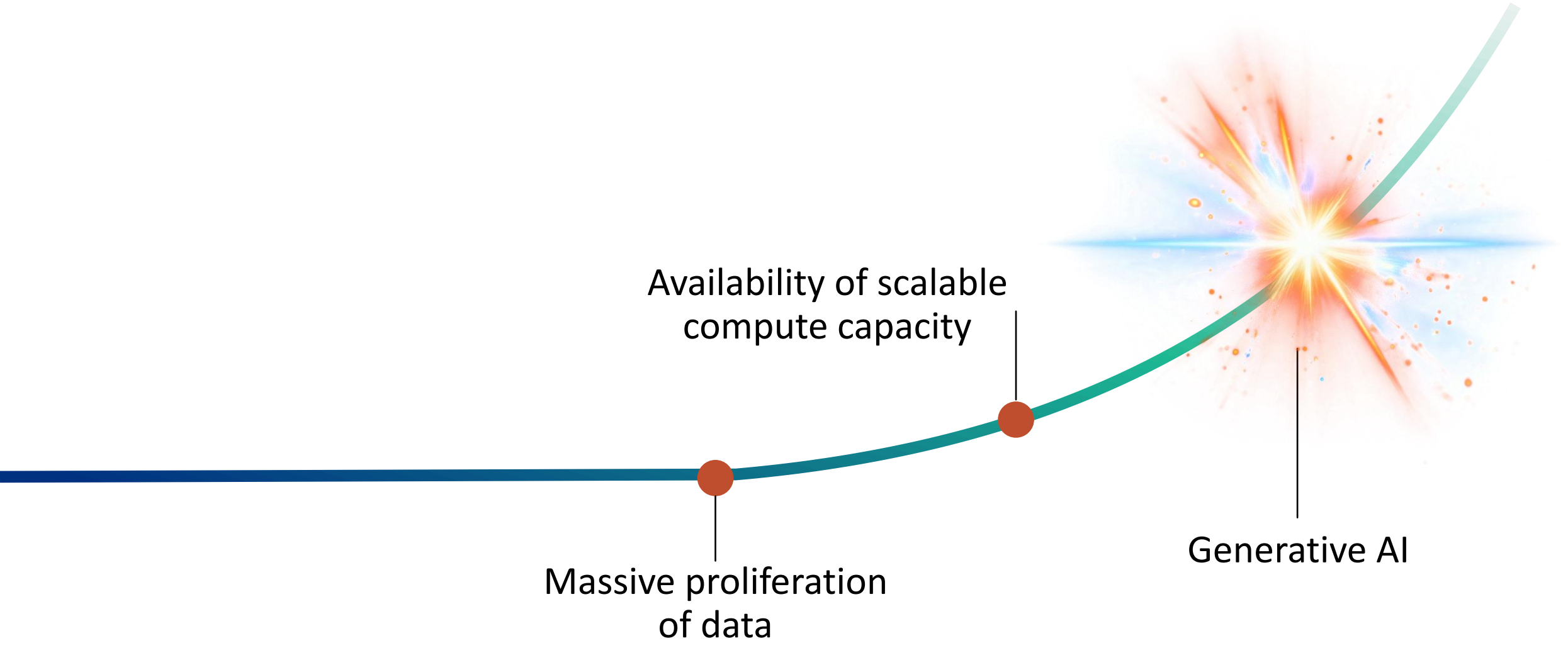
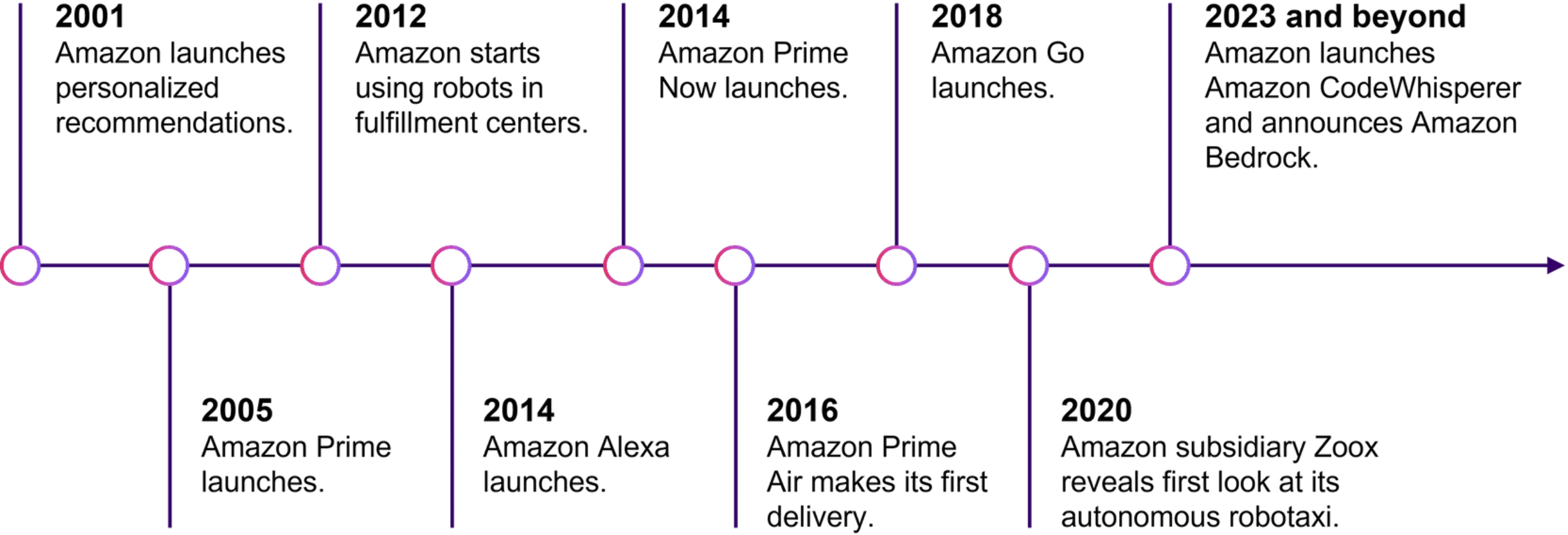
Introduction to Generative AI

Generative AI is a branch of machine learning (ML). It is concerned with the development of algorithms that can create natural language text, images, code, audio, or videos based on user input.

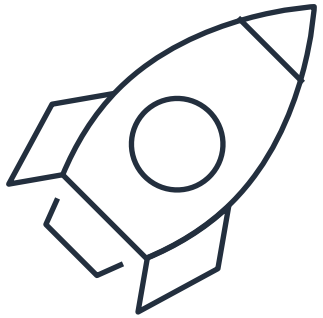
A lot of excitement and potential



History of ML at Amazon



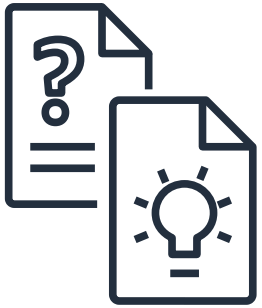
Evolution of ML and the emergence of generative AI



Investment in team size	Willingness to invest in big ideas	Investment in compute

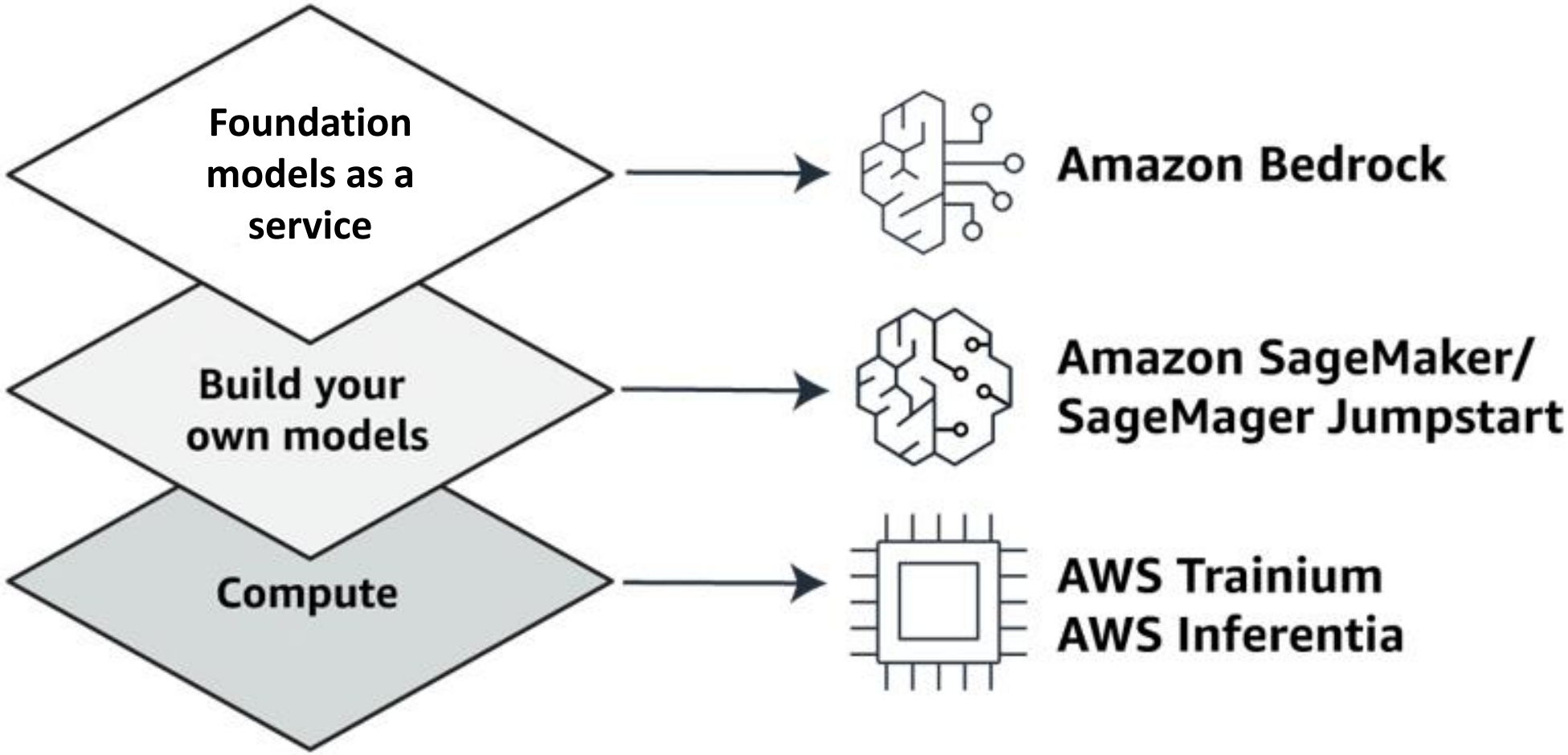
Like all artificial intelligence, generative AI is powered by ML models. However, generative AI is powered by very large models that are pretrained on vast collections of data.

Common areas where generative AI adds business value



Customer experience	Employee productivity	Creativity and content	Business operations
• Chat • Virtual assistants • Intelligent contact centers • Personalization • Content moderation	• Search • Content creation • Text summarization • Code generation	• Art • Music • Text • Images • Animations • Video	• Document processing • Maintenance assistants • Quality control • Visual inspection • Synthetic training data generation

Generative AI services on AWS



Use cases for businesses

Healthcare
- AWS HealthScribe
- Personalized medicine
- Medical imaging

Life sciences
- Drug discovery
- Protein folding prediction
- Synthetic biology

Financial services
- Fraud detection mechanisms
- Portfolio management
- Debt collection

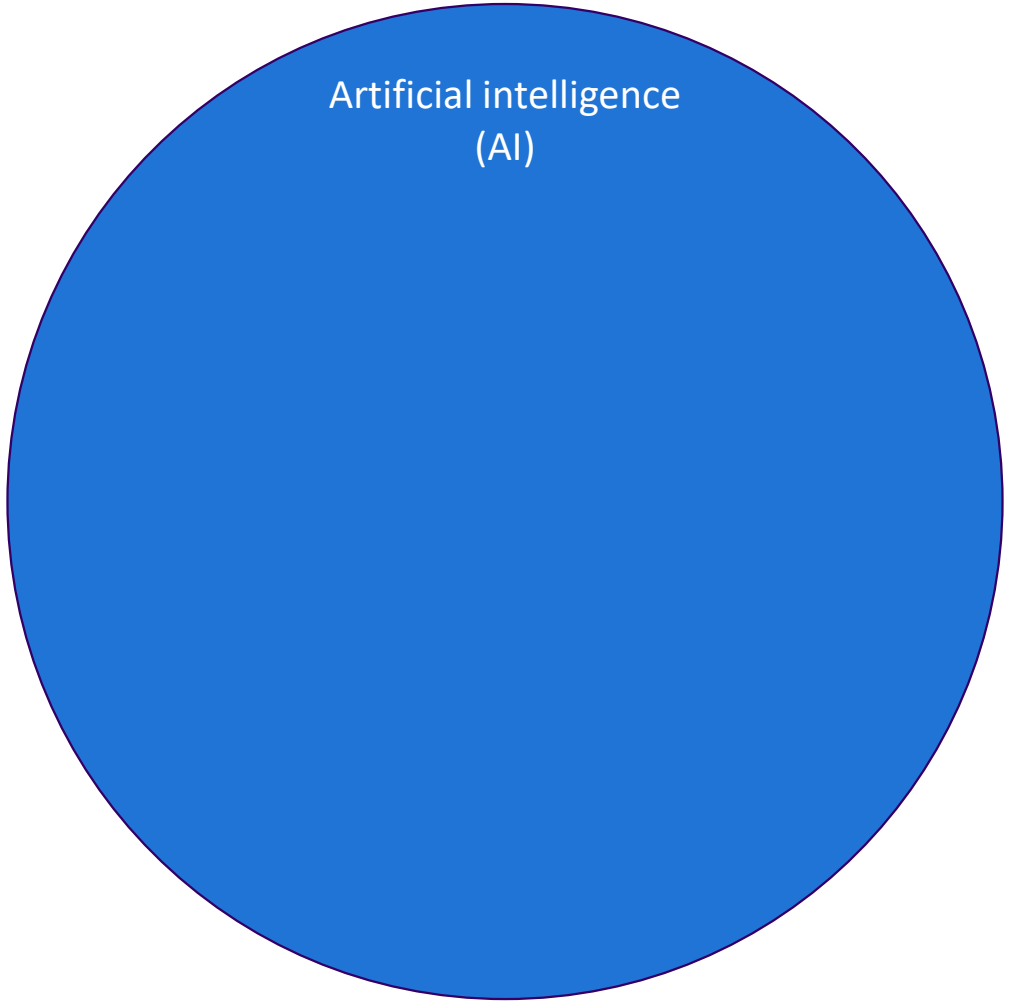
Manufacturing
- Product design
- Process optimization
- Preventive maintenance
- Material science

Retail
- Pricing optimization
- Virtual try-ons
- Store layout optimization
- Product review summaries

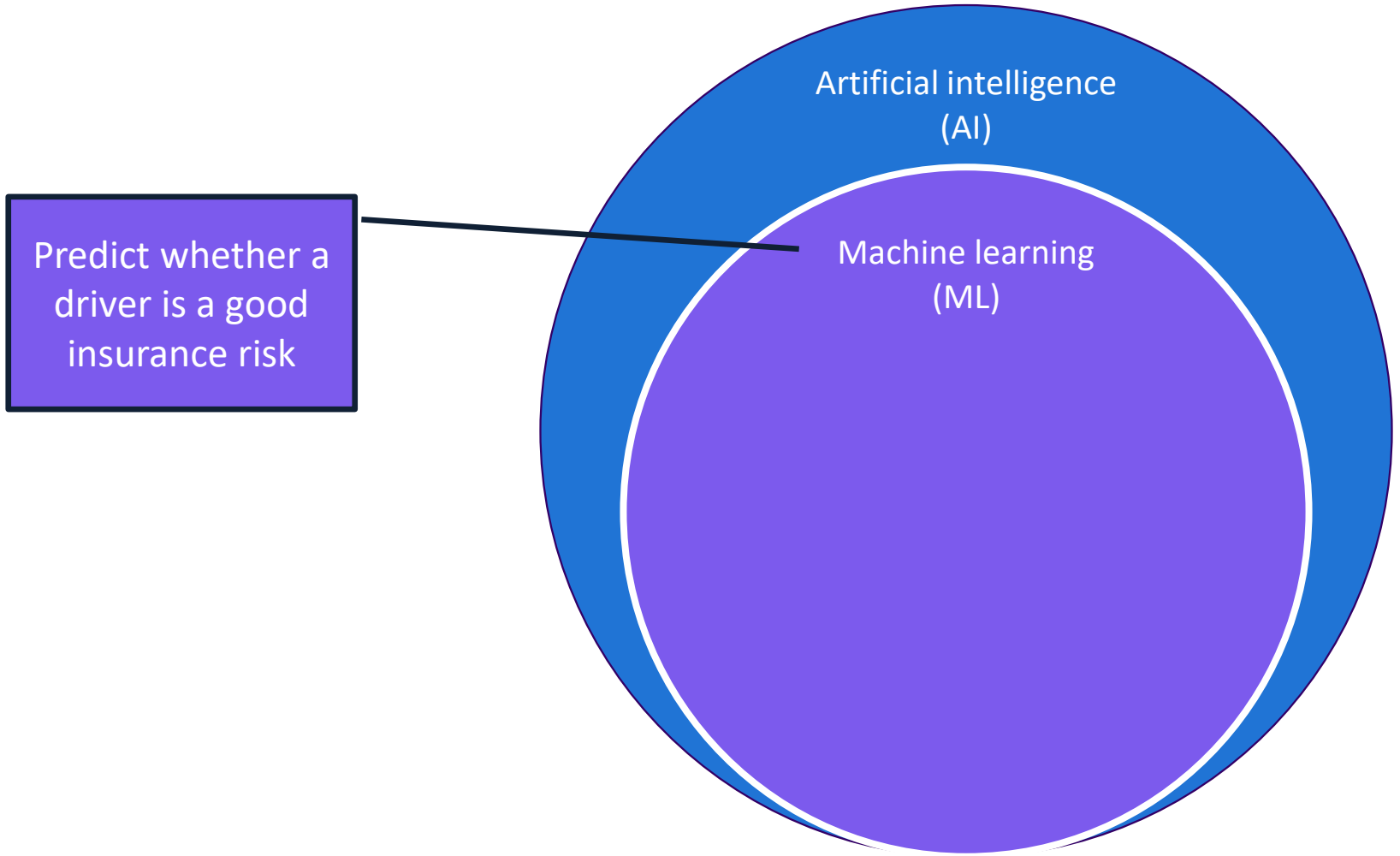
Media and entertainment
- Content generation
- Virtual reality
- News generation

Artificial intelligence: Terms and definitions

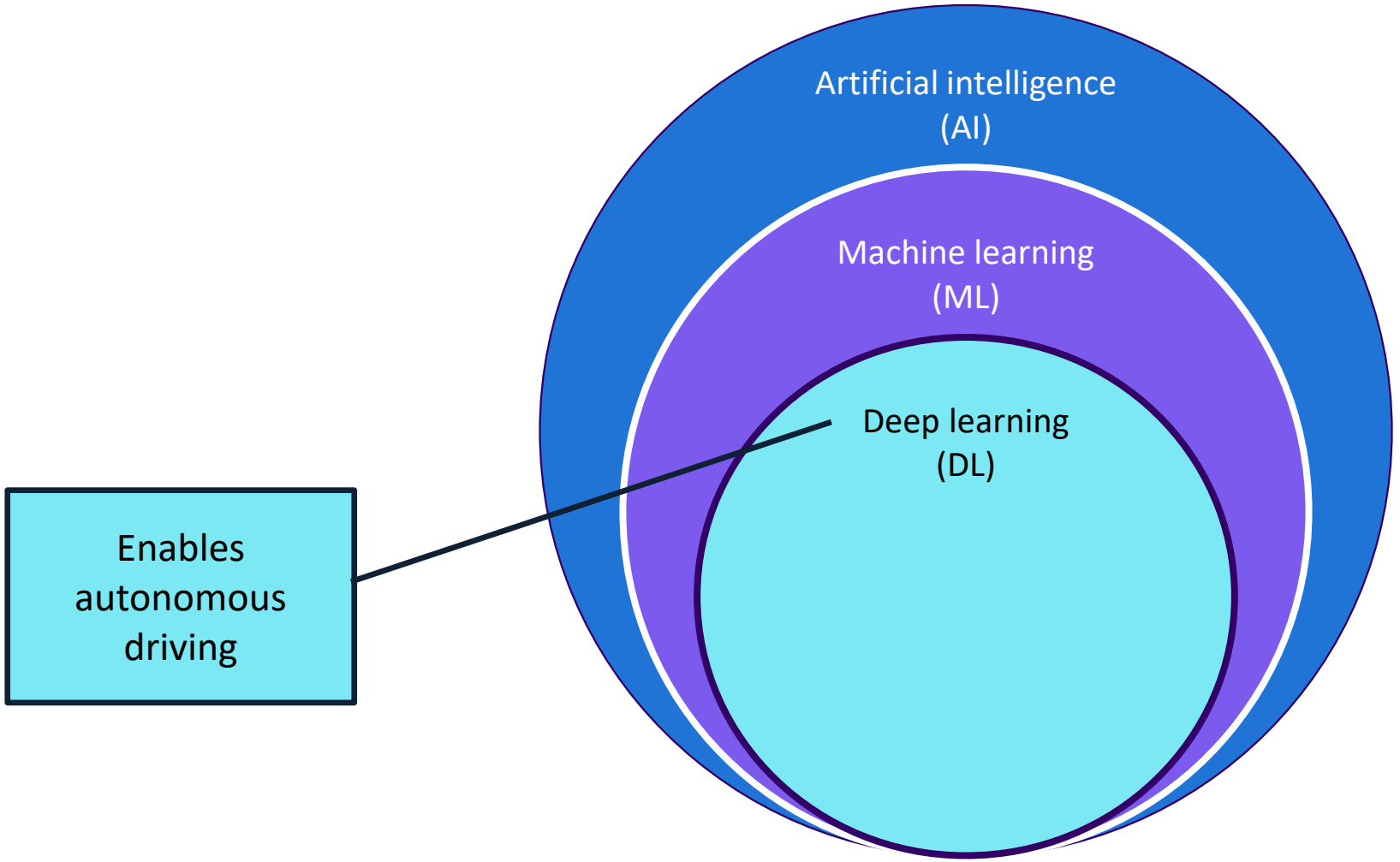
Artificial intelligence



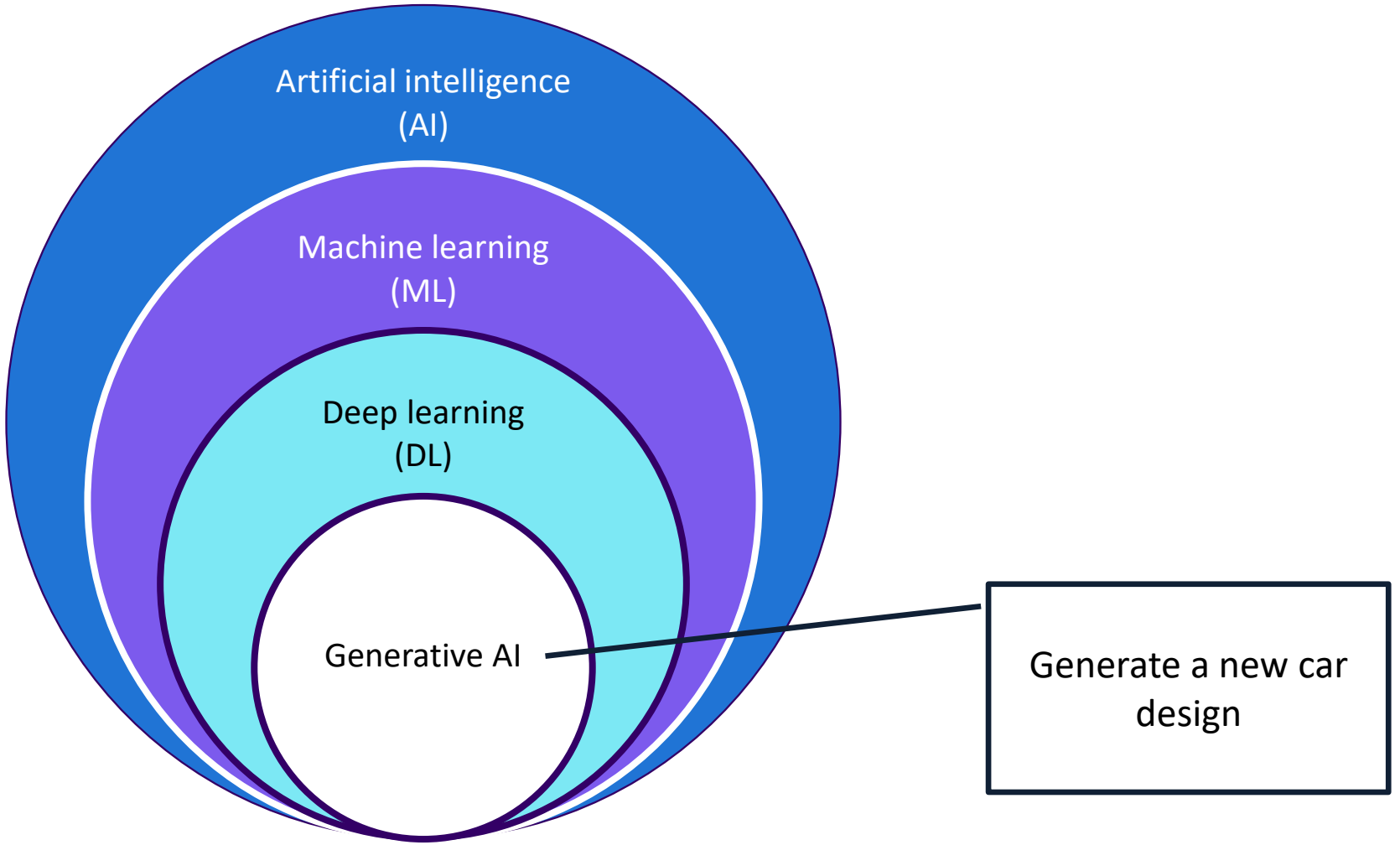
Machine learning



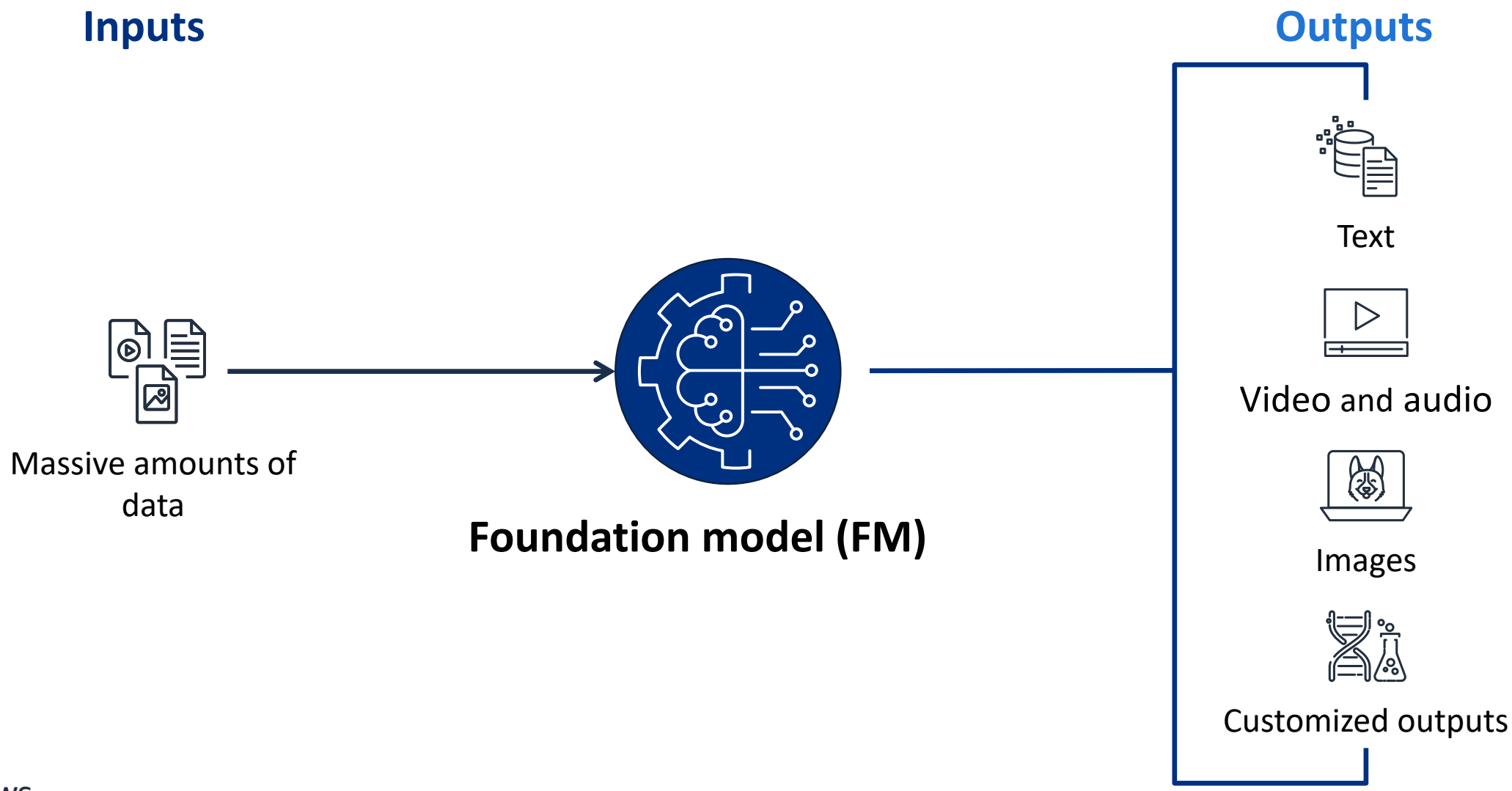
Deep learning



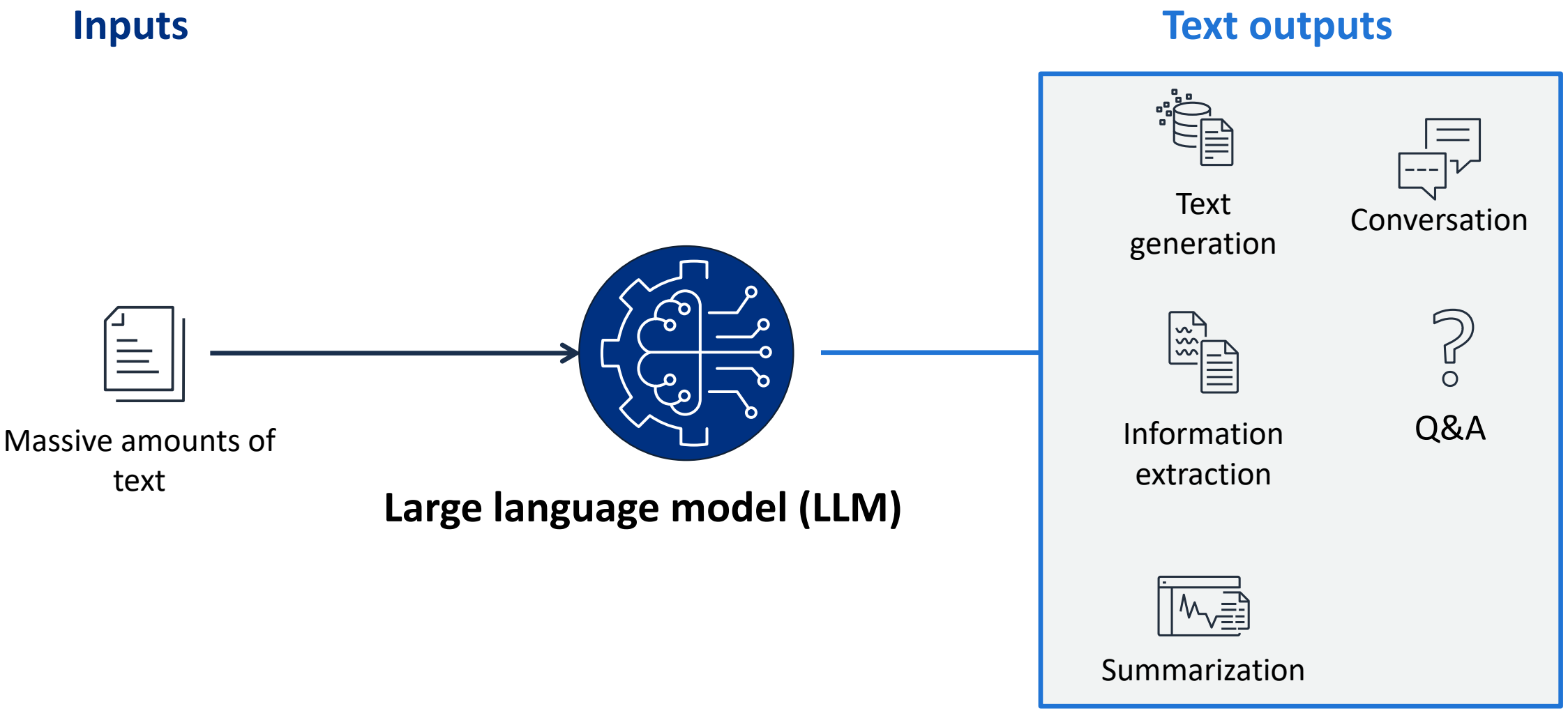
Generative AI



Foundation models (FMs) can produce a variety of outputs

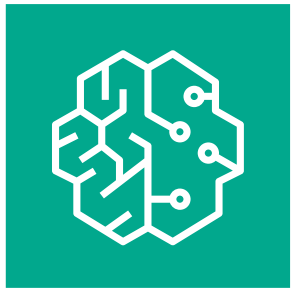


Large language models (LLMs) are FMs for text

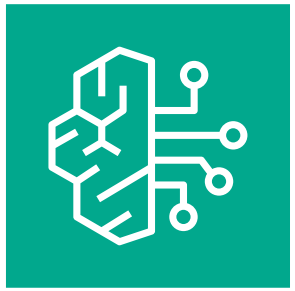


AWS services for working with FMs

Greatest control



Amazon SageMaker



Amazon Bedrock

Amazon Q

Least expertise

Exploring generative AI capabilities

Example – Introducing a new product

Content summarization

Content generation

Code generation

Question & answer

Summarize content

Content summarization

Content generation

Code generation

Question & answer

Prompt:
Use the attached market research report to generate a high-level summary and analysis of the current landscape for a presentation to the executives. *[Attach market report]*

Output:
Based on our market research, the walking shoe sector has grown by 12% over the past year…

Content generation – Text

Content summarization

Content generation

Code generation

Question & answer

Prompt:
Use this executive summary report to generate a product announcement to be used on social media.

[Attach executive summary]

Output:
Looking for a new pair of shoes? Look no further than the London Walker! This stylish and comfortable shoe… #LondonWalker #walkingadventures

Content generation – Image

Content summarization

Content generation

Code generation

Question & answer

Prompt:
Stylize this photo as a produ
photo with a background in
London.

Content generation – Code

Content summarization

Content generation

Code generation

Question & answer

Prompt:
Create a python script to upload files to Amazon Simple Storage Service (S3).

Output:
Code for visualizing the sentiment data

Provide question and answering

Content summarization

Content generation

Code generation

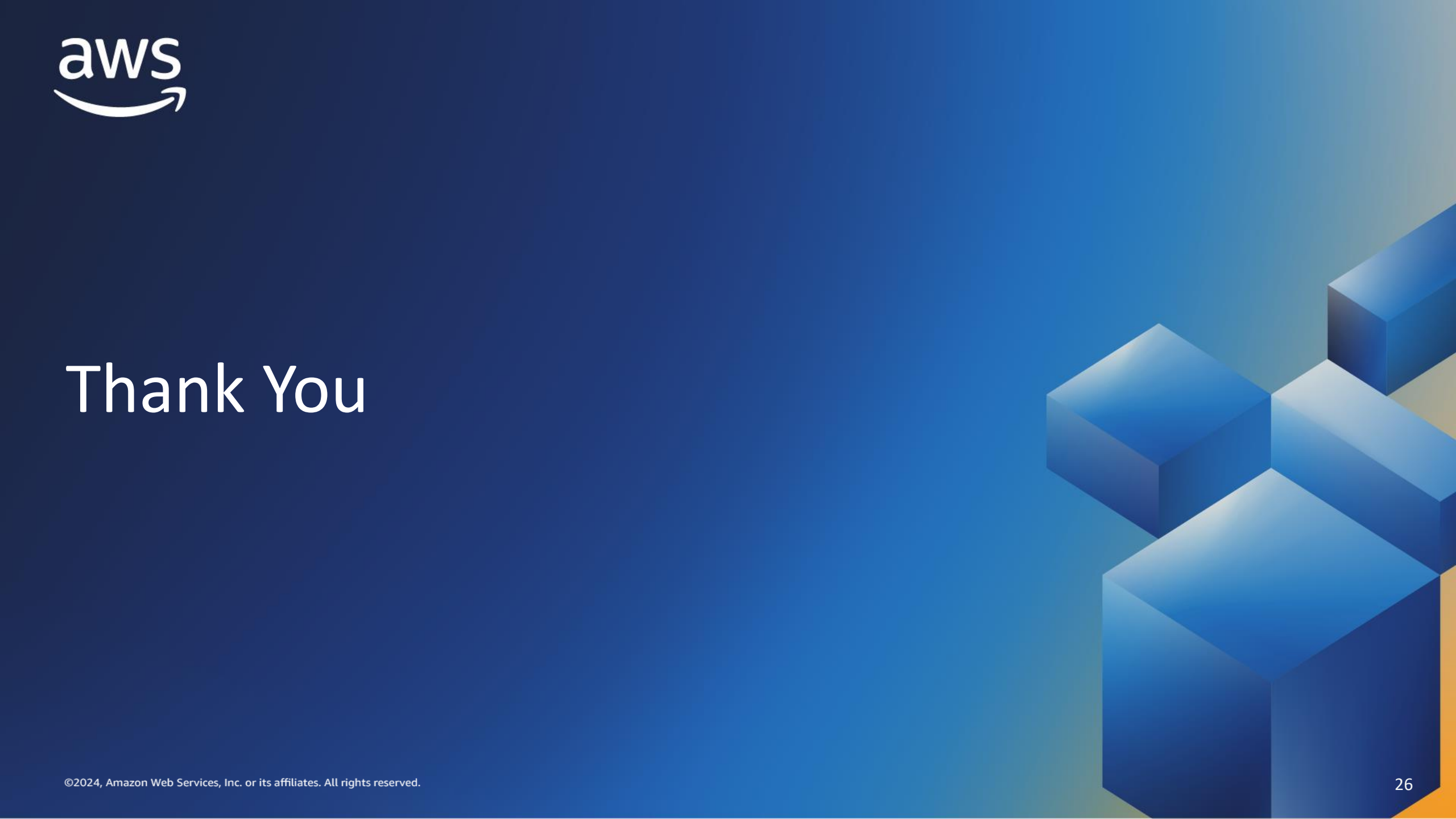
Question & answer

Prompt (from customer):
Hello, I need some assistance with finding the tracking number for my most recent order.

Output:
Hi John, I see that you ordered the London Walker on June 24, 2024. The expected delivery date is tomorrow June 27, 2024. Here is the tracking number for your records and reference: 123456789

Generative AI business value for this product

- Generated creative content
- Improved employee productivity
- Improved customer experience



Thank You