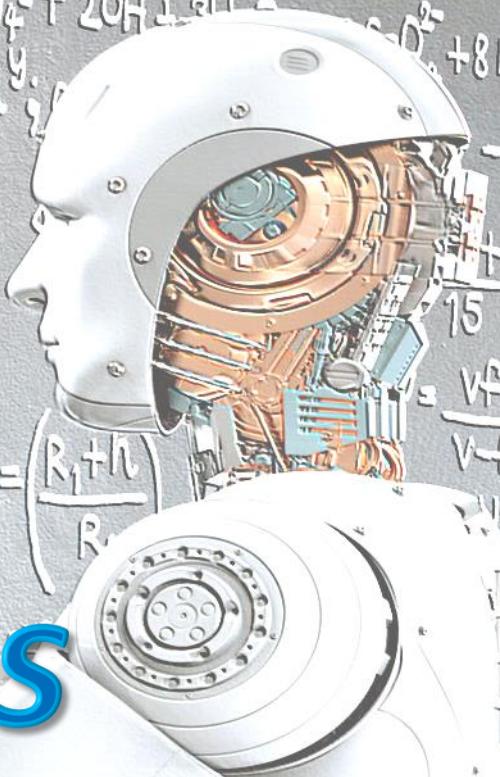


Advanced Topics in Information Systems



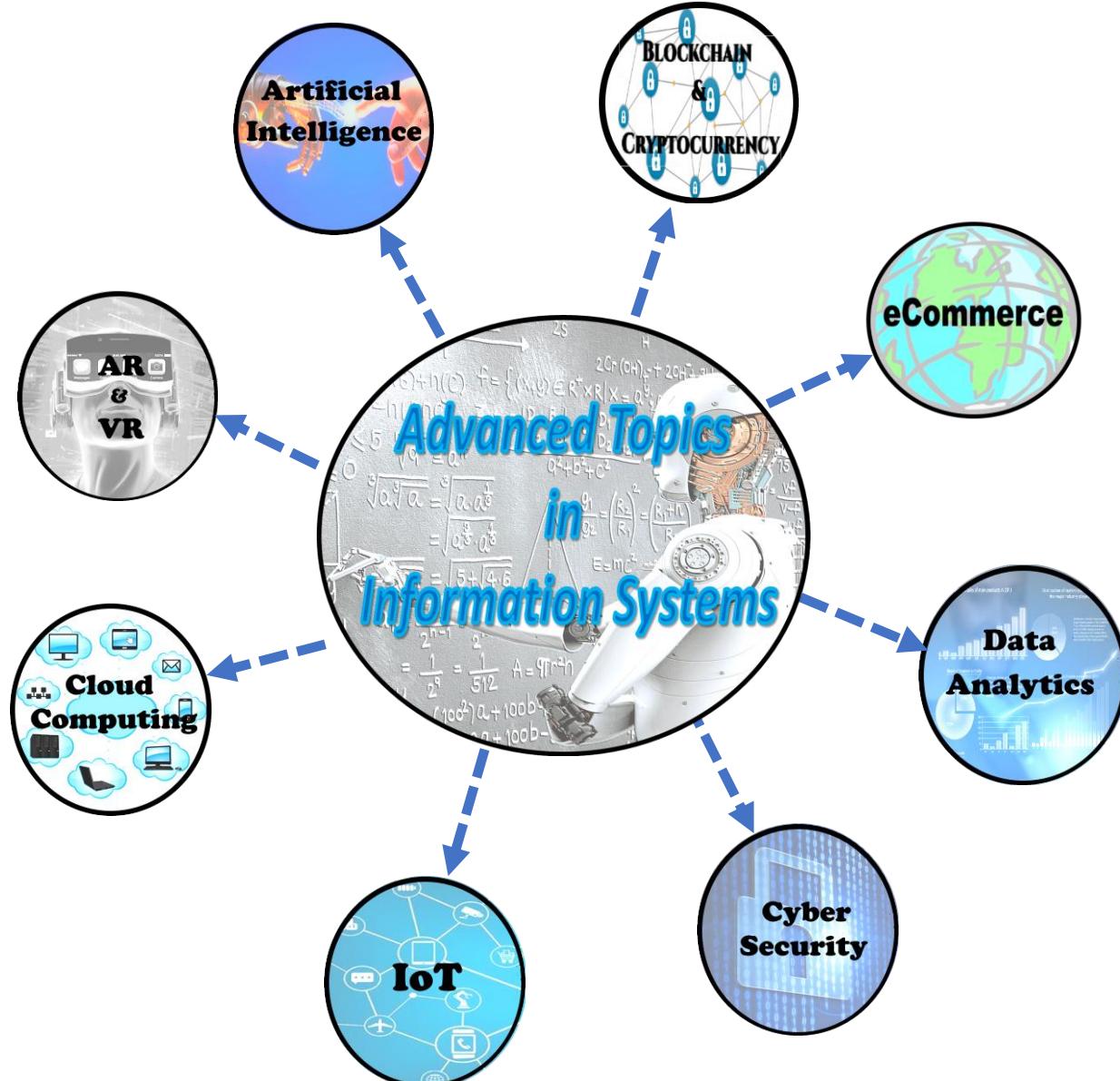
Teams

Financial Cash Cow Consulting	AK2C: A Key to Customer	Smart Secure Solutions	Panthers	2 Cents Consulting	Future Finance Consulting	O'Noshi Consulting	Finwings Consulting	Tractless	CreAtiVE consulting group
Sapna, Patel	Yeshwanth Reddy, Kariveda	Sanchit, Agrawal	Yash, Mitkari	Ruchita, Thombare	Varun, Jagadeesha Babu	Tirumala, Vuppu	Yan, Zhou	William, Coggin	Vasishta, Kuchipudi
Sahiti, Addanki	Rajeswari, Katta	Priti, Thakur	Saurav, Bhattacharai	Joshua, Seeb	Shivam, Shivam	Shayela, Alam	Upendra, Bharamgouda	Prithiviraj, Maniram	Eldridge Nathanael Mathew
Ranganath, S	Nidhi, Chandramohan	Komal, Mehta	Satyaraj Reddy	Gautam, Jain	Juhi, Mishra	Padma Deepika, Narayanaswamy	Twinkle, Kumari	Pankaj, Shinde	Chandan, Singh
Neha Samhitha, Pinjala	Jennifer, An	Deeksha, Rokle	Amarendra, Yendru	Ayan, Basu	Brian, Blades	Mitali, Warty	Danish, Ansari	Bhavin, Patel	Anuja, Jadhav
Abhilasha, Tiwari	Aishwarya, Chhabra	Abhinav, Bisht	Aashrith, Sangani	Ashutosh Ravindra, Kaddi	Ameya, Deo	Katlynn, Stodghill	Bharat Chandra Siddartha	Ankur, Chowdhury	

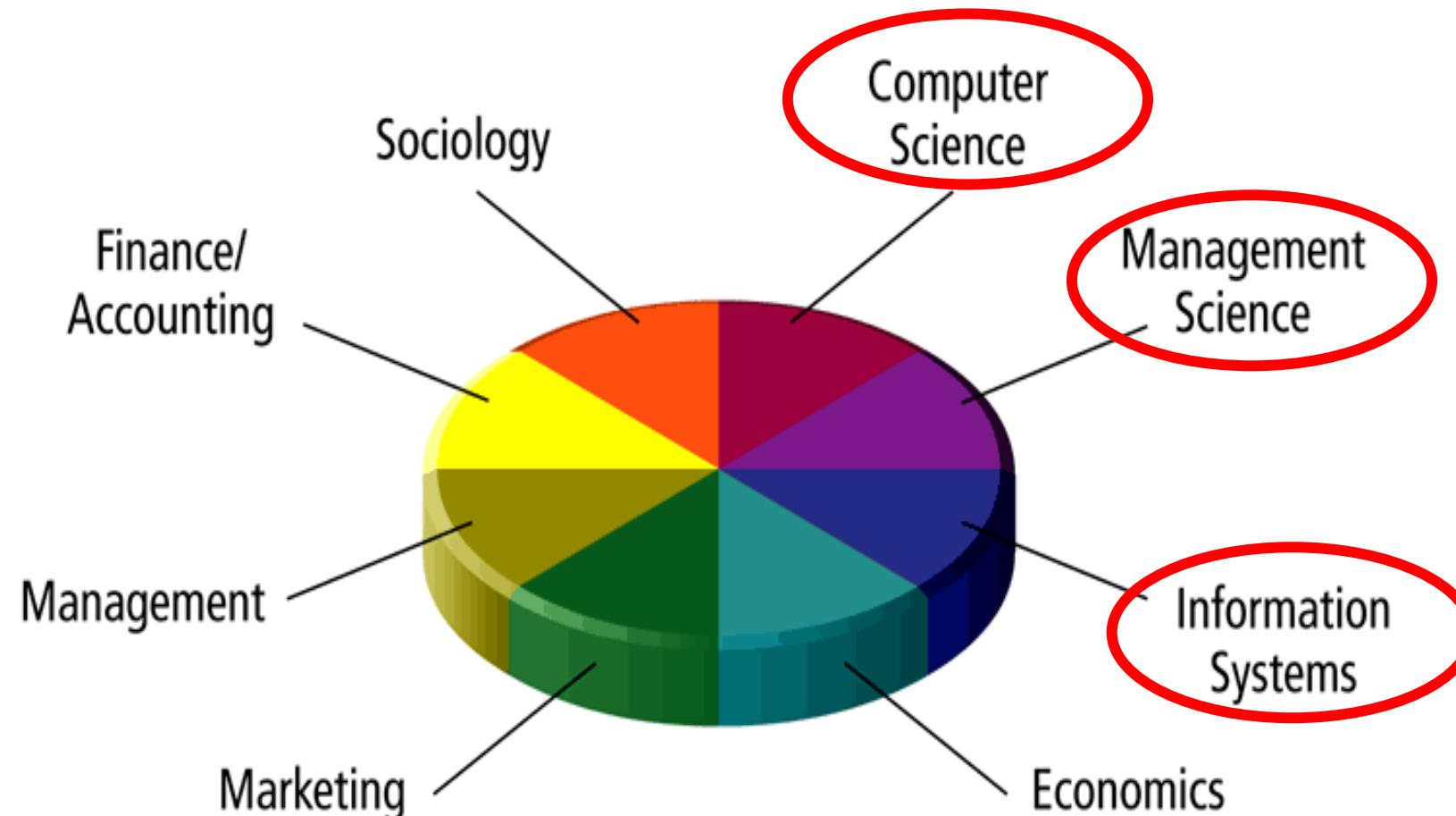
Team Readouts:

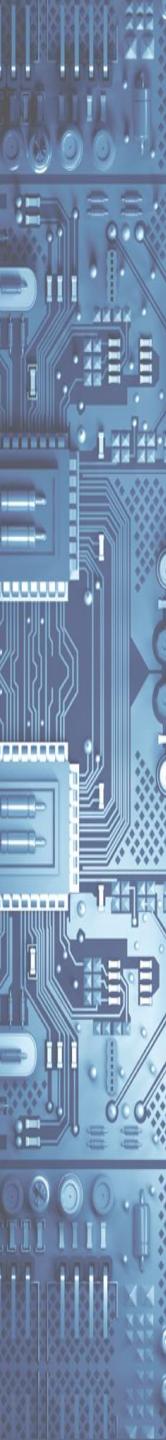


- Status (Green / Yellow / Red)
- Issues / Concerns?
- Team Dynamics?



Academic Disciplines Concerned with E-Commerce

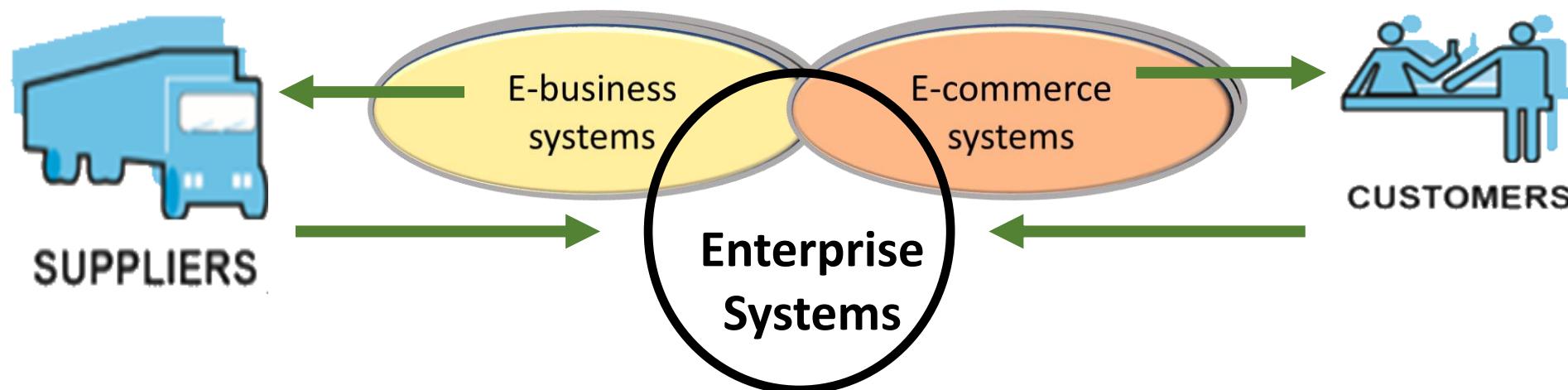




What is Ecommerce?

E-business \neq E-commerce

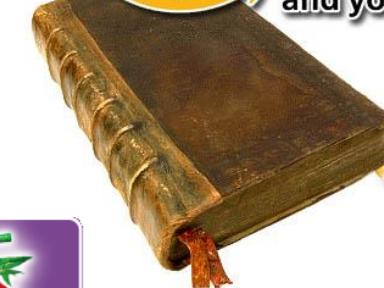
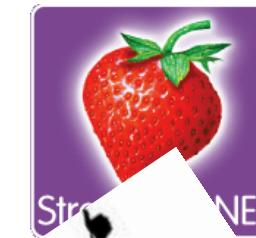
E-business	E-commerce
Digital transactions within a firm , using technology under control of the firm	Digital commercial transactions between organizations and individuals.
Doesn't involve commercial transactions across organizational boundaries where value is exchanged	Digital commercial transactions that exchanges value across organizational in return for products or services



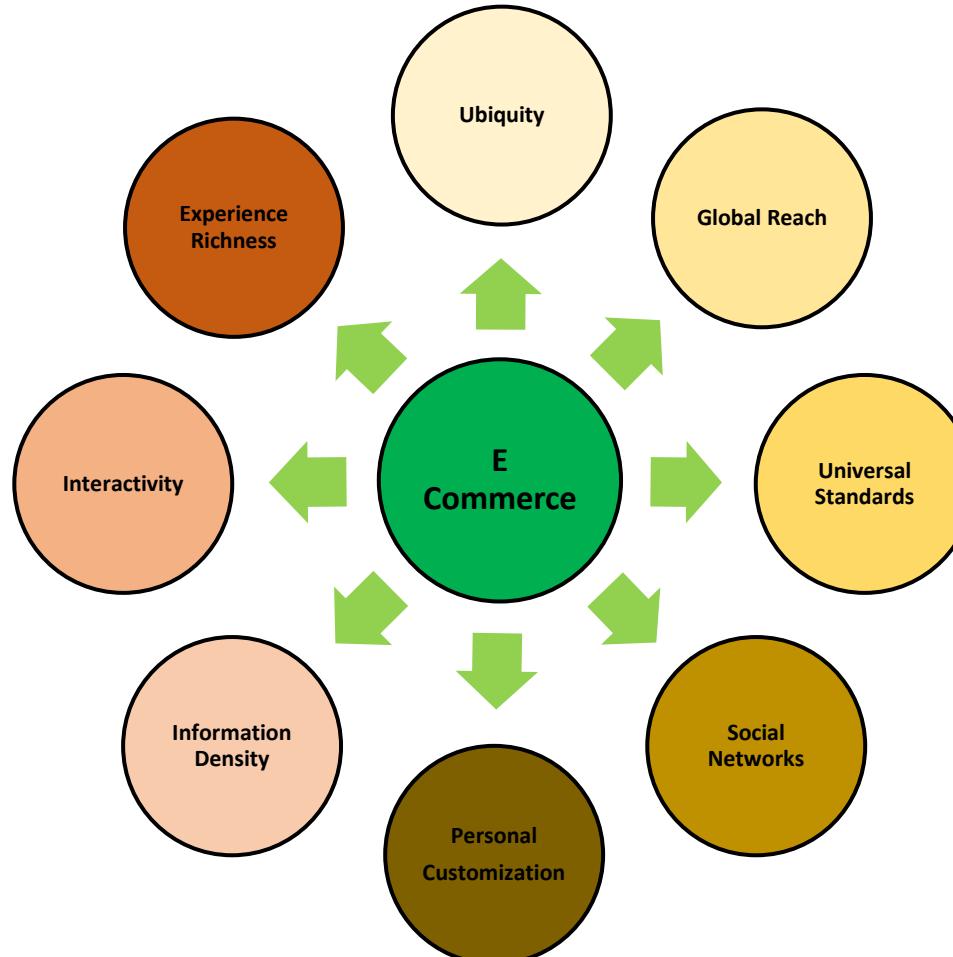
But Ecommerce is More

- But you need to think beyond the basic buying and selling goods online
- Think Complete Transaction like....
 - The Marketplace itself
 - Selection processes
 - Payment processes
 - Delivery processes





Unique Features of E-commerce Technology



These unique dimensions of e-commerce technologies suggest many new possibilities for marketing and selling—a **powerful set of interactive, personalized, and rich messages are available for delivery to segmented, targeted audiences.**

1. Ubiquity

- Available just about everywhere, at all times.
- Marketspace is virtual (migration from marketplace to marketspace).
- Transaction costs reduced (the costs of participating in a market).
- *Example: being able to surf the web on your mobile device while riding a bus or train.*



2. Global reach



- Transactions **cross cultural and national boundaries**.
- The potential market size for e-commerce merchants is **equal to the size of the world's online population (4.66 billion)**



3. Universal standards

Universal Standards

- **Standards that are shared by all nations around the world.**
- **lower market entry costs**—the cost merchants must pay just to bring their goods to market.
- **Reduce search costs**—the effort required to find suitable products.
- **Price discovery** becomes simpler, faster, and more accurate.
- Possible to **easily find many of the suppliers**, prices, and delivery terms of a specific product anywhere in the world



4. Experience Richness

Experience
Richness

- Are interactive and can **adjust the message to individual users**
- Refers to the **complexity and content of a message.**
- **Supports video, audio, and text messages.**



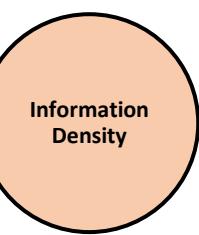
5. Interactivity

Interactivity

- **Technology allows for two-way communication** between merchant and consumer and among consumers.
- Interactivity **allows an online merchant to engage a consumer** in ways similar to a face-to-face experience.
- Social sharing functionality such as **Like and Share buttons enable consumers to interact with merchants and other users.**
- ***Example: using a chat window to interact with technical support at a merchant's website.***



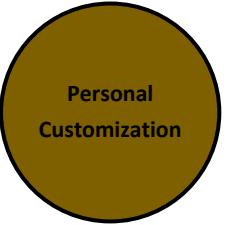
6. Information density



- **Information is more plentiful**, less expensive, and higher quality.
- **Price transparency**: the ease with which consumers can find out the variety of prices in a market.
- **Cost transparency**: the ability of consumers to discover the actual costs merchants pay for products.
- **Market segmentation and price discrimination**: selling the same goods to different targeted groups at different prices.



7. Personal Customization



- **Personalization:** Merchant can target their marketing messages to specific individuals by adjusting the message to a person's name, interests, and past purchases.
- **Customization:** Merchant can change the delivered product or service based on a user's preferences or prior behavior.
- *A result of increased information density.*



8. Social Networks

- **Much more social** by allowing users to create and share content with a worldwide community.
- **E-commerce technologies** provides a many-to-many model of mass communication.



8 Ecommerce Business Models

Ingredient	Question to Answer
1. Value proposition	Why should a customer buy from you?
2. Revenue Model	How will it make money?
3. Market Opportunity	What market segment will it serve and is there room for another player?
4. Competitive Market	Who else occupies the proposed marketplace?
5. Competitive Advantage	What does your product bring to the marketplace?
6. Market Strategy	How will you attract your target customer?
7. Organizational Development	What organizational units in your firm are required to implement your plan?
8. Management Team	What experiences and skillsets are required by your organizational leadership?

Ingredient #1 - *Value Proposition*

- Defines how a company's product or service fulfills the needs of customers.
- Questions
 - Why will customers choose to do business with your firm instead of another company?
 - What will your firm provide that other firms do not and cannot?



Ingredient #2 - *Revenue Model*

- Describes how the firm will earn revenue, produce profits, and produce a superior return on invested capital.
- E-commerce revenue models include:
 - advertising model
 - subscription model
 - transaction fee model
 - sales model
 - affiliate model



Ingredient #2 - *Revenue Model Examples*

Model	Revenue Source	Example
1. Advertising	Fees from Advertisers in exchange for adds	Yahoo.com
2. Subscription	Fees from subscribers in exchange for access to content or services	Consumerreports.org
3. Transaction Fee	Fees for executing a transaction	eBay.com
4. Sales	Selling goods, information, or services	Amazon.com
5. Affiliate	Fees for business referrals	MyPoints.com

Ingredient #3 - *Market Opportunity*

- **Market opportunity**
 - refers to the company's intended marketspace and the overall potential financial opportunities available to the firm in that market space
 - defined by the revenue potential in each of the market niches where you hope to compete
- **Marketspace**
 - the area of actual or potential commercial value in which a company intends to operate



Ingredient #5 - *Competitive Advantage*

- Refers to the other companies operating in the same marketplace selling similar products
- Influenced by:
 - How many competitors are there
 - How large are their operations
 - What is the market share of each competitor
 - How profitable these firms are
 - How do they price their products



Ingredient #5 - *Competitive Environment Success!*

- When you can produce a superior product and bring it to market at a lower price than most, or all, of your competitors
- When you have been able to obtain differential access to the segments of production that are denied your competitors



Ingredient #5 - *Competitive Environment Strategies*

- **Asymmetry**
 - When you have more resources than other participants in a market (i.e. Funding)
- **First mover advantage**
 - You being the first into a marketplace with a product or service
- **Unfair competitive advantage**
 - You develop an advantage based on a factor that other firms cannot purchase needed material (i.e. you control a key sub-component)
- **Leverage**
 - Using your competitive advantage to achieve more advantage in surrounding markets (i.e. Up-Selling)

Ingredient #6 - *Market Strategy*

- The plan you put together that **details exactly how you intend to enter a new market and attract new customers**
- *The best business concepts will fail if not properly marketed to potential customers*



Ingredient #7 - *Organizational Development*

- Describes how the company will organize the work that needs to be accomplished
- Work is typically divided into functional departments
- Move from generalists to specialists as the company evolves



Ingredient #8 - *Management Team*

- Employees of the company responsible for making the business model work
- Strong management team gives instant credibility to outside investors
- A strong management team may not be able to salvage a weak business model
- Should be able to change the model and redefine the business as it becomes necessary



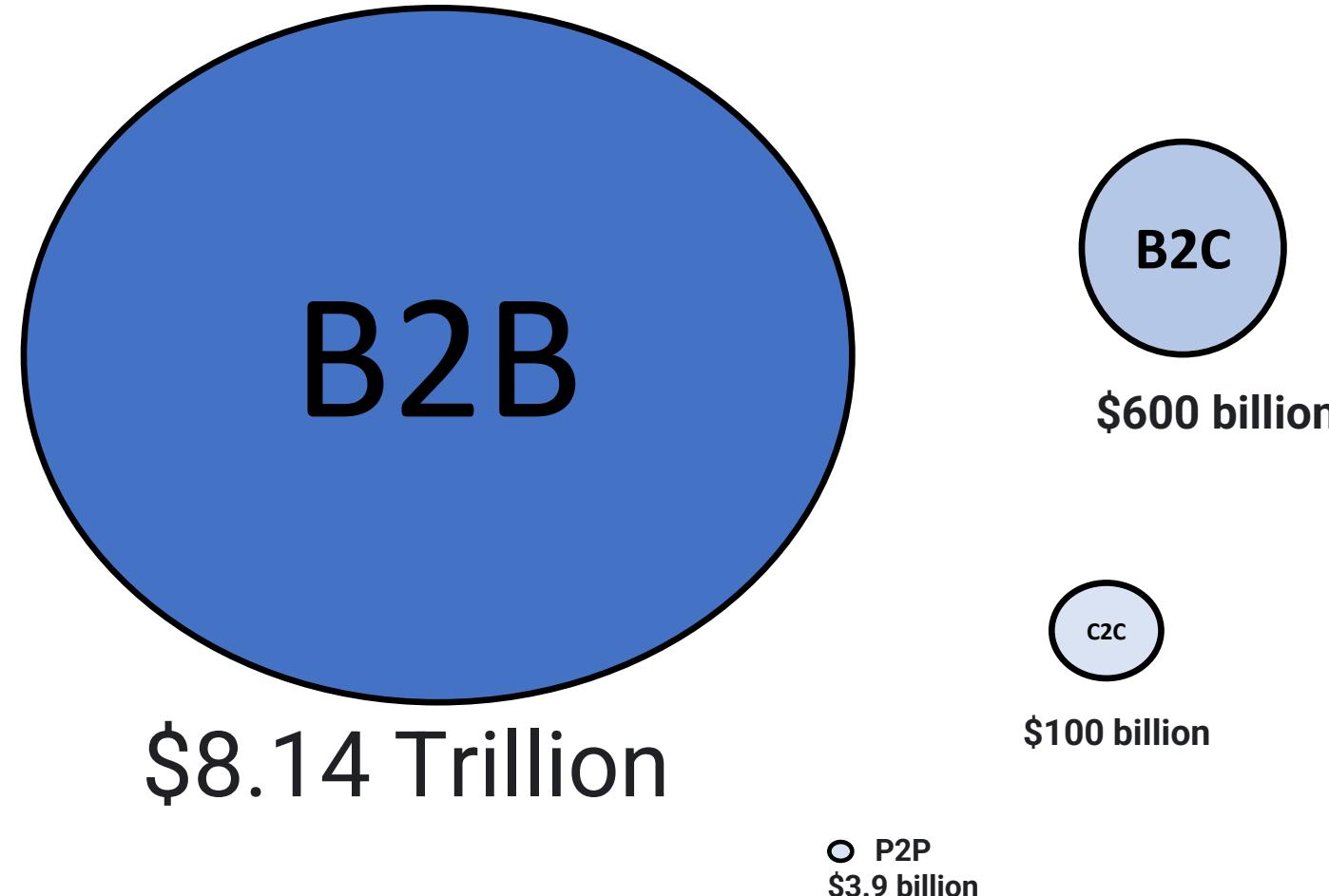
Types of E-Commerce



Major Types of E-Commerce

- Business-to-Business (B2B)
- Business-to-Consumers (B2C)
- Consumer-to-Consumer (C2C)
- Peer-to-Peer (P2P)
- Mobile Commerce (M-commerce)

The relative size of E-commerce for 2021 in the US*



- B2B B2C e-commerce dwarfs all other forms of e-commerce;
- Social e-commerce, although growing rapidly, is still relatively small in comparison to “traditional” e-commerce.

*2020 McKinsey Global Payments Report

Business to Business (B2B)

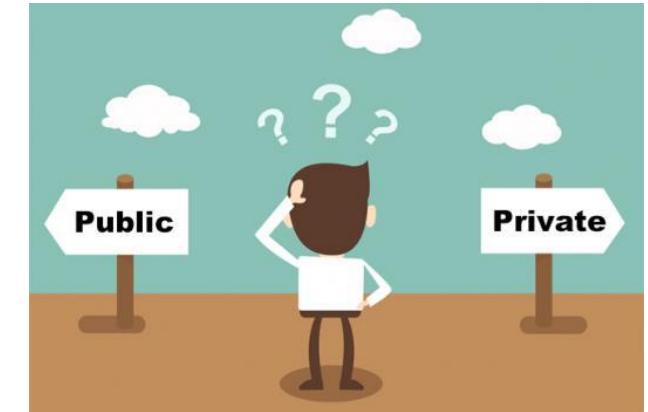


- B2B is a relationship between 2 businesses interacting through digital/on-line channels
- Companies doing business with each other
 - Manufacturers selling to distributors
 - Wholesalers selling to retailers.
- Think of it as selling wholesale

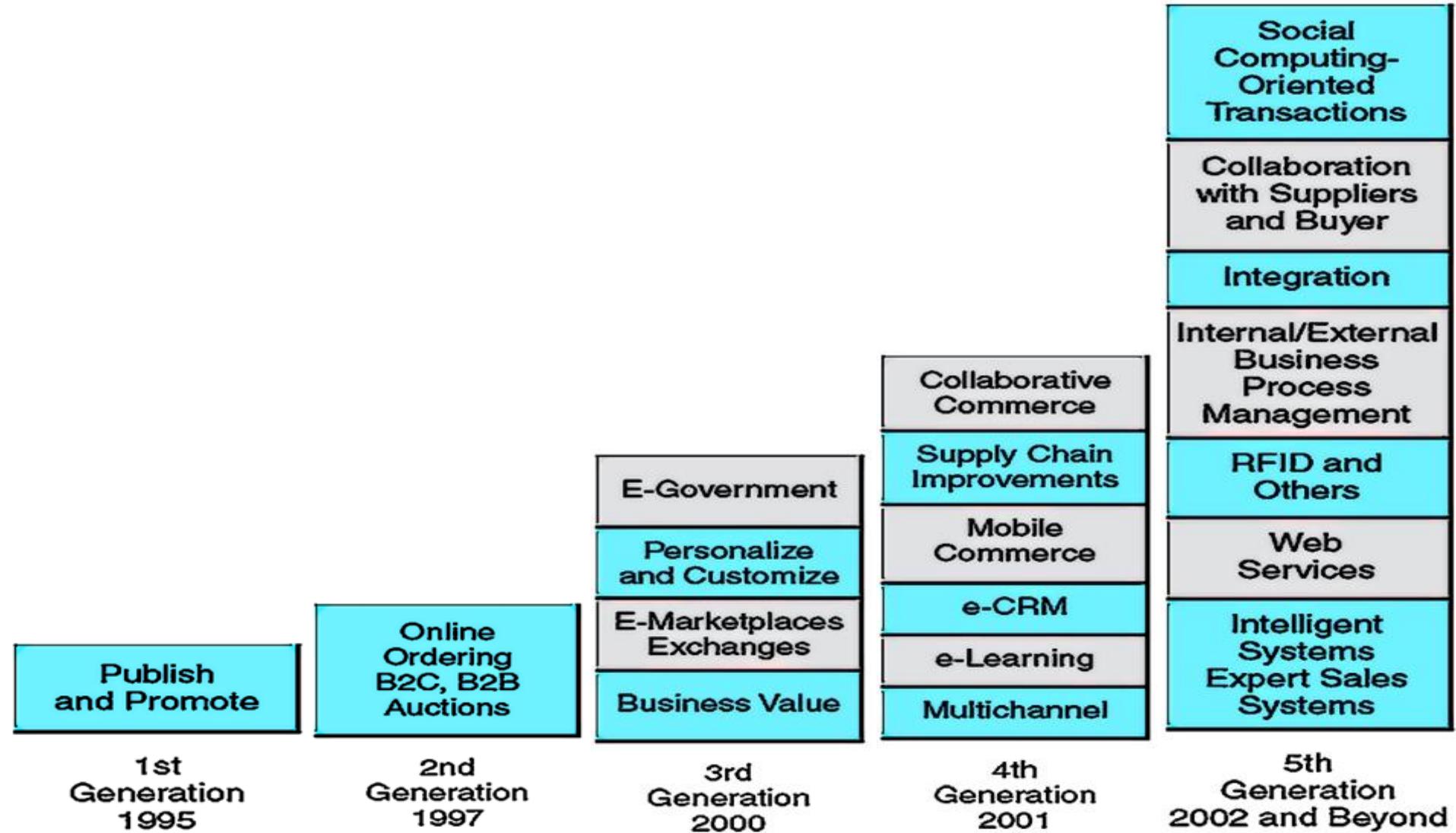
2 Basic Types of B2B E-Marketplaces

- **Private Exchanges: One-to-Many**
 - Buy-Side – many-to-one
 - Sell-Side – one-to-many
- **Public Exchanges: Many-to-Many**
 - **Exchanges (trading communities or trading exchanges)**
 - Usually owned by an organization where buyers and sellers meet electronically to trade with each other
 - **Public e-marketplaces**

Third-party exchanges open to all interested parties (sellers and buyers)



B2B evolution



BUSINESS TO CONSUMER (B2C)



Businesses selling to the general public Online, may use shopping cart software.

Business Models for B2C E-commerce

- ***Web Retail*** (*also called Web Storefront, Web Store, Online Store*)
 - Sells many goods & services online
 - *Example: Amazon.com – “pure click”, no physical stores*
 - **Amazon started as a bookstore** and started web retail.
 - **Amazon keeps improving business processes** (sales, inventory) to increase up-selling and cross-selling.
 - Global presence; Interactive Marketing and Personalization.



Business Models for B2C E-commerce

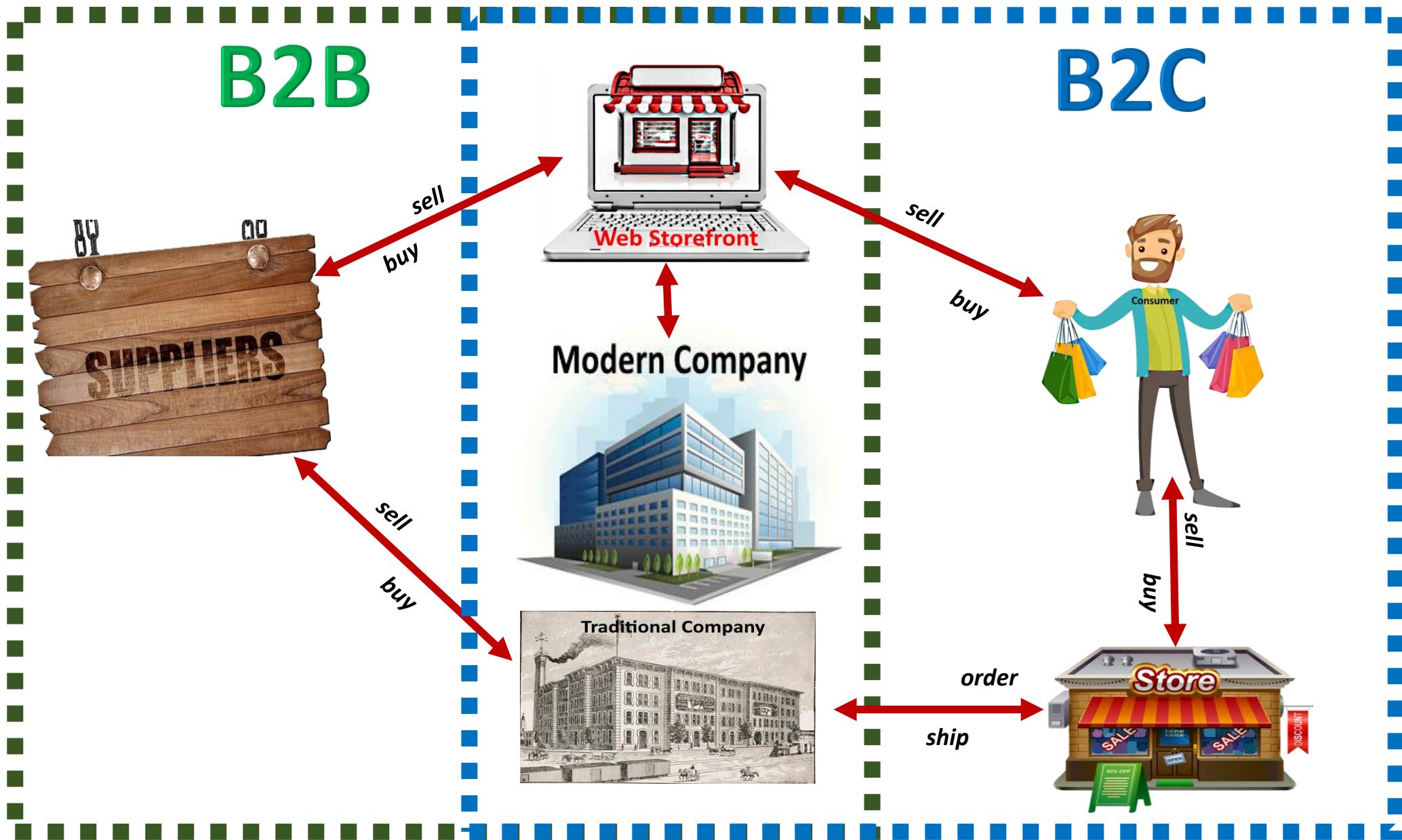
Portal:

- **Initial point of entry to Web**, provides Internet search service for free; advertising revenues (*Google, Yahoo*)
- **Revenue:** Advertising*, some search services, mobile tech. (*Google*)

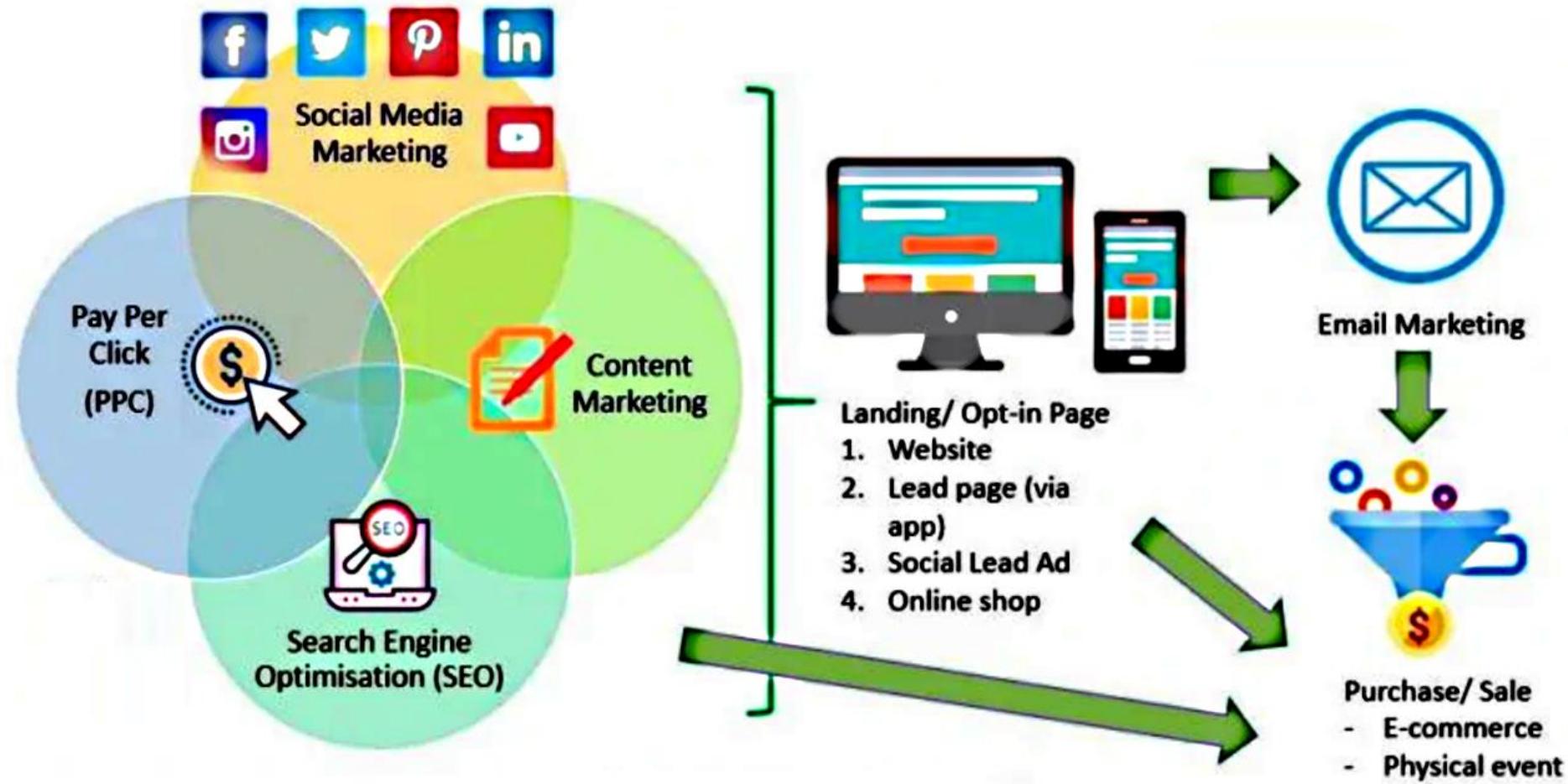
Broker:

- **Middleman:** mediates between buyers and sellers (*travel industry, comparison shopping engines*)
- **Revenue:** sellers pay per shopper's click or purchase

Traditional Sales vs The Intersection of B2B and B2C



B2B and B2C Architecture Components



CONSUMER TO CONSUMER (C2C)

- It facilitates the online transaction of goods or services between two people.
- Though there is no visible intermediary involved but the parties cannot carry out the transactions without the platform which is provided by the online market maker such as eBay.



Consumer-to-Consumer E-commerce

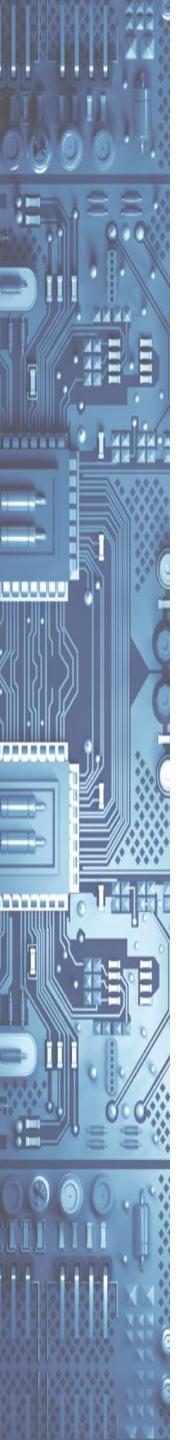
- **Provide a way for consumers to sell to each other**
- **Consumer:**
 - **Prepares the product for market**
 - **Places the product for auction or sale**
 - **Relies on market maker to provide catalog, search engine, and transaction clearing capabilities**



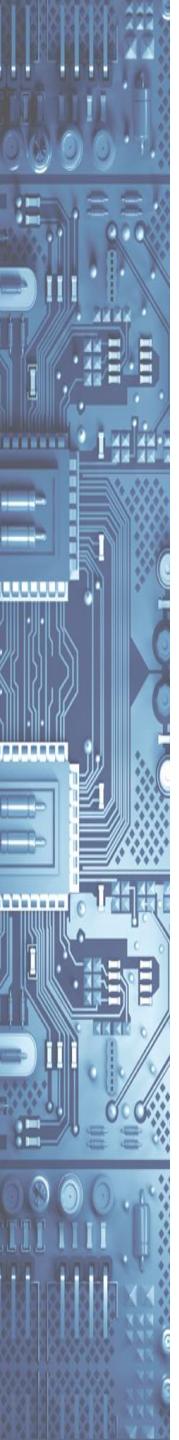
Peer-to-Peer E-commerce

- Enables Internet users to share files and computer resources
- Napster (early example)
- Skype (more modern and successful example)





Big Data & Ecommerce?



BREAK

E-Commerce Technology



Technological Building Blocks for E-commerce

1. **Internet** (the connection to the World Wide Web)
2. **World Wide Web**
 - HTML
 - Deep Web (you don't see) vs. "Surface" Web (you do see)
3. **Mobile platform**
 - Mobile apps
 - Provides access the Internet from a variety of mobile devices such as smartphones, tablets, and other ultra-lightweight laptop computers via wireless networks or cell phone service.

E-commerce Technology Enablers

Infrastructure	Some Providers
Hardware: Webservers	IBM, Dell
Software: OS's, Server Software	Microsoft, Apache
Network: Routers	Cisco
Security: Encryption Software	Checkpoint, Verisign
Ecommerce Software (B2B, B2C)	IBM, Microsoft, Ariba
Streaming Media	Microsoft, Real Networks
CRM Software	Peoplesoft, SAP
Payment Systems	PayPal, CyberCash
Performance Enhancement Systems	Akamai, Cache Flow
Databases	Oracle, Sybase
Hosting Services	Exodus, Equinix

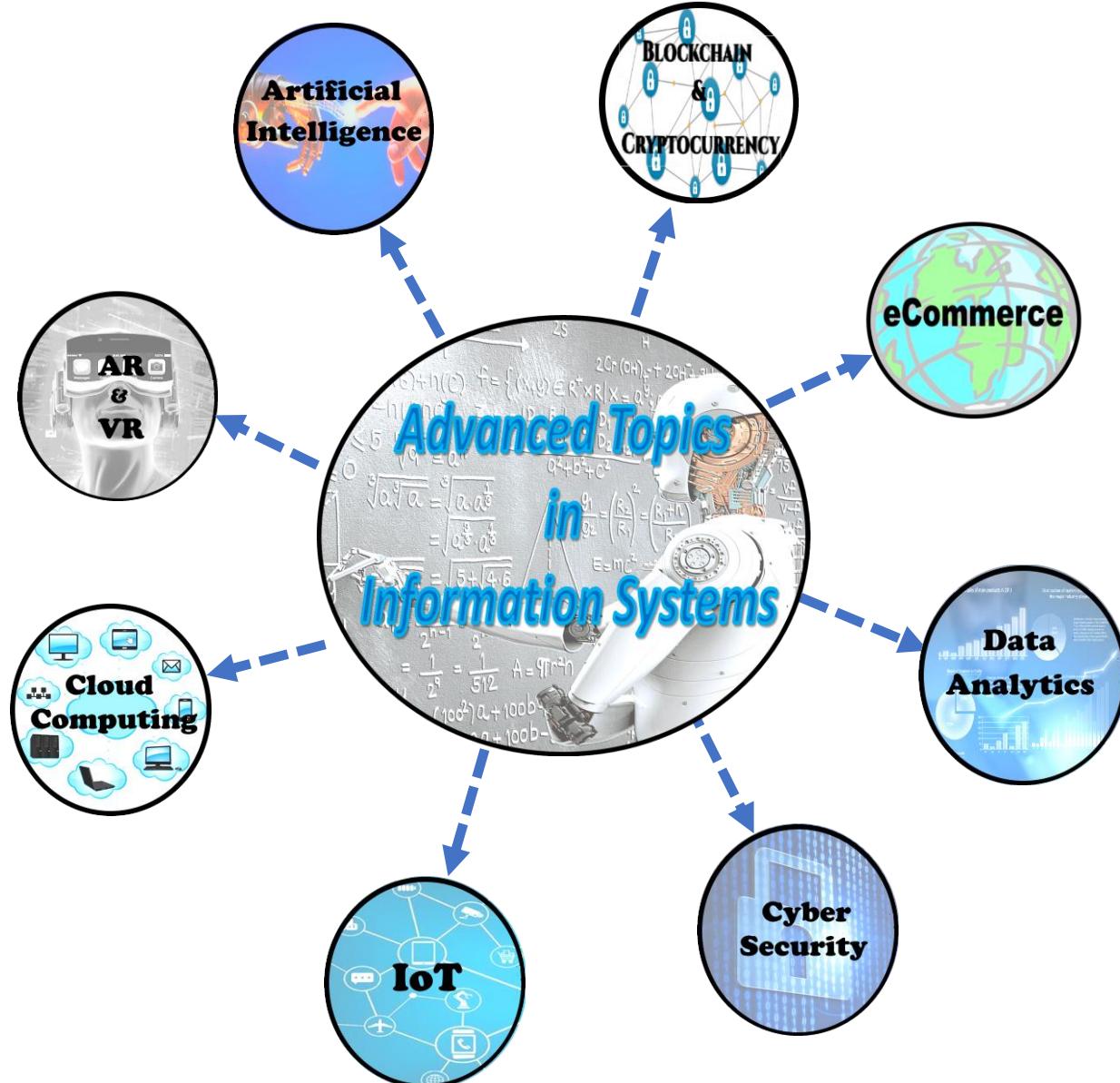
Stunning Technological Success

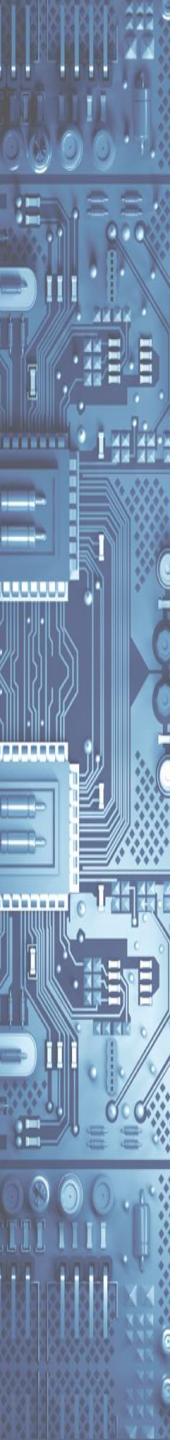
- Online sales growing rapidly
- Many firms have failed, but those survived dominate the market
- Thousands of suppliers competing on price have been replaced by a market dominated by large technology firms (*i.e. Google, Amazon*)
- However...
 - Consumers now often use the Web as a powerful source of information about products they often actually purchase through other channels..... such as at a traditional store



Some Surprises

- **First-mover advantage :**
 - Appears to have succeeded only for a very small group of companies such as Google, Facebook, Amazon, and others.
- **Fast-follower advantages:**
 - Firms with the right complement of financial, marketing, legal, and production assets are now needed to develop “mature markets”
- **Understanding Consumers’ personal behavior**
 - More than even Google has yet achieved.
- **On-demand e-commerce explosion:**
 - Consumers now use their mobile devices to order up everything from taxis, to groceries, to laundry service.





**Careful... Numbers Can Say
ANYTHING!!**

Fintech Questions Prescriptive Analytics Can Answer

- Risk exposure with specific customers?
- Customer affect on working capital?
- Business processes to make them more efficient?
- Are we investing in the right opportunities?
- How profitable are my products?
- Which customer segments offers the largest margins?



Big Data and Fintech

Why is BIG DATA so Hot in Fintech?



- A market differentiator for financial services companies.



- Data is their most valuable asset



- MONETIZE their “Ocean” of data



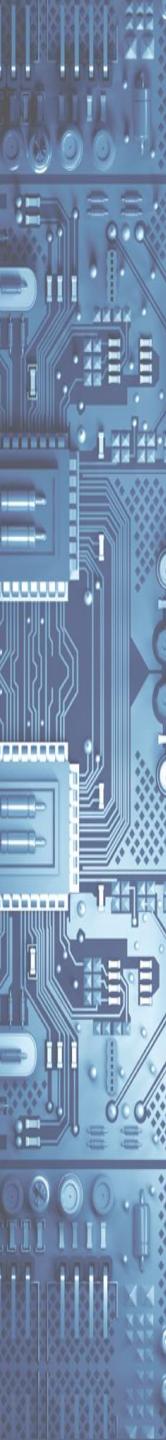
The Big Data Revolution in Fintech

Financial institutions use big data and data mining to collect and analyze data for a variety of purposes:

- To attract customers
- To build their loyalty
- To understand customers' "feelings" about their products
- To adapt what they offer to their individual needs

The Big Data Revolution in Fintech

- Number of recipients of personal data have grown exponentially recently
- Companies have more unstructured data available than ever in history
- **Data Science provides , the most efficient, quickest and cheapest way of ordering and analyzing data to extract conclusions that are useful for business.**



***Customers*, at the heart of Big Data and Fintech**

- The primary target of big data analytics is the identification of customer profiles
 - Makes it possible to discover what customers consume, interests & their needs
 - Which makes it easier to adapt marketing campaigns to different customers
- Another objective is to understand how customers relate to the financial products
 - What are their real commitment is to what their bank offers them
 - Whether it is a personal loan, relations with employees or a cell-phone app
- Last but not least, the aim is to detect unhappy customers with a high likelihood of abandoning one bank for another
- The use of machine learning, an effective mix of big data and artificial intelligence, allows banks to prevent customers from leaving them.

Customer Survival Analysis

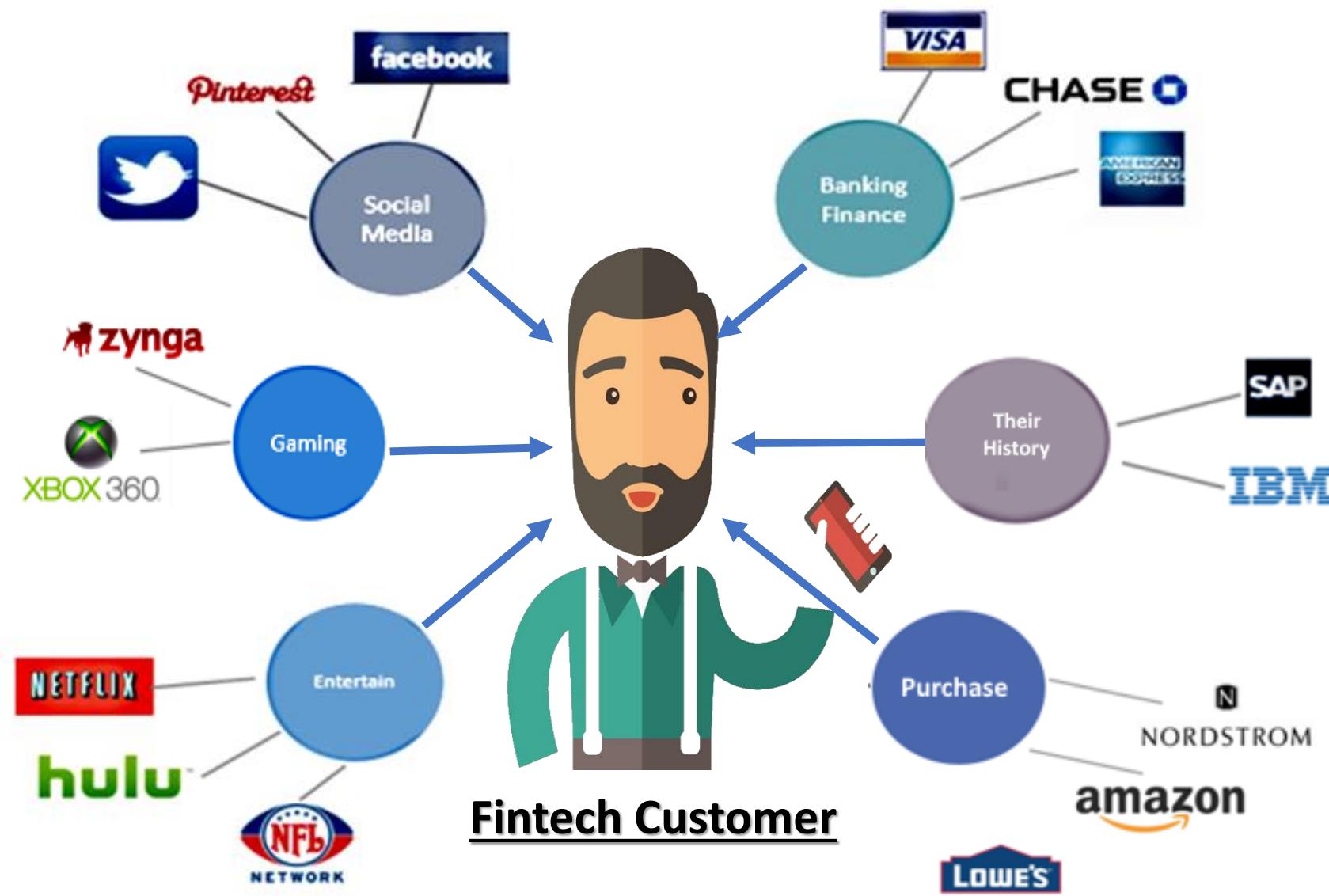
The method used by banks to establish when a user might leave a bank

- Ability to analyze millions of the bank's user data to establish the customer life cycle
- The analysis normally has two elements:
 1. On a scale of 1 to 0 that measures commitment
 2. Establish the duration of the relationship between the financial institution and consumers

Answers from the Customer Survival Analysis

- When a specific customer could leave a bank
- When the customer should be moved to a new segment with new services
- Things that might facilitate a better or worse relationship with the customer.

Big Data Helps Create a Single View of your Fintech Customer



Fintech Big Data and Customer Segmentation

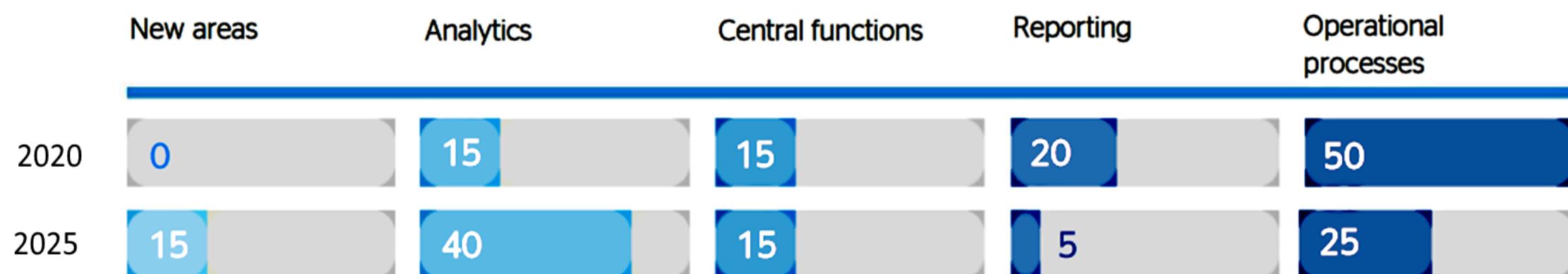
- Customer segmentation is the method by which a financial institution can create groups of consumers who share needs and interests
- This is the path towards personalized banking
 - **By adjusting financial products to the needs of each individual means chasing a mirage**
 - **But segmentation by groups can bring the banks closer to the goal of adapting the financial offer**
- A normal example of this for banks is the collection of data on the use of credit cards and analysis of consumption habits based on this use
 - **Banks can then adapt their offer using Big Data Analytics and can also establish prices by financial product according to the type of user**

Fintech Risk Analysis with Big Data

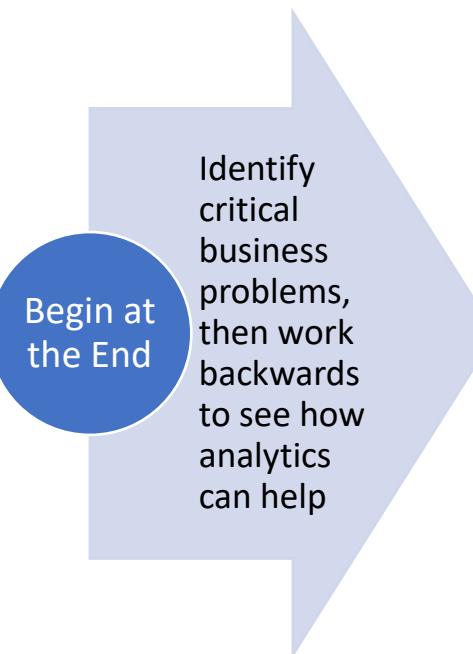
The 2008 global crisis had far-reaching consequences on how financial and investment entities and retailers calculated the risk involved in their business transactions

- A recent report by MacKinsey & Company shows an interesting change in concept:
 - In 2020 only 15% of bank risk control falls with analytics
 - By 2025 that percentage will rise to 40%

Profiles of risk-management staff

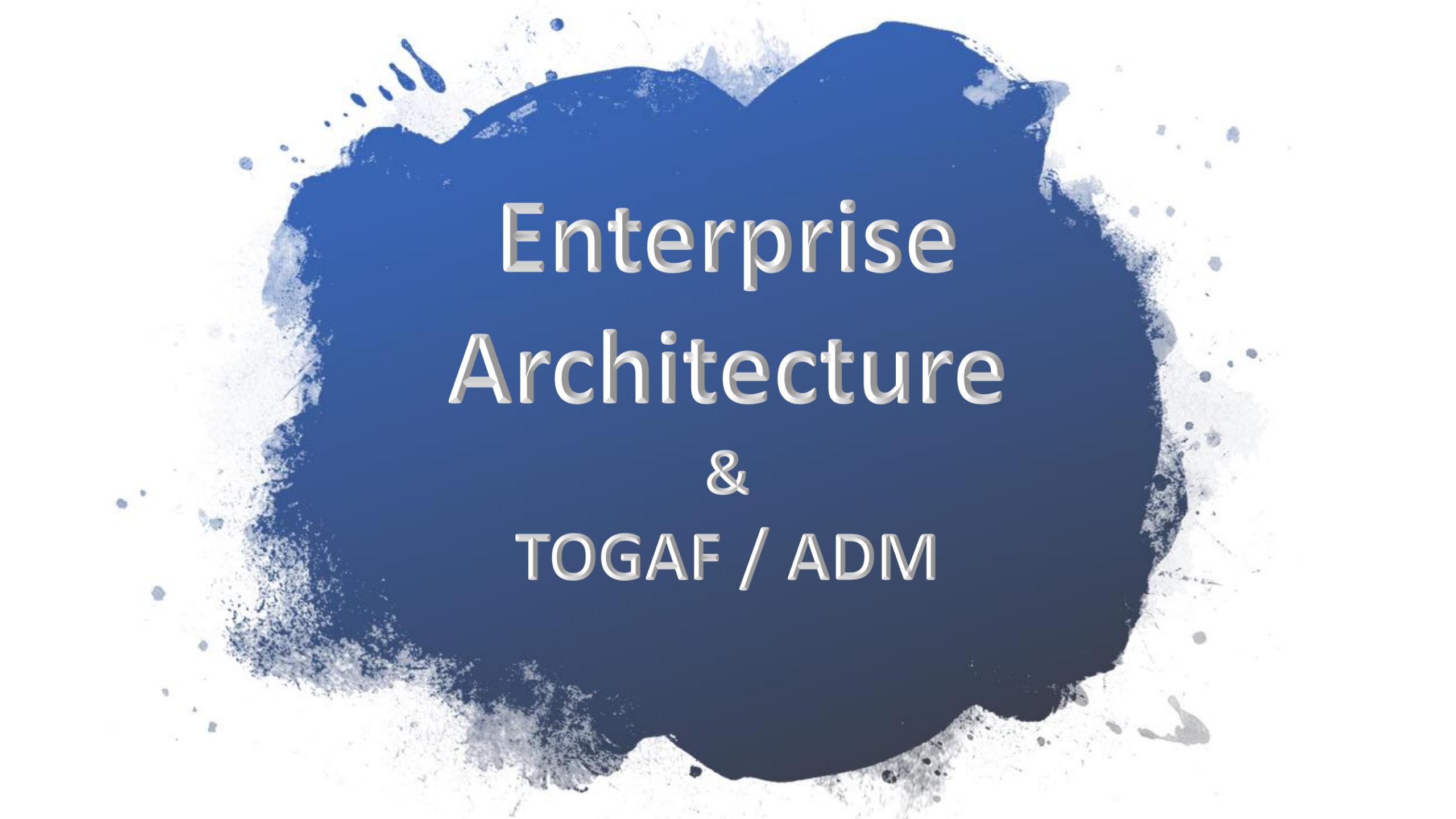


What can an Existing Financial Company do Now ?





Data Science Use Cases In Banking



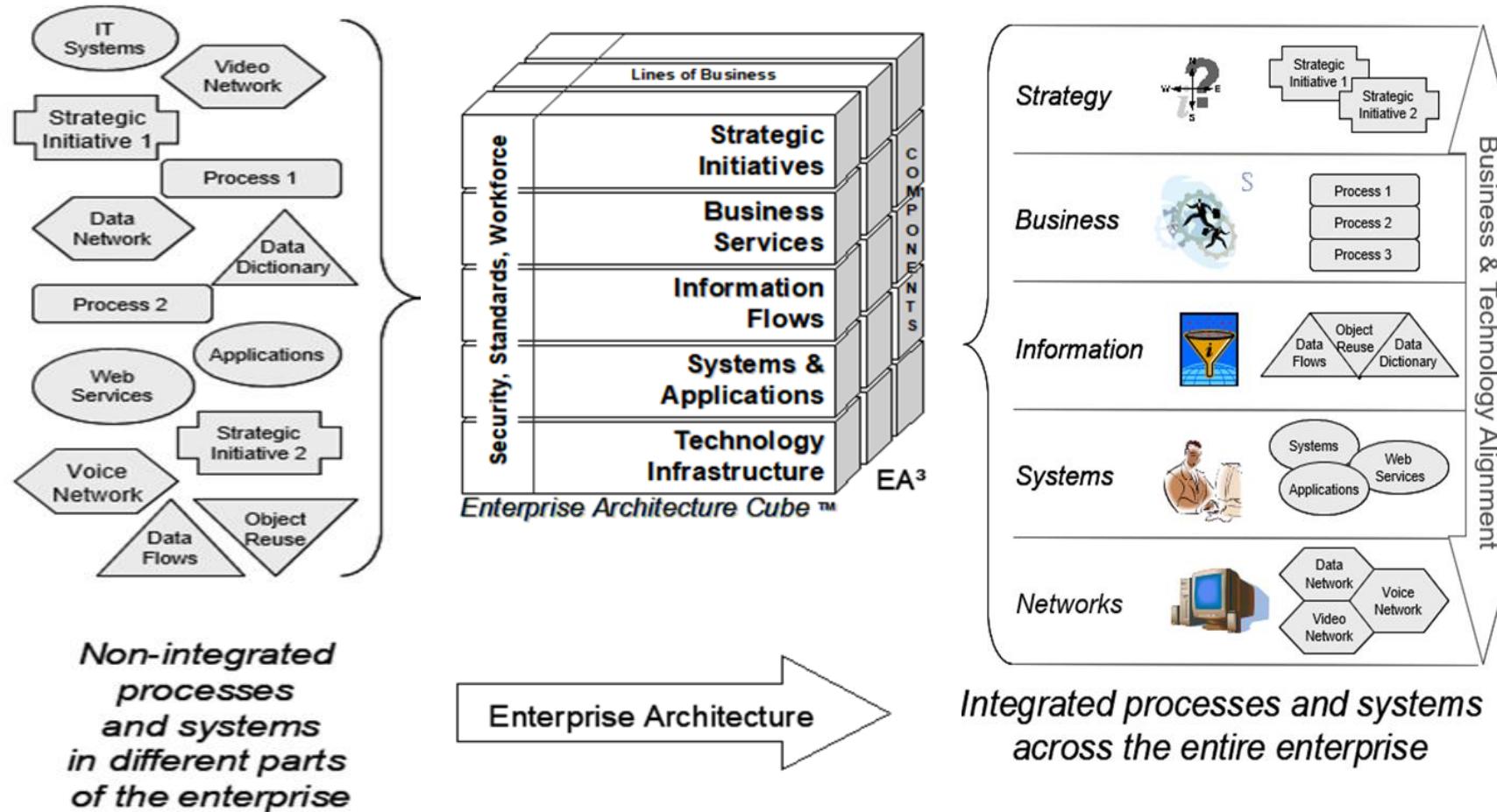
Enterprise Architecture & TOGAF / ADM

What is EA?

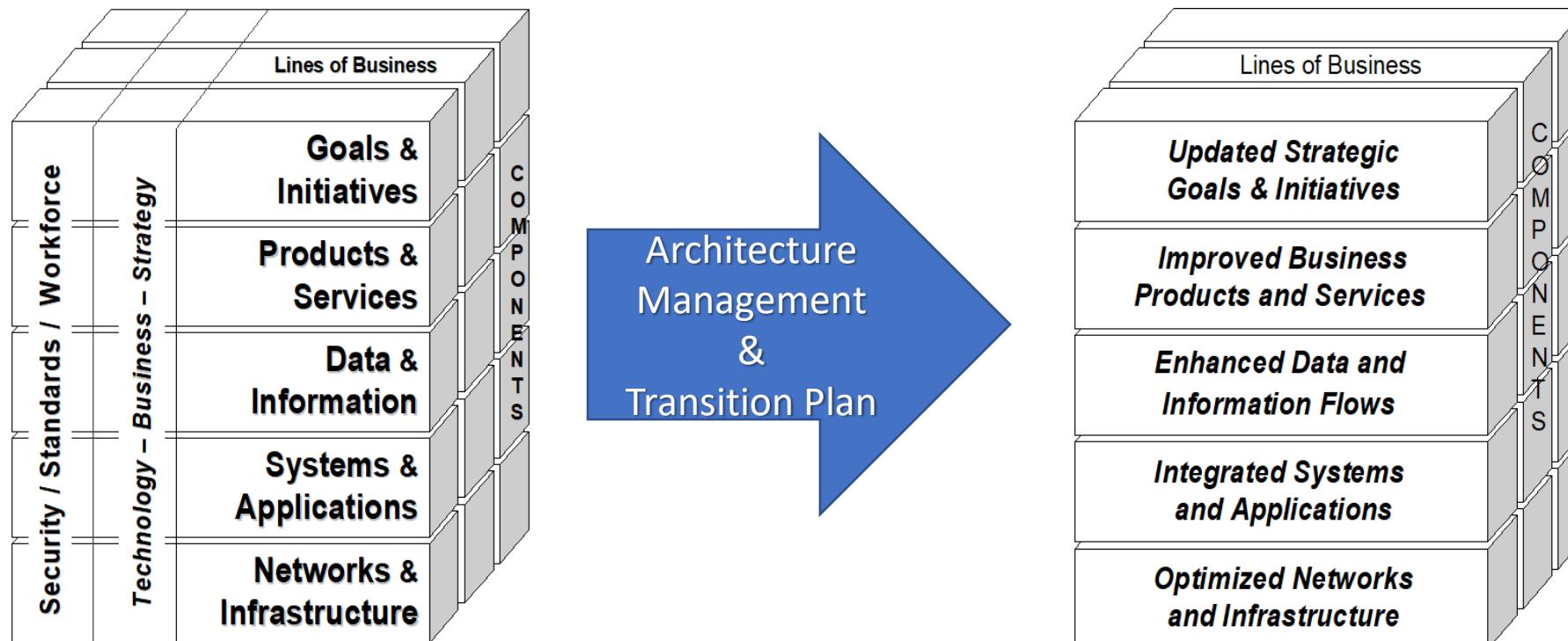
- * Enterprise architecture (EA) is "a well-defined practice for conducting enterprise analysis, design, planning, and implementation, using a comprehensive approach at all times, for the successful development and execution of strategy. Enterprise architecture applies architecture principles and practices to guide organizations through the business, information, process, and technology changes necessary to execute their strategies. These practices utilize the various aspects of an enterprise to identify, motivate, and achieve these changes

**Wikipedia*

The Concept of Enterprise Architecture – Overview



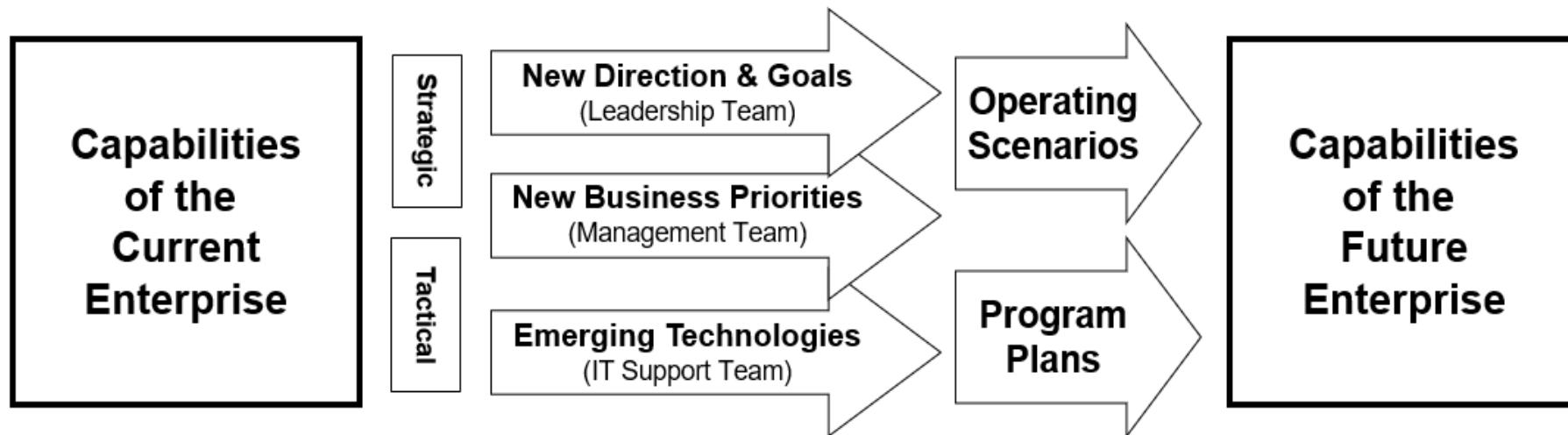
The Concept of Enterprise Architecture – Overview



Current or “As-Is”
Architecture

Future or “To-Be”
Architecture

The Concept of Enterprise Architecture – Drivers



The Open Group Architecture Framework

TOGAF

Definition of TOGAF

- TOGAF is a framework / methodology for building, maintaining, and gaining value from an enterprise's architecture
- TOGAF specification is an **open standard** that has been created and is maintained by The Open Group (www.opengroup.org)
- TOGAF 9.3 is the latest evolution of the framework, and its accompanying Architecture Development Method (ADM)



TOGAF

Types of Architectures in TOGAF

Business Architecture

(Business Processes, Organization, People)

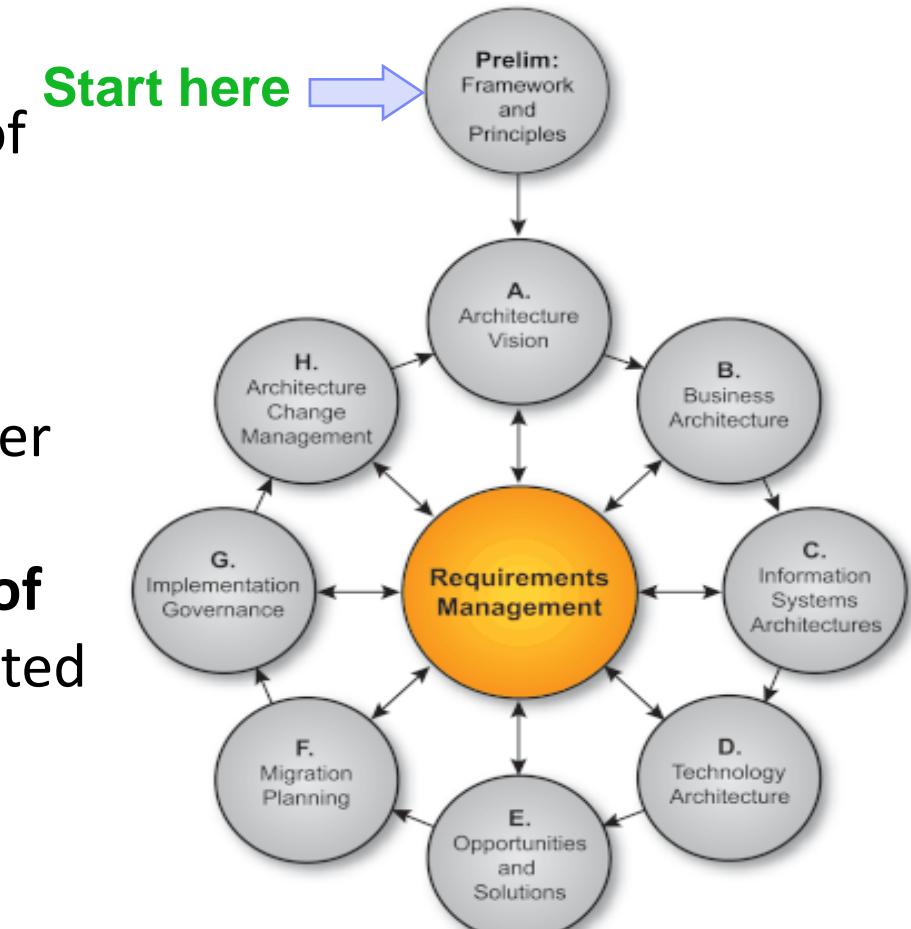
Data Architecture
(Data, Information)

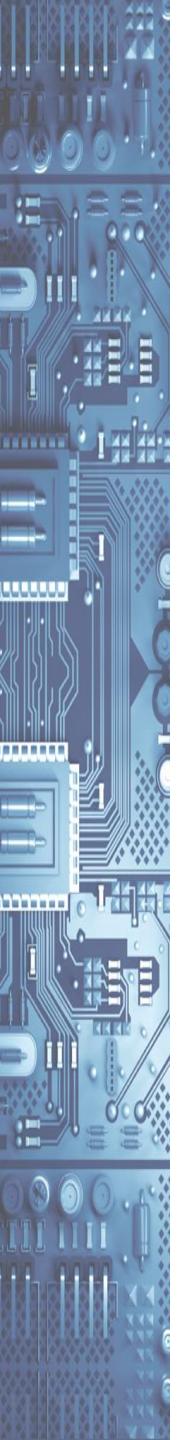
**Application
Architecture**
(Services)

Technology Architecture
(Hardware, Software, Network)

The Framework of TOGAF

- The TOGAF framework provides the core phases of the **Architecture Development Method (ADM)**, presented as circles surrounding requirements.
- Bidirectional lines are drawn from each of the outer ADM circles to the Requirements circle. This represents how **requirements drive the creation of the architecture**, and how the architecture is created to satisfy requirements.



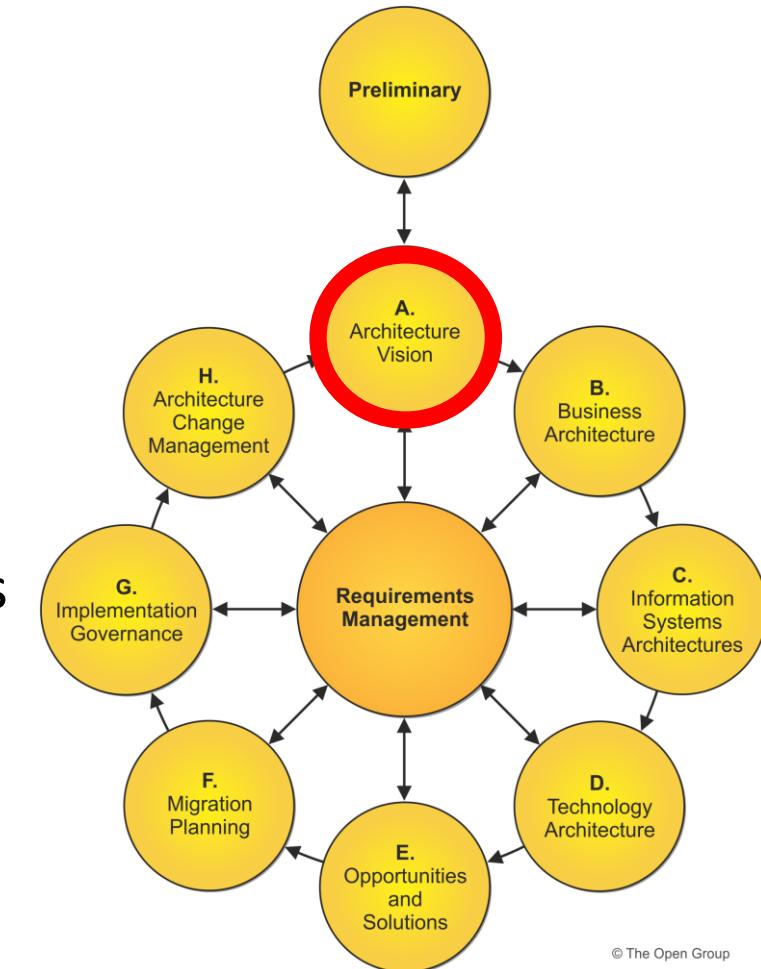


ADM Preliminary Phase

ADM Phase A: Architecture Vision

(Draft due 3/31)

- Validate the business principles, business goals, and strategic business drivers of the organization
- Defines the scope of, and to identify and prioritize the components of the current architecture effort
- Defines the relevant stakeholders, and their concerns and objectives.
- Defines the key business requirements to be addressed in this architecture effort, and the constraints that must be dealt with



© The Open Group

Architecture Vision Document

(Phase A – TOGAF)

Architecture Vision Document Sections

Table of Contents

1	Purpose of this Document.....	3
2	Problem Description.....	4
3	Detailed Objectives.....	7
4	Environment and Process Models	8
5	Actors and their Roles and Responsibilities.....	10
6	Resulting Architecture Model	12
7	End Vision Statement.....	13

Architecture Vision Template

The screenshot shows a course management interface with the following elements:

- Top Bar:** Includes icons for Home, iCollege, Course Title (EMERGING TECHNOLOGIES Section 00...), and user navigation (JM, John Martin, Settings).
- Navigation Bar:** Content, Webex, Assessments, Grades, Classlist, Course Tools.
- Left Sidebar:** Search Topics, Overview, Bookmarks, Course Schedule, Table of Contents (16 items), Additional Readings (11 items), Project Documents (5 items), and Add a module... button.
- Project Documents Page:** Title Project Documents, Add dates and restrictions..., Add a description..., Upload / Create, Existing Activities, Bulk Edit buttons.
- Document List:** A list of documents with the first item highlighted by a red box:
 - Architecture Vision Draft (Word Document)
 - Architecture Vision Final (Word Document)
 - Constraints (Excel Spreadsheet)
 - Problem Statement Instructions & Template (Word Document)
 - Solution Evaluations (Excel Spreadsheet)
- Bottom:** Add a sub-module... button.

