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AGENDA

- Introduction
- Foundational knowledge on AI for business (~15 minutes)
- Hands-on with AI: Prompt engineering (~15 minutes)
- Breakout discussion: AI and your professional career (~15 minutes)
- 10-minute BREAK
- AI and business innovation (~15 minutes)
- Breakout discussion: AI and business innovation (~15 minutes)
- Wrap-up

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BRIEF ICE-BREAKING DISCUSSION: WHAT IS AI?

Share your knowledge

- In your own language....What is AI?
 - Please type your definition in the Zoom chat box
- How do you use AI? Either for personal productivity or at work?
- How do your organization use AI these days?
- Any strategic plan for AI?

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LEVERAGING ARTIFICIAL INTELLIGENCE IN BUSINESS

- Sample AI use cases:
 - Online chatbots
 - Duolingo Max language app: AI Roleplay
 - Instagram app: Content recommendations, image recognition, and personalized advertising

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SAP Document AI

AI-powered document processing

Extraction Confidence Range

Header Fields (3)

Label	Value
deliveryDate	2023-02-20
deliveryNoteNumber	14522/42
purchaseOrderNumber	4500277166

Line Items (3)

Label	Value
Line Item 1	
materialNumber	AI-Material
quantity	10.0
unitOfMeasure	EA
Line Item 2	
materialNumber	AI-EUROP...
quantity	10.0
unitOfMeasure	EA
Line Item 3	
materialNumber	AL-PACK-XS
quantity	50.0
unitOfMeasure	EA

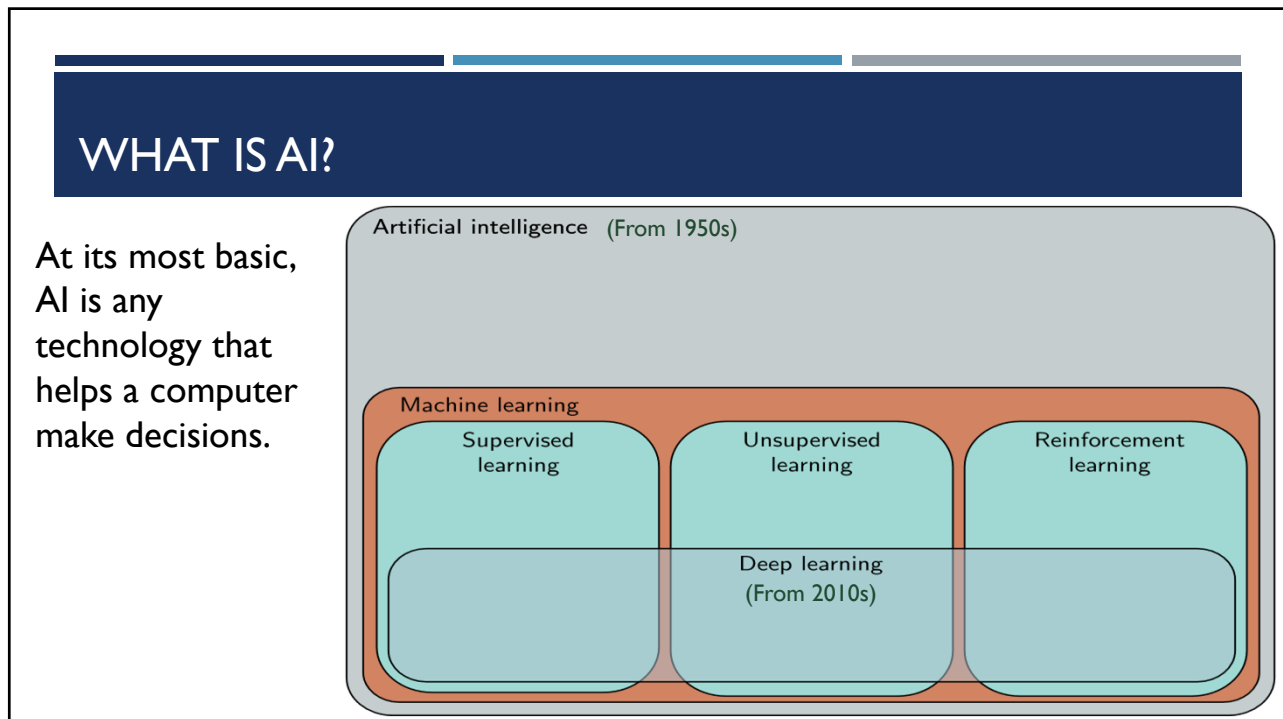
Extraction Confidence Range:

0% - 51% 51% - 80% 80% - 100%

Header Fields (3)

Label	Value

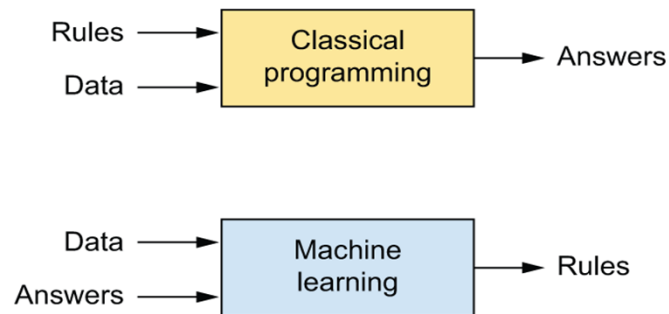
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MACHINE LEARNING

- Machine learning (ML)** is a way for computers to learn to recognize patterns from many examples and to make decisions, without being directly programmed with specific rules for every decision.



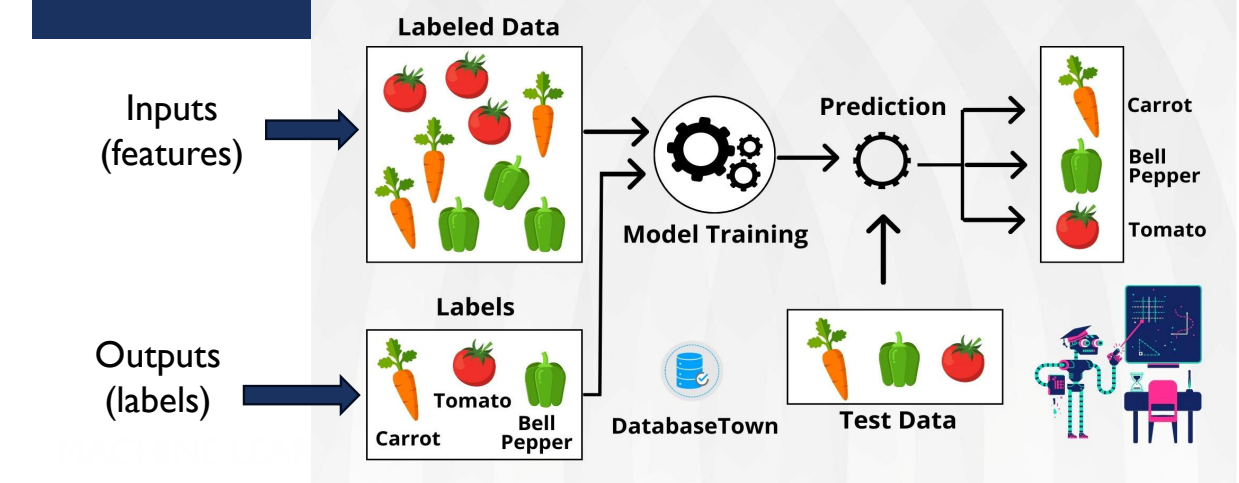
Machine Learning Systems are “trained”, instead of specifically programmed.

Figure 1.2: Machine learning: a new programming paradigm

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SUPERVISED LEARNING

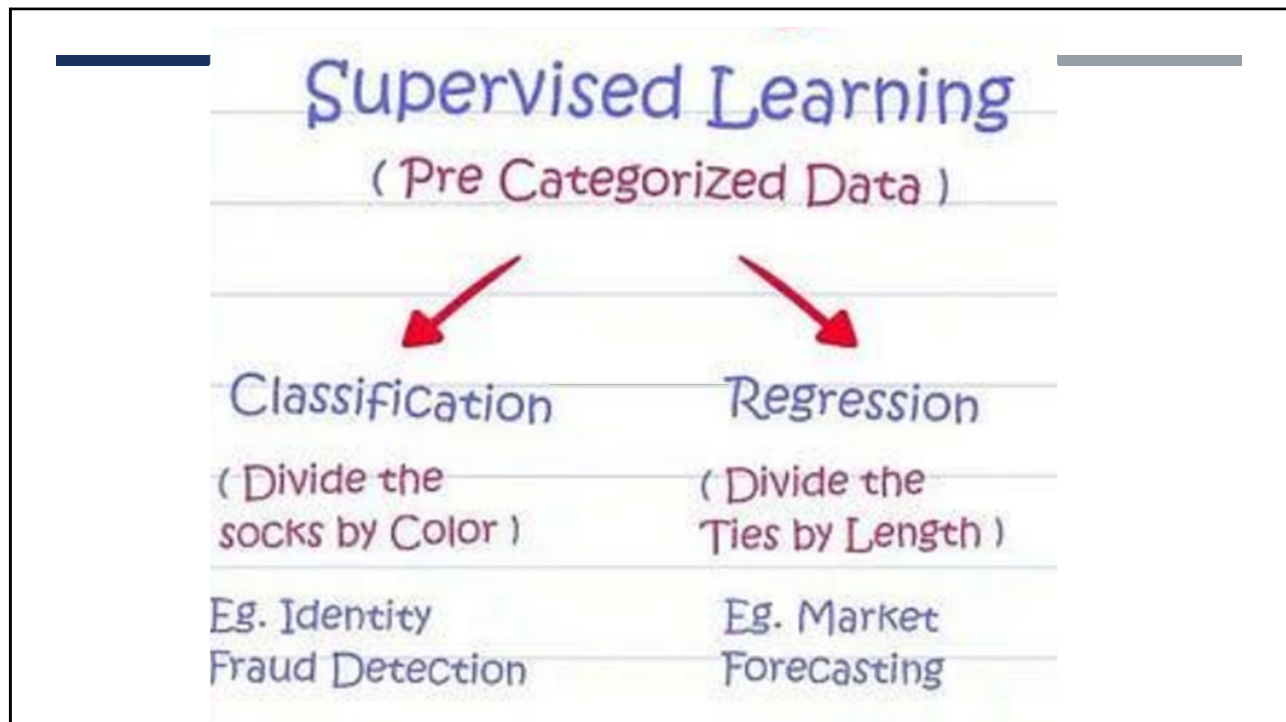
Supervised machine learning is a branch of artificial intelligence that focuses on training models to make predictions or decisions based on labeled training data.



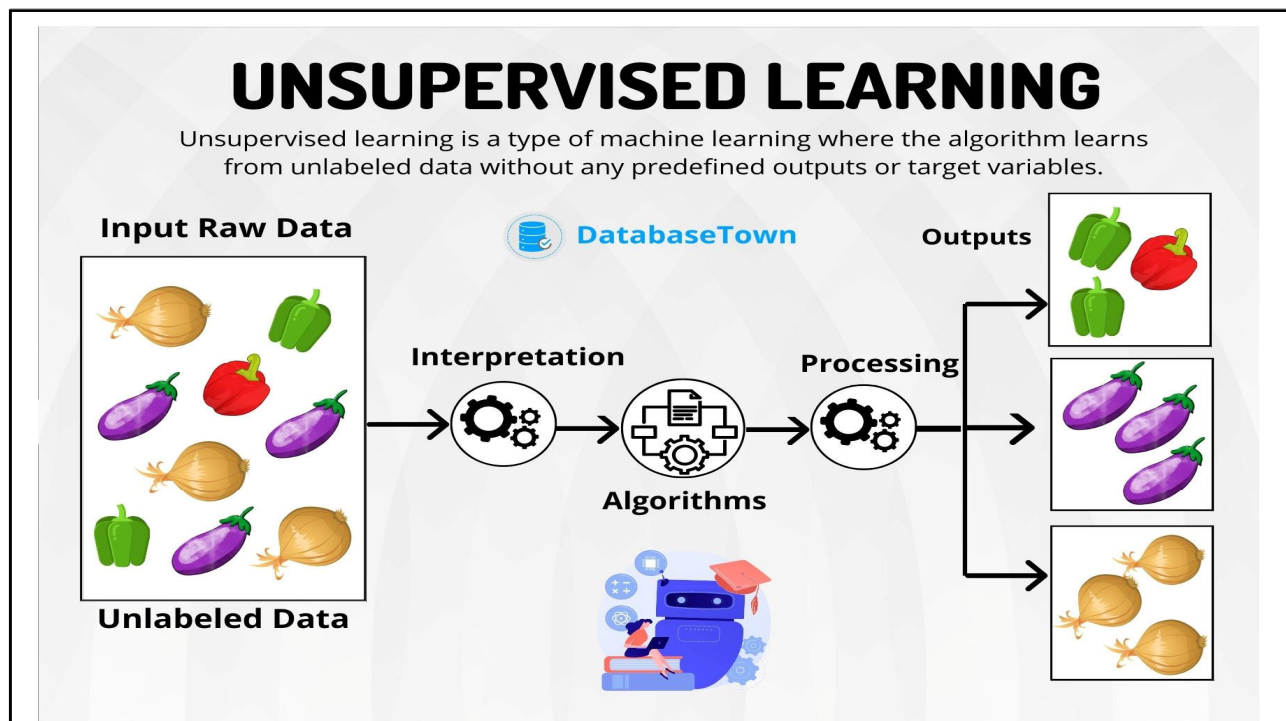
Sample image recognition model with limited training:

<https://webspace.ship.edu/vtdao/AIModel/default.htm>

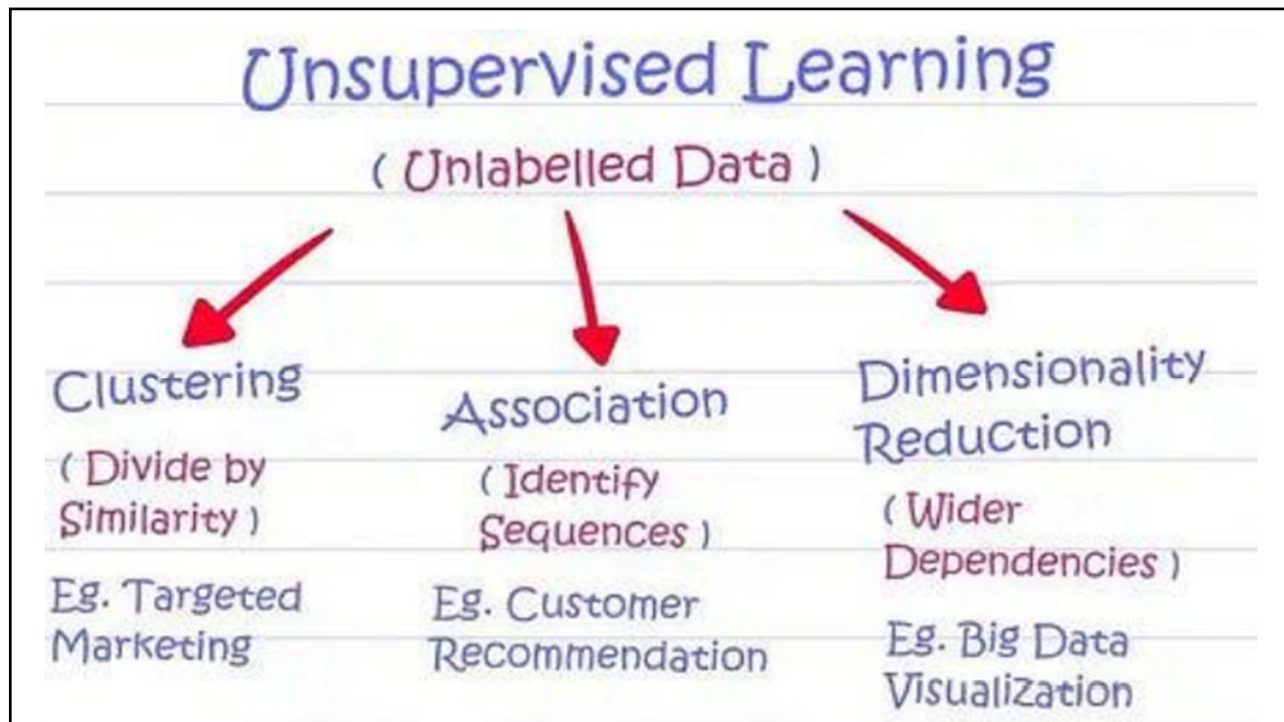
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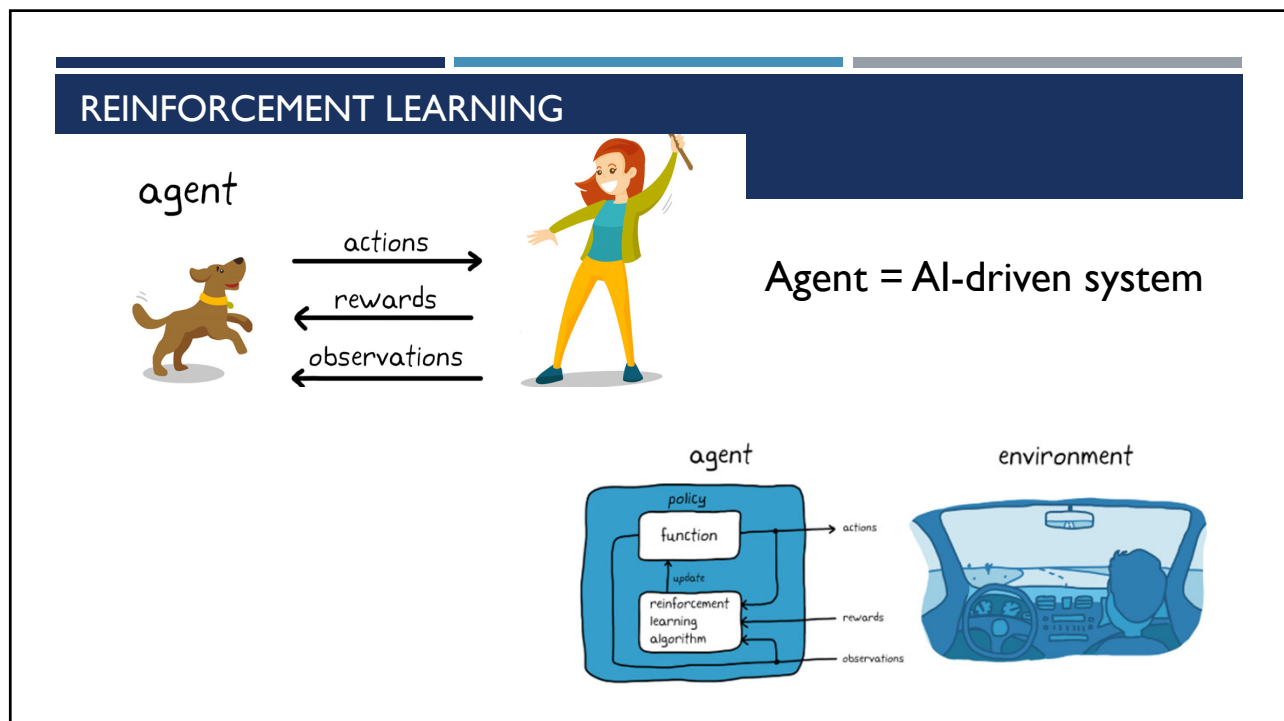
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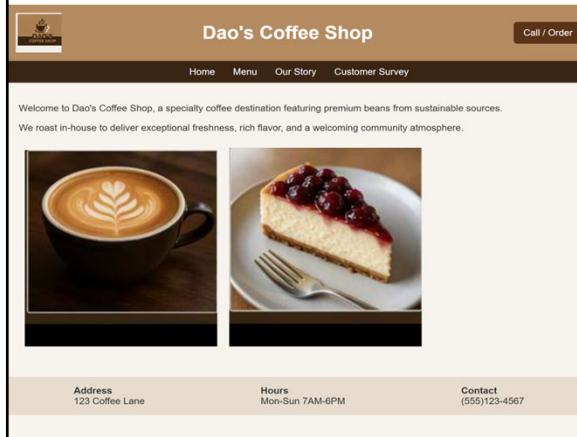


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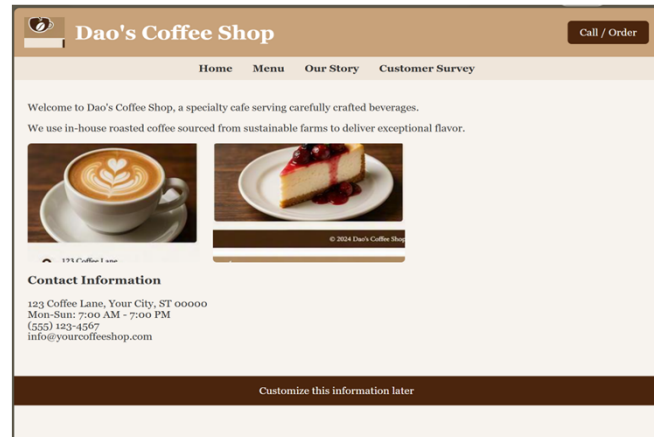
SAME PROMPT & AI PLATFORM, DIFFERENT OUTCOMES:

- The same prompt was used with CoPilot AI platform to create a website during two different attempts...result websites look different....why? Pros & Cons of using AI for the task?

Attempt #1 (with CoPilot)



Attempt #2 (with CoPilot)



Sample website link (developed using ChatGPT): https://webspace.ship.edu/vtdao/coffee_house/default.htm

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WORKING WITH AI: PROMPT ENGINEERING

- Prompt Engineering (PE): Crafting useful AI prompts to work with AI models
 - PE is like having a “conversation” with AI based on a prompt “framework”
- A “give-and-take” conversation instead of a single command
 - More detailed instructions and ask questions to receive clarifying information

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AI PROMPT FRAMEWORK

- **AI prompt framework:** A structured set of guidelines used to help design and format effective high-quality prompts for useful results.
- One of the easiest frameworks to use is CREATE
 - **C**haracter, **R**equest, **E**xamples, **A**dditions, **T**ype of output, and **E**xtras

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AI PROMPT FRAMEWORK (CONT.)

- **Character:** Ask AI model to adopt a persona (e.g. web developer)
- **Request:** Provide explicit and concise instructions (e.g. a home page for a coffee shop....more defined structures)
- **Examples:** Include examples (e.g. draw design inspiration from Starbucks' and Dunkin's websites)
- **Additions:** Include necessary refinements (e.g. each web menu item should include 4 pop-up items.)
- **Type of output:** Define output format (e.g. create an HTML webpage file for each page)
- **Extras:** Finetuning instructions (e.g. how to organize picture and other files)

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PROMPT ENGINEERING HANDS-ON EXERCISE

- Use CREATE framework to prompt an AI model
 - Design a prompt to create a home page for a business
- OR
- Refine provided prompt to enhance the home page of the coffee shop

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BREAKOUT DISCUSSION: AI AND YOUR PROFESSIONAL CAREER

- What are the implications of AI emergence for professionals and managers in your field?
- What challenges and opportunities do you face as a manager with regards to AI's growing popular adoption by businesses?
- How do you prepare for an AI future? What skills and knowledge do you think will help you thrive in the age of AI?

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10-minute break

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AI AND BUSINESS INNOVATION

- Innovation
 - The introduction of something new (idea, methods, devices)
- Process innovation
- Product innovation
- Business model innovation

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BUSINESS PROCESS INNOVATION

Process Innovation: Development and implementation of new or improved processes that improve business operation. Process Innovation could involve:

- **New process development:** Create entirely new processes
- **Process improvement:** Enhance existing processes to improve their performance
- **Process integration:** Combine different processes to create new solutions

Process Innovation can improve operational efficiencies, reduce costs, enable new products and services, and create new markets or industries.

- e.g. using SAP AI to automate business documents processing saves time, improves data accuracy, thus enhances process efficiency.

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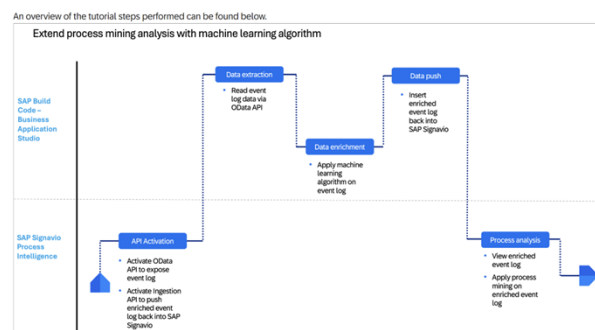
EXAMPLE: BUSINESS PROCESS INNOVATION

Example: Predicting Sales Order Delivery Times

- Use machine learning algorithms to predict future delivery times based on various factors such as order size, product type, and current workload.

- These predictions are used to provide real-time insights into expected delivery times.

- **Benefits:** Better planning, improved customer satisfaction.



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PRODUCT INNOVATION

Product Innovation: The process of designing new products or making improvements to existing ones.

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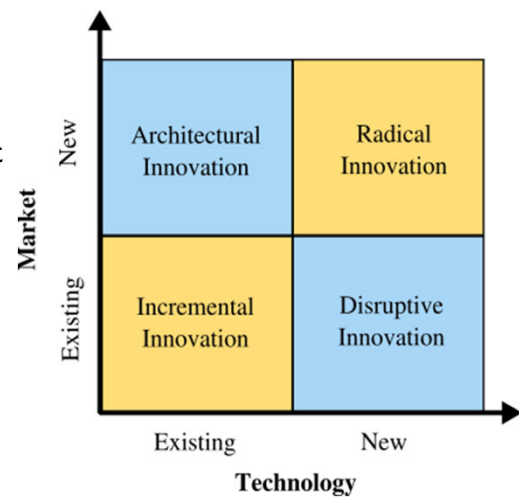
TYPES OF PRODUCT INNOVATION

Architectural innovation: Taking existing technologies or components and rearranging them into a new structure or configuration (e.g. first iphone)

Radical innovation: Creating an entirely new product that uses breakthrough technology to open completely new markets (e.g. self-driving cars)

Disruptive innovation: Enables products or services at the bottom of the market (e.g. Netflix movie streaming)

Incremental innovation: Consistently enhances the quality of the products to customers (e.g. new iphone models introduced each year)



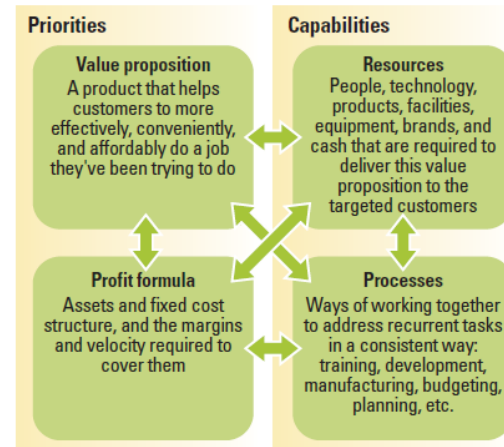
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BUSINESS MODEL INNOVATION

Elements of Business Model (Christensen et al., 2016)

Business Innovation: The process of fundamentally reinventing how an organization creates, delivers, and captures value

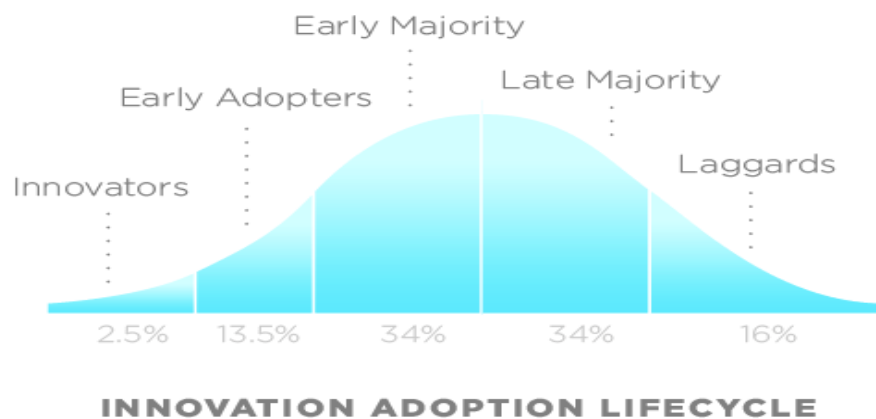
e.g. AirBnB vs. traditional hotels



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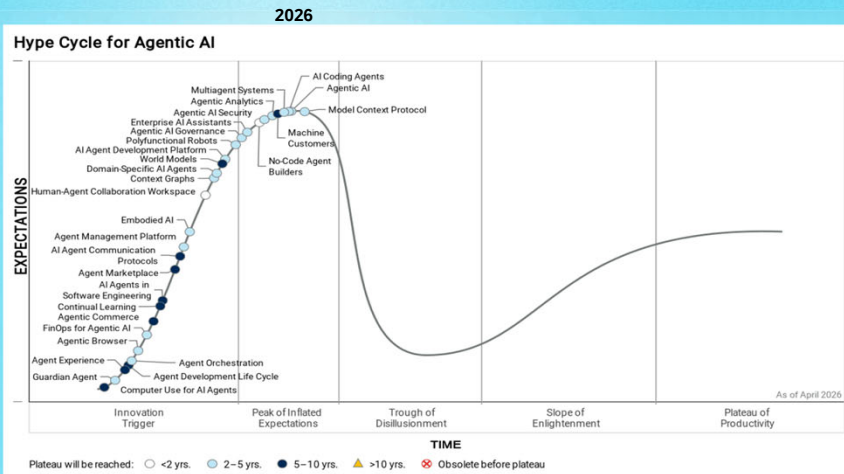
INNOVATION LIFE CYCLE

Adoption/Entry Timing is crucial to business success with technology-enabled innovation



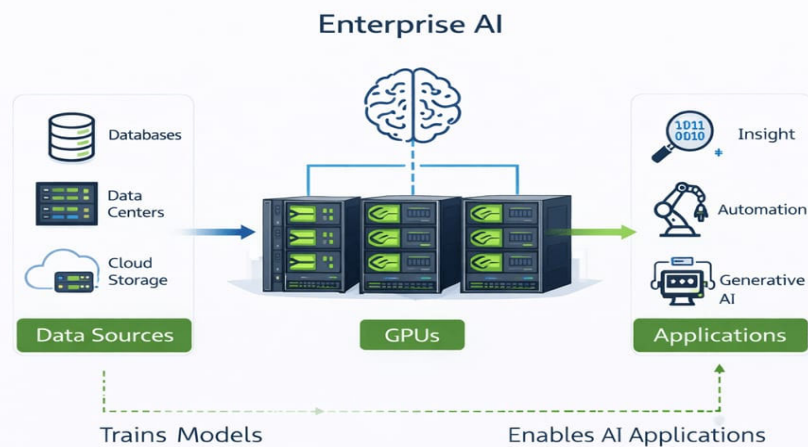
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AI INFRASTRUCTURE (I)



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AI INFRASTRUCTURE (2)

Types of AI Infrastructure Solutions



On-Premise Solutions

AI infrastructure is hosted and managed within an organization's own facilities, providing complete control and data security but requiring significant upfront investment.



Cloud-Based Solutions

AI infrastructure is provided by third-party cloud service providers, offering scalability, flexibility, and cost-efficiency without the need for on-site hardware.



Hybrid Solutions

A combination of on-premise and cloud-based infrastructure, hybrid solutions allow organizations to balance control, security, and scalability based on their specific AI workloads and requirements.

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AI COST AND RETURN ON INVESTMENT

- **Example: Automated warehouses** use machines and robots to move goods, pick items from shelves, and pack orders
- Costs?
- Return on Investment?
 - Profit?
 - Competitiveness? Can it be sustained?
- Could AI help businesses gain and maintain sustained competitive advantage?
 - Everyone could get access to large AI models

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CHALLENGES

- **Privacy & Security:**
 - What happens to data shared with AI models?
 - What's going on inside the AI blackbox?
 - Etc.
- **Environmental Impacts: By 2030...**
 - AI data centers could use as much water as 1.3 billion people ([U.N. report](#))
 - Data centers in the U.S. account for 12% of national electricity consumption
- **AI and future of humanity**

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BREAKOUT DISCUSSION: AI AND BUSINESS INNOVATION

- What is your organization's plan for AI adoption and implementation?
 - Process innovation? Product innovation? Business model innovation?
- What is your organization's plan with regards to its timing of adopting AI-enabled innovations?
 - Innovator? Early adopter? Early majority?
- What is your organization's plan with regards to managing AI-related cost and potential return on investments?

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WRAP-UP

- Early stage of AI application in businesses
- Opportunities and challenges
- It's not just about buying latest technology or getting access to latest AI models