

Crafting value in the digital era

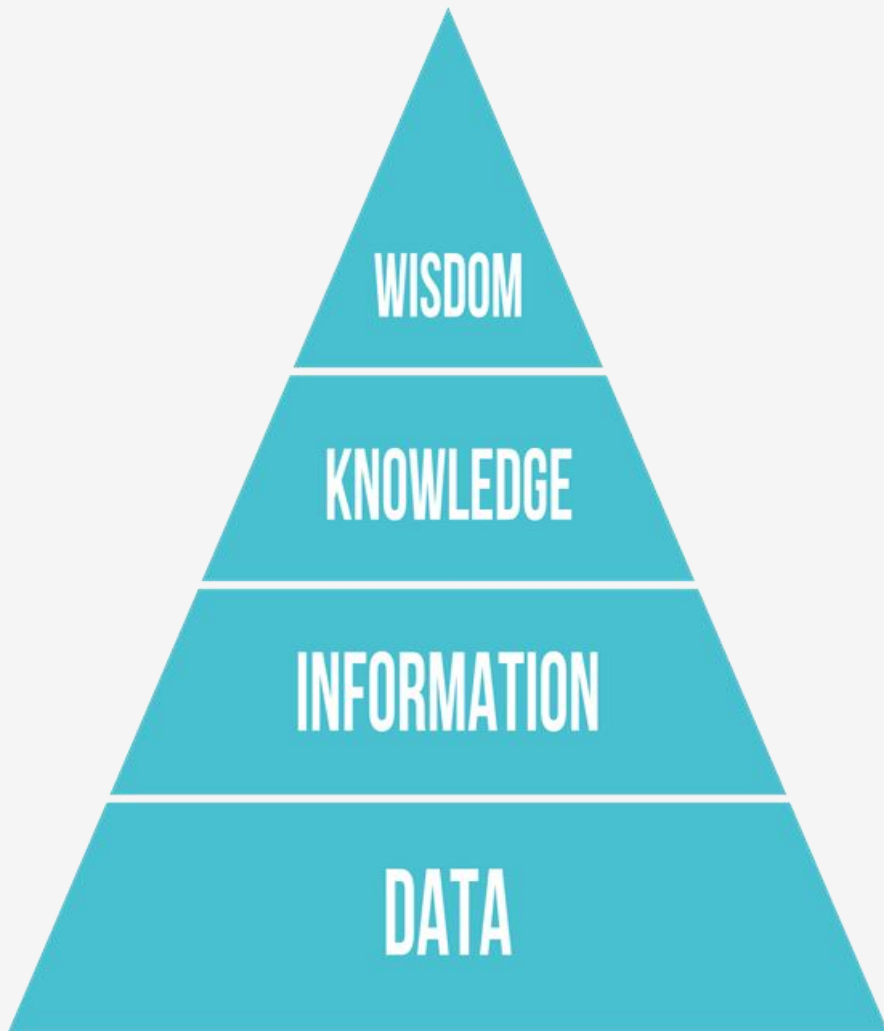
# Digital Businesses – Pillars

---

- People
  - Processes & Innovation
  - Technology
  - Data & Analytics
- 
- Optimization & Improvement

## DIKW Pyramid (1 of 4)

---



**Know-why:** Wisdom is the ability to increase effectiveness. Makes use of knowledge to create value through correct and well-informed decisions.

Ex. Keep more branded dish detergent compared to other dish detergent to increase profit.

**Know-how:** Knowledge is applied information that actively guides task execution, problem solving and decision making. Ex. Brands of dish detergent -> most rapidly selling at that store.

**Know-what:** Data shaped into a meaningful and useful form. Ex. Total number of bottles of dish detergent sold at a store.

**Know-nothing:** Streams of raw facts. Discrete facts about events. Ex. Supermarket or mall checkout counters scans millions of pieces of data from bar codes.

## DIKW Pyramid (3 of 4)

---

- **Data:** Discrete, objective facts or observations, which are unorganized and unprocessed and therefore have no meaning or value because of lack of context and interpretation.
- **Information:** Organized or structured data, which has been processed in such a way that the information now has relevance for a specific purpose or context, and is therefore meaningful, valuable, useful and relevant.
- **Knowledge:** An awareness and understanding of a set of information and ways that information can be made useful to support a specific task or reach a decision

## DIKW Pyramid (4 of 4)

---

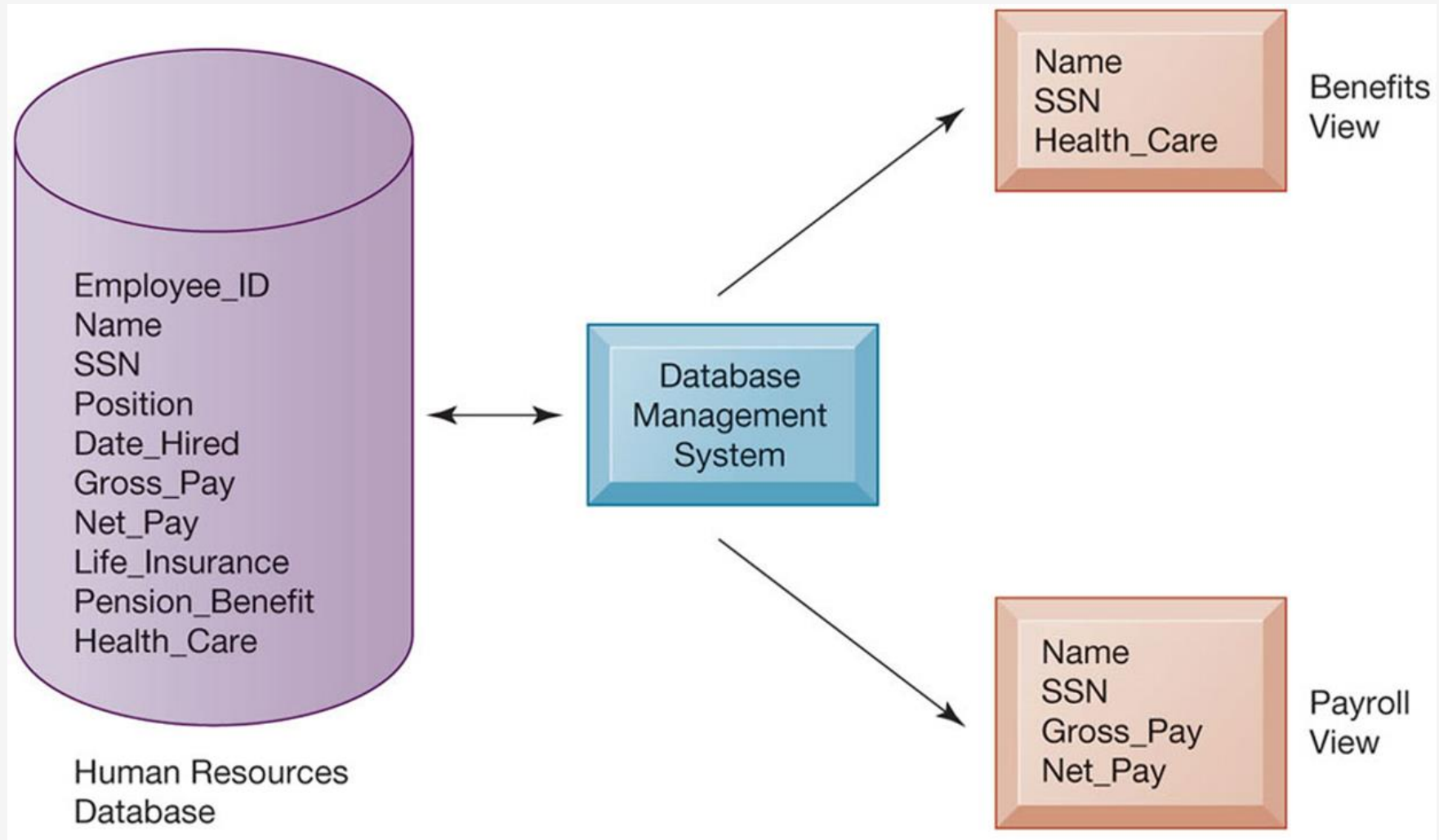
- **Wisdom: The quality of having experience, knowledge, and good judgment – or my favorite...knowledge rightly applied.**
  - Why is
  - Who do
  - Appreciation of why
  - Ability to create effectiveness
  - Adds Value

# Foundations of Databases and Information Management

---

# Human Resources Database with Multiple Views

---



# Database Management Infrastructure

---

- **Array of tools for obtaining information from separate systems and from big data**
- **Data warehouse**
  - Stores current and historical data from many core operational transaction systems
  - Consolidates and standardizes information for use across enterprise, but data cannot be altered
  - Provides analysis and reporting tools

# Database Management Infrastructure

---

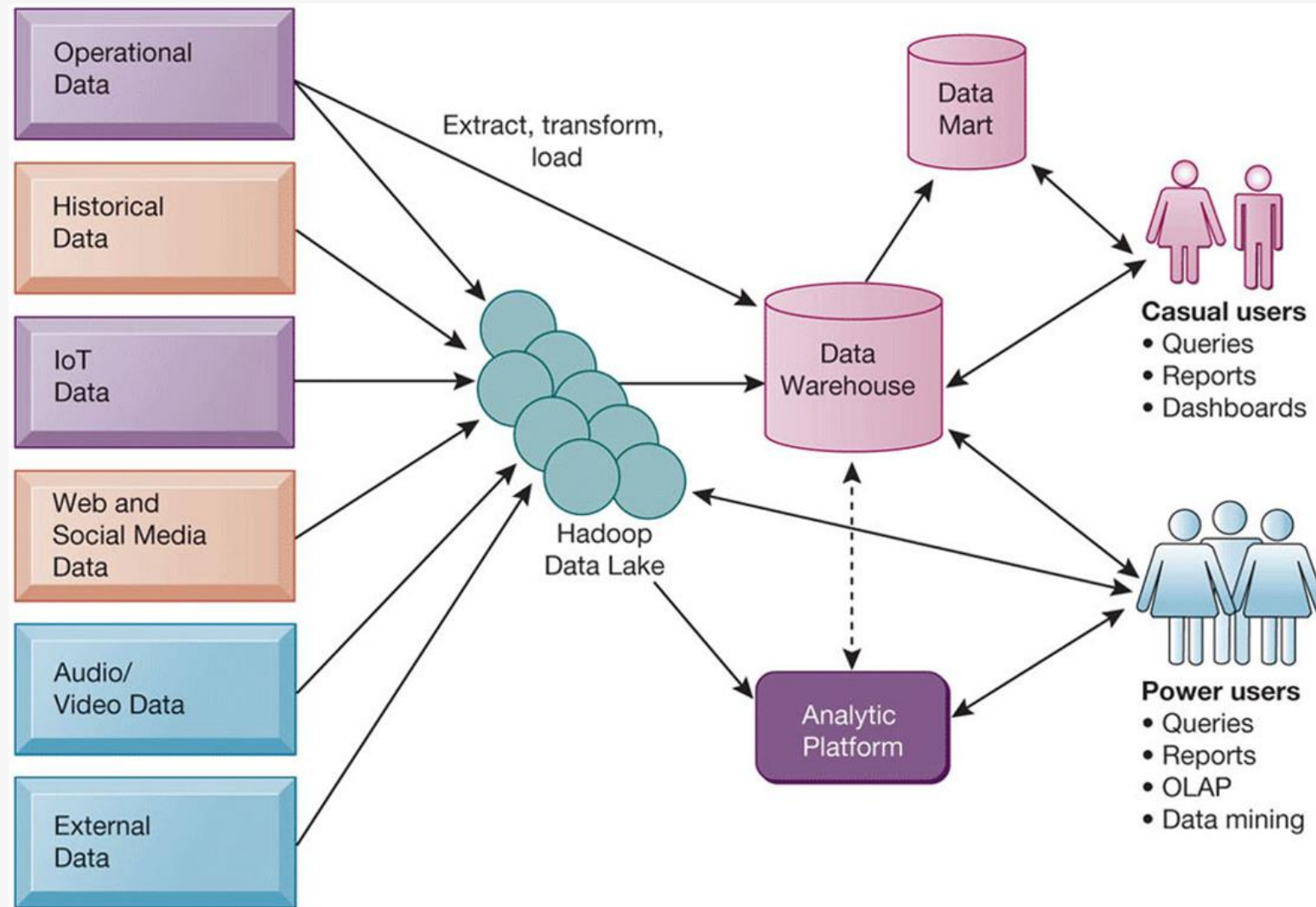
- **Data marts**

- Subset of data warehouse
- Typically focus on single subject or line of business

- **Hadoop**

- Enables distributed parallel processing of big data across inexpensive computers

# Contemporary Business Intelligence Infrastructure



# Database Management Systems

---

## ➤ **Database**

- Serves many applications by centralizing data and controlling redundant data

## ➤ **Database management system (D B M S)**

- Interfaces between applications and physical data files
- Separates logical and physical views of data
- Solves problems of traditional file environment
  - Controls redundancy
  - Eliminates inconsistency
  - Uncouples programs and data
  - Enables organization to centrally manage data and data security

# Non-Relational Databases and Databases in the Cloud

---

## ➤ **Non-relational databases: “No S Q L”**

- More flexible data model
- Data sets stored across distributed machines
- Easier to scale
- Handle large volumes of unstructured and structured data

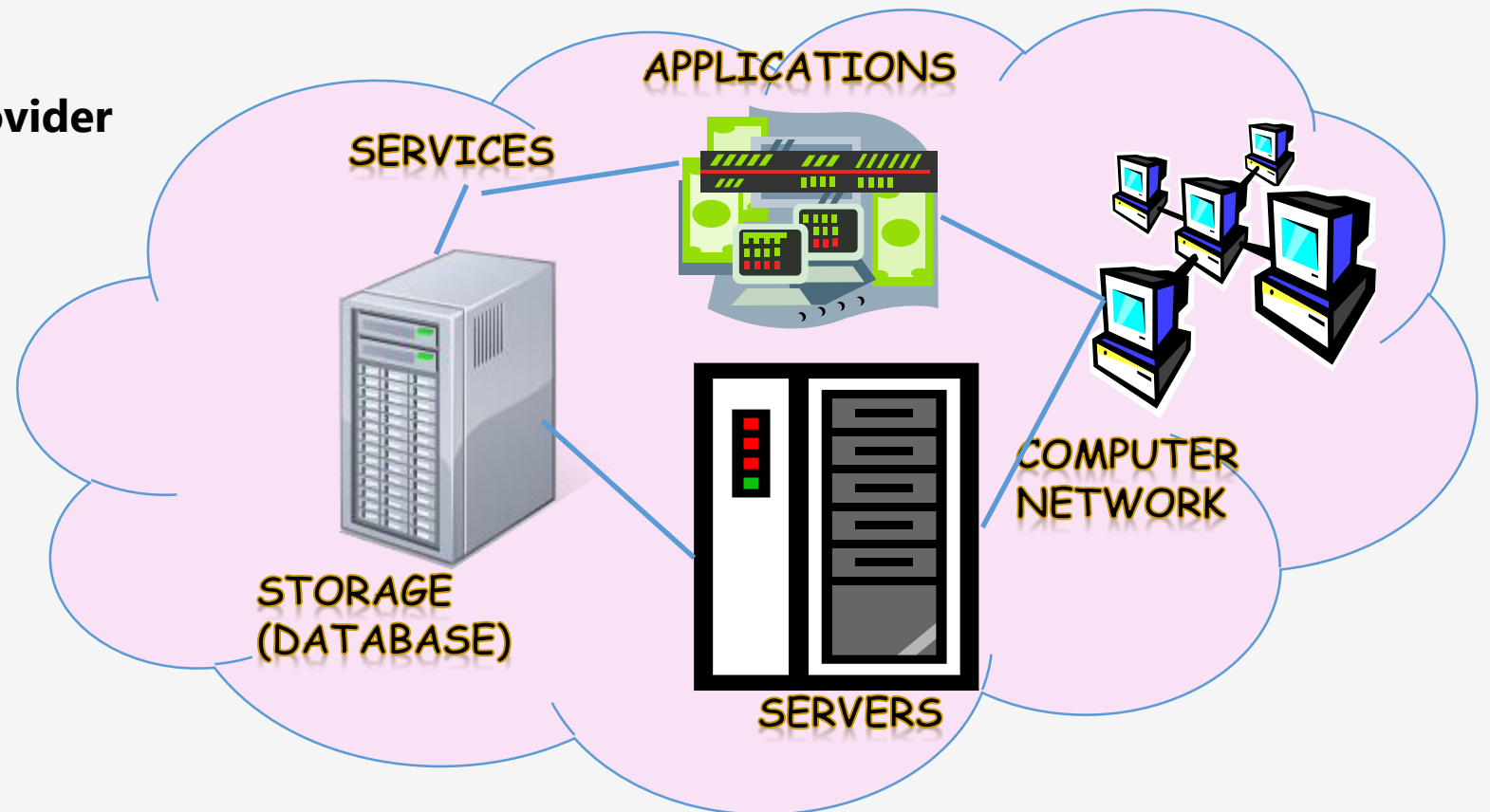
## ➤ **Databases in the cloud**

- Appeal to start-ups, smaller businesses
- Amazon Relational Database Service, Microsoft S Q L Azure
- Private clouds

# What is Cloud Computing

---

- **Shared pool of configurable computing resources**
- **On-demand network access**
- **Provisioned by the Service Provider**



# Cloud Service Models

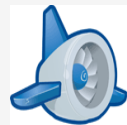
Software as a Service (SaaS)

Platform as a Service (PaaS)

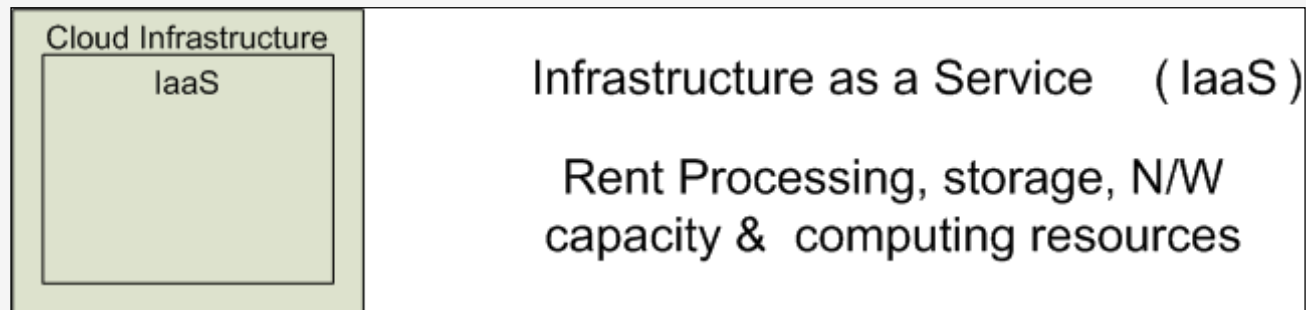
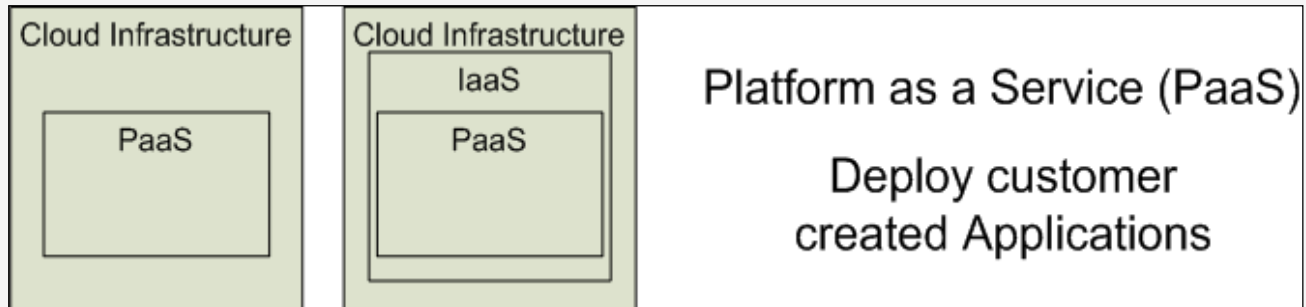
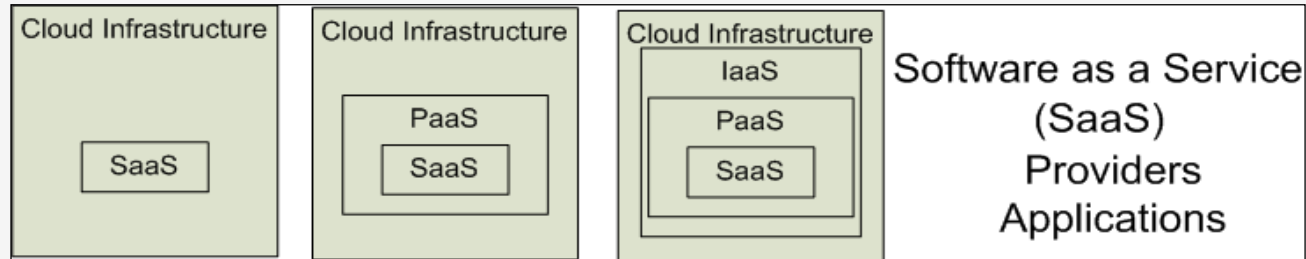
Infrastructure as a Service (IaaS)

SalesForce CRM

LotusLive



Google App



# Cloud Deployment Models

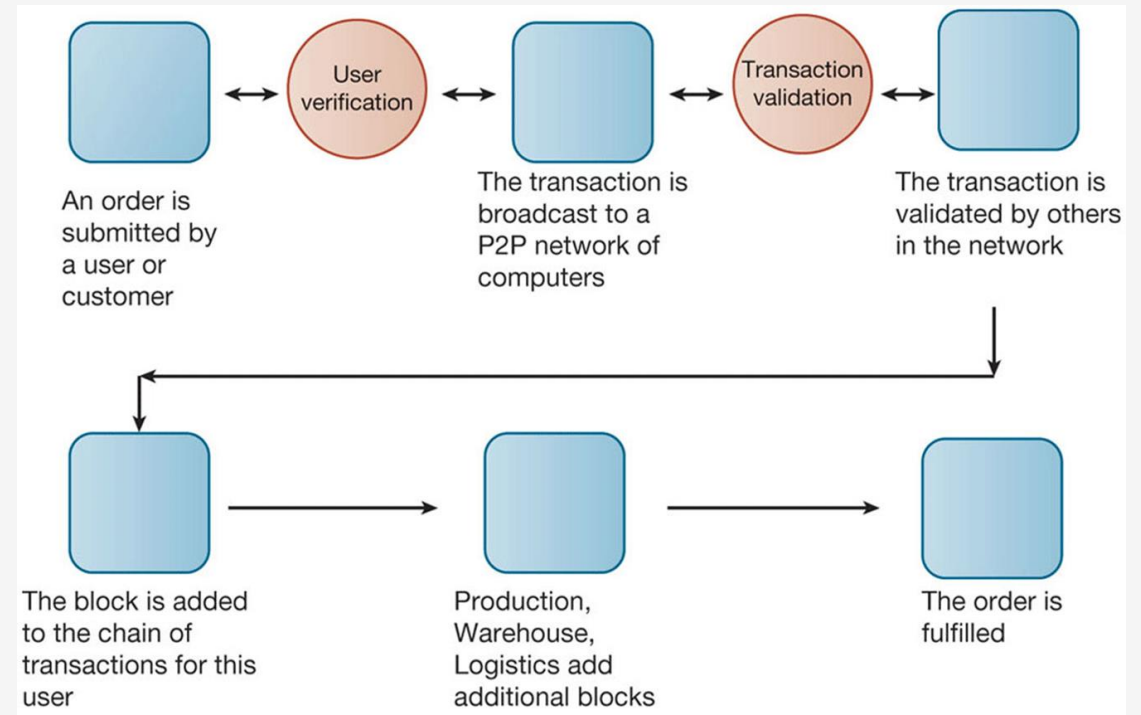
---

- **Public Cloud**
- **Private Cloud**
- **Community Cloud**
- **Hybrid Cloud**

# Blockchain

---

- Distributed ledgers in a peer-to-peer distributed database
- Maintains a growing list of records and transactions shared by all
- Encryption used to identify participants and transactions
- Used for financial transactions, supply chain, and medical records
- Foundation of Bitcoin, and other crypto currencies



# Analytical Tools: Relationships, Patterns, Trends

---

- Tools for consolidating, analyzing, and providing access to vast amounts of data to help users make better business decisions
  - Multidimensional data analysis (O L A P)
  - Data mining
  - Text mining
  - Web mining

# Establishing an Information Policy

---

- **Firm's rules, procedures, roles for sharing, managing, standardizing data**
- **Data administration**
  - Establishes policies and procedures to manage data
- **Data governance**
  - Deals with policies and processes for managing availability, usability, integrity, and security of data, especially regarding government regulations
- **Database administration**
  - Creating and maintaining database
- **Ensure Data Quality**
  - Data quality audit
  - Data cleansing

# Business Processes

---

## ➤ **Business processes**

- Flows of material, information, knowledge
- Logically related set of tasks that define how specific business tasks are performed
- May be tied to functional area or be cross-functional

## ➤ **Businesses: Can be seen as collection of business processes**

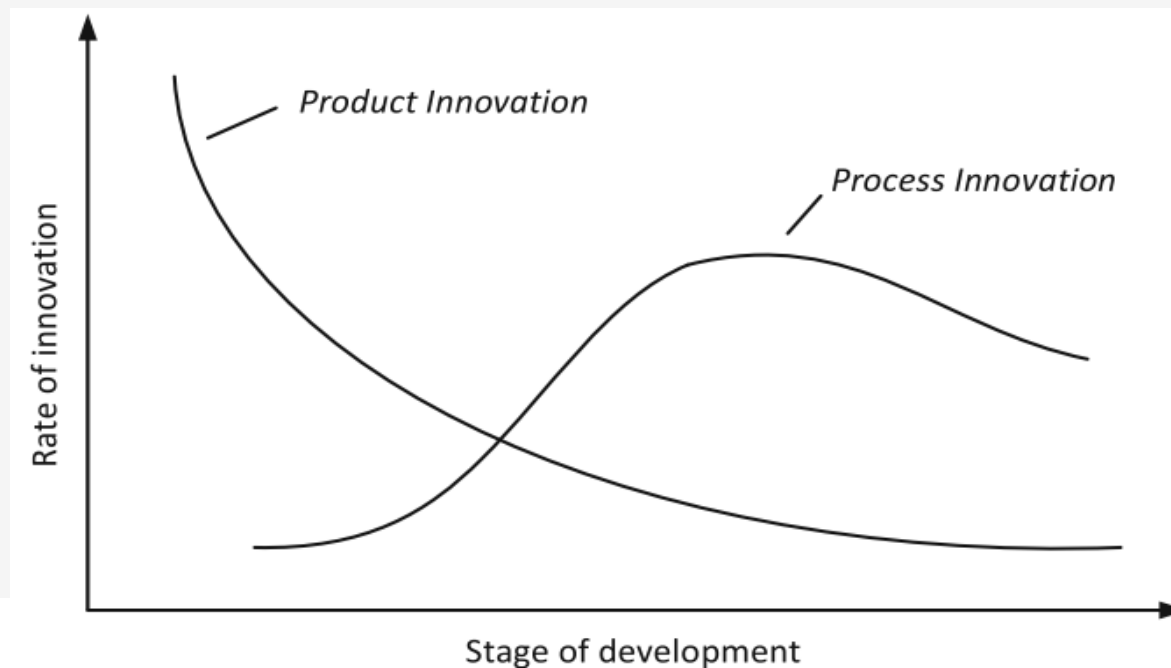
## ➤ **Business processes may be assets or liabilities**

- ## ➤ **Business Process:** A collection of inter-related events, activities, and decision points that involve several actors and objects, which collectively lead to an outcome that is of value to a customer.

# Process Redesign

## *Product Versus Process Innovation*

- ***Product innovation*** is concerned with the development of new products or the addition of new features to existing ones
  - Example, Apple's iPhone
- ***Process innovation***, focuses on redesigning business processes such that customers are drawn to them to acquire the products or services that they generate
  - Example: Amazon



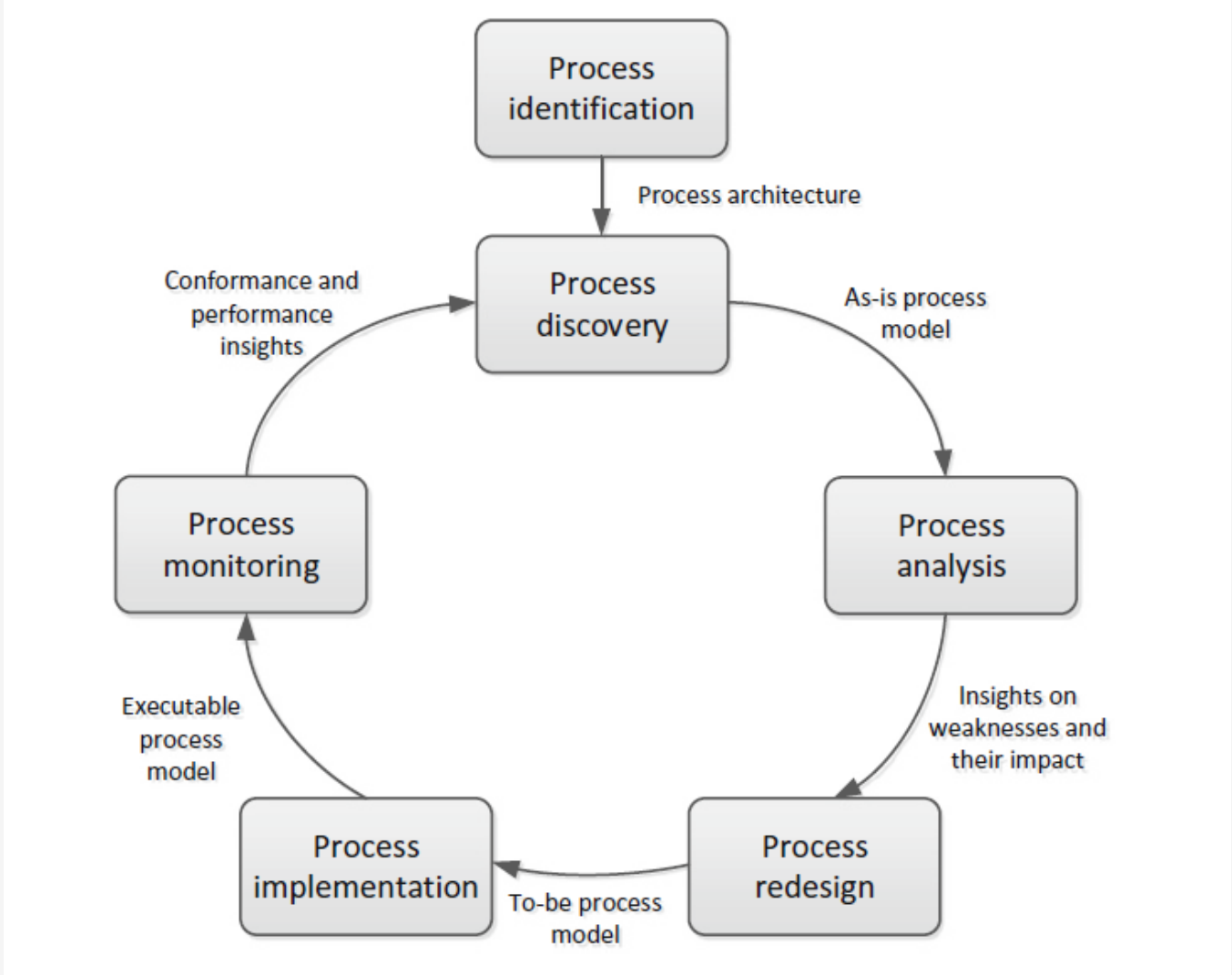
# Examples of Business Processes

---

- ***Order-to-cash***
- ***Quote-to-order***
- ***Procure-to-pay***
- ***Issue-to-resolution***
- ***Application-to-approval***
- ***Claim-to-Settlement***

# The BPM Lifecycle

---



# The Ford Case Study

Ford needed to review its procurement process to:

- Do it cheaper (cut costs)
- Do it faster (reduce turnaround times)
- Do it better (reduce error rates)

Accounts payable in North America alone employed > 500 people and turnaround times for processing POs and invoices was in the order of weeks

# The Ford Case Study

Automation would bring some improvement (20% improvement)

But Ford decided not to do it... Why?

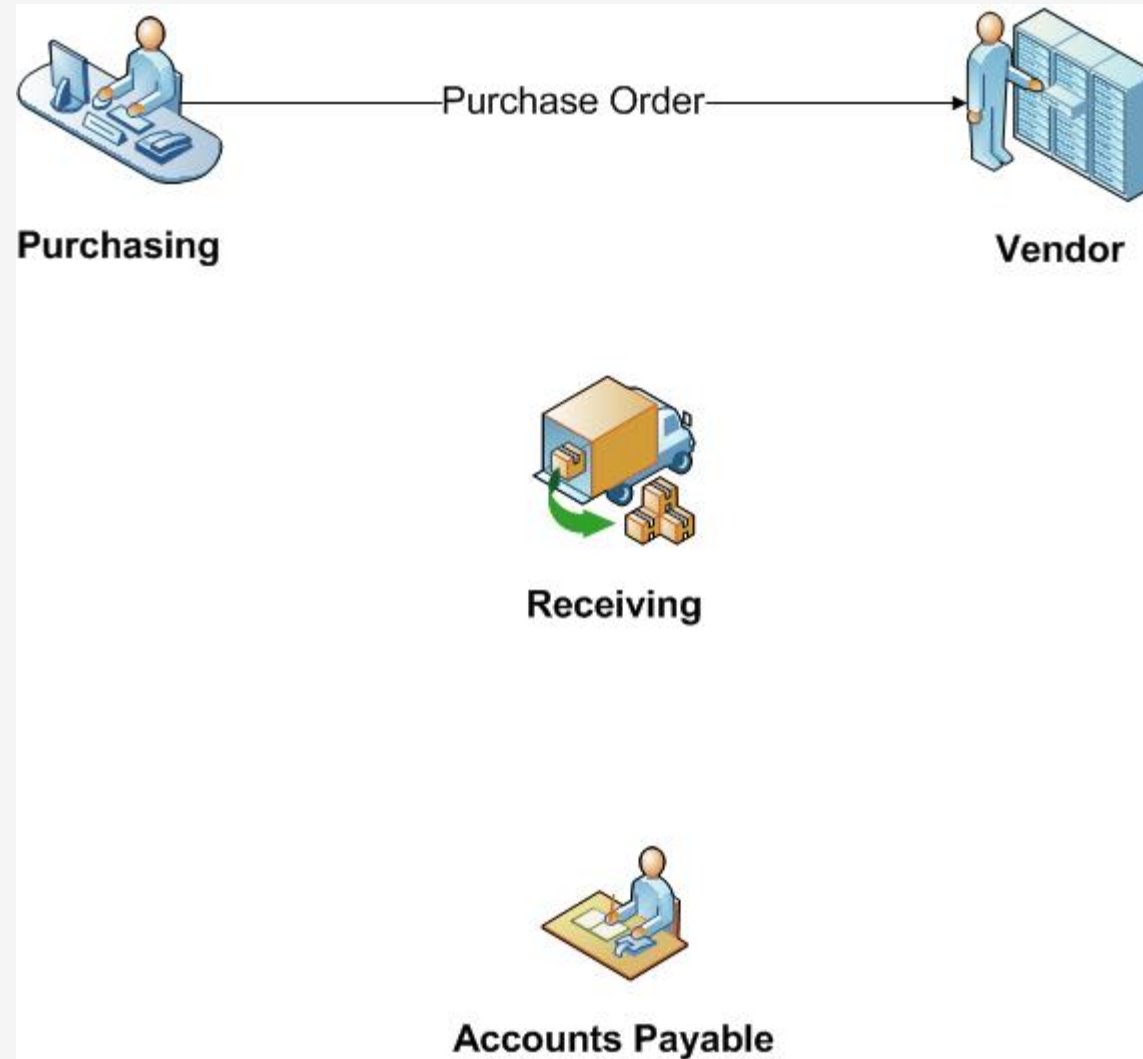
- a) Because at the time, the technology needed to automate the process was not yet available.
- b) Because nobody at Ford knew how to develop the technology needed to automate the process.
- c) Because there were not enough computers and computer-literate employees at Ford.
- d) None of the above

# The correct answer is ...

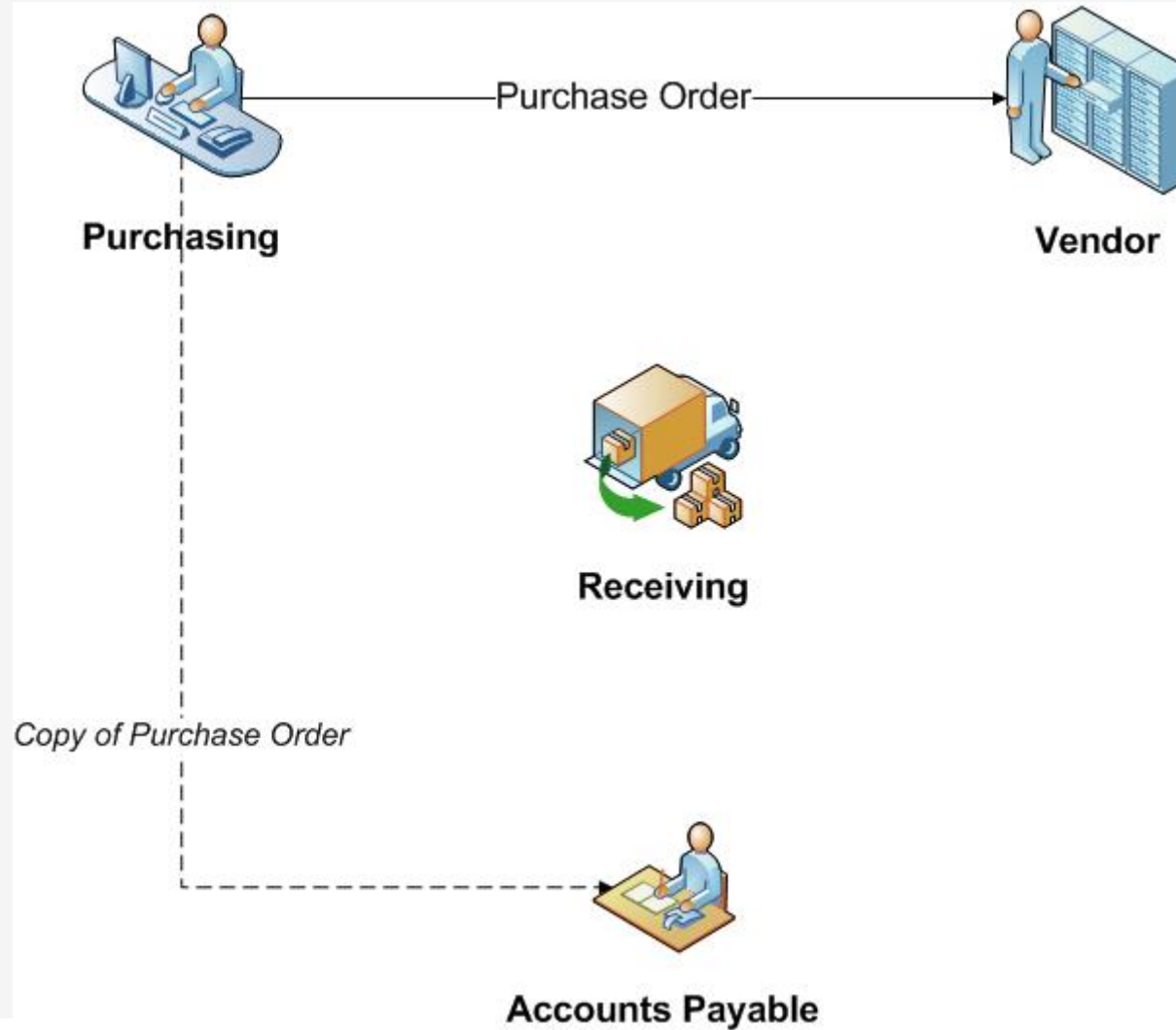
Mazda's Accounts Payable Department

From 1974 to 2015, **Mazda** had a partnership with the **Ford Motor Company**, which **acquired** a 24.5% of Mazda

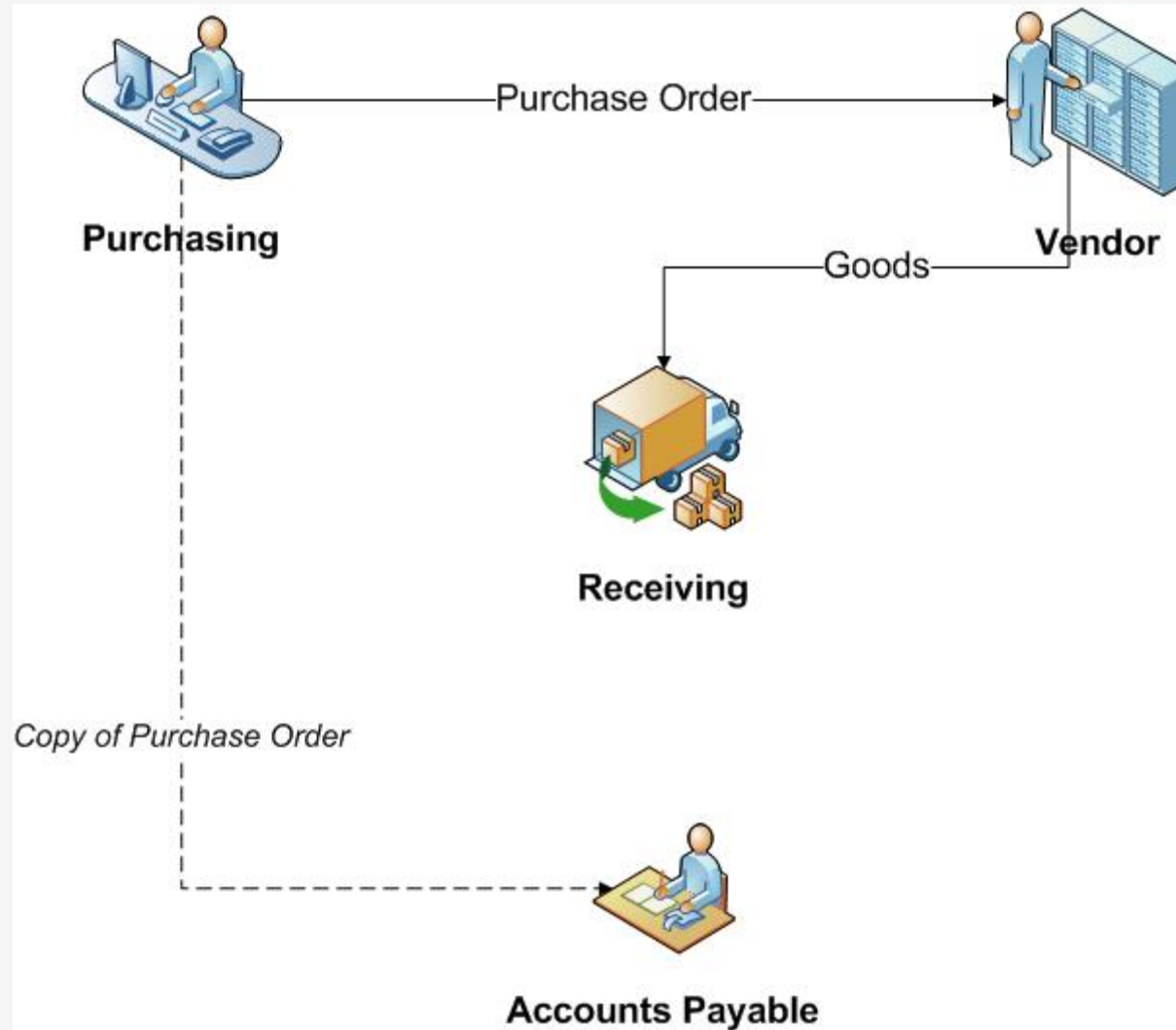
# How the process worked? ("as is")



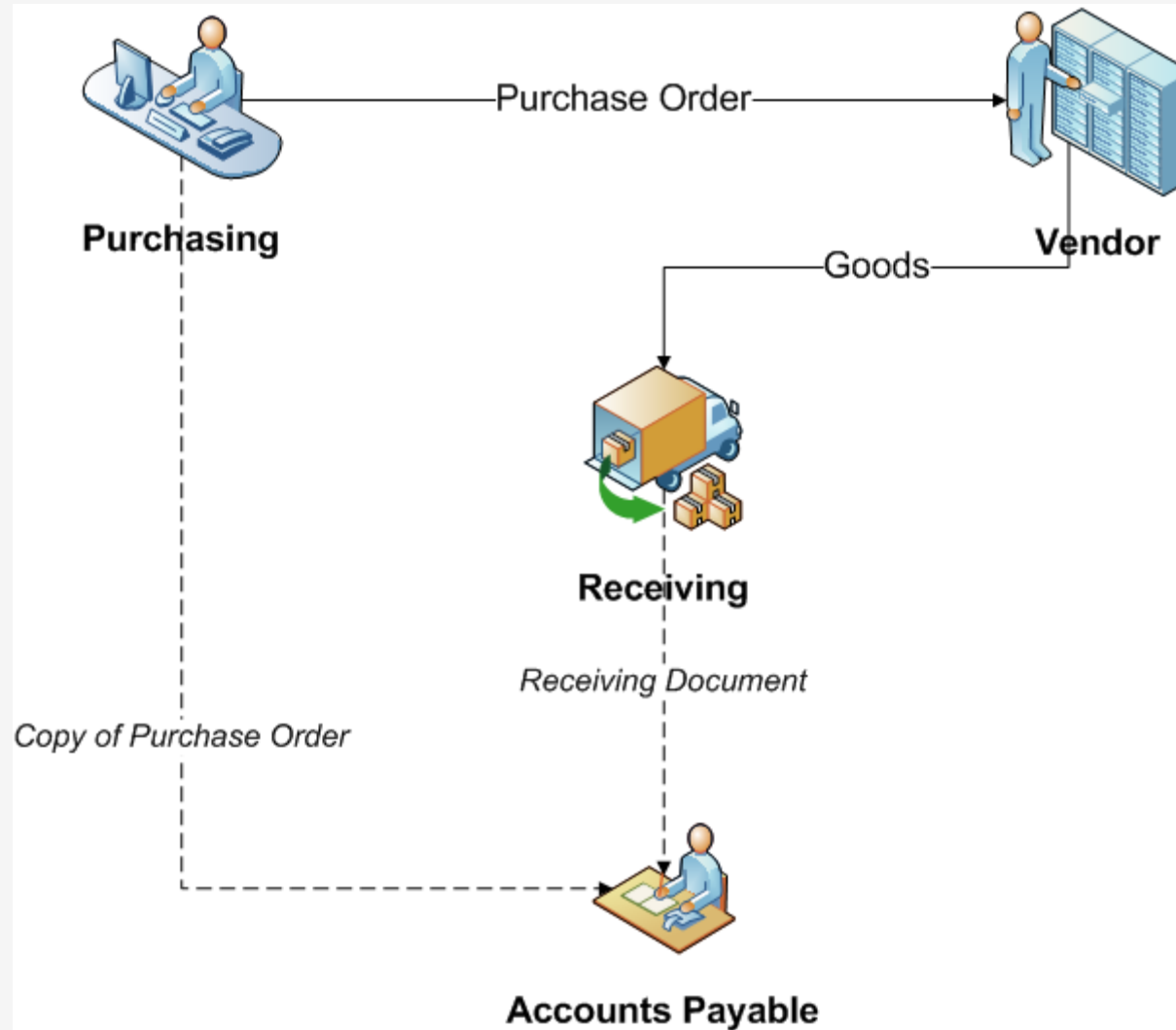
# How the process worked? ("as is")



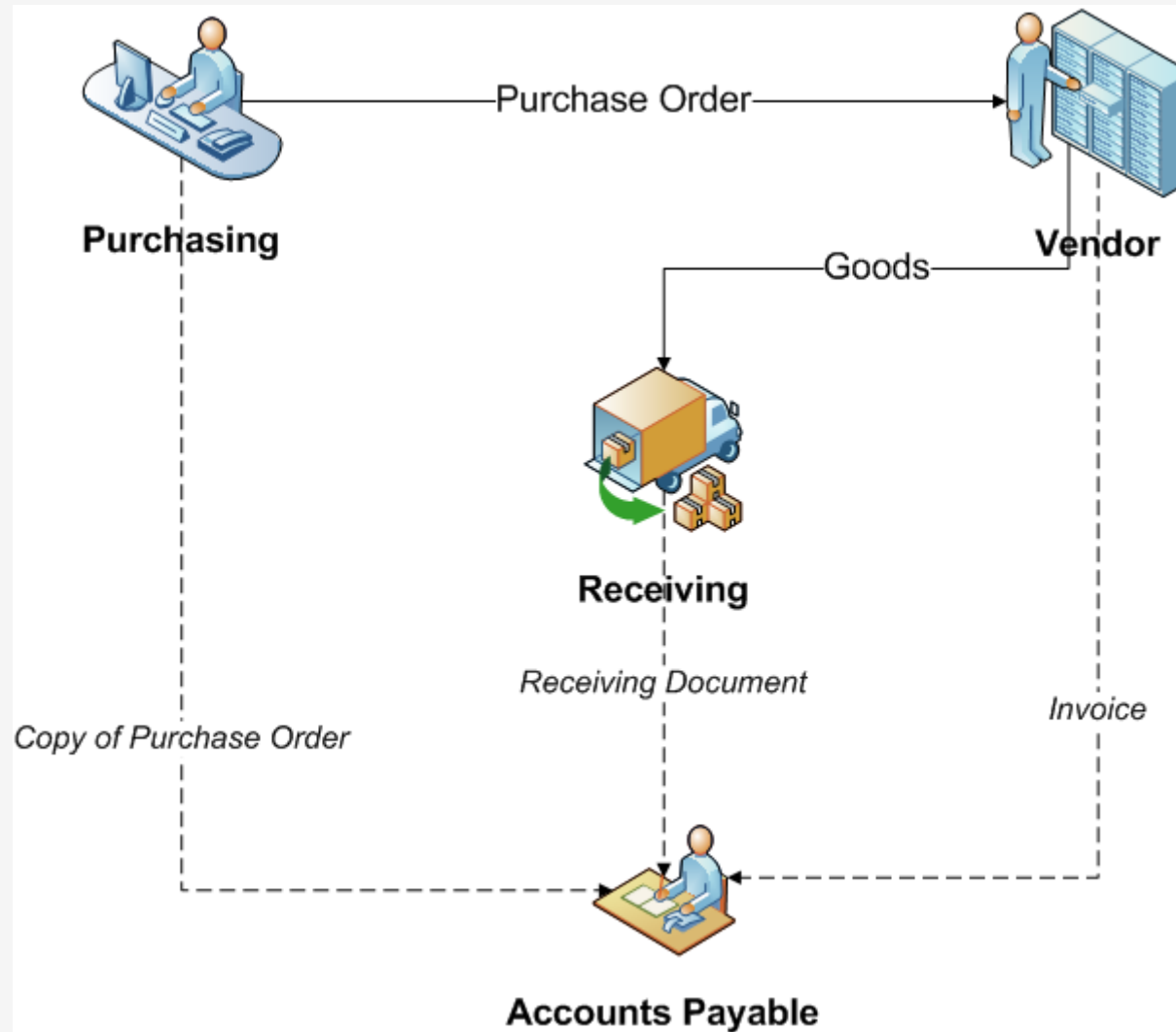
# How the process worked? ("as is")



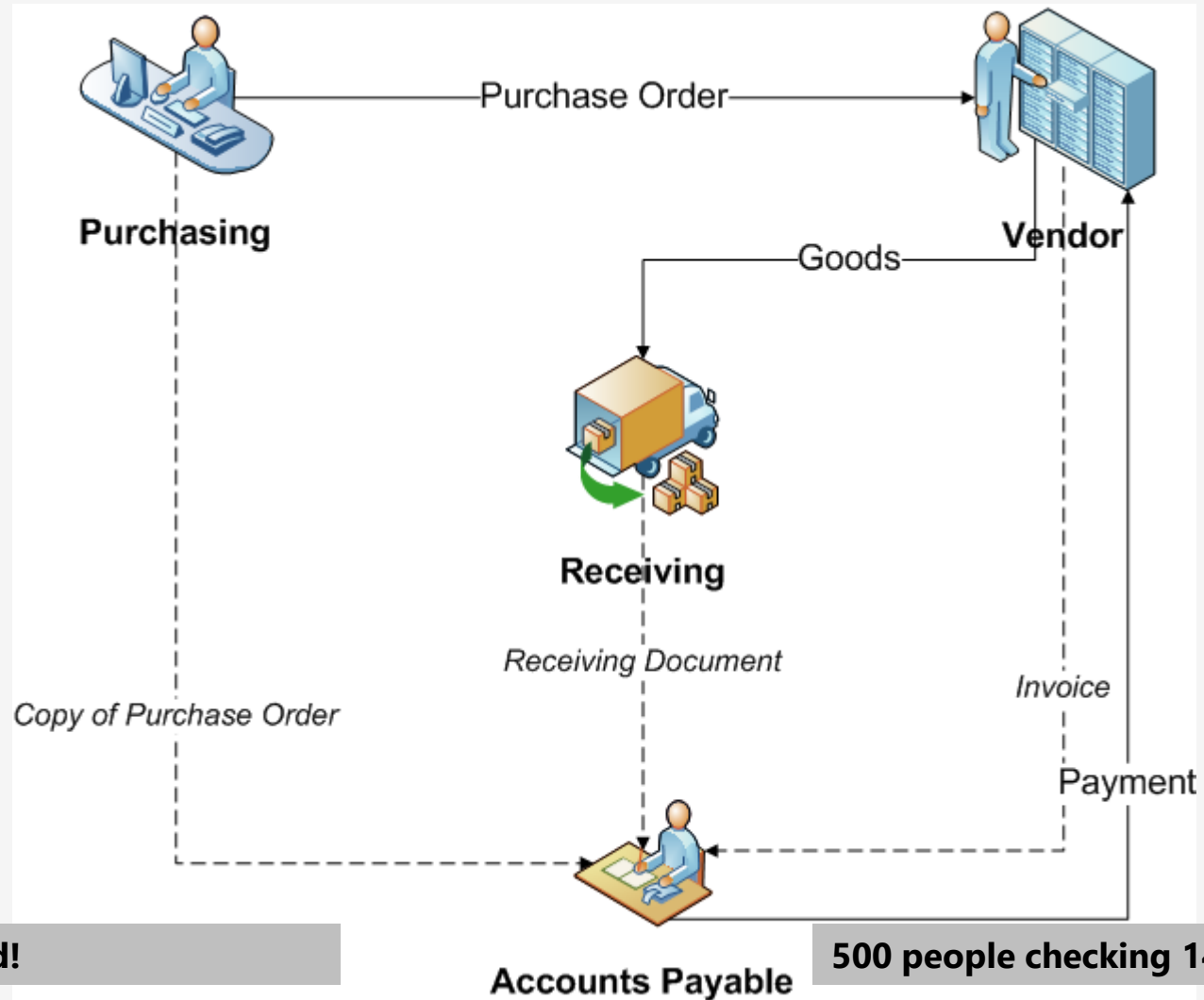
# How the process worked? ("as is")



# How the process worked? ("as is")



# How the process worked? ("as is")

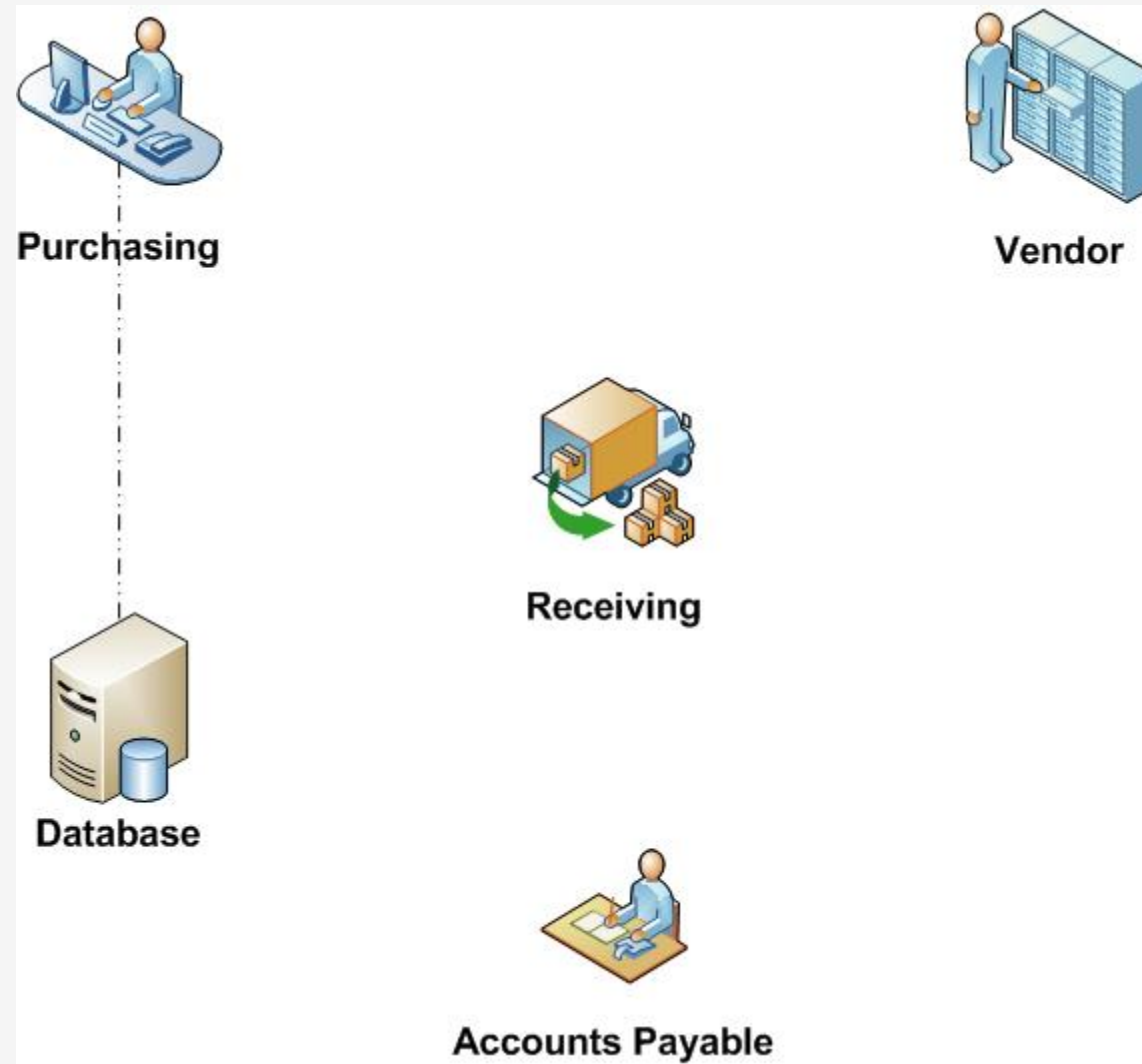


**Mazda – only five people worked!**

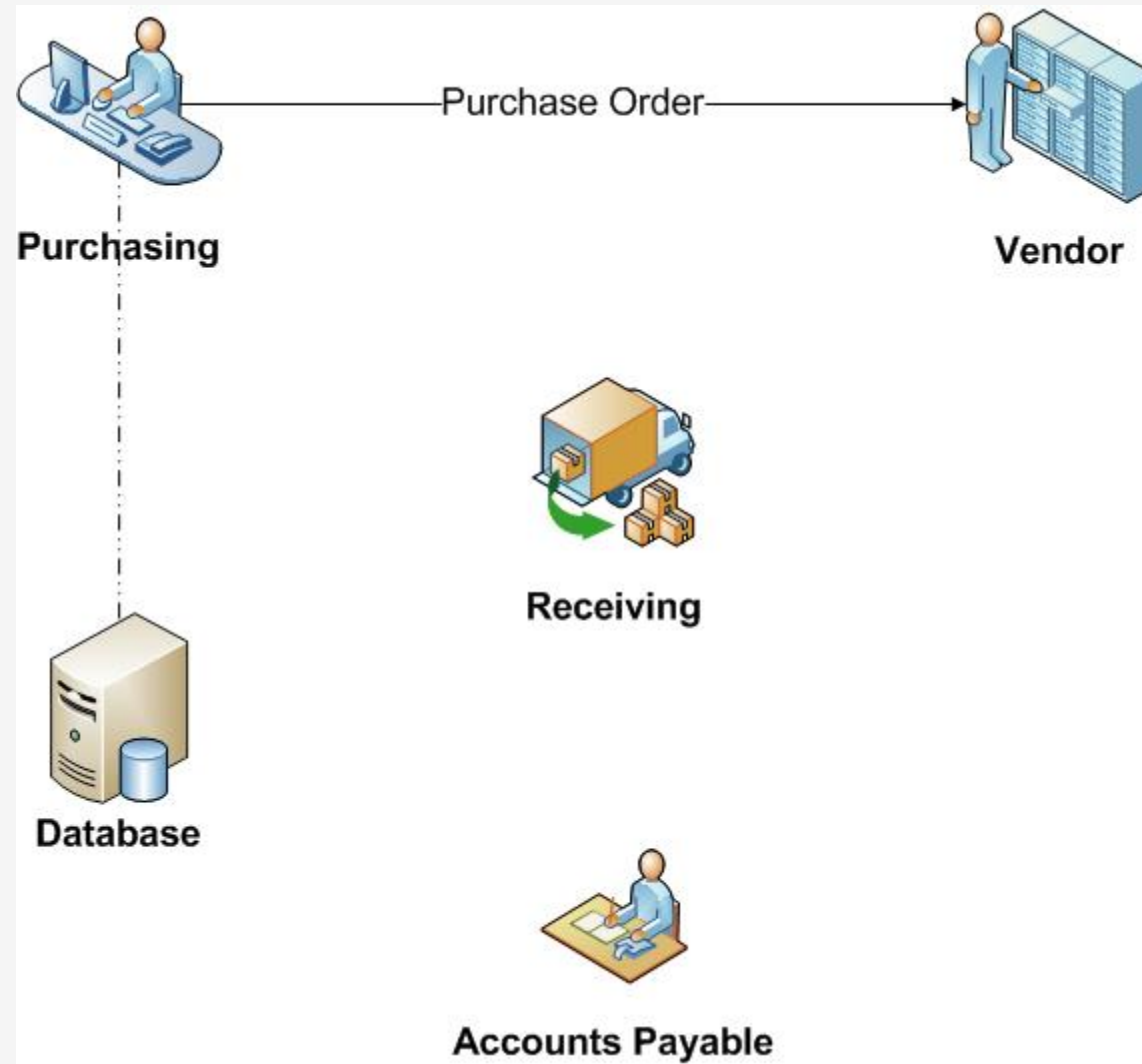
**Accounts Payable**

**500 people checking 14 items on 3 documents**

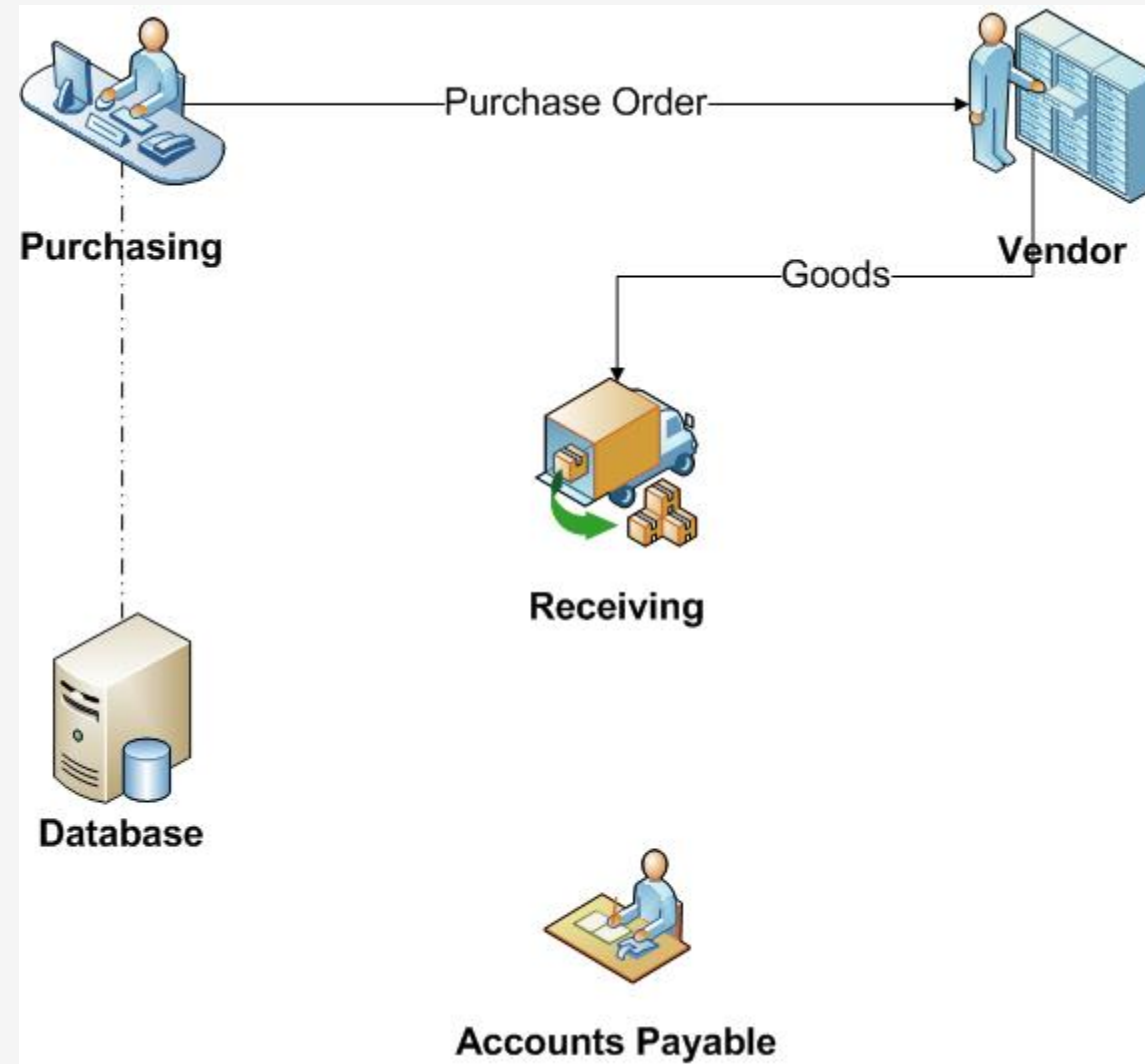
# Reengineered Process ("to be")



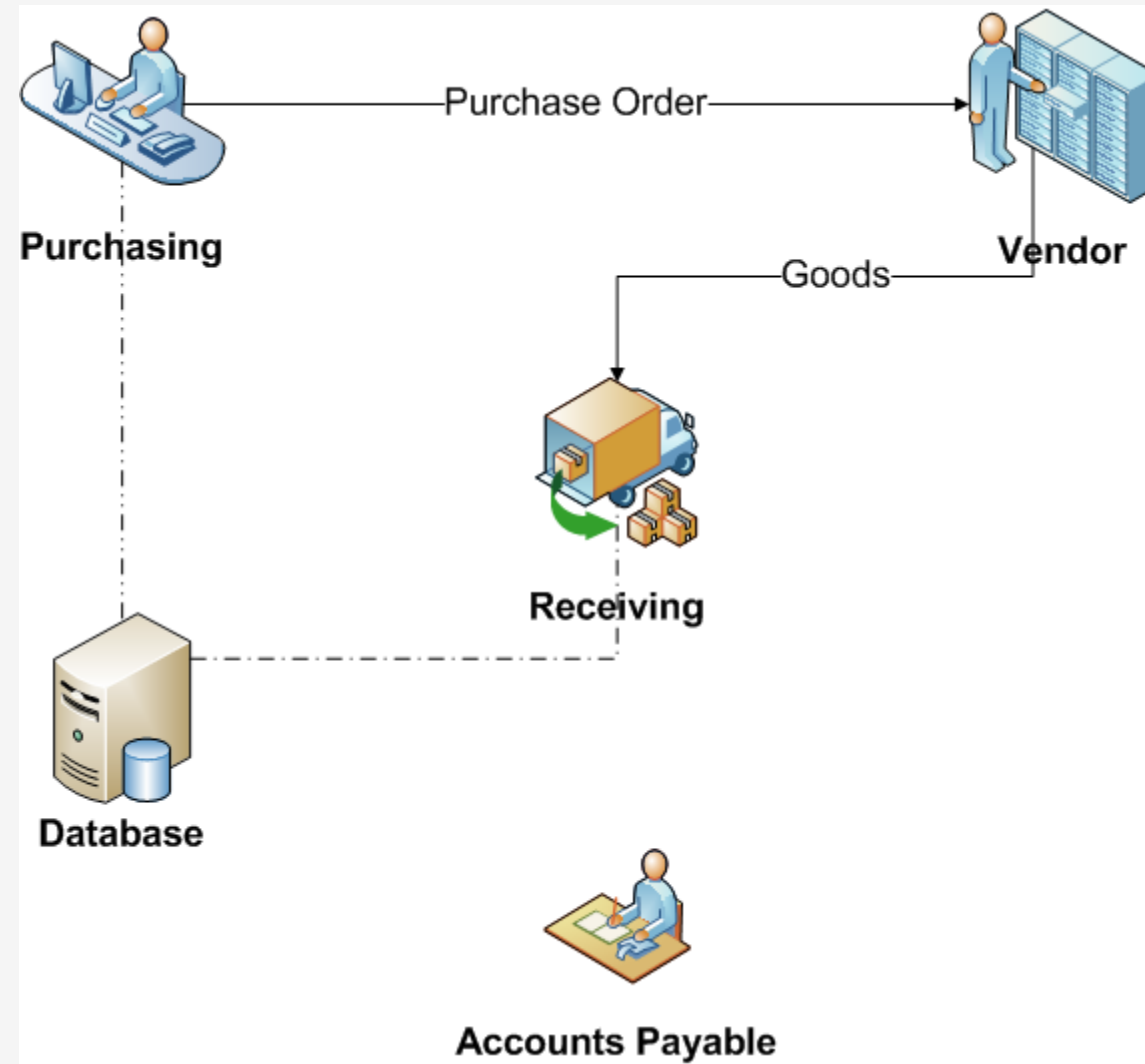
# Reengineered Process ("to be")



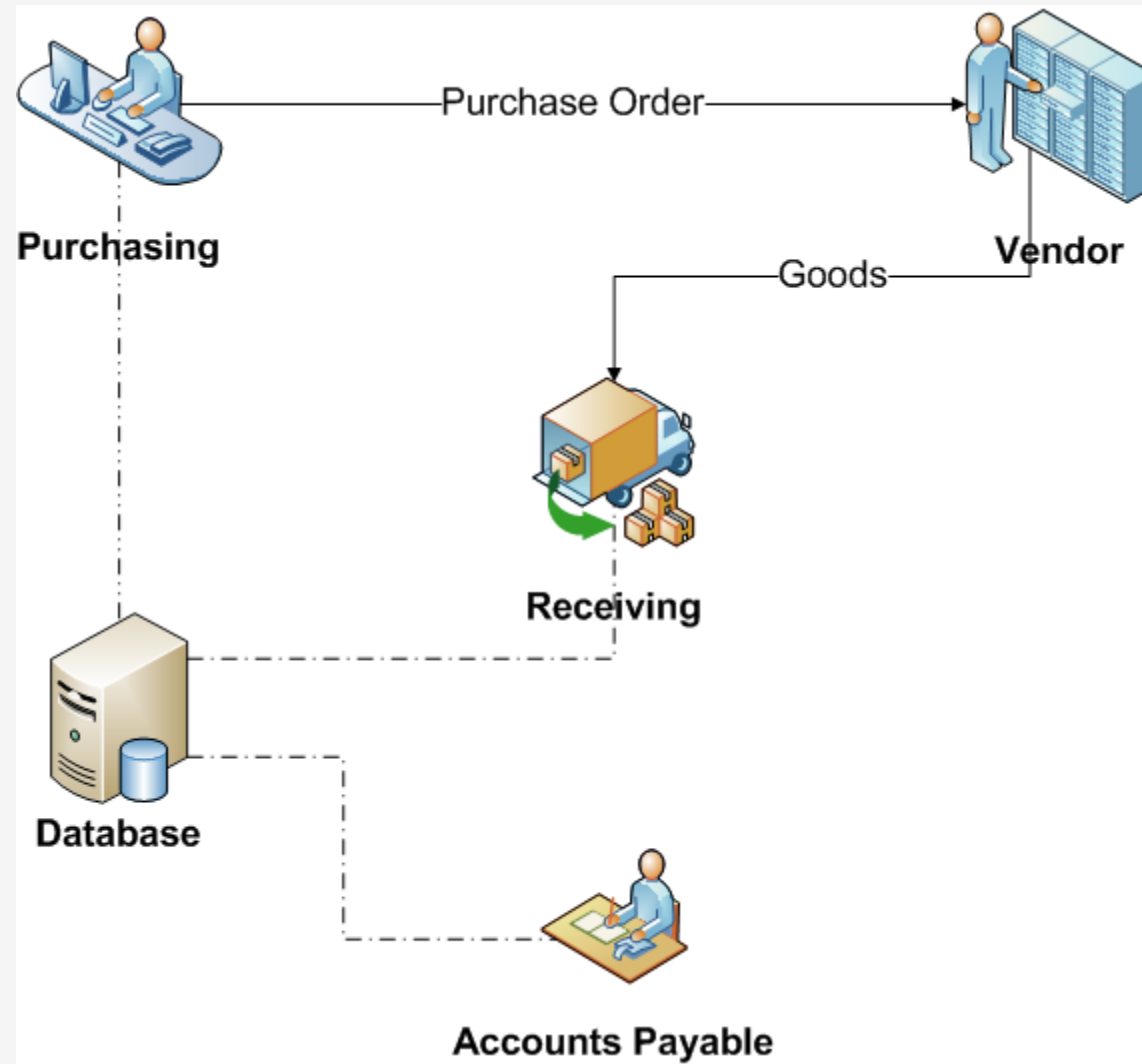
# Reengineered Process ("to be")



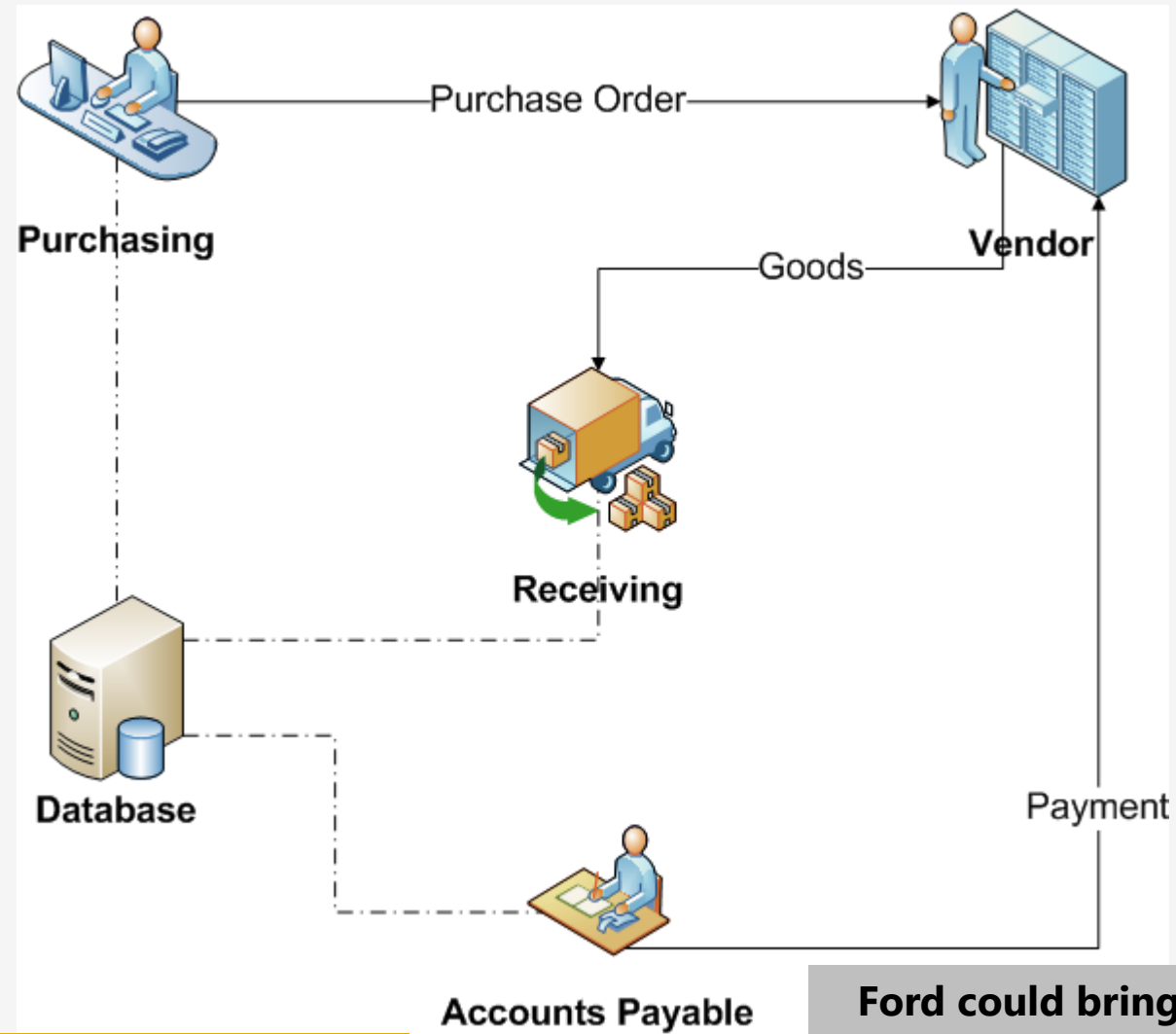
# Reengineered Process ("to be")



# Reengineered Process ("to be")



# Reengineered Process ("to be")



Evaluated Receipts Settlement

**Ford could bring it down to 120 from 500 – with 76% cost reduction**

# Outcome...

- 75% reduction in head count
- Simpler material control
- More accurate financial information
- Faster purchase requisition
- Less overdue payments

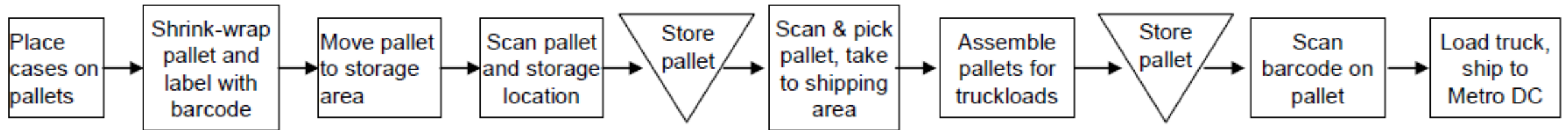
## Lessons:

- Why automate something we don't need to do at all?
- Automate things that need to be done.

"Don't Automate, Obliterate!" (Hammer, 1990)

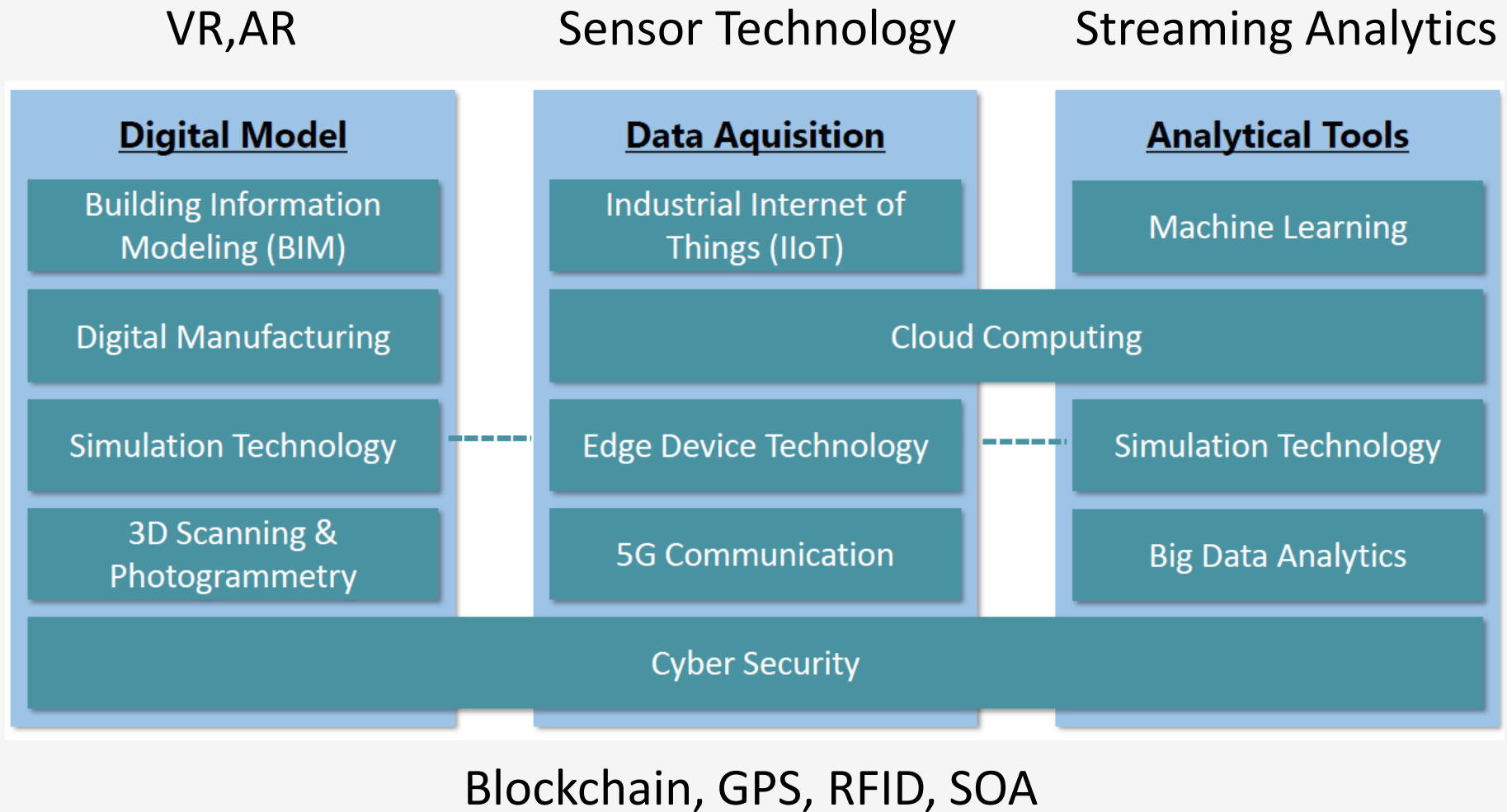
# How digital technologies can Improves Business Processes

---



# Emerging Technology Enablers

---



# MDCM Inc.

---

- History and Growth Strategy

# MDCM Inc.

---

- Growth strategy change – 1987 – acquisitions
  - 20+ acquisitions in less than eight years
  - Experience executing integrations?
- Horizon 2000
  - Changes in strategy execution
  - Size and global presence – opportunities

# Business Objectives post Horizon 2000

---

- Consolidate to increase scale efficiencies
  - Reduce headcount
  - Rationalize suppliers
  - Combine production facilities
- Global focus – one company globally
  - Strategy formation for entire company
  - Unify brand
- Core competencies become focus
  - Outsource logistics
- Improve customer relationships
  - Reorganize business units and sales force
  - Maintain close ties in production development

- 
- Does IT play any role in obtaining business objectives?
  - Why was focus missing earlier?

# Traditional View of IT

---

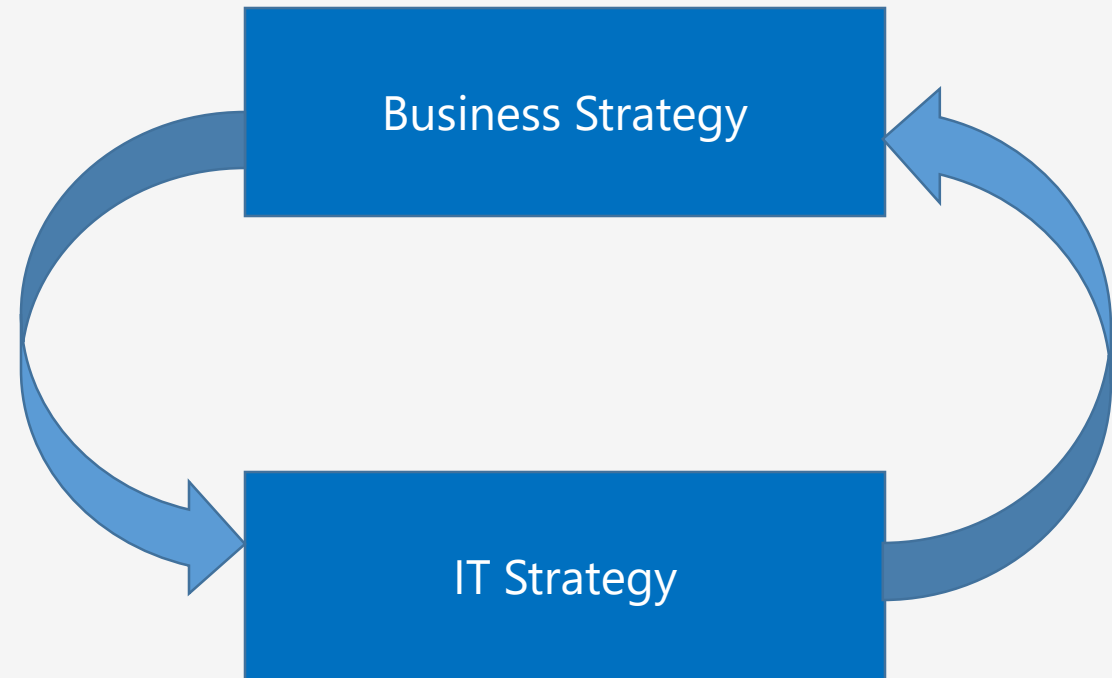
- Cost - centre
- Reactive to needs of business
- IT not involved in planning and strategy – no part in senior management

- 
- How IT alignment creates competitive advantage?

# Contemporary View

---

- IT facilitates CA
  - Cost leadership and differentiation
  - Walmart, Uber, Netflix, AirBnB
- Strategic focus of IT
  - Enabler or Supporter



# Aligned IT objectives

---

- Consolidate to increase scale efficiencies
- Global focus – one company globally
- Core competencies become focus
- Improve customer relationships

# Consolidate to increase scale efficiencies

---

- Develop enterprise architectures, unify standards, standardize platforms
  - Increase scale efficiencies in purchasing
  - Greater curve for climbing the learning curve and develop tacit knowledge
- Combine IT facilities
  - Improve utilization of tech staff and resources
- Pool IT resources and capabilities
  - Extend overall capabilities & reduce the need for outsourcing

# Global focus – one company globally

---

- Manage IT portfolio across the entire company
  - Remove redundancies
  - Improve decision making
- Integrate data and communication networks
  - Reduce inefficiencies
- Improve communication and collaborative tools
  - Lower cost of communication
  - Time

# Core competencies become focus

---

- Outsourcing
  - Nonstrategic IT services
- Need control over strategic functionalities
  - Flexibility

# Improve customer relationships

---

- Develop CRM application

# IT Portfolio Management

---

- **Potential projects**

1. Unify methodology and technical standards
2. Consolidate data centers and networks
3. Outsource nonstrategic IT services
4. Standardize server hardware and platforms
5. Implement enterprise resource planning
6. Create employee intranet portal
7. Manage supply chain
8. Streamline design systems
9. Improve collaboration systems
10. Begin CRM/create data warehouse
11. Implement e-procurement system
12. Establish customer self-service portal

- ▶ **How do you evaluate and prioritize the projects?**

- ▶ **Value to IT**

- ▶ **1,4,9**

- ▶ **Continuous Improvement**

- ▶ **2, 3**

- ▶ **Quickest Returns**

- ▶ **6,8,11**

- ▶ **Largest Returns**

- ▶ **5, 7, 10, 12**

# Analysis of Projects

---

- Make a Table
- Value to Business
  - How important or high up the priority the project is?
  - Can MDCM continue functioning without the project?
- Ability to Succeed (Complexity/Risk)

Ability to Succeed

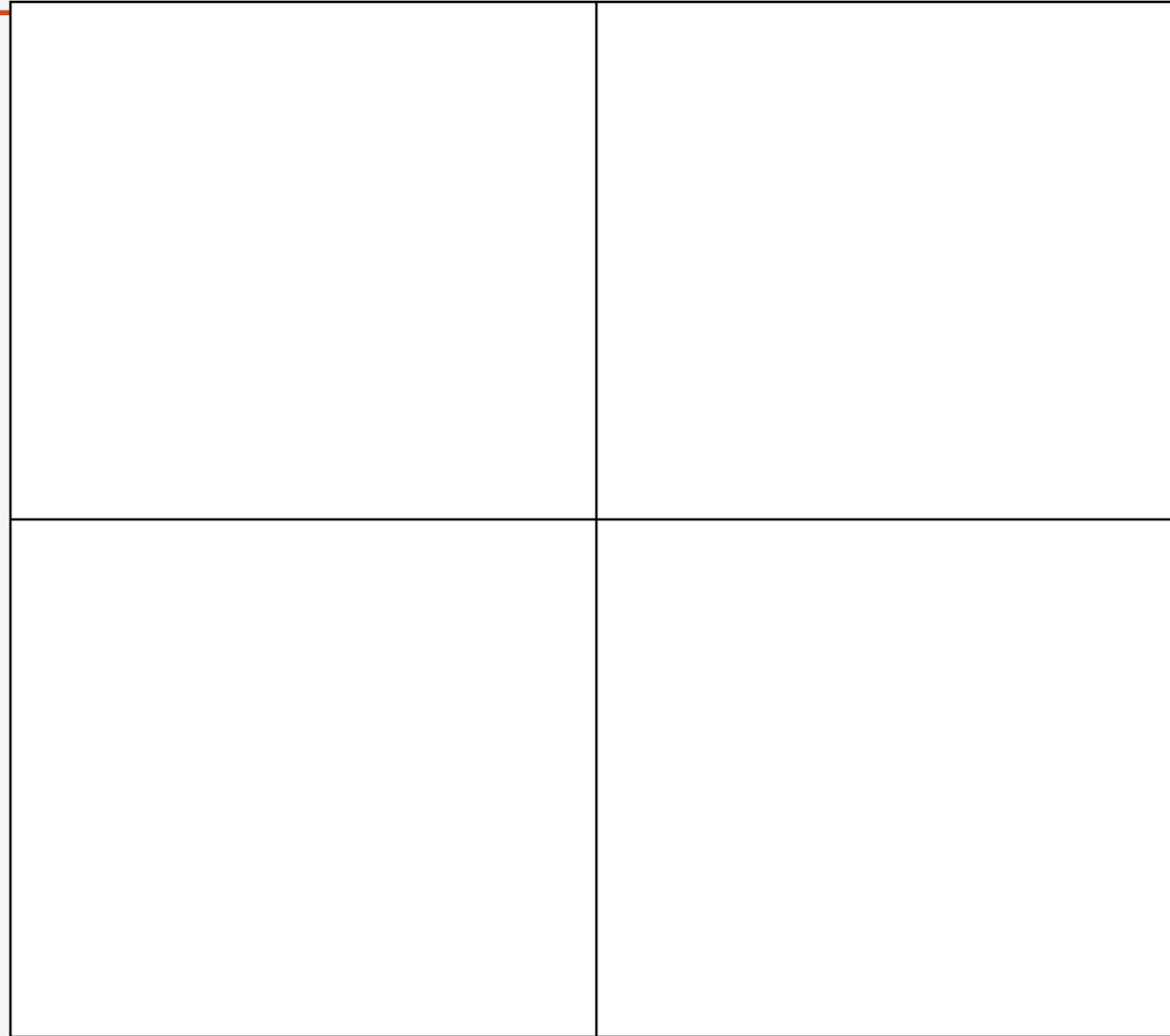
Low

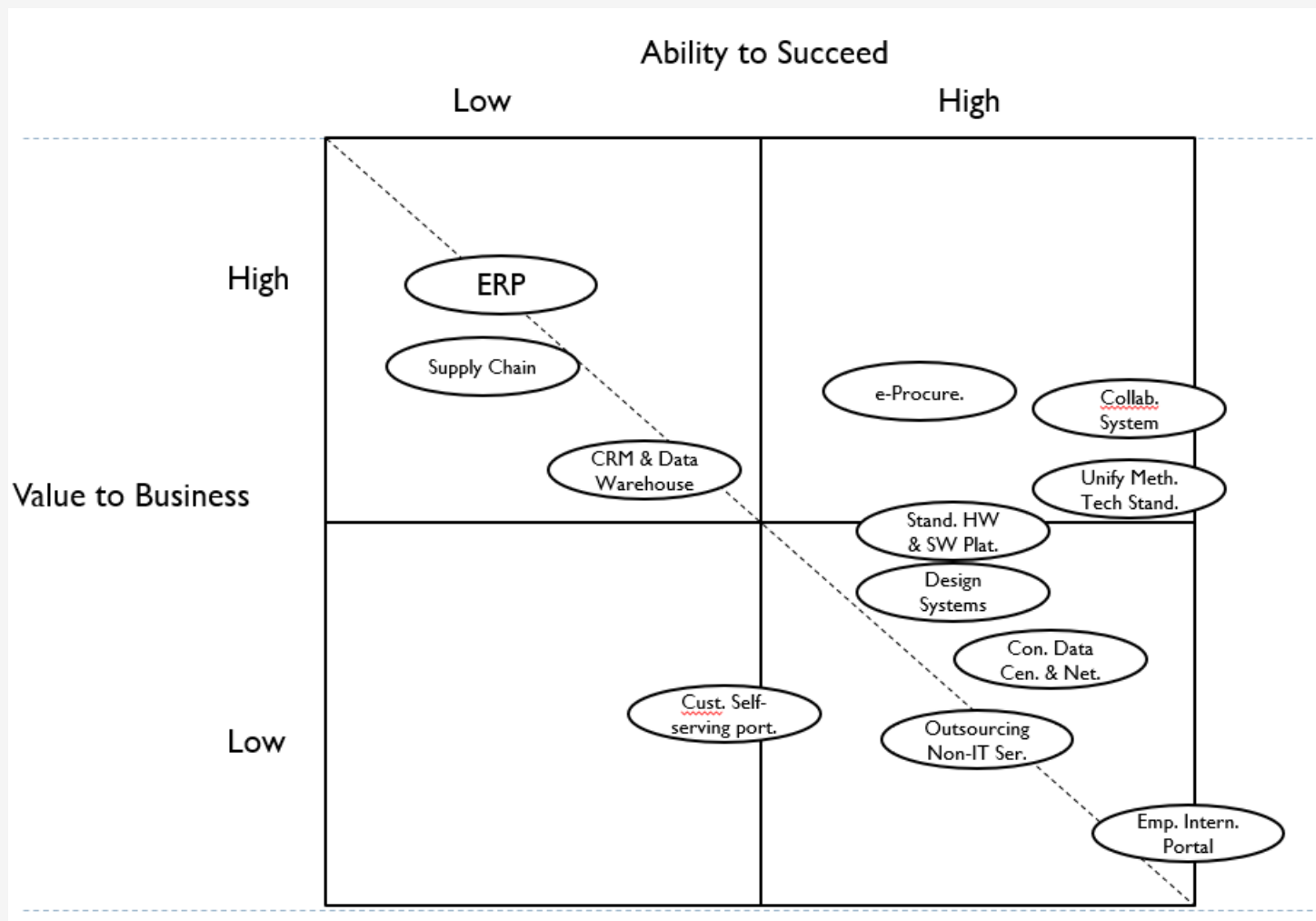
High

High

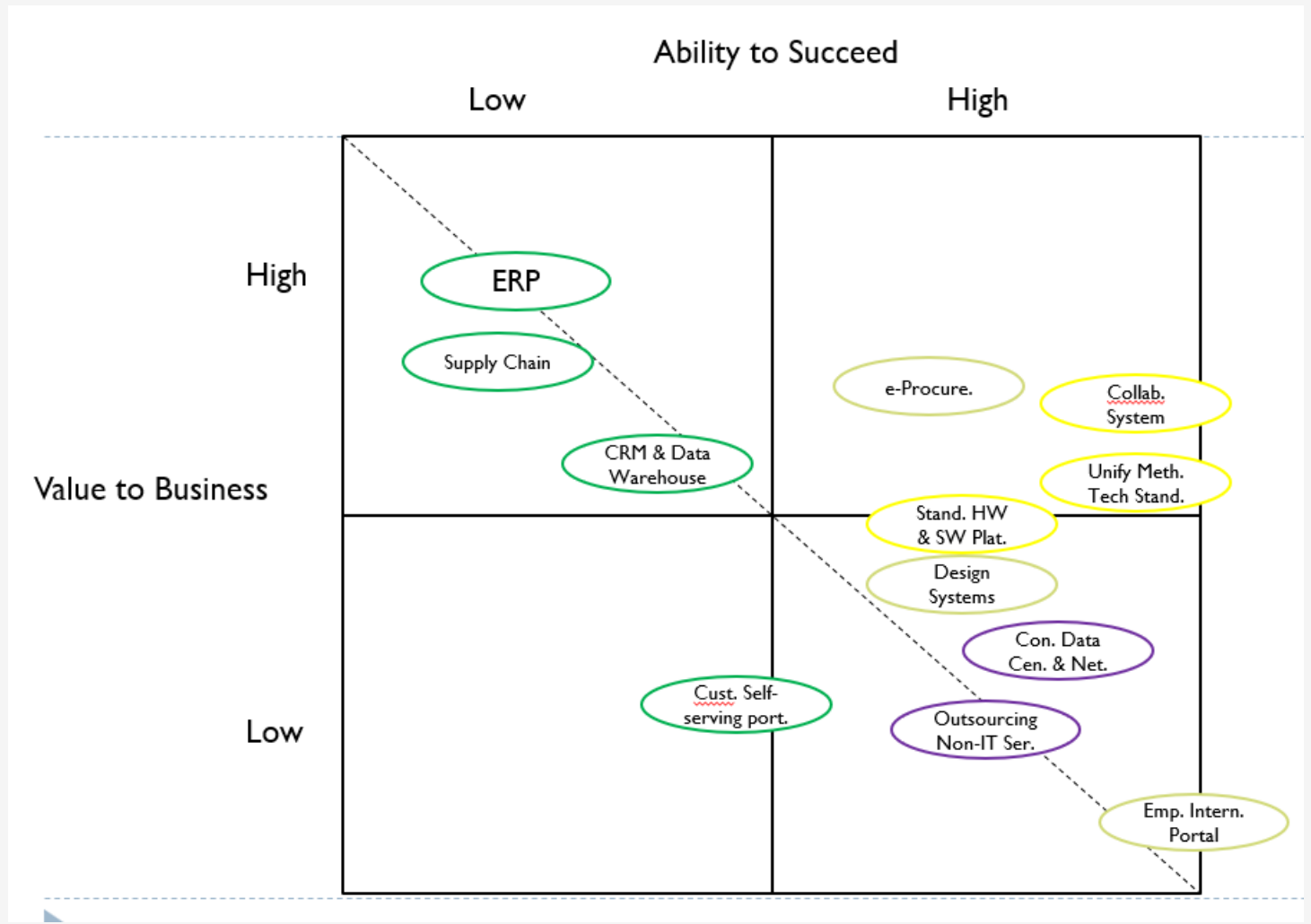
Value to Business

Low





- 
- Categorize
    - Value to IT
    - Continuous Improvement
    - Quickest Returns
    - Largest Returns
  - Turnaround time
  - Dependencies

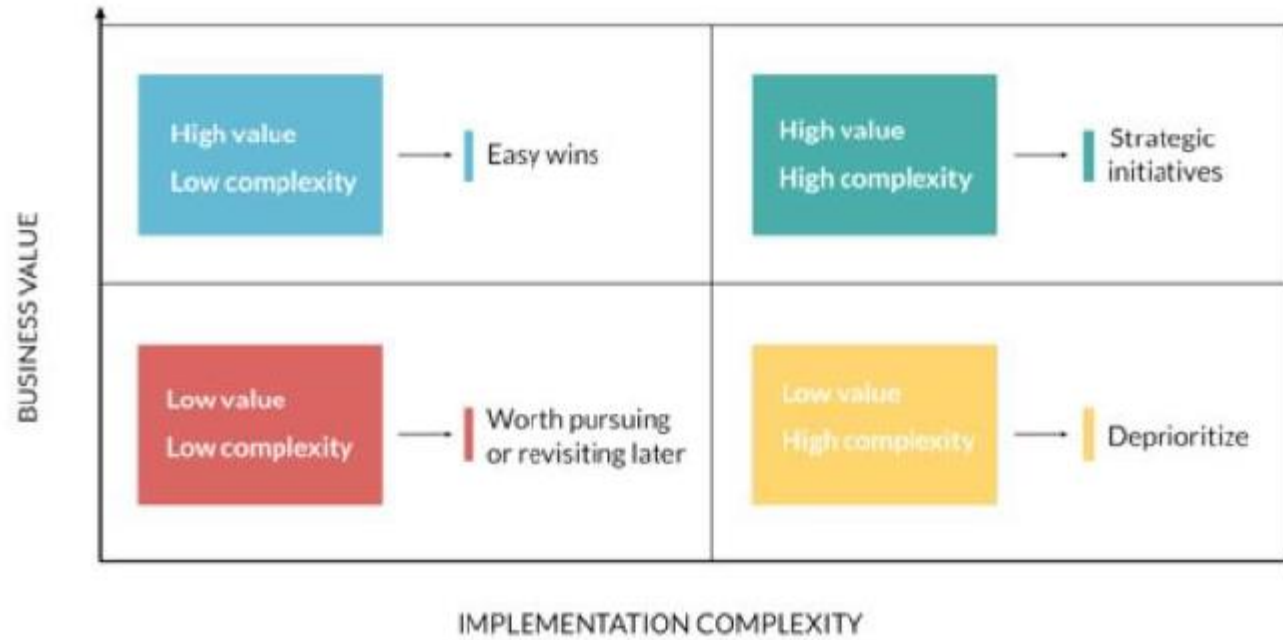


- 
- Complexity in terms of the training required and how many people are involved from the previous pyramid (the span of project).

# Score Cards


Likelihood of Success Criteria			Business Value Criteria		
		Wt. Score		Wt.	Score
Technical standards	X1:	10%	Financial return	Y1:	30%
Skills capability and training	X2:	10%	Customer and consumer focus	Y2:	20%
Scope and complexity	X3:	25%	Supply chain business benefits	Y3:	15%
Business alignment	X4:	22%	Technology efficiency	Y4:	15%
Risk factors	X5:	21%	Knowledge advantage	Y5:	10%
Management capability	X6:	12%	Work/life balance	Y6:	10%
Dimension total	X	100	Dimension total	Y	100

### VALUE-COMPLEXITY MATRIX



# Enterprise Architecture

---

- Processes
  - Products
  - Data
  - People
  - Technologies
- 

- Conceptual frameworks that describes how business is constructed
  - How organization works?
- Identifies primary component and shows relationship between them.
- How value is derived from each of them?
- Is applicable to any company – Private, Public, NGO, Association, A group
- Simplifies the complexity and lays down how business and technology works together

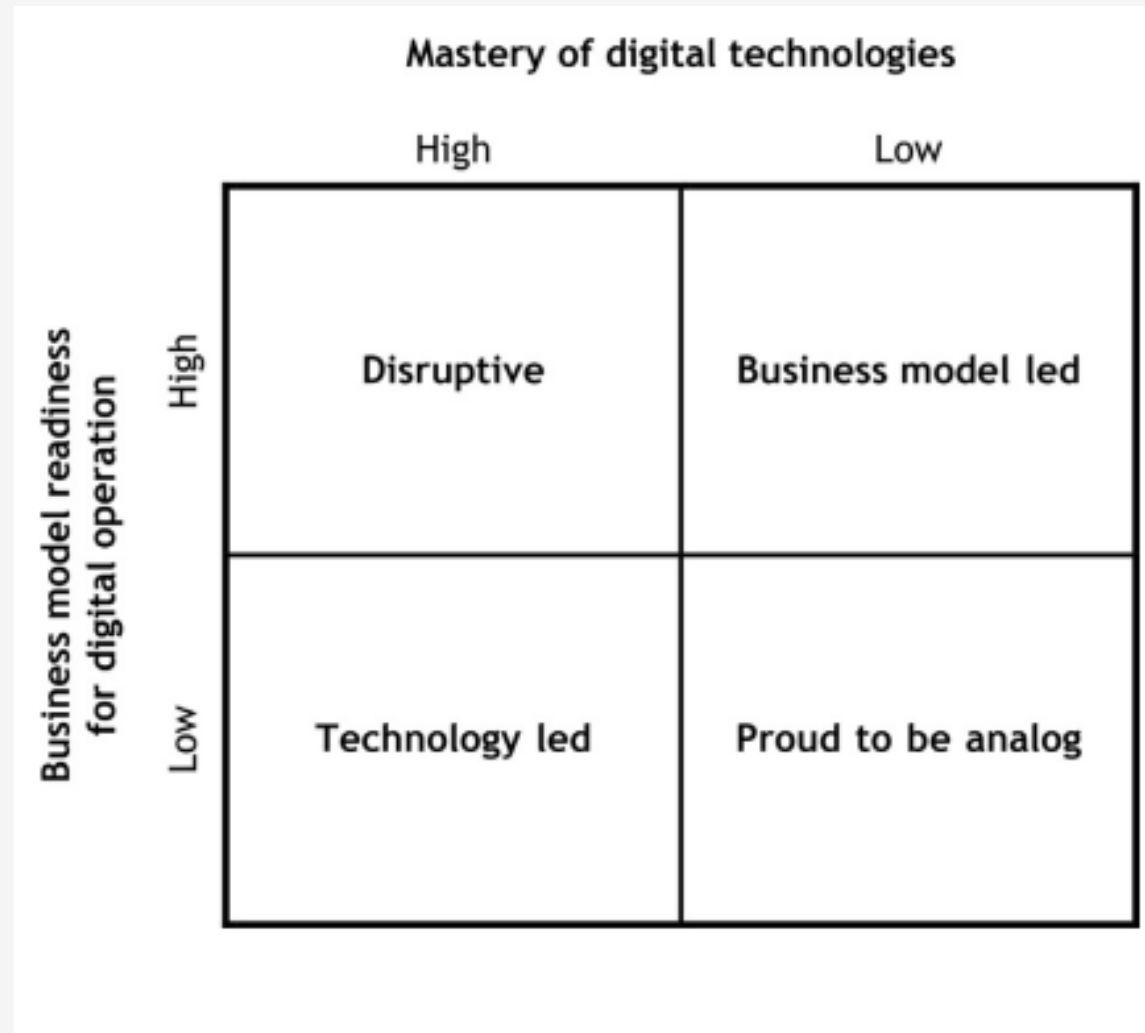
# Enterprise Architecture

---

- **Business Architecture**
  - Capturing how business operates, how process do what they do.
  - Information and capabilities in the organizational context
  - Roles and responsibilities, projects, and products.
- **Application Architecture**
  - Portfolio of applications and technology they use.
  - IT and business relationship, how IT supports business.
  - Defines the software solutions that help business do their job.
- **Data Architecture**
  - Cust, preferences, products, prices – Data is everywhere and its complex
  - Ways to manage data – Docs, spreadsheets, emails
  - Models the sources, formats, management, quality
- **Infra Architecture**
  - Defines underlying infrastructure and physical technologies needed to run the business
  - Physical machines, routers, storage

# Digital Transformation

---



# Digital Twins

---