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# Run | Unlocking the Power of AI and Predictive Analytics

October 10, 2023

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# Data Analytics: Crawl, Walk, Run Series

- **Crawl – June 15, 2023**

  Creating Your First Dashboard

- **Walk – August 8, 2023**

  Data Warehouses, Data Lakehouses, and Your Data Estate

- **Run – Today**

  The Power of Predictive Analytics and Artificial Intelligence

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# Review: Crawl

## Your First Dashboard

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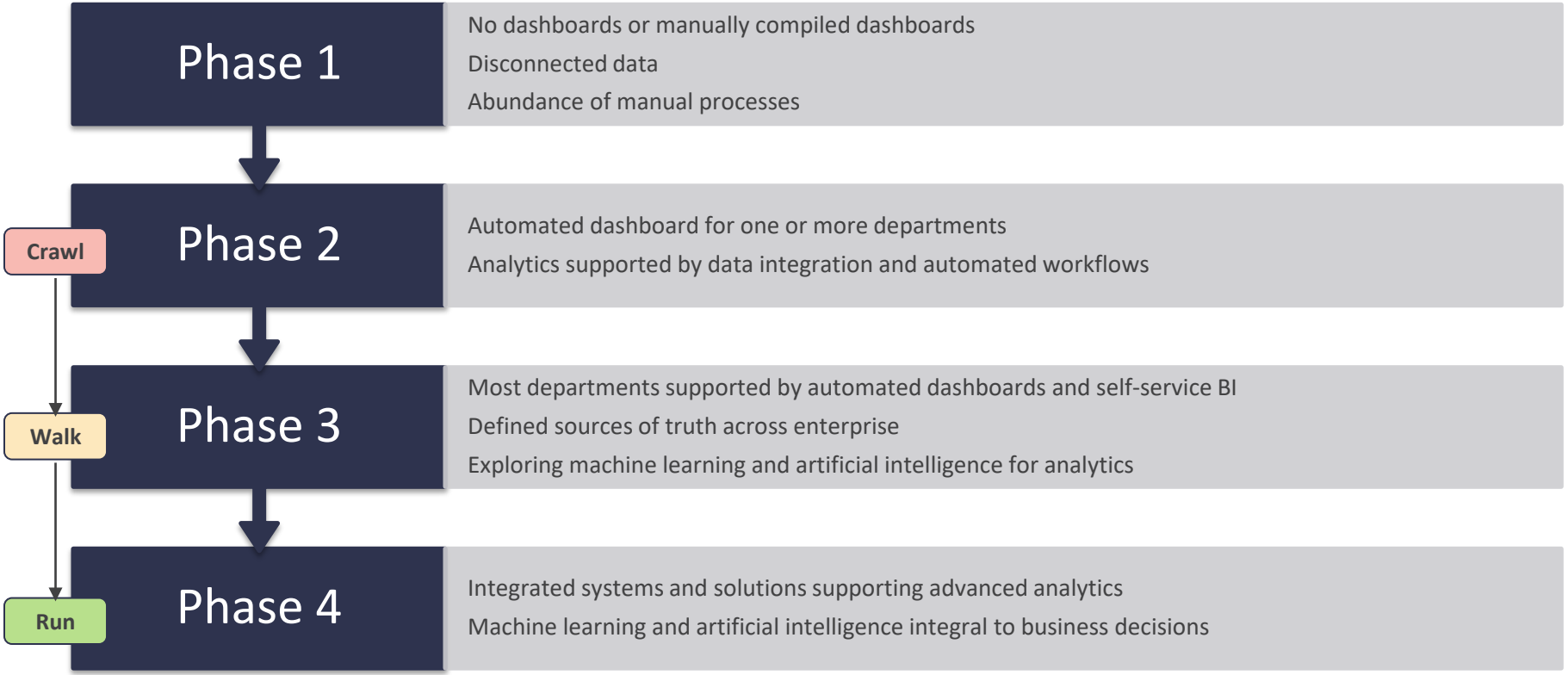
# Client Lifecycle: CLA Digital

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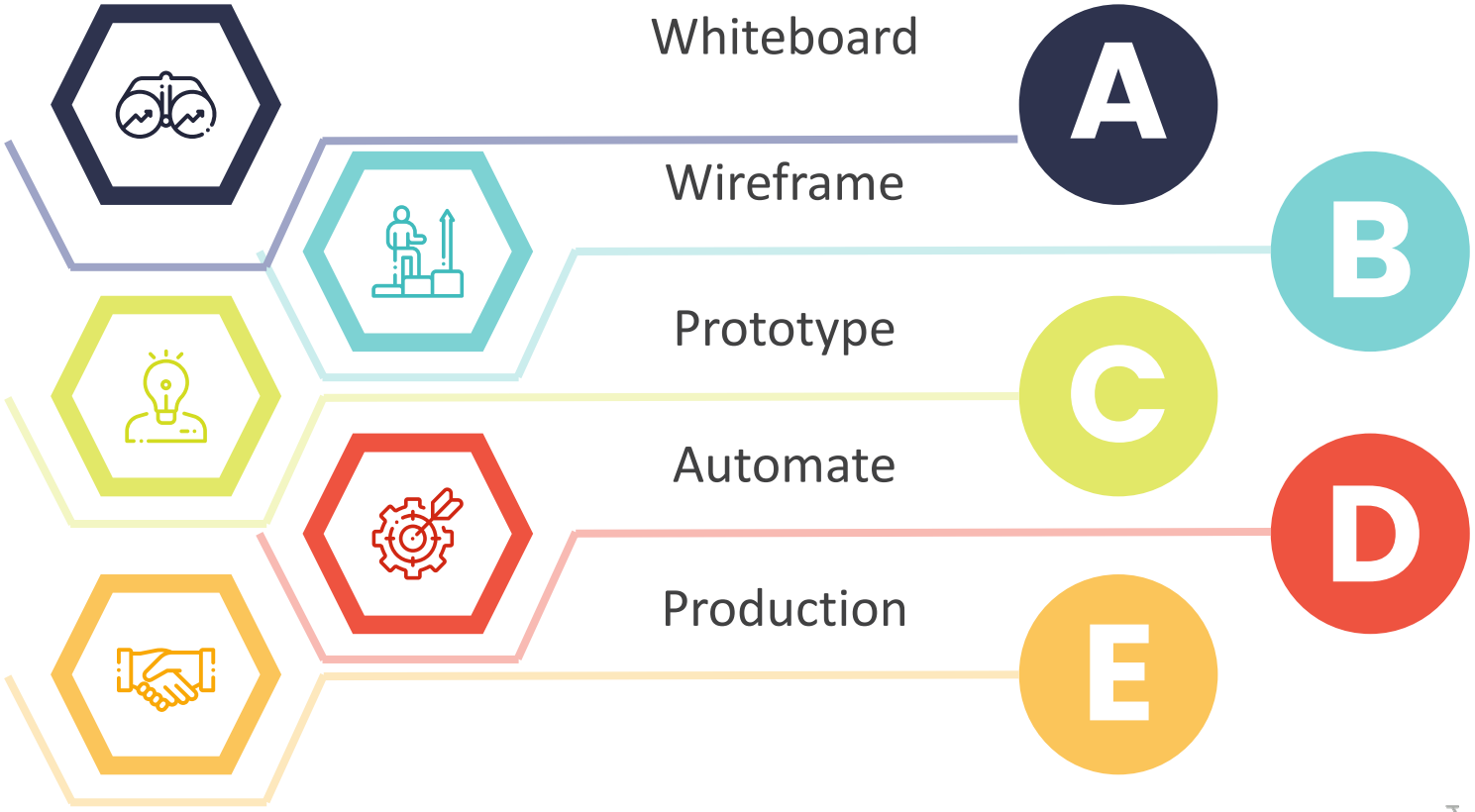
# Review: Building Your First Dashboard

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# Review: Walk

## Your Data Estate and Data Governance

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# Your Data Estate

## Data Lake

- Centralized storage of data from multiple sources.
- Reflects how data exists in the source.
- Can host structured, semi-structured, and unstructured data.

## Data Warehouse

- Centralized database showing accurate picture of key strategic metrics.
- Organized around facts described by dimensions.
- Hosts structured data.

## Data Marts

- Designed for specific business use cases, such as a department's view of the organization.
- Hosts structured data.

## Data Lakehouse

- Takes the best from data lakes & data warehouses.
- Better governance and support for machine learning and artificial intelligence.
- Hosts structured, semi-structured, and unstructured data.

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# Data Governance

Manage your data throughout its lifecycle

- Data quality
- Security
- Integration
- Lineage

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# Moving from Crawl, to Walk, to Run

## Artificial Intelligence & Predictive Analytics

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# Polling Question – What experience do you have with AI?

- Smart assistant in my phone or at home
- I have used with ChatGPT or similar tools
- Using AI at work

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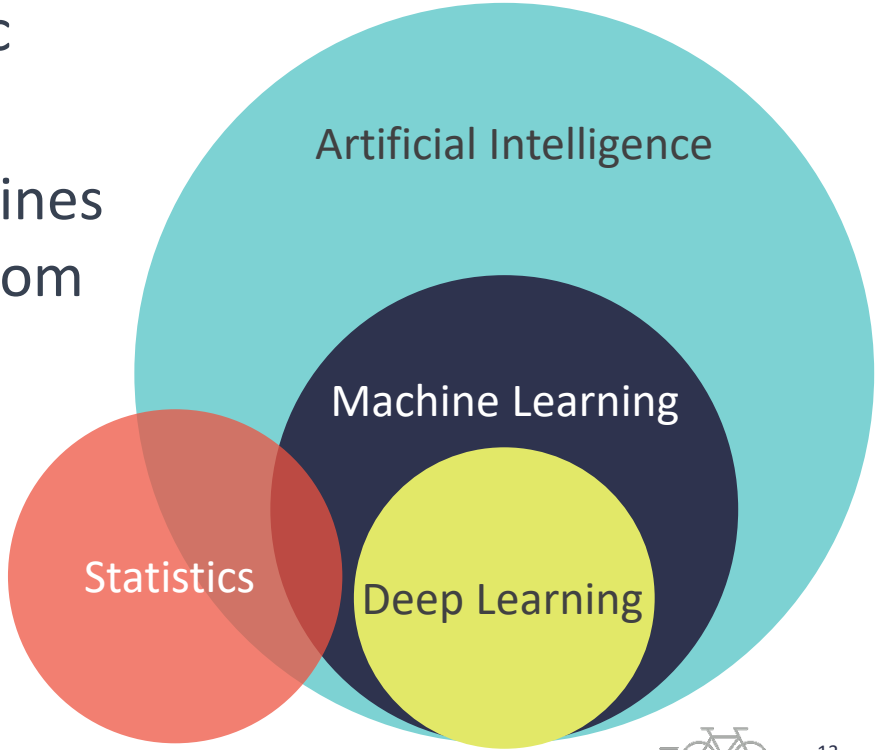
# Starting at First Principles....

- **Traditional Computing:** Set of explicit instructions for a specific task
- **Artificial Intelligence (AI):** Machines learning and making decisions from data
  - Machine Learning
  - Deep Learning
  - Statistics

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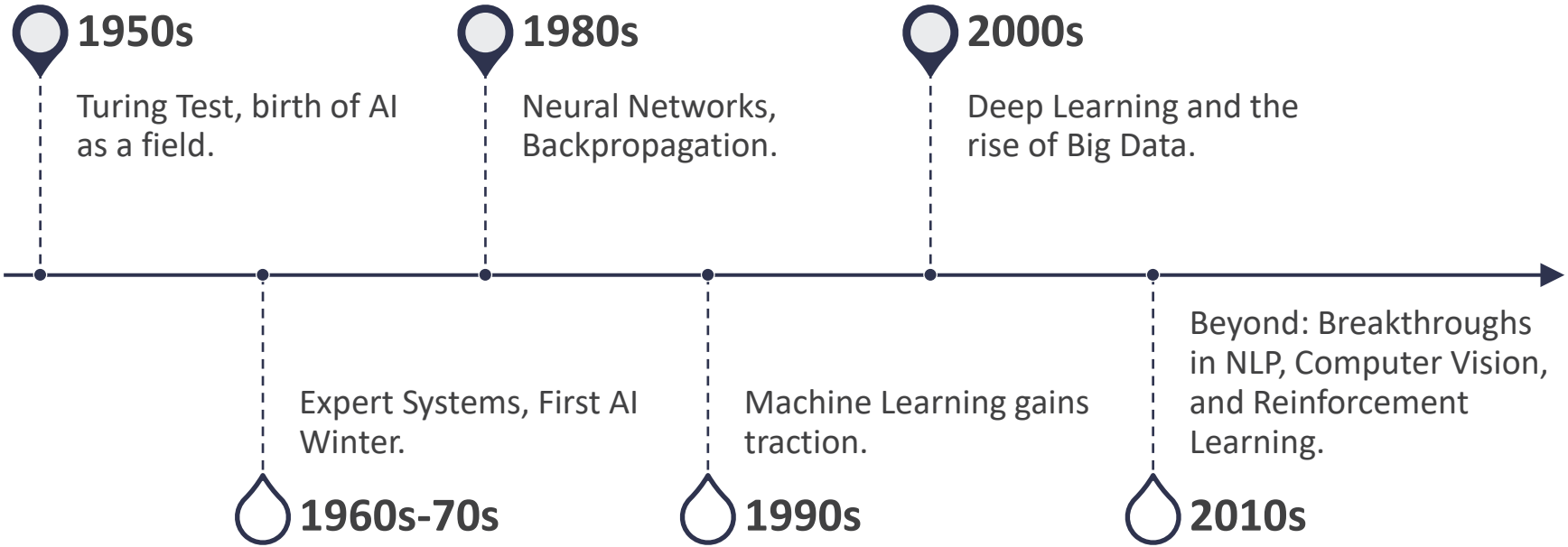
# History of AI

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# Modern AI

**Natural Language Processing (NLP):** Sentiment analysis and conversational AI like ChatGPT.

**Computer Vision:** Image and facial recognition, autonomous vehicles.

**Reinforcement Learning:** Game-playing AIs like AlphaGo.

**Ethics in AI:** Bias, transparency, and the future of work.

**Quantum Computing:** The next frontier in computation.

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# Polling Question – Biggest Challenge for Adoption

- Don’t know enough about how AI can help
- Don’t know how to implement
- We’re still working on how to clean up and govern our data
- Things are moving so fast, it’s unclear what I can take advantage of now

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# Themes

What we see in the next 2-5 years

- The democratization of AI models & incorporation into existing tools
- Computer Vision AI models reaching scale and usability
- Proliferation of Large Language Models and “AI as a Co-Pilot”

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# The Democratization of AI Models and Incorporation into Existing Tools

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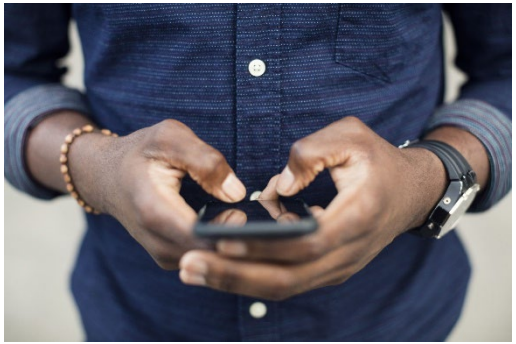
# Theme 1 | Democratization of AI Models



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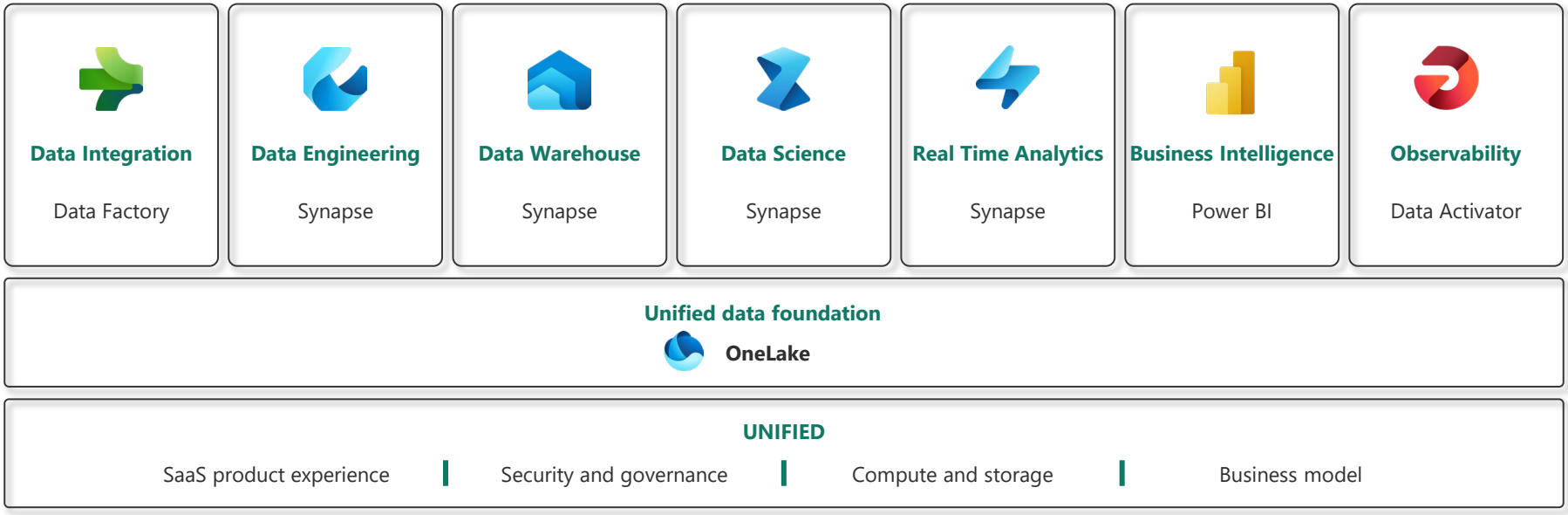
# Microsoft Fabric

An end-to-end analytics platform that brings together all the data and analytics tools that organizations need to go from the data lake to the business user

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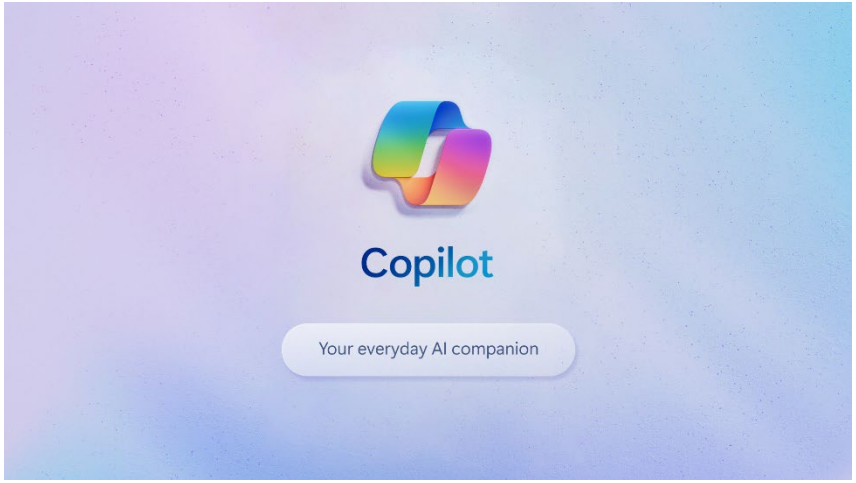
# Microsoft Copilot

- Windows Copilot
- Microsoft 365
  - Analytics in Excel
  - Microsoft Office AI Assistant
- Fabric & Power BI
  - Quick measures
  - Creating reports
  - Answering questions
  - Narrative summarization

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# Computer Vision AI Models Reaching Scale and Usability

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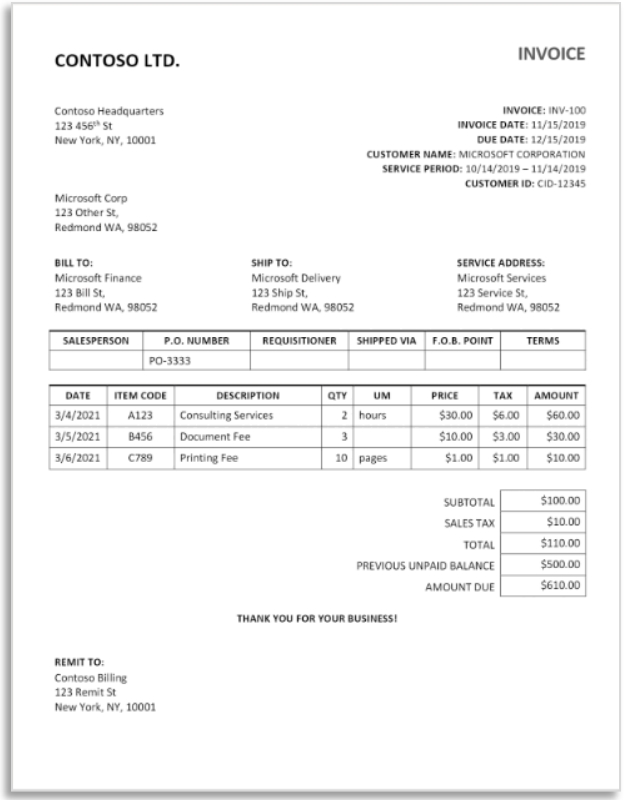
# Computer Vision

- Autonomous Driving
- Healthcare
- Agriculture
- Retail
- Manufacturing
- Document Automation



**CONTOSO LTD.**

**INVOICE**

Contoso Headquarters
123 456th St
New York, NY, 10001

**INVOICE:** INV-100
**INVOICE DATE:** 11/15/2019
**DUE DATE:** 12/15/2019
**CUSTOMER NAME:** MICROSOFT CORPORATION
**SERVICE PERIOD:** 10/14/2019 – 11/14/2019
**CUSTOMER ID:** CID-12345

Microsoft Corp
123 Other St,
Redmond WA, 98052

**BILL TO:**
Microsoft Finance
123 Bill St,
Redmond WA, 98052

**SHIP TO:**
Microsoft Delivery
123 Ship St,
Redmond WA, 98052

**SERVICE ADDRESS:**
Microsoft Services
123 Service St,
Redmond WA, 98052

| SALESPERSON | P.O. NUMBER | REQUISITIONER | SHIPPED VIA | F.O.B. POINT | TERMS |
|---|---|---|---|---|---|
| | PO-3333 | | | | |

| DATE | ITEM CODE | DESCRIPTION | QTY | UM | PRICE | TAX | AMOUNT |
|---|---|---|---|---|---|---|---|
| 3/4/2021 | A123 | Consulting Services | 2 | hours | $30.00 | $6.00 | $60.00 |
| 3/5/2021 | B456 | Document Fee | 3 | | $10.00 | $3.00 | $30.00 |
| 3/6/2021 | C789 | Printing Fee | 10 | pages | $1.00 | $1.00 | $10.00 |

| | |
|---|---|
| SUBTOTAL | $100.00 |
| SALES TAX | $10.00 |
| TOTAL | $110.00 |
| PREVIOUS UNPAID BALANCE | $500.00 |
| AMOUNT DUE | $610.00 |

**THANK YOU FOR YOUR BUSINESS!**

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123 Remit St
New York, NY, 10001

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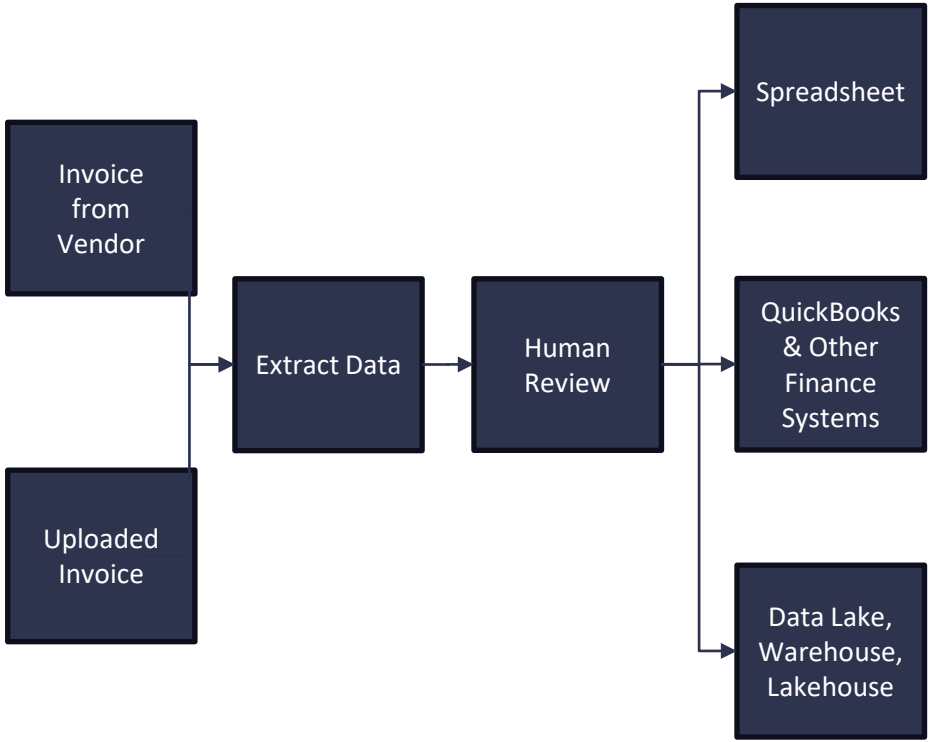
# Invoice Automation




Reduce manual data entry from documents such as invoices

Minimize error associated with manual processing

Integrate with existing workflow and enterprise systems

Reduction in manual invoice processing time with AutoExtract

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# Proliferation of Large Language Models and “AI as a Co-Pilot”

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# Large Language Models

- Content Creation
- Customer Support
- Natural Language Processing
- Data Extraction/Summarization
- Programming

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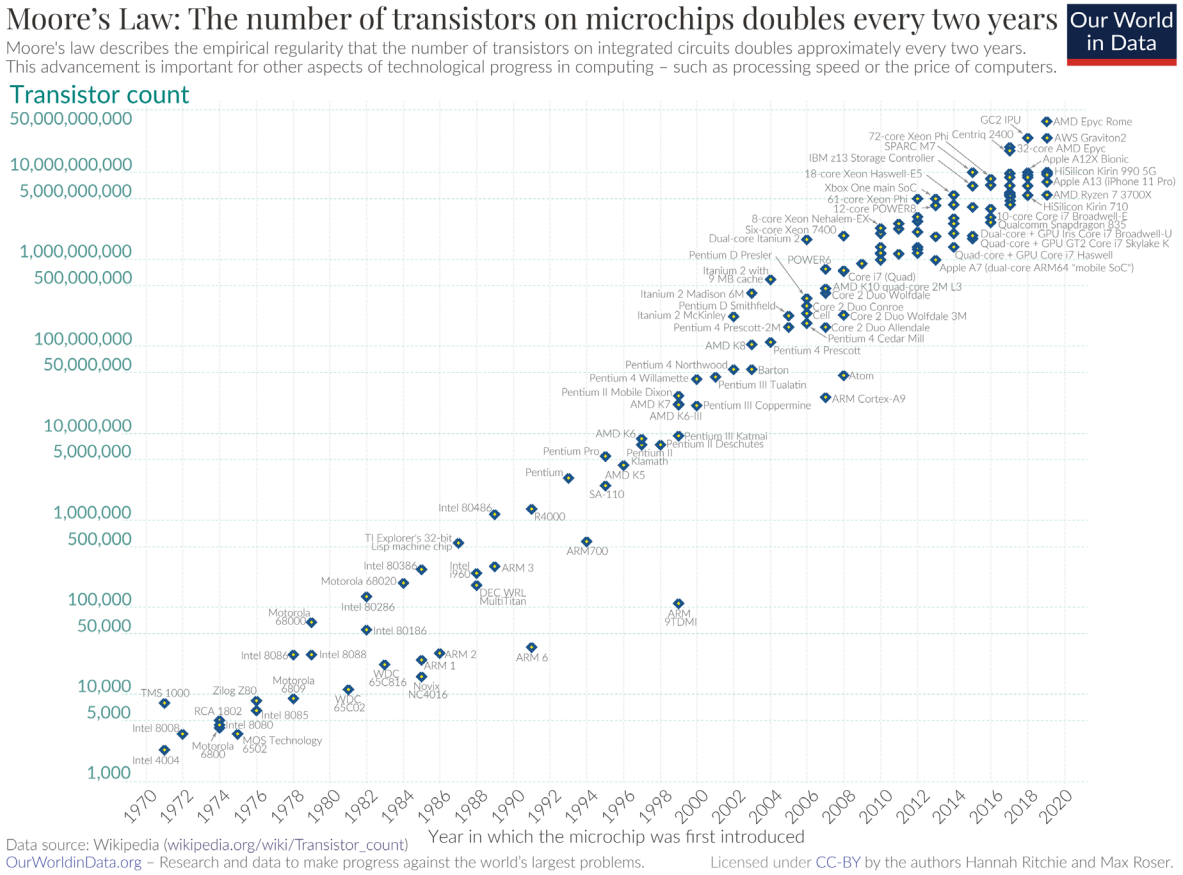
# Is the hype real?

**Continual progress**

**Moore's law**

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Source: Transistor-Count-over-time.png (3133×2318) (ourworldindata.org)

# Potential Challenges

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# Challenges

Areas of Consideration

- Lack of data standardization – data engineering work likely
- Embedding AI in an existing process
- Security and data access considerations

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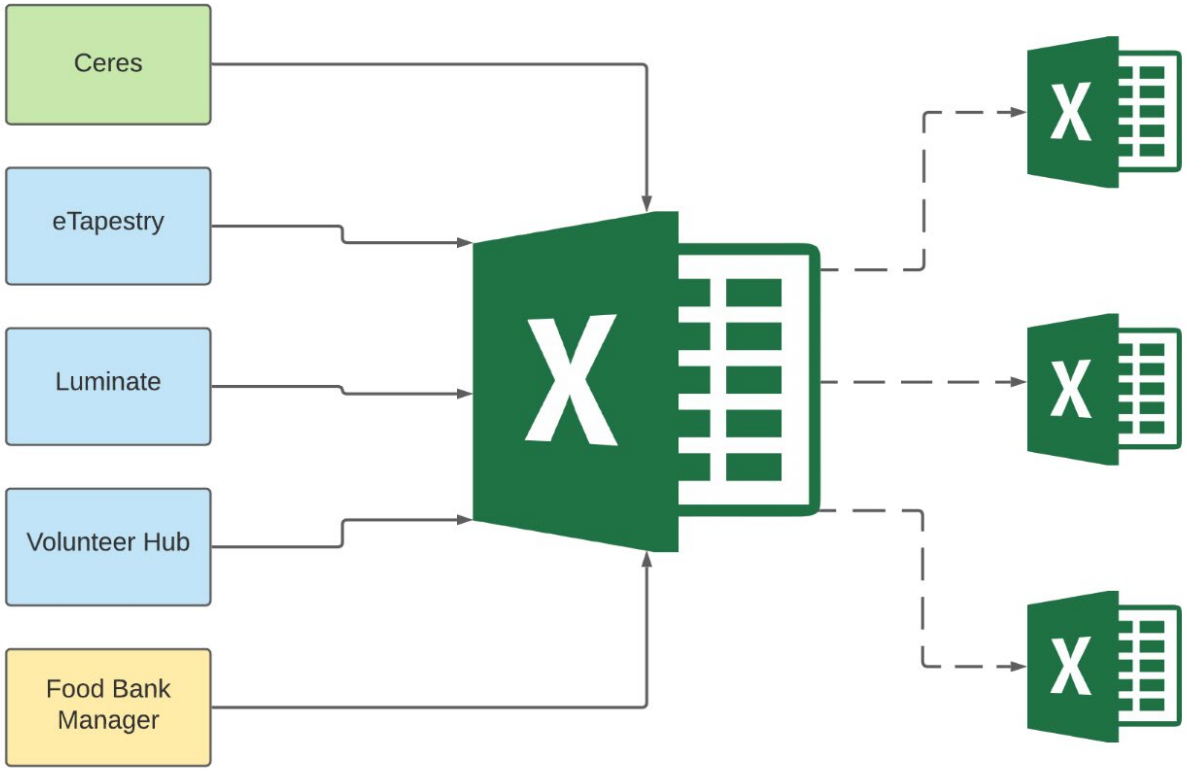
# Challenge 1 | Data Engineering

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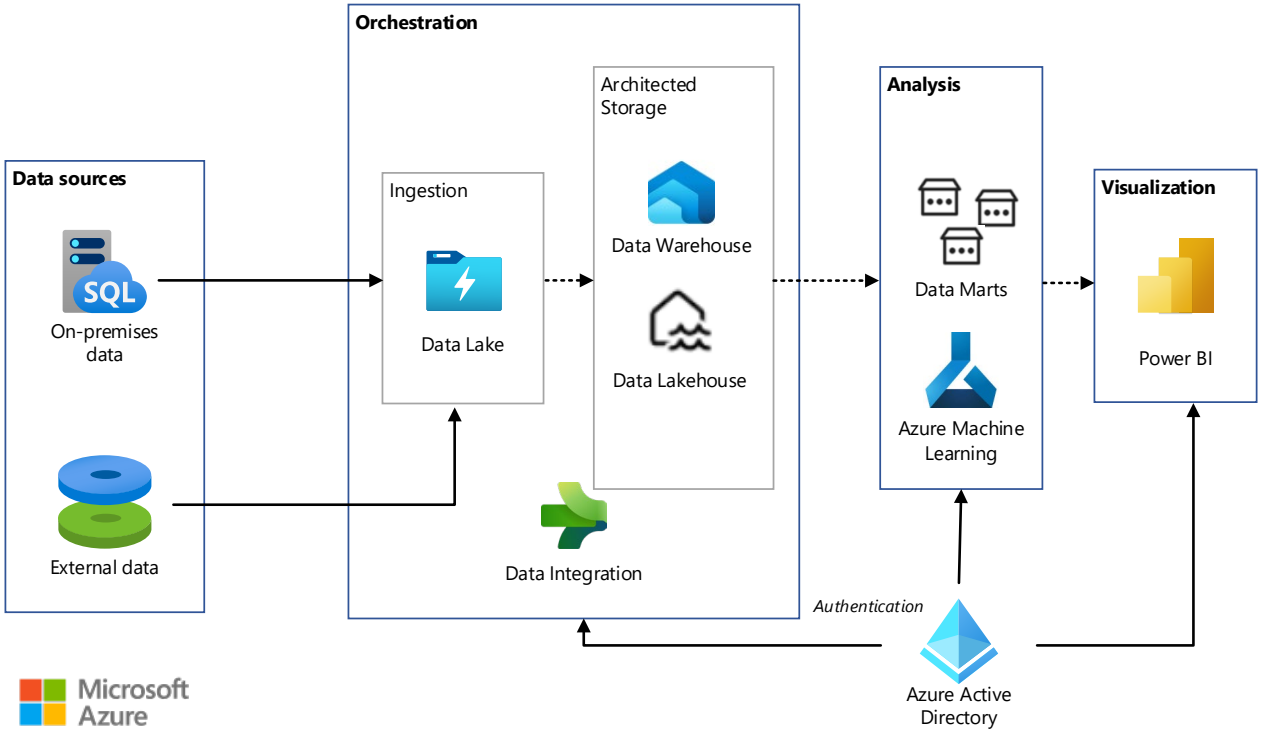
# Challenge 1: Data Engineering

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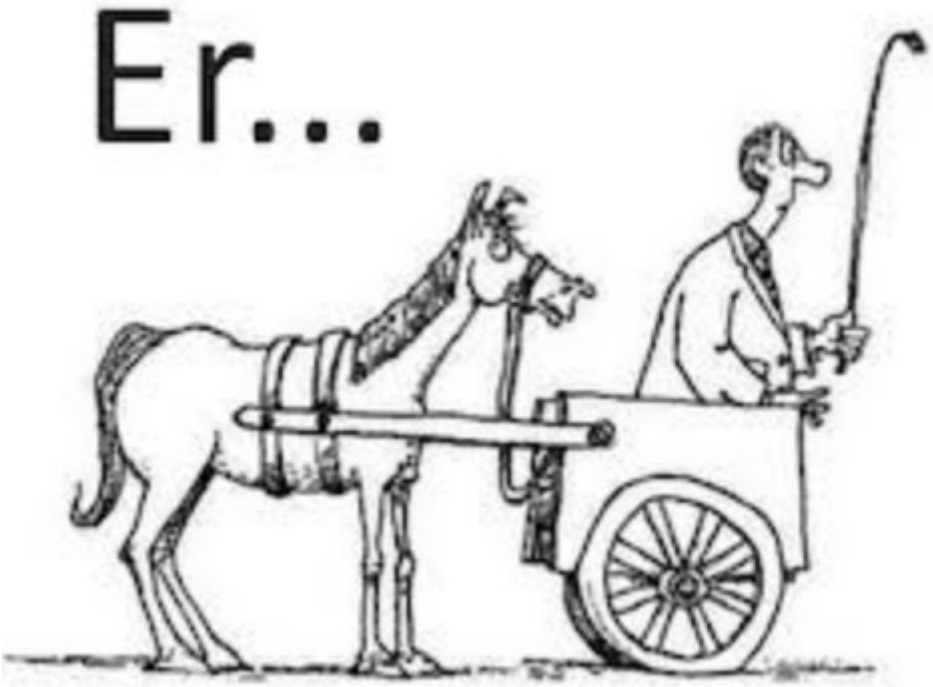
# Challenge 2: Embedding AI in an Existing Process

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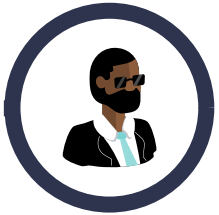
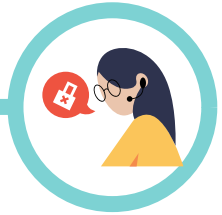
# Challenge 3 | Security

How to manage security and permissions



**Data Governance**



**Use Row Level Security**

**Transparency – "Showing their Work"**

**Ethical Concerns**

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# Where to Go From Here?

- 3 Part Series
  - Crawl – LINK
  - Walk – LINK
  - Run – Today
- Have specific questions or want to discuss 1:1?
  - Click “Let’s talk. Contact me." and we'll set up a complimentary consultation with one of our Digital specialists!
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- Alex White
  - Phone: 317-569-6188 | Email: Alex.white@claconnect.com
- Gregory Chambers
  - Phone: 860-570-6352 | Email: Gregory.Chambers@claconnect.com

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# Thank you!

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