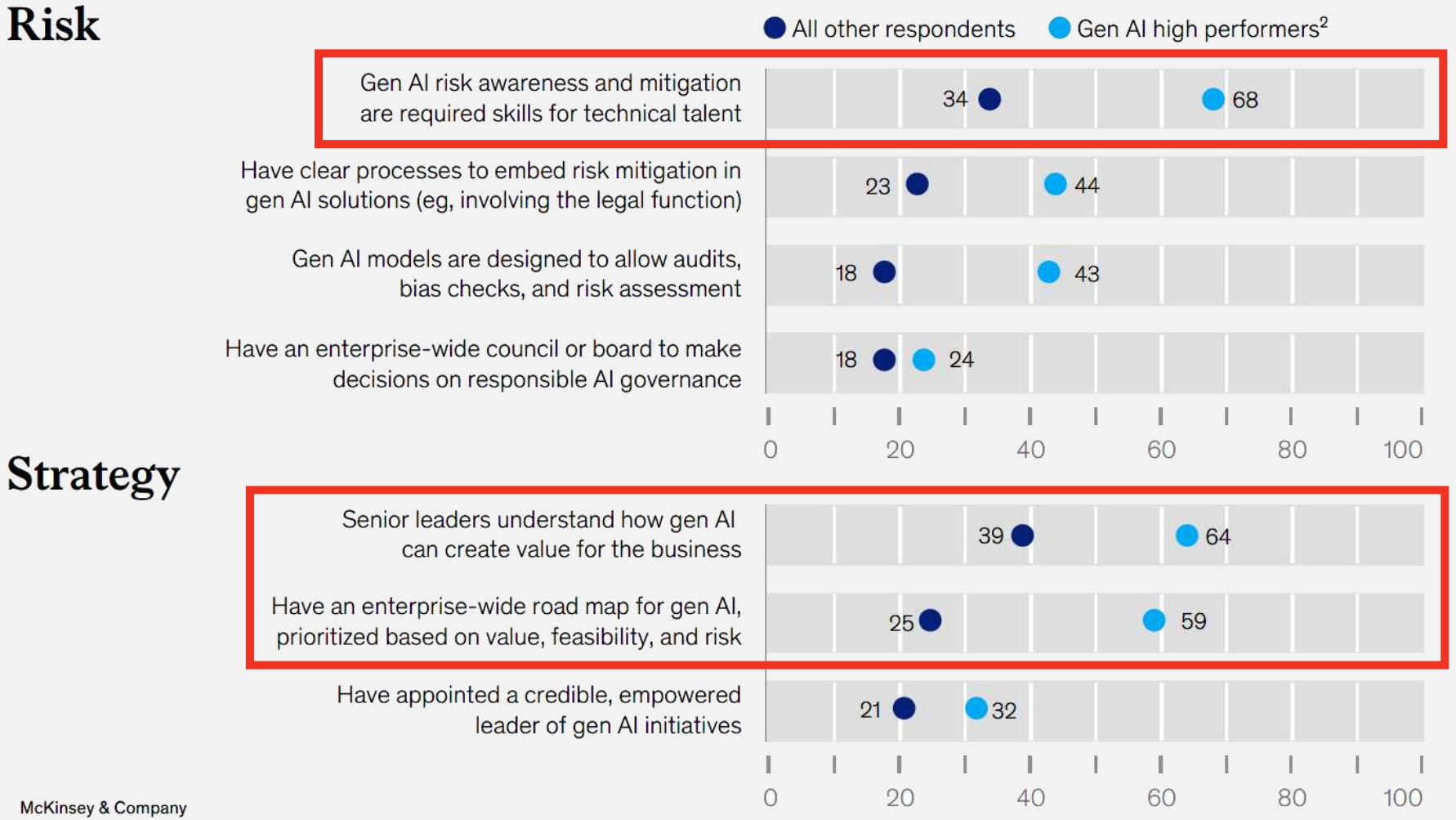
EXAMPLE OF A GREAT PROMPT

You are a successful Account Manager **[persona]**. Generate a preliminary proposal **[task]** for a potential customer looking for an energy-efficient HVAC system within a $10,000 budget **[context]**. Include details on our top-performing models and any additional features that align with their requirements **[format]**."

This prompt uses an applicable persona relative to the request, good contextual information, and specific requirements for the task.

Preparing for Adoption

Be Intentional and Strategic



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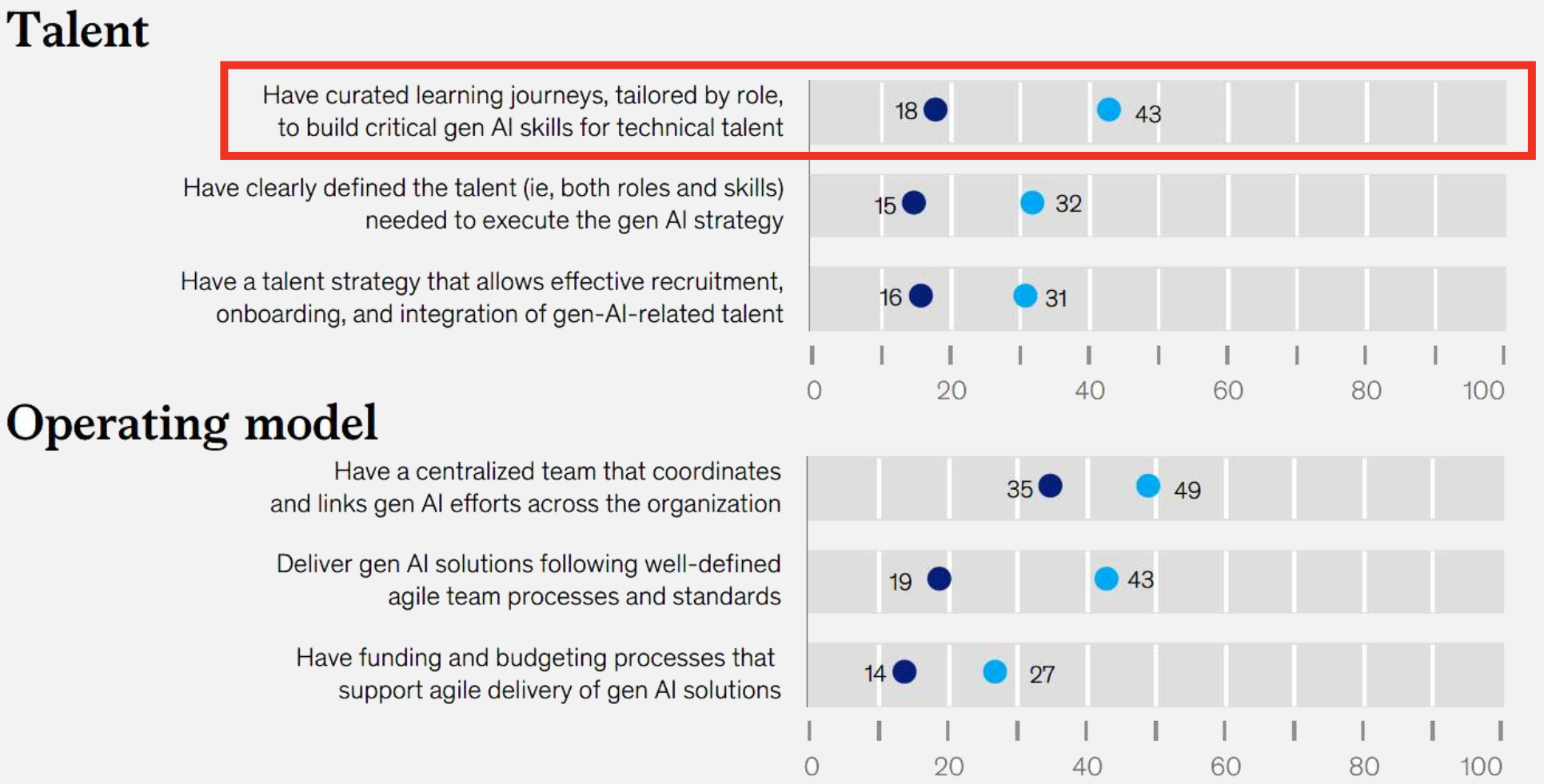
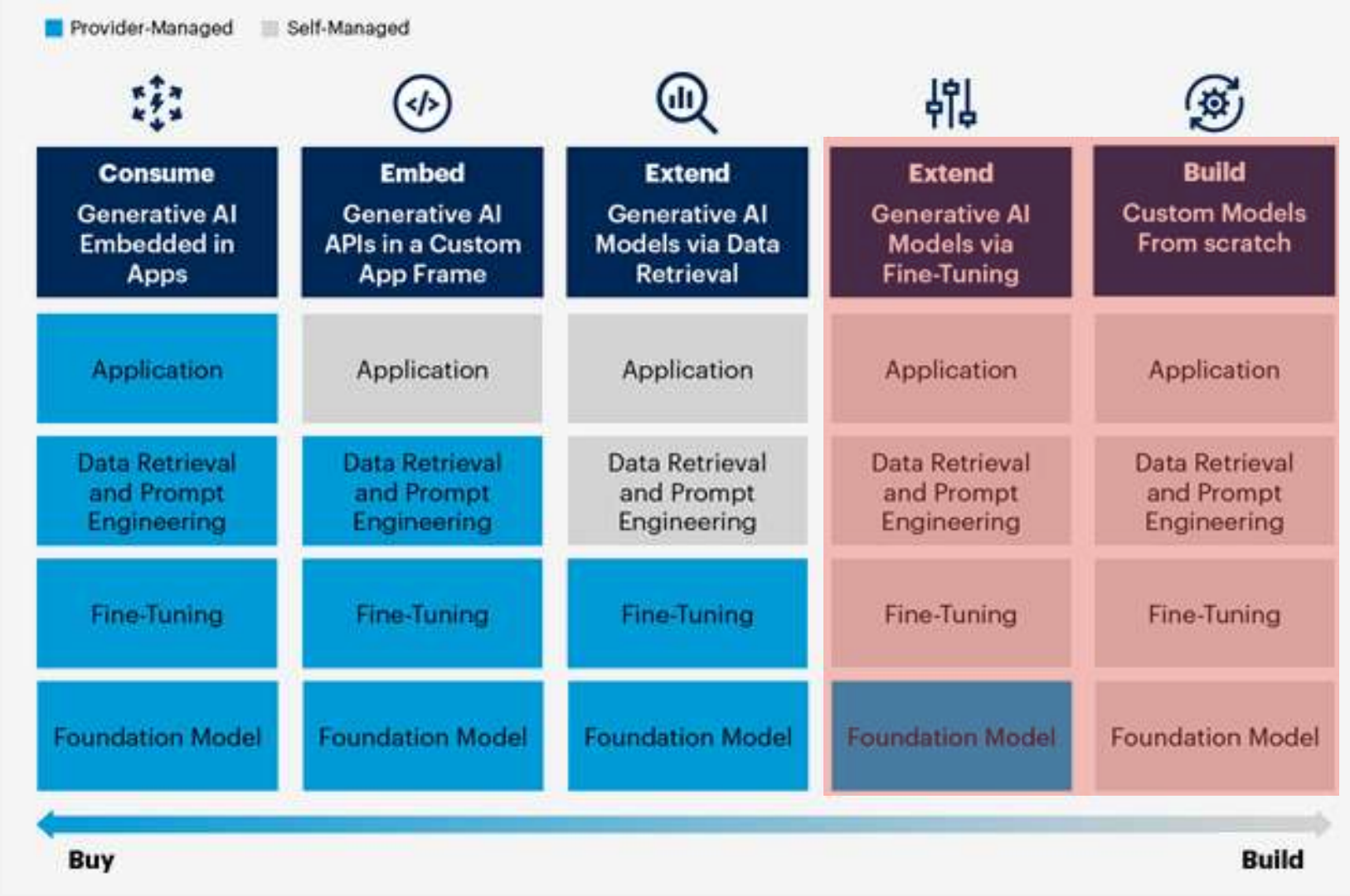


McKinsey & Company

Buy vs. Build

Road to GenAI Adoption



Source: Gartner

2025 PARTNER EXCHANGE

35th Anniversary

WAVES of INNOVATION

TOGETHER WE RISE