

# Introduction To Agentic AI

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# What is Agentic Ai

Agentic AI is a groundbreaking advancement in artificial intelligence. It combines different AI techniques to empower autonomous agents capable of:

- Analyzing data
- Setting goals
- Taking actions to achieve objectives with minimal human supervision

## Key Features:

- Employs large language models (LLMs), machine learning, deep learning, and reinforcement learning.
- Moves beyond automation to enable near-human cognition.
- Revolutionizes industries with dynamic, problem-solving capabilities.



# Comparison - Agentic AI vs Generative AI

## Agentic AI:

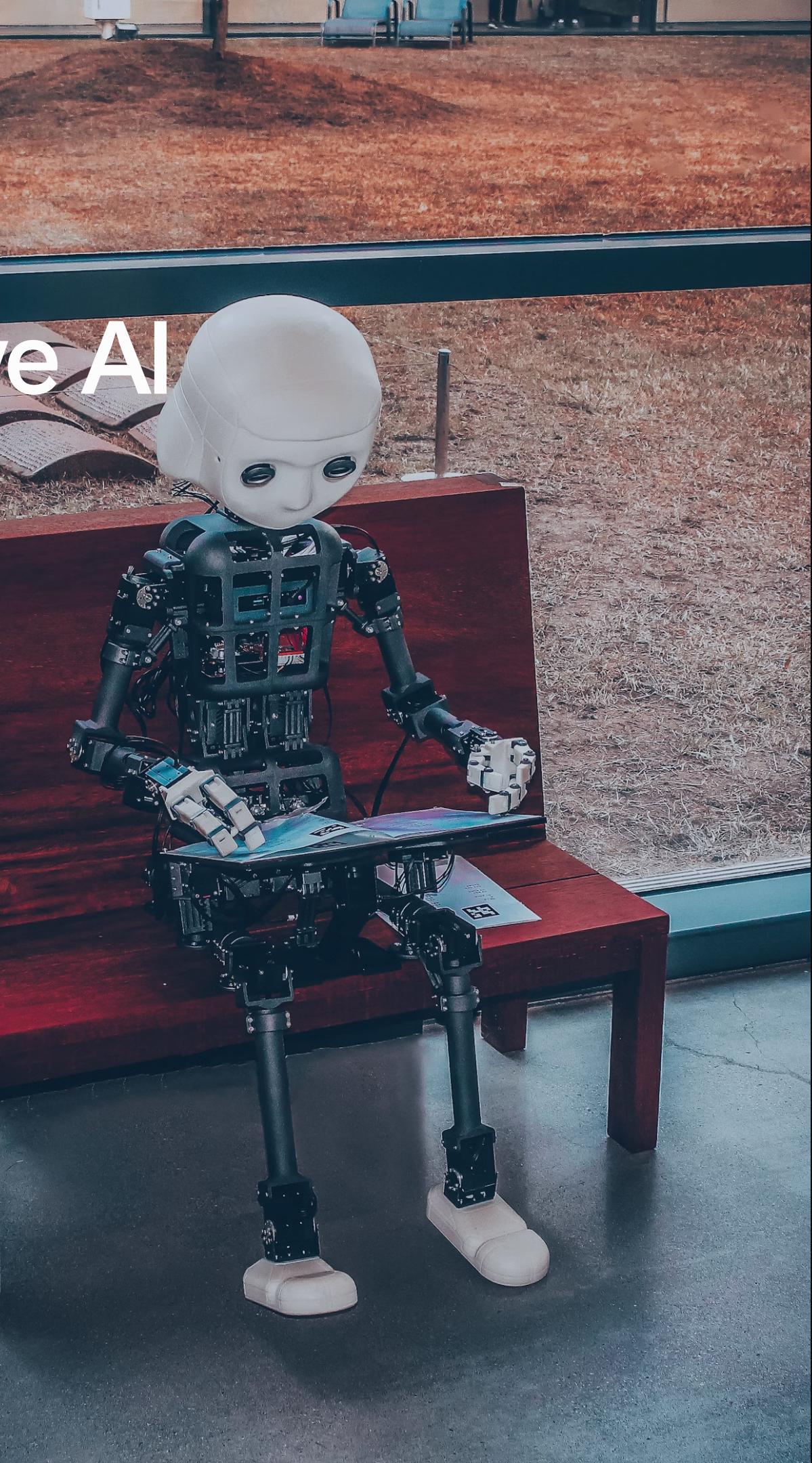
- Focuses on actions, decision-making, and autonomous problem-solving.

## Generative AI:

- Focuses on creating content such as text, images, and music.
- Examples: ChatGPT, DALL-E, image or text generation tools.

## Key Difference:

- Agentic AI: *Action-oriented (DOING)*
- Generative AI: *Creation-oriented (CREATING)*



# How Does it Work

1

**Perceive:** AI agents gather and process data from various sources, such as sensors, databases and digital interfaces. This involves extracting meaningful features, recognizing objects or identifying relevant entities in the environment.

2

**Reason:** A large language model acts as the reasoning engine, that understands tasks, generates solutions and coordinates specialized models for specific functions like content creation, vision processing or recommendation systems. This step uses techniques like retrieval-augmented generation (RAG) to access proprietary data sources and deliver accurate, relevant outputs.

3

**Act and Learn:** Agentic AI integrates with tools via APIs to execute tasks while adhering to guardrails (e.g., limiting claim processing authority). It continuously improves through a feedback loop, using interaction data to refine models and enhance decision-making.



# Advantages of Agentic ai

- **Enhanced Automation**
- Reduces the need for constant human intervention.
- Example: Automated customer service agents operating 24/7.

- **Adaptability**
- Evolves through feedback loops for better performance.
- Example: Virtual assistants refining responses over time.

- **Multi-Tasking Capability**
- Manages multiple tasks across domains efficiently.
- Example: AI agents handling emails and workflows for executives.

- **Real-Time Decision Making**
- Executes actions instantly based on live data.
- Example: Self-driving cars reacting to traffic changes.

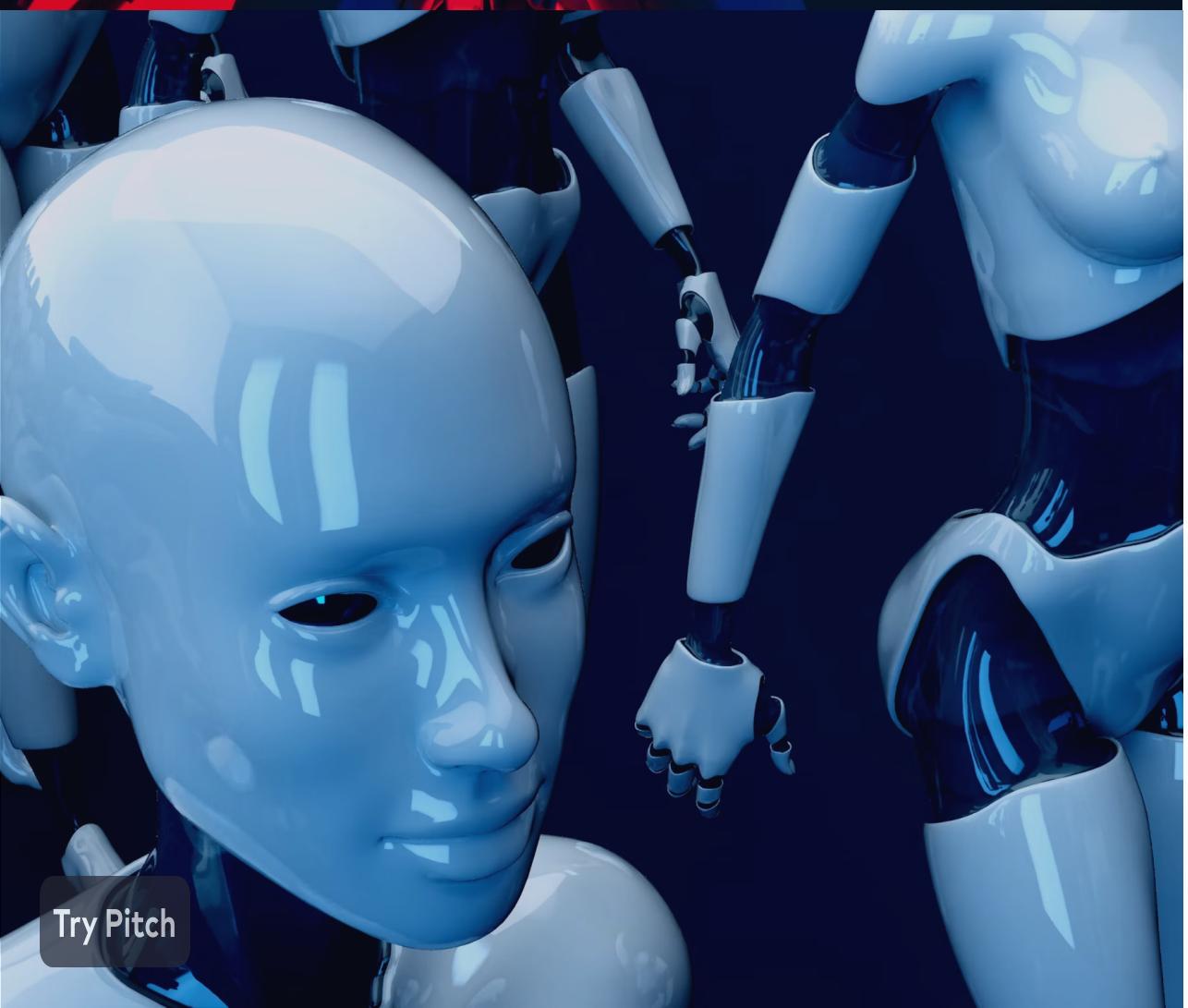
## Personalization

- Delivers tailored experiences for users.
- Example: AI recommending personalized financial plans.





# Disadvantages of Agentic ai



## Complex Design and Implementation

- Requires advanced expertise and technology.
- Example: Regulatory challenges in medical AI systems.
  
- Dependence on Data Quality
- Relies heavily on accurate and clean data.
- Example: Poor chatbot responses due to bad training data.

## High Initial Costs

- Expensive to train and deploy systems.
- Example: Large computational resources for language models.

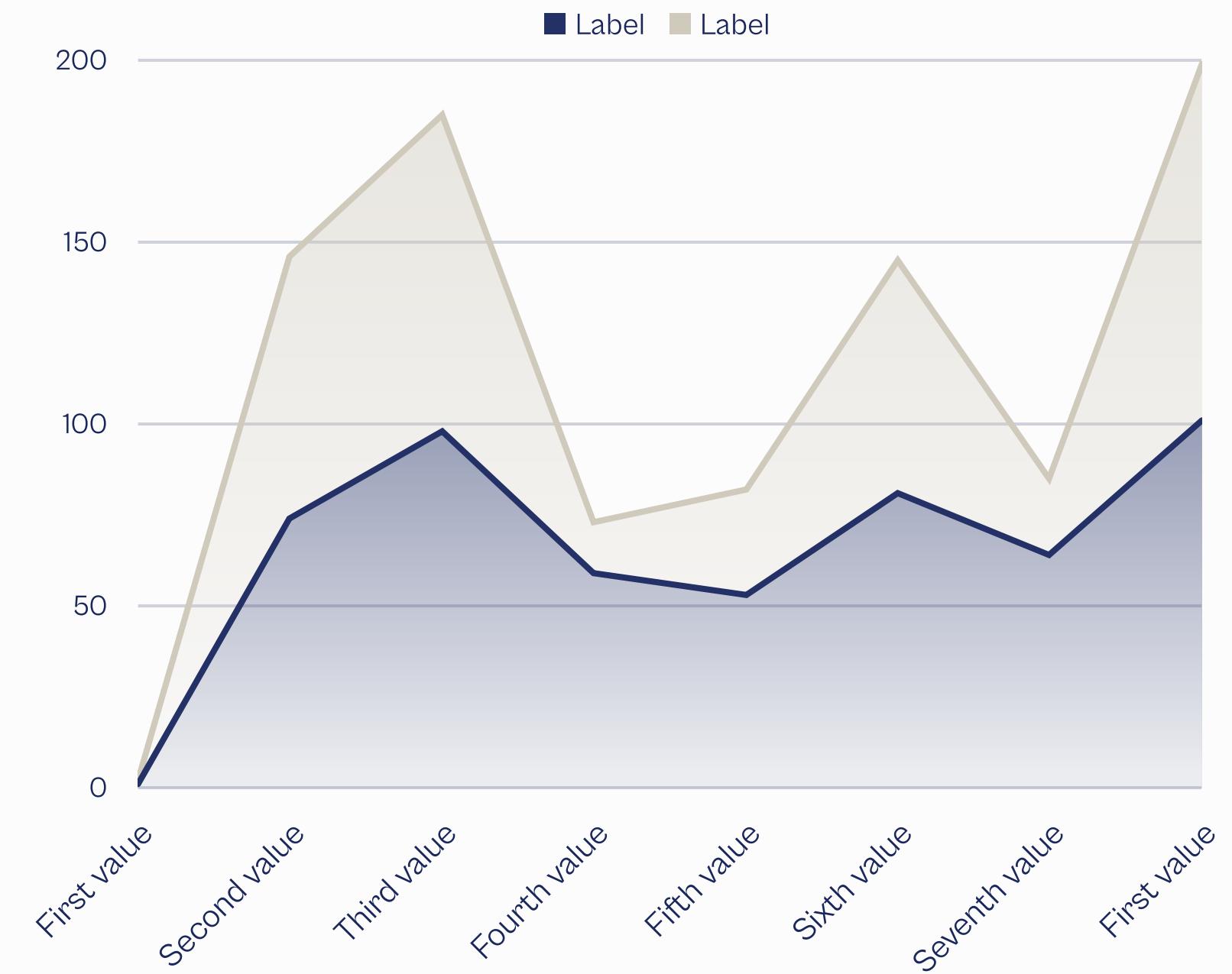
## Potential Job Displacement

- Could lead to unemployment in automated roles.
- Example: Call center jobs replaced by AI agents.

# Fueling Agentic AI with Enterprise Data

Discover how AI agents enhance generative AI by leveraging enterprise data through accelerated query engines and techniques like Retrieval-Augmented Generation (RAG). These tools enable AI to access diverse data sources, delivering more accurate and actionable insights.

Over time, interaction data creates a **data flywheel**, continuously refining AI models and improving their effectiveness for smarter decision-making and execution. AI boosts productivity and streamlines operations for maximum impact.



# The Need for RAG in AI Agents

Retrieval-Augmented Generation (RAG) is critical for AI agents to perform tasks that require accessing, processing, and generating knowledge-rich content. Traditional generative AI models rely on pre-trained data, which can become outdated or insufficient for specific use cases. RAG overcomes these limitations by enabling AI to fetch up-to-date and contextually relevant information from external data sources, enhancing decision-making and task execution.

## Key Benefits of RAG in AI Agents

- Enhanced Contextual Accuracy:** AI agents can generate more accurate responses by referencing external knowledge bases.
- Dynamic Knowledge Integration:** RAG enables agents to adapt to new data in real-time, keeping outputs relevant.
- Efficiency in Complex Queries:** Complex or multi-layered queries are resolved faster by leveraging structured and unstructured data sources.





## 1. Customer Support:

- A chatbot integrated with RAG can access customer profiles, FAQs, and policy documents in real time to provide personalized and accurate responses.
  - Example: A telecommunications support agent retrieving specific plan details or troubleshooting steps from an internal database.

## 2. Healthcare:

- An AI diagnostic assistant can fetch the latest research articles, patient history, and medical guidelines to provide doctors with actionable insights.
  - Example: A RAG-enabled assistant supporting physicians during consultations by retrieving data on drug interactions or clinical trials.

## 3. Travel Industry:

- Travel assistants integrated with RAG can retrieve live flight schedules, hotel availability, and local activity recommendations.
  - Example: A virtual agent helping travelers book flights and accommodations while considering weather updates and local guidelines.



# Case Studies

## 1. Coca-Cola: Enhancing Creativity with AI Agents

- **Challenge:** Coca-Cola wanted to improve creative processes for marketing campaigns globally.
- **Solution:** An AI agent integrated with generative AI was used to analyze market trends, customer feedback, and historical campaign performance.
- **Outcome:**
  - Faster generation of creative content ideas.
  - Improved targeting and personalization in marketing campaigns.
  - Increased customer engagement by 15%.

## 2. Morgan Stanley: Financial Advisory Assistant

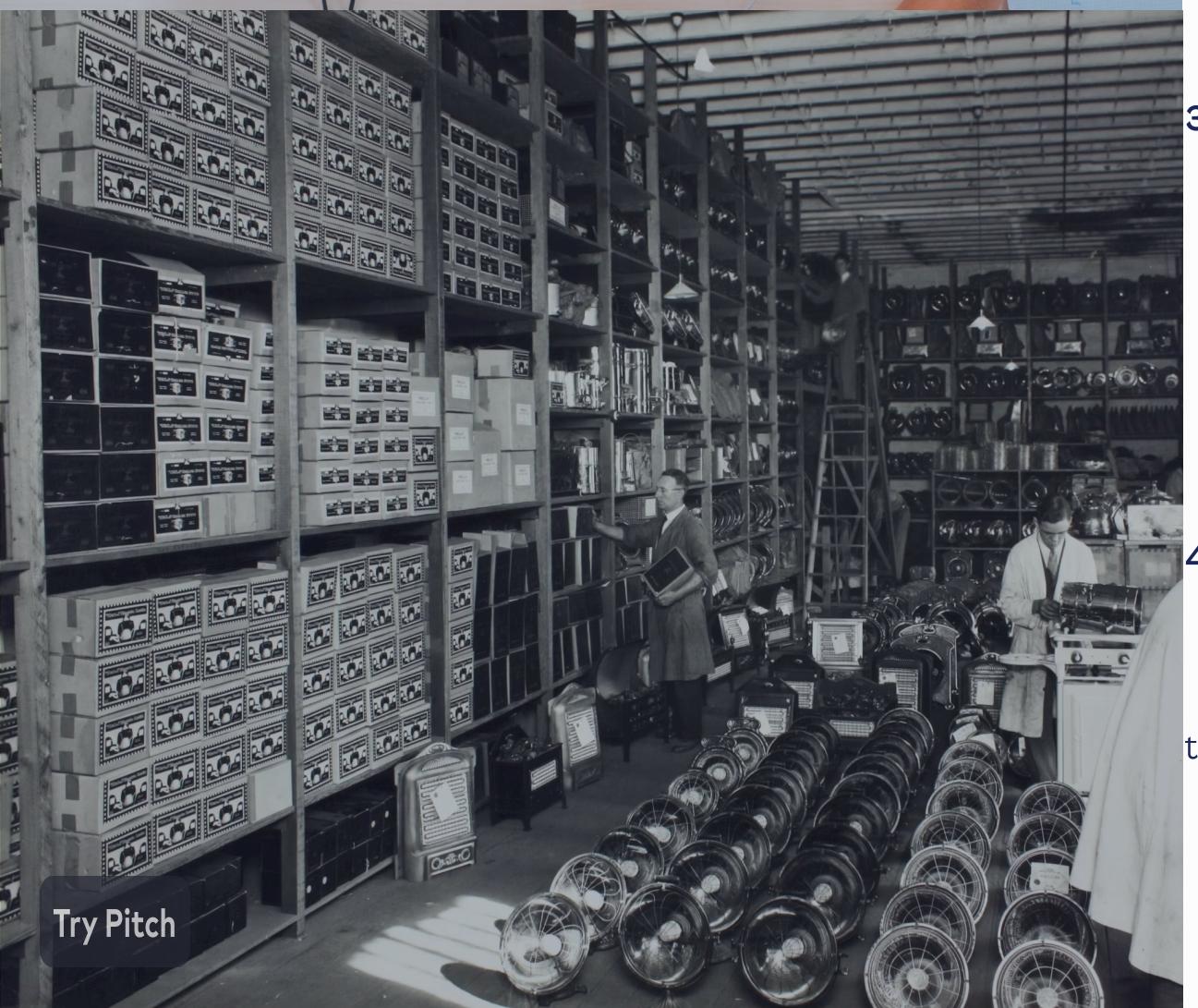
- **Challenge:** Advisors needed quick access to complex financial data and reports to provide better client service.
- **Solution:** An AI agent with RAG capabilities was deployed to retrieve real-time market data, client portfolios, and research papers.
- **Outcome:**
  - Advisors saved up to 40% of their time on data retrieval.
  - Improved decision-making during client meetings.
  - Increased client satisfaction due to faster and more informed responses.

## 3. United Airlines: Travel Assistance AI Agent

- **Challenge:** The airline sought to improve customer experience by providing timely and accurate travel updates.
- **Solution:** A travel assistant AI agent used RAG to fetch real-time flight information, weather updates, and local travel advisories.
- **Outcome:**
  - Reduced customer service response times by 30%.
  - Enhanced travel planning experience for customers.
  - Minimized disruption during flight delays.

## 4. Mayo Clinic: AI-Powered Medical Assistant

- **Challenge:** Doctors required access to the latest medical research and patient records to make accurate diagnoses.
- **Solution:** An AI medical assistant was implemented, leveraging RAG to retrieve data from clinical studies, patient histories, and treatment guidelines.
- **Outcome:**
  - Reduced diagnosis time by 20%.
  - Improved treatment recommendations.
  - Better patient outcomes through data-driven decision-making.



# Thank you

Agentic AI represents a paradigm shift in how businesses and individuals interact with technology. By combining intelligence, action, and adaptability, these AI systems are not just tools but dynamic partners capable of transforming industries and redefining efficiency.

From personalized customer experiences to smarter decision-making and operational excellence, Agentic AI is driving innovation and unlocking new possibilities.

As we stand at the frontier of this technological evolution, embracing Agentic AI means not only staying competitive but also shaping a future where AI empowers us to achieve more than ever imagined.

**The question is no longer *if* you should adopt Agentic AI, but *how fast* you can integrate it into your journey to success.**



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