



Generative AI at SAP

## Unit 2: Introduction to Generative AI

## Introduction to generative AI

### **Objectives of Unit 2**

In Unit 2, you will learn

- What's behind all the generative AI news and its impact on the economy
- Definitions of foundation models, large language models, and generative AI
- Why generative AI is a new approach to artificial intelligence
- Examples of generative AI



## Generative AI is all over the news

### ChatGPT Is a Tipping Point for AI

Source: Harvard Business Review, 14. December 2022

### Congress to hold new AI hearings as it works to craft safeguards

Source: Reuters, 8. September 2023

### ‘Video games are in for quite a trip’: How generative AI could radically reshape gaming

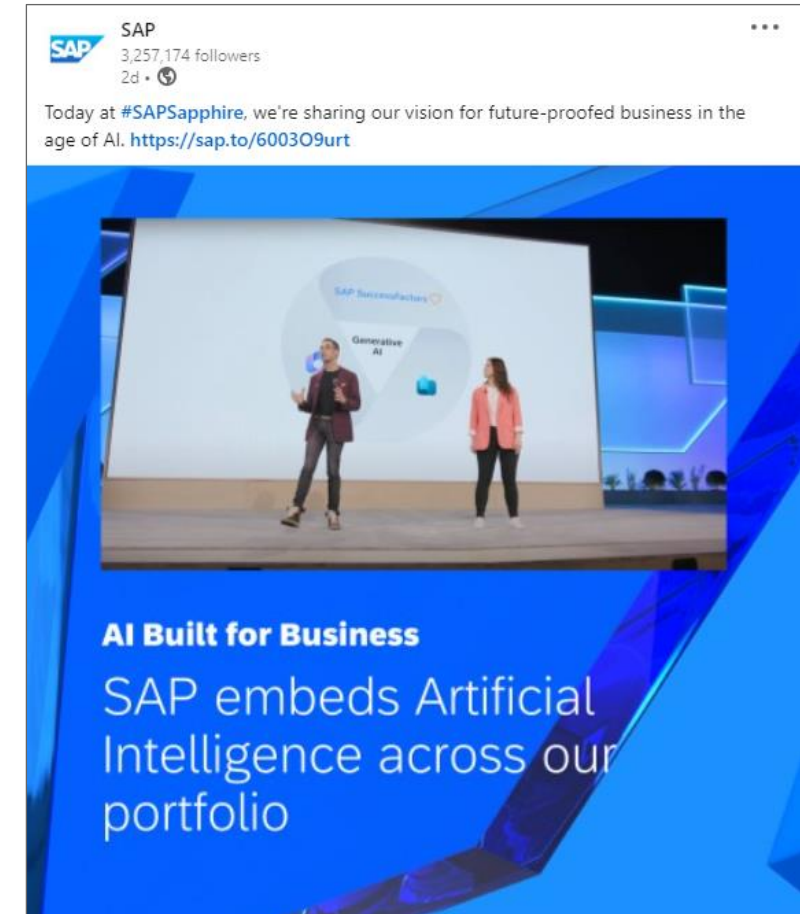
Source: CNN, 23. October 2023

### The Coming AI Economic Revolution

Source: Foreign Affairs, November/December 2023

### How generative AI could add trillions to the global economy

Source: World Economic Forum, 14. July 2023



### SAP prepares to add Joule generative AI copilot across its apps

Source: CIO, 26. September 2023

## Generative AI will profoundly impact the economy and increase productivity

Generative AI could add

**\$2.6 to \$4.4 trillion**

incremental value annually to  
the global economy

**\$11-\$17tn**

productivity value from existing  
generation of narrow AI by 2040

### Already widespread adoption of generative AI

**33%**

of companies globally are using  
generative AI regularly in at  
least one business function

**40%**

of organizations will increase their  
investment in AI overall because  
of advances in generative AI

**60%**

of organizations adopting AI have  
seen some revenue increase

Source: McKinsey, State of AI in 2023, 1,684 participants globally

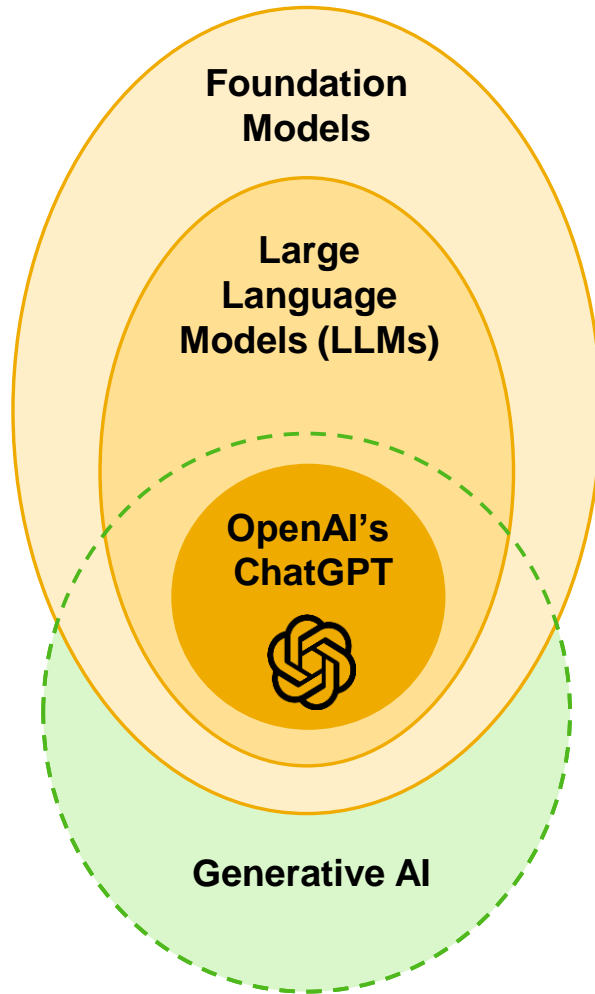
Source: McKinsey, The economic potential of generative AI:

The next productivity frontier (June 2023)



# Introduction to generative AI

## Definitions



**Foundation models** are neural networks trained on large volumes of data using self-supervised learning that can be applied to many tasks.

**Large language models (LLMs)** are a subcategory of foundation models for text incl. computer code.

**Generative AI** can create novel output in text, images, sound, or video based on simple user input (called “prompts”).

**ChatGPT** is an application built on a large language model created by the vendor OpenAI. The model has been optimized for dialog.

**Multi-modal models** can process prompts and generate output in various formats, including text, images, video, and speech.

**LLM learning objective:**  
**Predict the next word in text.**

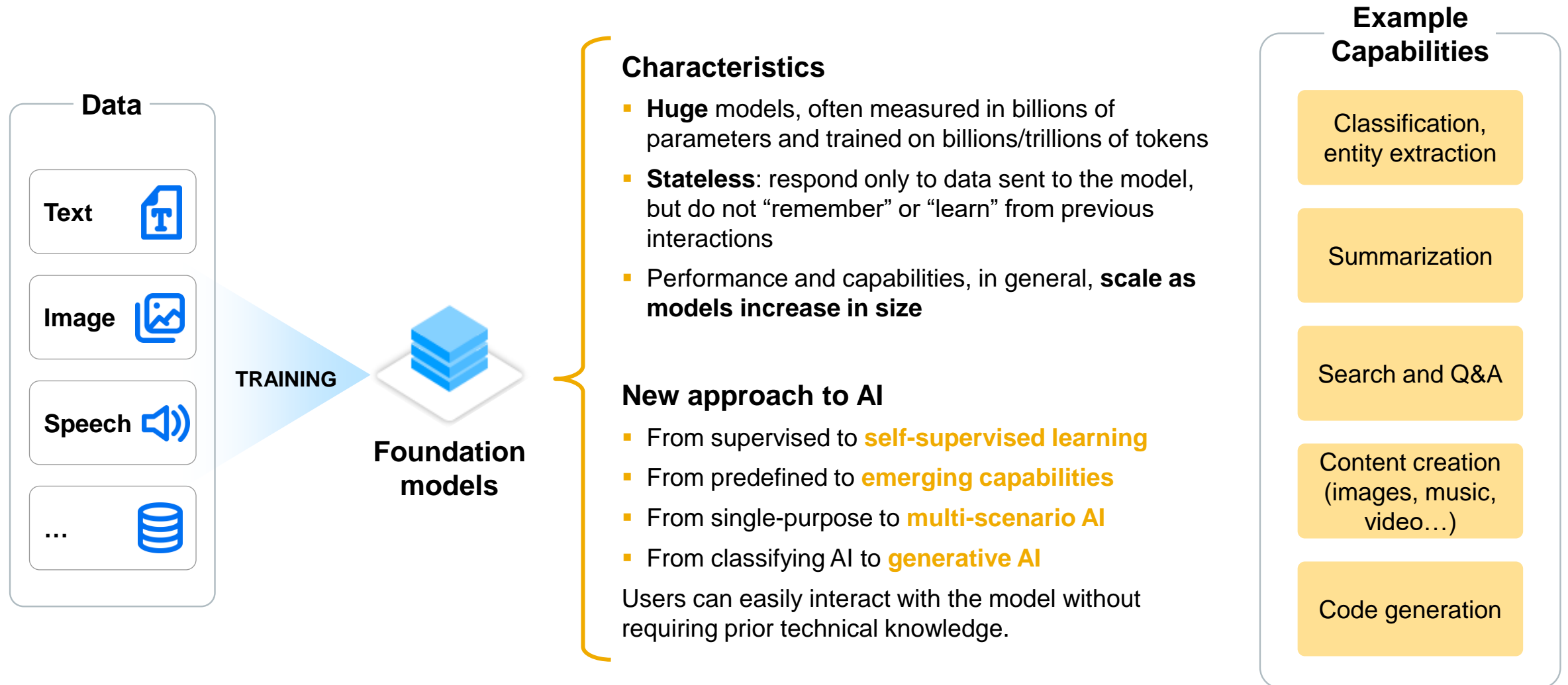
London is in England

Two hours south of Toronto, London is in Ontario

... trained on billions of words, images, lines of code, etc.

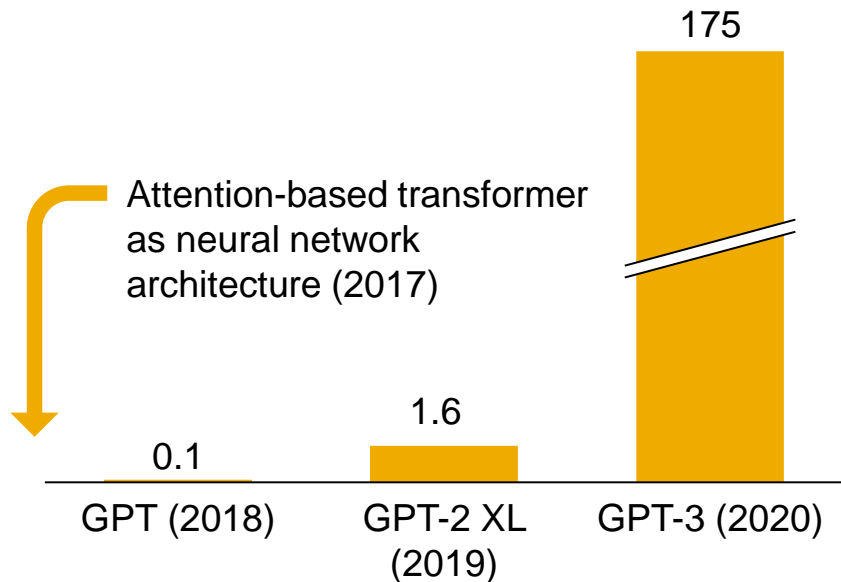
# Introduction to generative AI

## Capabilities of foundation models

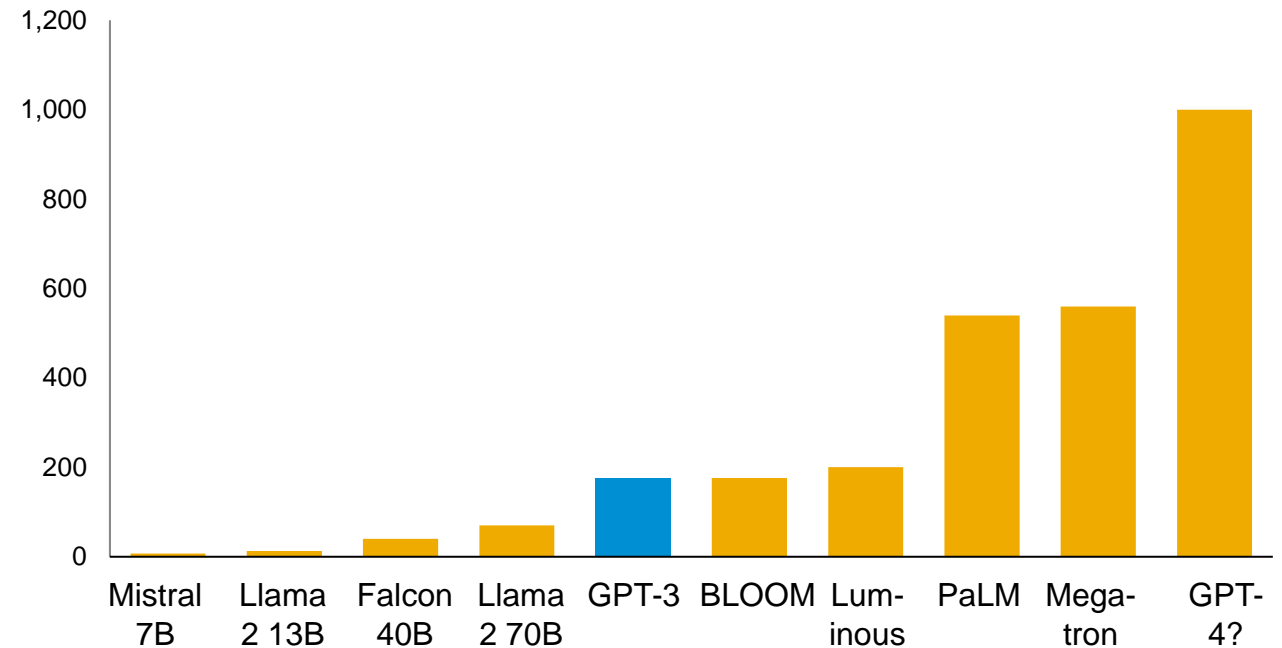


## Foundation models come in all sizes and generally scale with more data and parameters

### Trainable Parameters (in billions):



### Example LLMs by parameter size



Foundation models **scale** with more compute, more data, and more parameters (model size)

→ Higher accuracy, adaptability, and generative performance.

**But** also a trend towards smaller models benchmarking on certain tasks as well as much larger models due to better training data and methods.

## Examples of generative AI

### Generative AI processes *prompts*

**Prompt:** explicit instructions or cues to guide generative AI models in producing desired outputs

### Stable Diffusion 2 (text-to-image multimodal model)



Prompt

“Hasso Plattner, the founder of SAP, giving a high five to a robot.”

**Output:**





# Introduction to generative AI

## Examples of generative AI

### Large Language Models: create text.



**Prompt**

Write an email introducing our logistics company, Treasure Island Transports Ltd, to a retail prospect. Do it the style of a pirate.

Ahoy there,

We be Treasure Island Transports Ltd, masters of the seven seas! Our fleet be as swift as the wind, and our crew as reliable as the North Star. We be ready to set sail with your goods, ensuring they reach port safe and sound. So, hoist the anchor and join us for a voyage of smooth logistics and swift deliveries.

Yarrrs sincerely,

[Your Name]

Treasure Island Transports Ltd.



### Large Language Models: summarize text.



**Prompt**

Summarize key benefits from the following 1000-word document in less than 100 words. Use bullet points.



- SAP Business AI offers transformative intelligence to businesses through ready-to-use AI capabilities in all business processes such as lead-to-cash, design-to-operate, recruit-to-retire, and source-to-pay.
- SAP Business AI allows businesses to extend AI capabilities to meet their specific needs using the SAP Business Technology Platform.
- SAP Business AI provides trust and reliability through AI capabilities built on stringent ethics policy and data privacy standards that enable responsible use of AI with full transparency and compliance.



# Introduction to generative AI

## Examples of generative AI

**Large Language Models:** classify and extract text.



**Prompt**

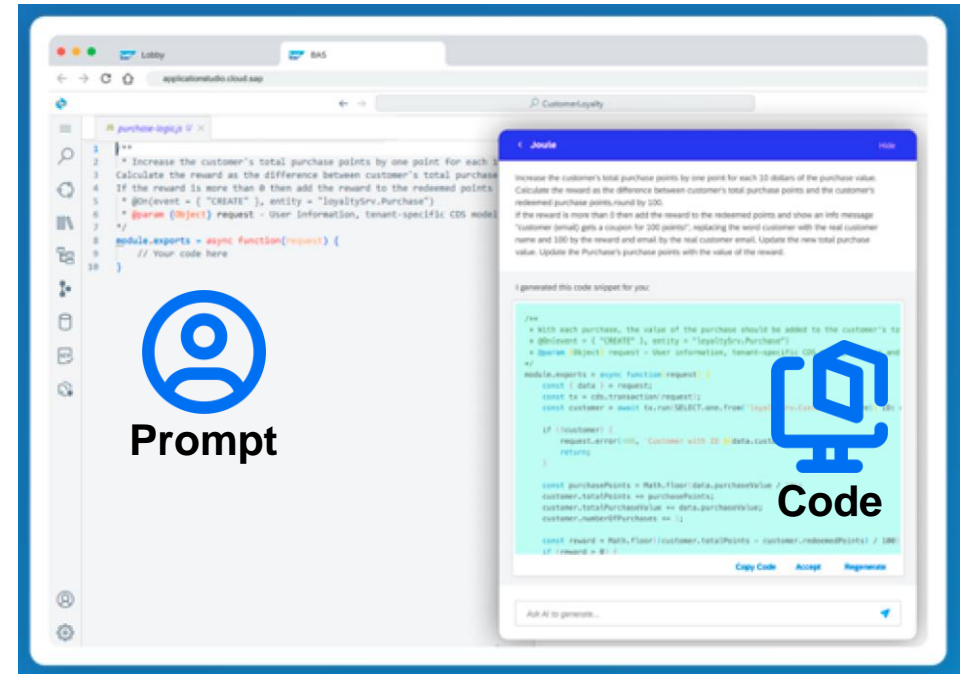
Classify the sentence as negative, neutral, or positive sentiment and extract the object.  
"I loved your course on openSAP!"

Positive sentiment

The object being referred to in the sentence is "your course on openSAP".



**Write working code based on a text description**



# Thank you.

**Contact information:**

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