



Gartner Webinars

Gartner delivers actionable, objective insight, guidance and tools to enable stronger performance on your organization's mission critical priorities

Gartner®

Enhance your webinar experience



**Ask a
Question**



**Download
Attachments**



**Watch
Again**

The Practical Applications and Use Cases of Generative AI



Connect with Gartner



Brian Burke

Research VP



Strategic Planning Assumptions

By 2024,

use of synthetic data created with generative AI will halve the volume of real data needed for machine learning.

By 2025,

more than 30% of new drugs and materials will be systematically discovered using generative AI techniques.

By 2025,

30% of outbound marketing messages from large organizations will be synthetically generated.

By 2026,

code written by developers/humans will be reduced by 50% due to generative AI code generation models.

Key Issues

1. What is generative AI?
2. How can generative AI be used and abused?
3. What is the maturity of the various use cases and the impacts by industry?

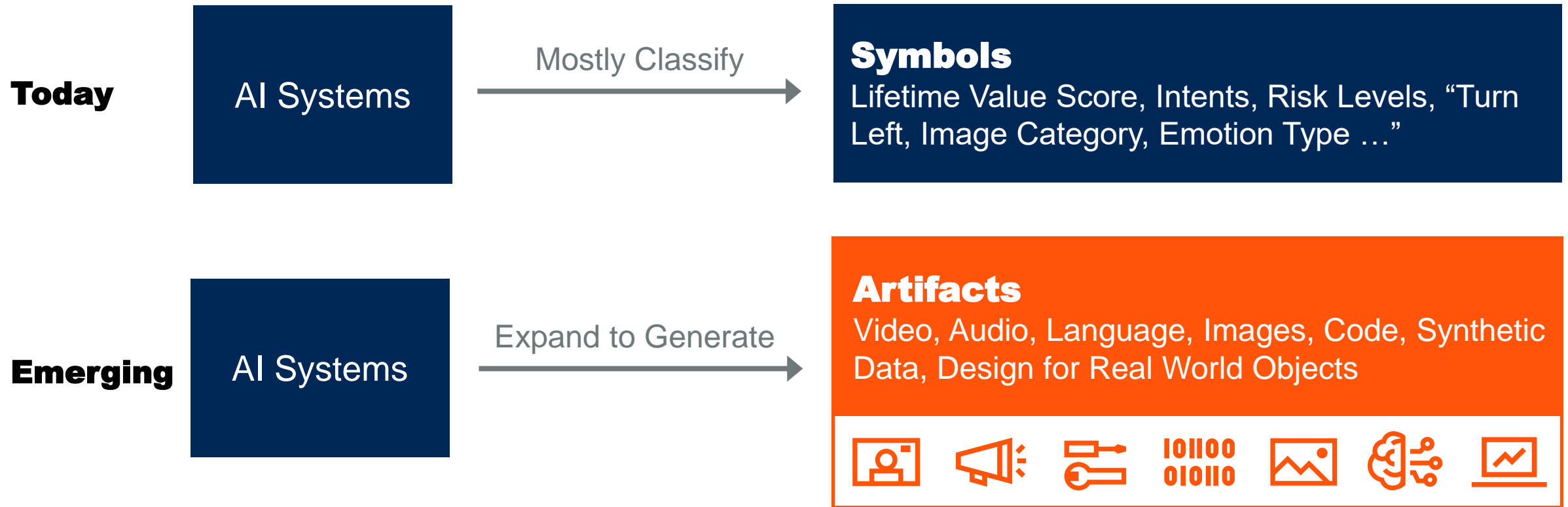
Key Issues

1. What is generative AI?

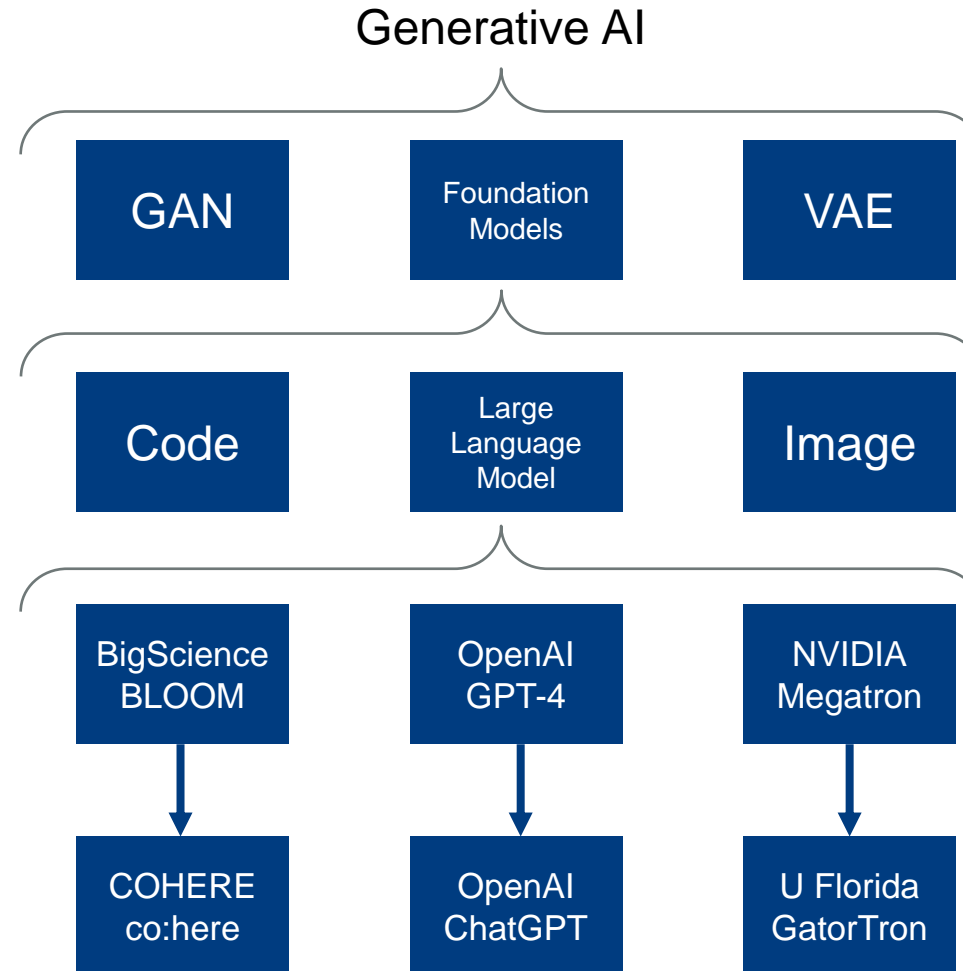
2. How can generative AI be used and abused?

3. What is the maturity of the various use cases and the impacts by industry?

Generative AI: Expanding the Output of AI Systems



What is ChatGPT?



Key Issues

1. What is generative AI?

2. How can generative AI be used and abused?

3. What is the maturity of the various use cases and the impacts by industry?

Generative AI Use Cases

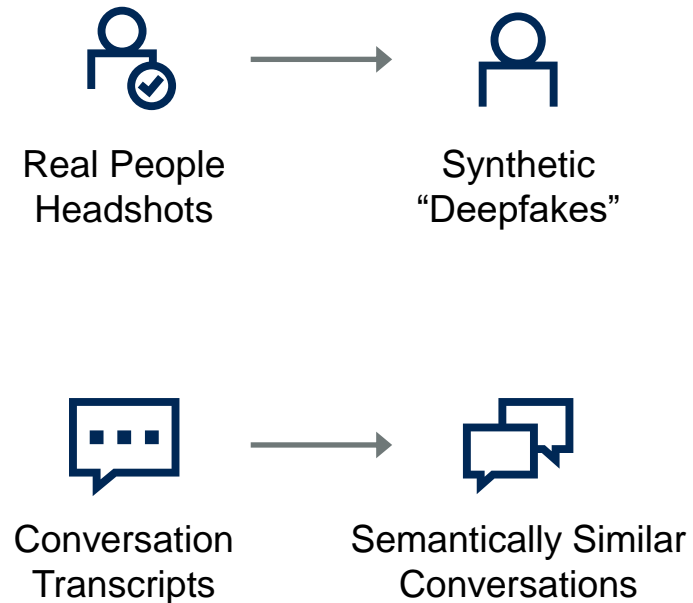
- **Media Content**
 - Images
 - Text
 - Audio and Video
- **Synthetic Data**
- **Things**
 - Parts
 - Materials
 - Drugs

Source: Wikimedia Commons

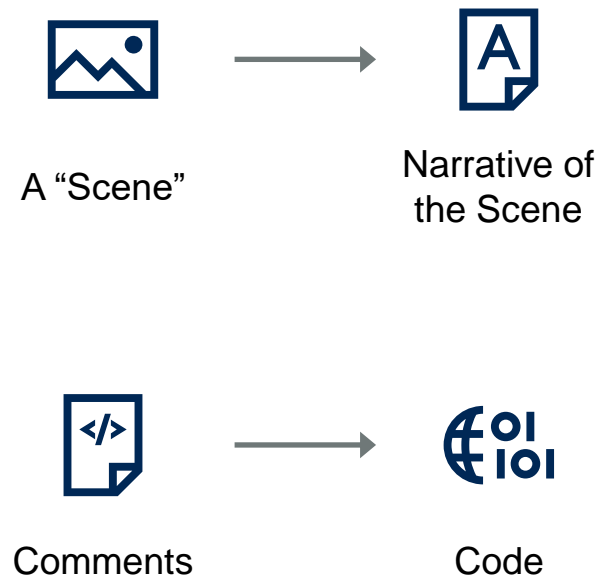


Same Mode, Cross Modal and Multimodal Generative AI

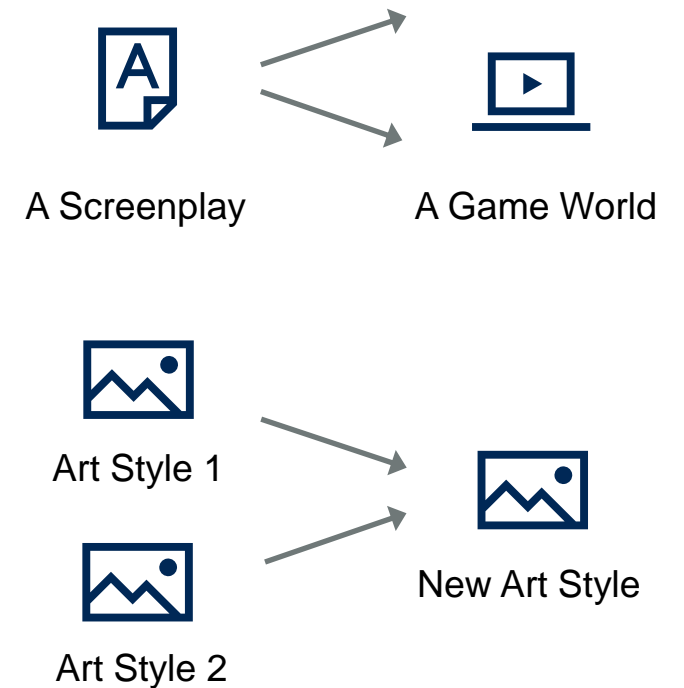
Same Mode



Cross Modal



Multimodal



Text-to-Image Prompt:

Avatar Photorealistic Girl in Dress

Source: Midjourney



Generative AI Use Cases

- **Media Content**
 - Images
 - **Text**
 - Audio and Video
- **Synthetic Data**
- **Things**
 - Parts
 - Materials
 - Drugs

- Customer Service & Support
- Code Generation
- Research Report Generation
- Content Curation
- Enterprise Search
- Marketing & Sales Content
- Meeting Summarization
- ...and many more

What can LLMs do?

Inputs

Natural Language
Structured Data
Multi-Lingual text
Transcription
Computer Code

Operations

Text or Code Generation
Text Completion
Text Classification
Text Summarization
Text Translation
Sentiment Analysis
Text Correction
Text Manipulation
Named Entity Recognition
Question Answering
Style Translation
Format Translation
Simple Analytics

Outputs

Natural Language Text
Structured Data
Multi-Lingual Text
Computer Code

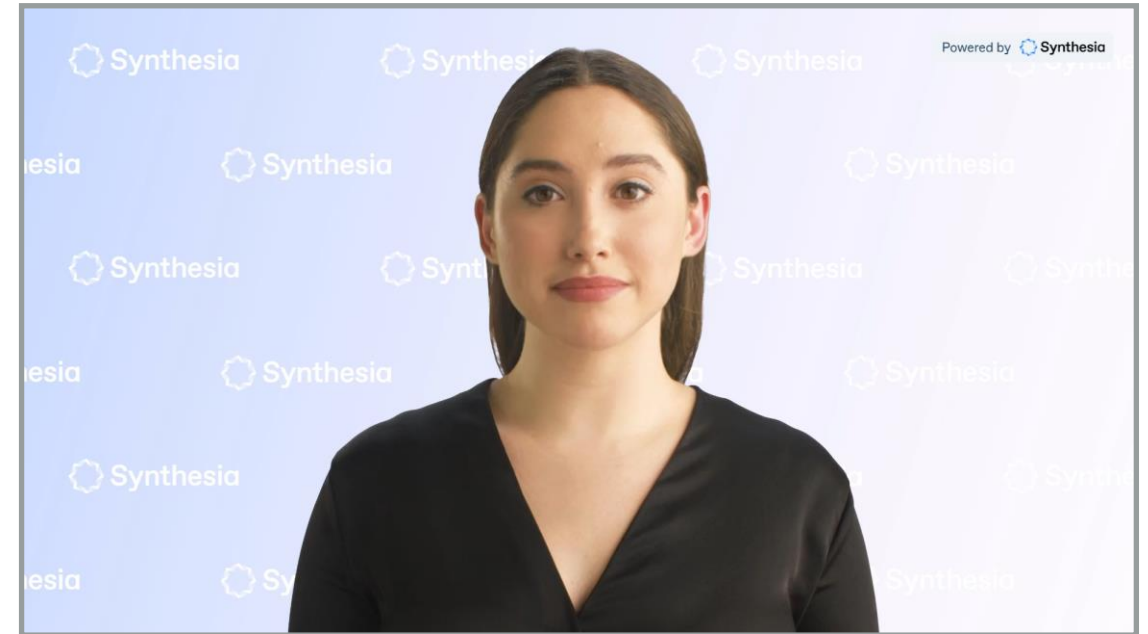
Morgan Stanley – Chatbot for Financial Advisors

- Built on GPT-4
- Trained with 100,000 curated research documents
- Provides expert advice to financial advisors
- Transparently provides answers, reasoning and sources
- Currently piloting with 300 advisors, planning to rollout to 16,000 in summer



Generative AI Use Cases

- **Media Content**
 - Images
 - Text
 - **Audio and Video**
- **Synthetic Data**
- **Things**
 - Parts
 - Materials
 - Drugs



Source: Synthesia

Network Rail – Training Videos

- Previously used external production and voice actors
- Generative video cut the time to produce a video by 95%
- Created 500 training videos in 6 months
- Able to quickly adapt video content rather than re-start
- Diverse avatars and voices enable inclusion



Generative AI Use Cases

- **Media Content**
 - Images
 - Text
 - Audio and Video
- **Synthetic Data**
- **Things**
 - Parts
 - Materials
 - Drugs



Wells Fargo – Synthetic Data

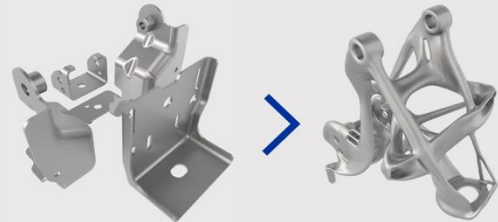
- Constraints due to privacy and security controls, limiting their use of valuable data and stifling innovation.
- Synthetic data unlocks new opportunities and drive enterprise-wide use cases.
- Train AI models for fraud detection
- Mitigate bias that exists in the data



Generative AI Use Cases

- **Media Content**
 - Images
 - Text
 - Audio and Video
- **Synthetic Data**
- **Things**
 - Parts
 - Materials
 - Drugs

**GENERAL MOTORS NEXT GENERATION
VEHICLE LIGHTWEIGHTING**
MAKING GM VEHICLES LIGHTER



3D PRINTED SEAT BRACKET
Proof-of-concept shown

GENERATIVE DESIGN
**150+ DESIGNS,
1 PART**

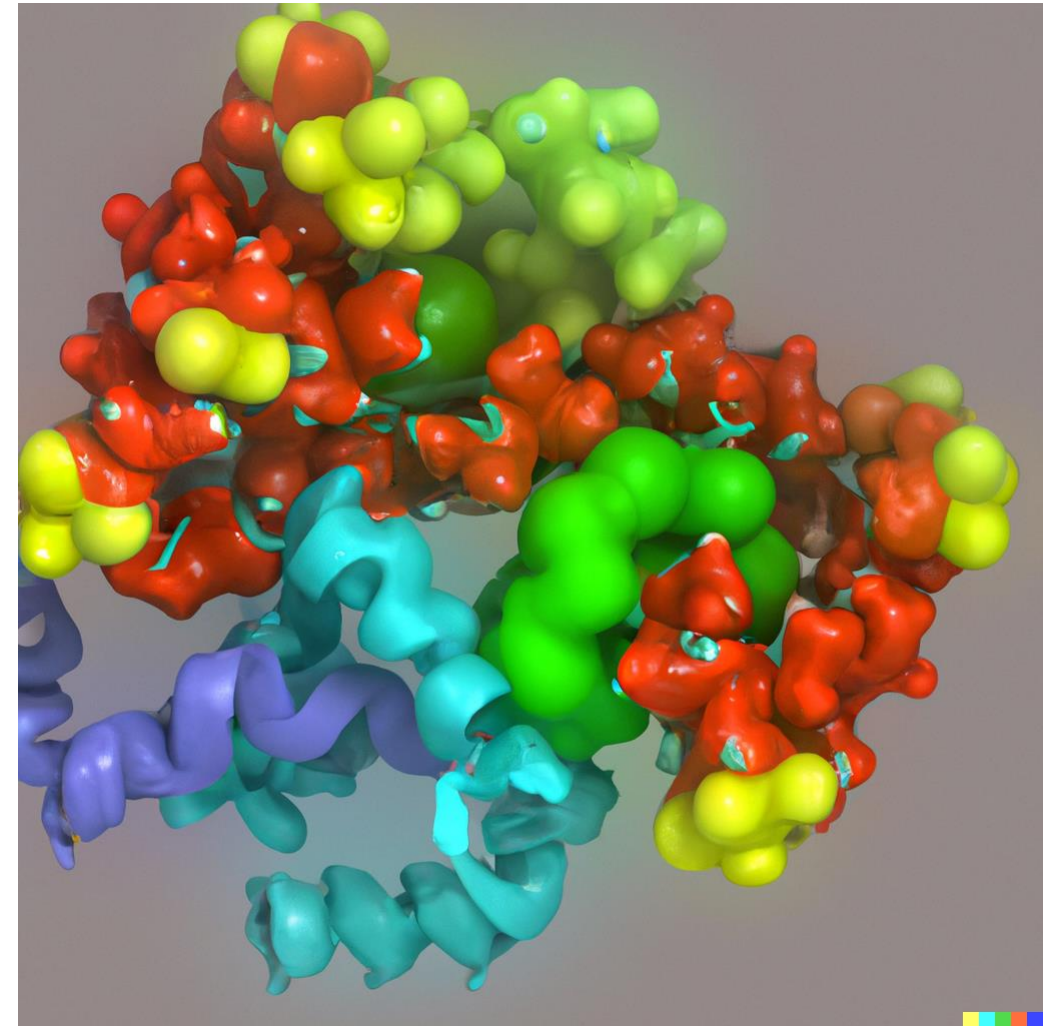
**CONSOLIDATING
8 COMPONENTS
INTO 1 PART**

**40%
LIGHTER** | **20%
STRONGER**

Source: General Motors

Generative AI Use Cases

- **Media Content**
 - Images
 - Text
 - Audio and Video
- **Synthetic Data**
- **Things**
 - Parts
 - **Materials**
 - Drugs



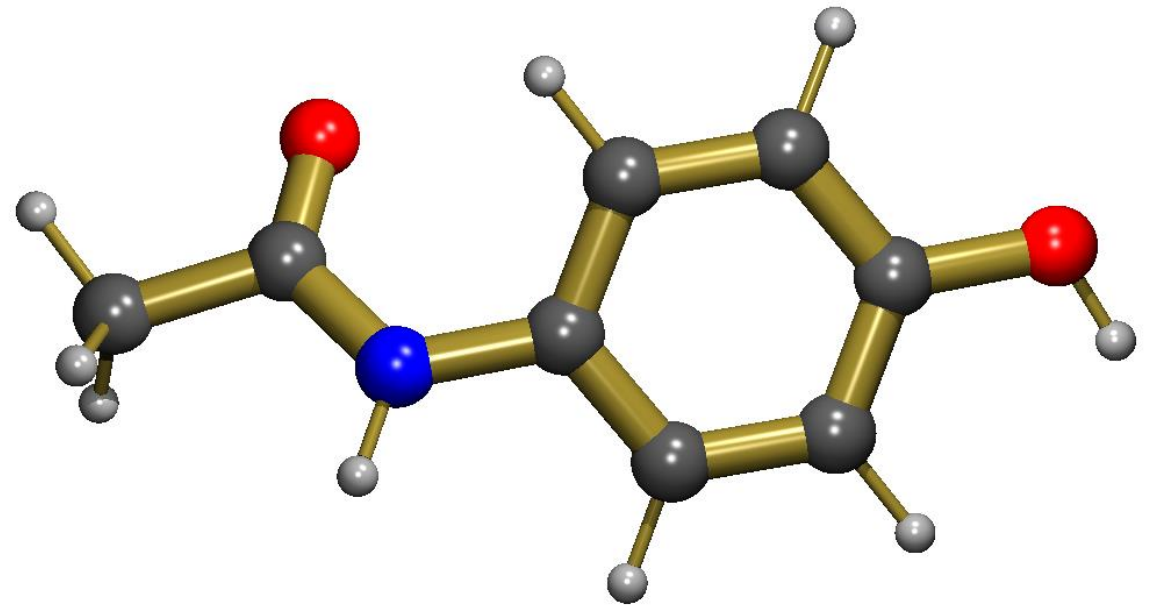
IBM – Project Photoresist

- Identifying a new molecule typically takes 10 years and costs 10-100 million
- Project photoresist was able to reduce that to months
- IBM developed a new photoacid generator, which is used in lithography, a key process in developing computer chips
- 100 times faster than traditional methods.



Generative AI Use Cases

- **Media Content**
 - Images
 - Text
 - Audio and Video
- **Synthetic Data**
- **Things**
 - Parts
 - Materials
 - **Drugs**



Source: Wikimedia Commons

Insilico – AI-designed Pulmonary Fibrosis Drug

- Typically it takes between 3 – 6 years from start to clinical trials.
- From start to Phase 1 clinical trial in 30 months
- Successfully completed Phase 1 in 2023
- Starting Phase 2 clinical trials later this year

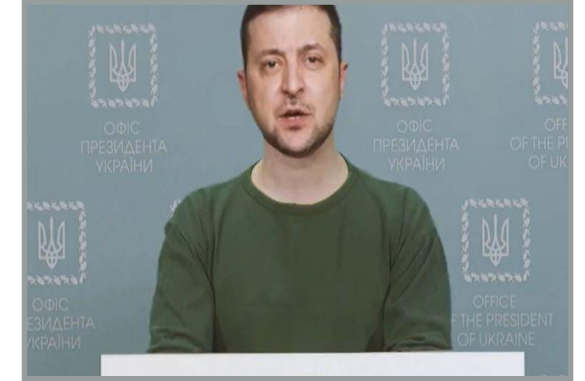


Generative AI (Mis)use Cases

- Reputation Attacks
- Style Replication
- Financial Fraud
- Political Attacks
- Misrepresentation
- Biometric Authentication
- Toxic Materials



Deepfakes



Disinformation



Fraud



Chemical Weapons

Large Language Model Risks

Model Risks

- Bias
- Misinformation
- Privacy
- Lack of Context
- Lack of Creativity
- Lack of Explainability

Misuse Risks

- Misinformation
- Cyberbullying
- Phishing
- Automated Generation
- Fraud
- Malware

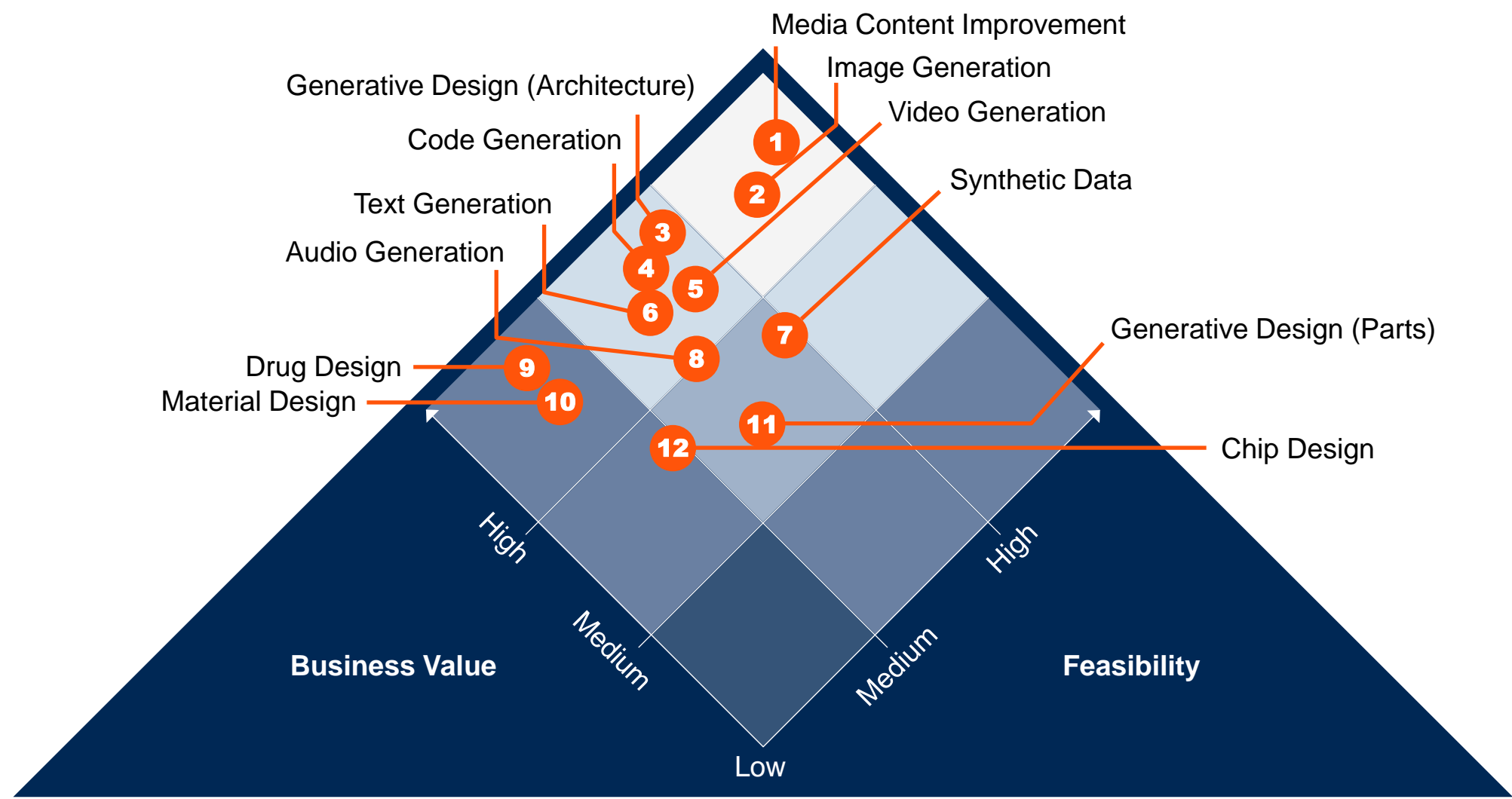
Usage Risks

- Intellectual Property
- Hallucinations
- Copyright
 - Images
 - Code

Key Issues

1. What is generative AI?
2. How can generative AI be used and abused?
3. What is the maturity of the various use cases and the impacts by industry?

Use Case Prism for Generative AI



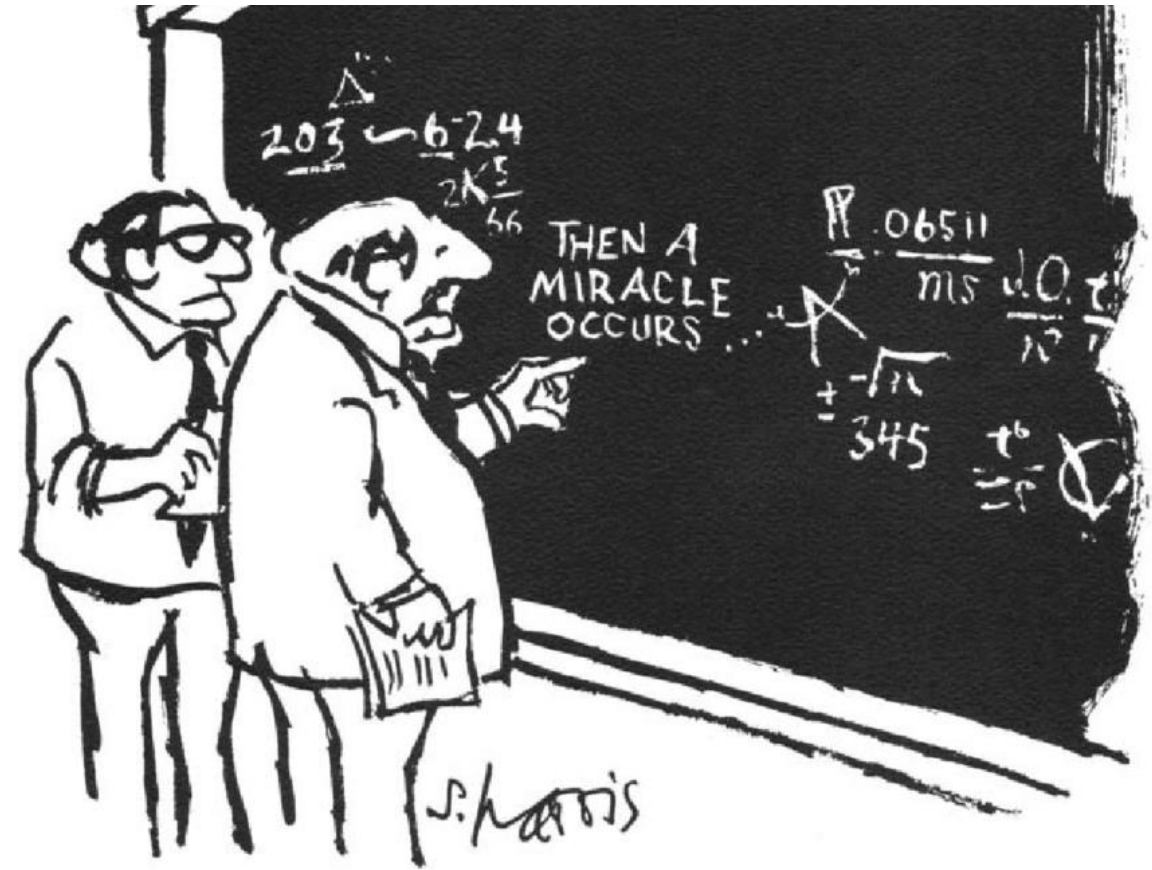
Source: Gartner

Use Cases by Industry/Capability

| | Industries | | | | | | | | Business Capabilities | | | |
|----------------------------------|------------|-------|------------------------------|----------------------|----------------------|----------------------------------|---------------|----------------|----------------------------|------------------------|---------------------|--------------------------|
| | Automotive | Media | Architecture and Engineering | Energy and Utilities | Healthcare Providers | Electronic Product Manufacturing | Manufacturing | Pharmaceutical | Human Resources Management | Information Technology | Marketing and Sales | Research and Development |
| Drug Design | | | | | | | | ● | | | | |
| Material Design | ● | | | ● | | ● | | | | | | ● |
| Chip Design | | | | | | ● | | | | | | |
| Synthetic Data | ● | | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| Generative Design (Parts) | ● | | ● | | | | ● | | | | | ● |
| Generative Design (Architecture) | | | ● | | | | | | | | | |
| Code Generation | | | | | | | | | | ● | | |
| Text Generation | | ● | | | | | | | | | ● | |
| Image Generation | | ● | | | | | | | | | ● | |
| Video Generation | | ● | | | | | | | ● | | ● | |
| Audio Generation | | ● | | | | | | | | | ● | |
| Media Content Improvement | | ● | | | | | | | | | ● | |

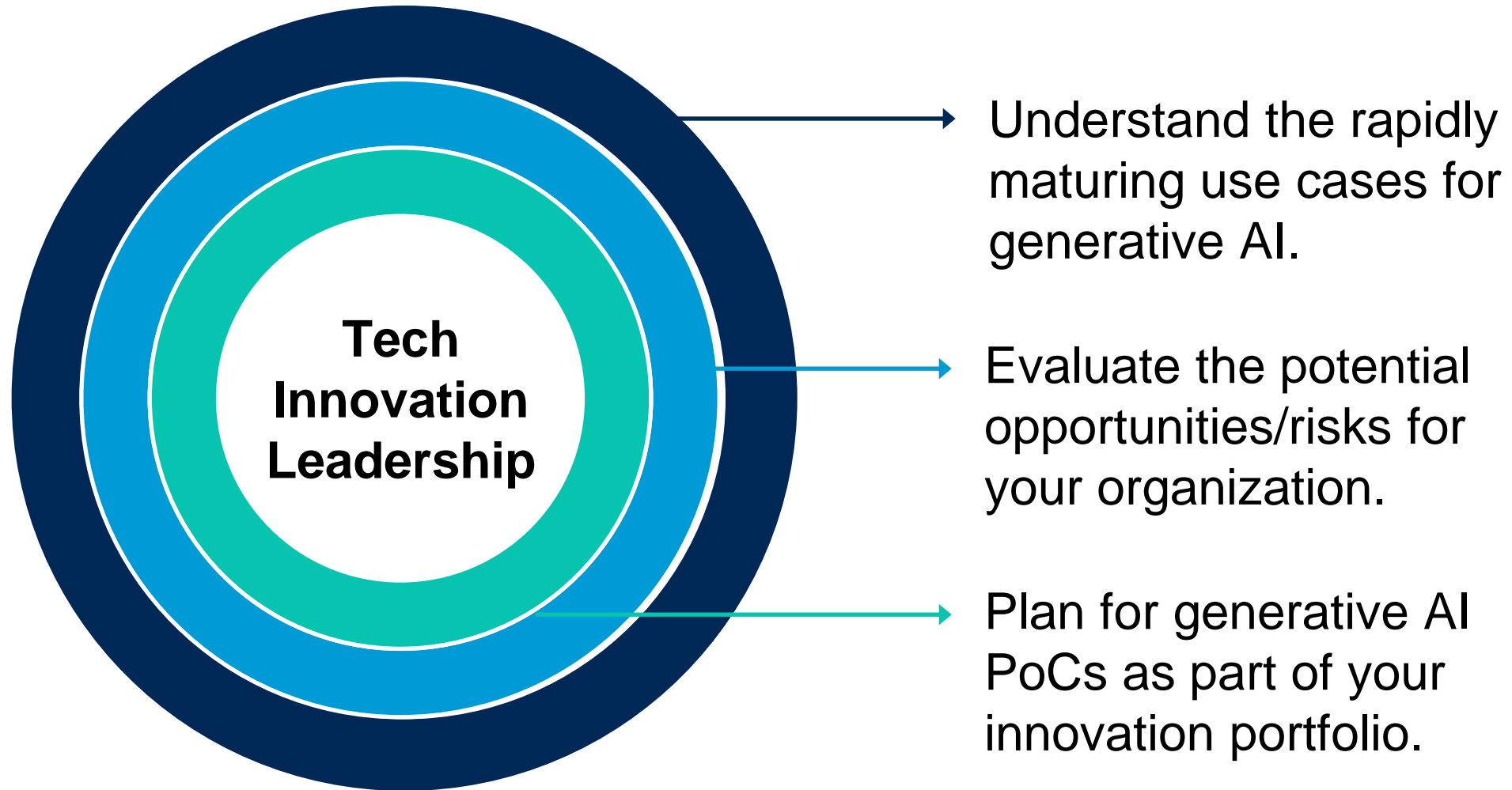
Future Focus: What is the Controversy About AGI?

- We have not achieved AGI!
- LLMs demonstrate emergent abilities
- No one understands how they do what they can do
- Plugins give them access to the physical world.
- Recursion can be used to solve more complex problems
- The debate on when we achieved AGI has been re-opened



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

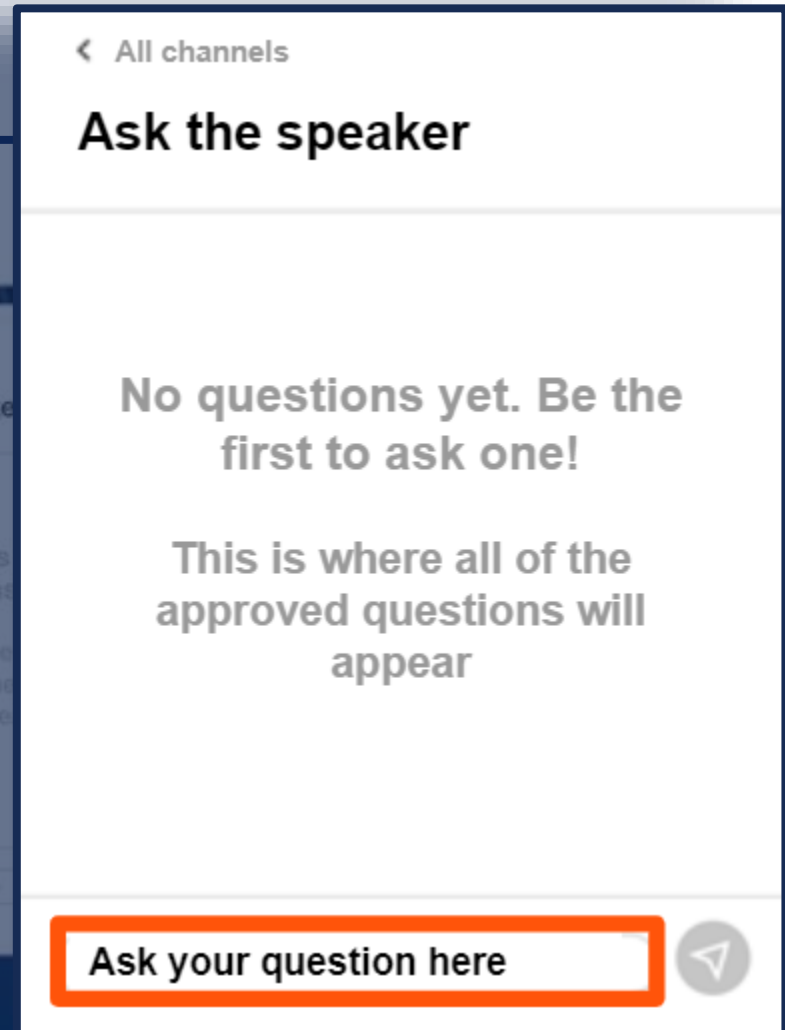
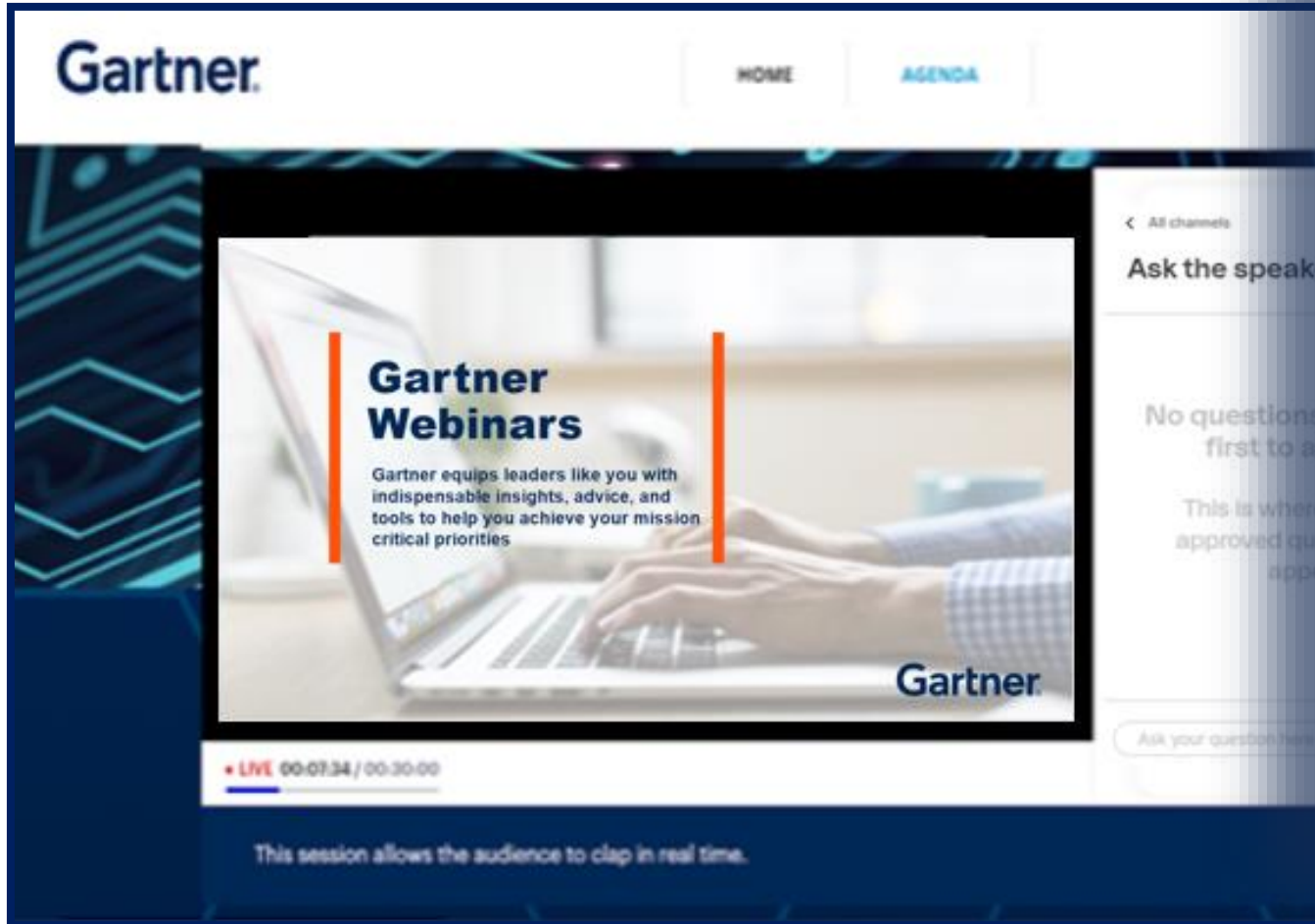
Next Steps for Technology Innovation Leaders



Recommended Gartner Research

- 🔍 **Innovation Insight for Generative AI**
Brian Burke, Arun Chandrasekaran, Svetlana Sicular (G00778501)
- 🔍 **Innovation Insight for Artificial Intelligence Foundation Models**
Arun Chandrasekaran, Magnus Revang, Arnold Gao (G00769102)
- 🔍 **Tool: Enterprise Use Cases for ChatGPT**
Anthony Mullen, Brian Burke and Others (G00786729)
- 🔍 **Board Brief on Generative AI**
Tina Nunno, Jon Aronoff and Others (G00794593)

Ask the speaker



Gartner® IT SYMPOSIUM | Xpo®

Discuss key topics like executive leadership, data and analytics, customer experience, cybersecurity and more. At Gartner IT Symposium/Xpo™ you'll reimagine your approach to leadership, technology and business strategy.

Learn more: gartner.com/conf/cio

#GartnerSYM

The World's Most Important Gathering of CIOs and IT Executives™

11 – 13 September 2023 | Gold Coast, Australia

16 – 19 October 2023 | Orlando, FL

6 – 9 November 2023 | Barcelona, Spain

13 – 15 November 2023 | Tokyo, Japan

28 – 30 November 2023 | Kochi, India

At this year's conference, you'll learn:



Discover tools and techniques to enhance your IT and business strategies



Examine the opportunities and risks in adopting emerging and innovative technologies



Challenge how you think about leadership and discover new approaches to lead

Emerging Tech Impact Radar: 2023

Explore the technologies with the most potential to disrupt.

[Learn More](#)



When to Augment Decisions With Artificial Intelligence

Find out when and how to augment
decisions with AI.

Get the Key Takeaways



© 2023 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. or its affiliates. This presentation, including all supporting materials, is proprietary to Gartner, Inc. and/or its affiliates and is for the sole internal use of the intended recipients. Because this presentation may contain information that is confidential, proprietary or otherwise legally protected, it may not be further copied, distributed or publicly displayed without the express written permission of Gartner, Inc. or its affiliates. All rights reserved.



Gartner®

Become a Client

Clients receive 24/7 access to proven management and technology research, expert advice, benchmarks, diagnostics and more.

Fill out the form to connect with a representative and learn more.

[Learn More](#)

Or give us a call: **+441784614280 | +1 855 637 0291**

8 a.m. – 7 p.m. ET

8 a.m. – 5 p.m. GMT

Monday through Friday

Get more Gartner insights



Download the research slides



**View upcoming and on-demand Gartner webinars
at gartner.com/webinars**



Rate this session

Rate this session

Rate Session

RATE THIS SESSION (1-5)

LEAVE FURTHER FEEDBACK

I loved the speaker's insight on this topic

Cancel

SEND



Gartner

HOME

AGENDA

Gartner Webinars

Gartner equips leaders like you with indispensable insights, advice, and tools to help you achieve your mission critical priorities

Gartner

LIVE 00:32:32 / 01:00:00

This session allows the audience to clap in real time.

All channels

Ask the speaker

No questions yet. Be the first to ask one!

This is where all of the approved questions will appear

Ask your question here

Interested

LIVE Tue Nov 15, 11:00 AM - 12:00 PM EST (1 Hour)

The Future of Cloud in 2027: From Technology to Business Innovation

As cloud computing evolves from technology enabler to business disruptor, IT leaders must ensure they understand their organization's business strategy. Only then can they seek opportunities to leverage new and emerging cloud capabilities to accelerate that strategy. This free webinar reveals Gartner's top predictions for where cloud computing will be by 2027, and explores how these predictions will shape your cloud value proposition.

- Explore what cloud computing will look like in 2027
- Discover how multi-cloud and cloud native can affect organizations' cloud efforts
- Ensure a successful cloud journey for your organization

Return to this web page to watch this webinar. Contact us at gartnerwebinars@gartner.com with questions about viewing this webinar.

Rate Session

Speakers

39 RESTRICTED DISTRIBUTION
© 2023 Gartner, Inc. and/or its affiliates. All rights reserved.

Gartner®