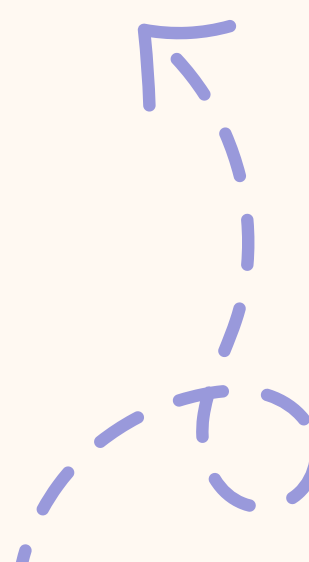


# Management Information System

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## 10. Competing in a Digital Economy



# Learning Objectives

By the end of this session, students should be able to:

- Analyze how digital transformation disrupts traditional brick-and-mortar business models.
- Evaluate the economic structure of platform ecosystems, including network effects and multi-sided markets.
- Assess the financial and organizational impacts of shifting from product-centric to platform-centric business models.
- Formulate strategic recommendations for legacy firms undergoing digital organizational change.
- Platform Economics: Evaluate multi-sided market dynamics and the power of network effects (Metcalfe's Law).
- Organizational Transformation: Apply Leavitt's Diamond to manage socio-technical system implementation.
- Ecosystem Strategy: Understand the API Economy and its role in modern corporate competitive landscapes.
- Governance & Control: Formulate internal control strategies for decentralized digital environments.

**Part 1:**

**THE DISRUPTION OF TRADITIONAL BUSINESS**

**From Brick-and-Mortar Pipelines to Digital Agility**

# The Legacy Retailer Trap

## The Crisis Scenario

Imagine "**Global Retail Corp**" with 500 stores. Suddenly, a digital-native startup captures 40% market share with zero inventory.

- **Rigid Infrastructure:** Locked into 10-year leases.
- **Lagging Data:** Monthly reports vs real-time clicks.
- **Inventory Bloat:** Trapped capital in physical stock.



Source: [https://img.atlasobscura.com/T703\\_jfjtcfmKtMWAQoyQEGpA9kTaZJteQMtR48B-YI/rt:fit/w:720/q:81/sm:1/scp:1/ar:1/aHR0cHM6Ly9hdGxh/cy1kZXZlcy1uYXV1h/em9uYXdzLmNvbS91/cGxvYWRzL2Fzc2V0/cy82NjFkNGE3NWw5/M2Y4MWJhODNfRFND/MDU1ODJfMS5qcGc.jpg](https://img.atlasobscura.com/T703_jfjtcfmKtMWAQoyQEGpA9kTaZJteQMtR48B-YI/rt:fit/w:720/q:81/sm:1/scp:1/ar:1/aHR0cHM6Ly9hdGxh/cy1kZXZlcy1uYXV1h/em9uYXdzLmNvbS91/cGxvYWRzL2Fzc2V0/cy82NjFkNGE3NWw5/M2Y4MWJhODNfRFND/MDU1ODJfMS5qcGc.jpg)

# Why it Matters: Financial Erosion

## Asset Underutilization

When foot traffic drops, fixed costs remain high. The Return on Assets (ROA) plummets, signaling poor management efficiency to investors.

## Valuation Disconnect

Markets reward digital firms with 50x multiples while penalizing asset-heavy firms with single-digit P/E ratios. Adaptability is the new currency.

# Defining the Digital Firm

100%

Electronic Processes

0.0s

Information Lag

24/7

Market Presence

"A digital firm is one where all significant business relationships and core business processes are digitally enabled."

— *Laudon & Laudon*

# Information Asymmetry



## The Problem

Historically, sellers held more info than buyers, allowing high markups based on consumer ignorance.



## Digital Fix

Near-zero search costs and price transparency empower consumers to find the "perfect" price instantly.



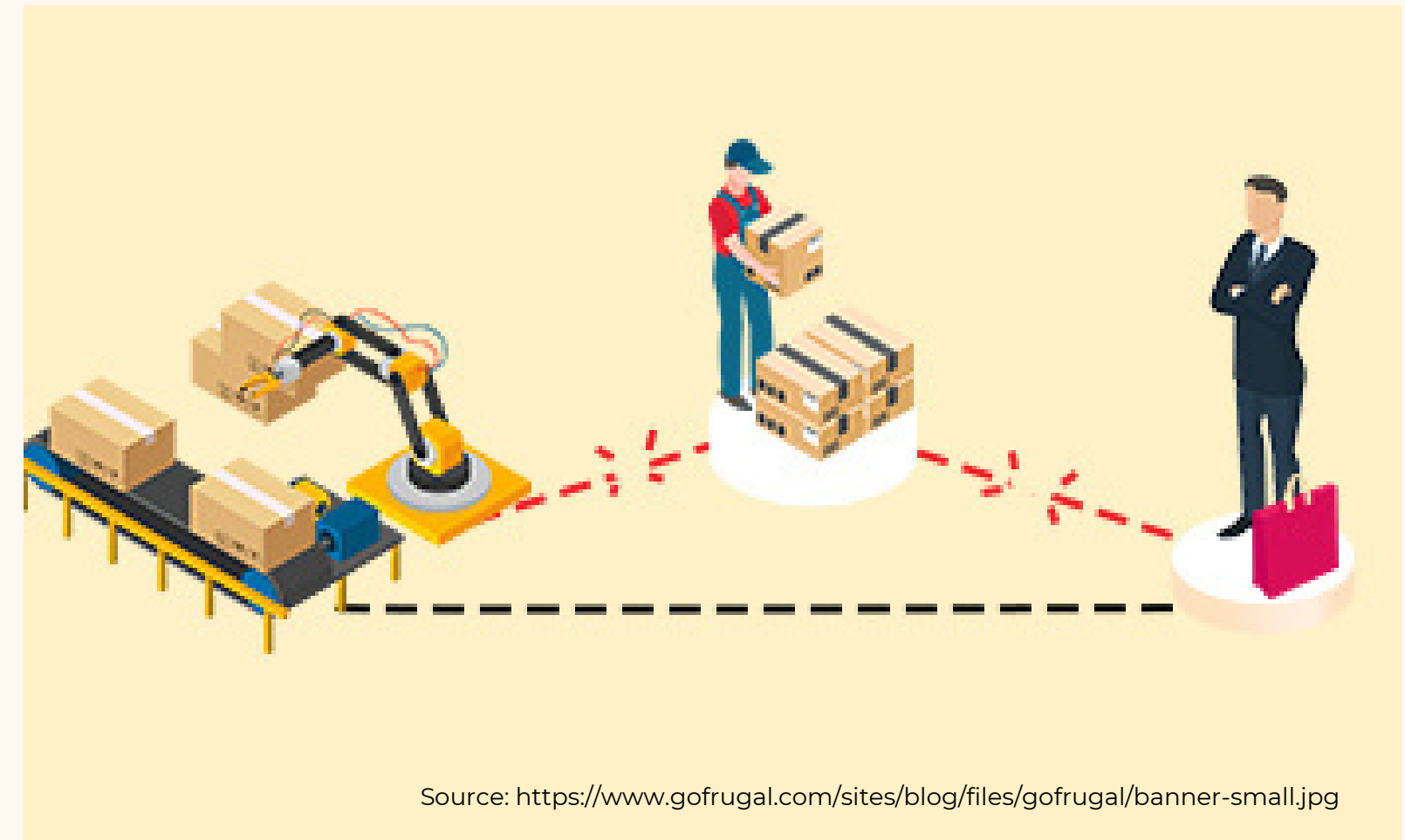
## Result

Dynamic pricing replaces static tags. Firms adjust prices in milliseconds based on supply and demand.

# The Power of Disintermediation

Traditional value chains add markups at every stage: Distributor, Wholesaler, Retailer.

**The Digital Shift:** Manufacturers sell directly to consumers (D2C), capturing higher gross margins or undercutting competition on price.



## Accounting Impact:

Eliminates middleman fees, drastically reducing Cost of Goods Sold (COGS).

# Bidgoli Taxonomy: E-Business Types

Model	Definition	Key Technology	Accounting Focus
B2C	Retail stores selling to individuals	E-Commerce Storefronts	CAC / CLV Metrics
B2B	Bulk transactions between firms	EDI / Private Networks	Inventory Turnover
C2C	Peers selling to peers	Platform Marketplaces	Transaction Fees
G2C	Government to citizens	Public Portals	Service Efficiency

# The Shift from CapEx to OpEx



## Strategic Insight

Moving from fixed assets (On-premise servers) to variable costs (AWS/Azure) increases liquidity and allows firms to scale without heavy debt financing.

# E-Business Revenue Models



## Advertising

Generating revenue by attracting a large audience to view ads (Google, Meta).



## Subscription

Charging a recurring fee for continuous access (Netflix, Spotify).



## Transaction

Executing or facilitating transactions for a fee (PayPal, eBay).

**Part 2:**

**THE PLATFORM ECONOMY**

**Orchestrating Value in Multi-Sided Markets**

# The Asset-Light Scale Dilemma

## The Hospitality War

A hotel chain spends \$500M for 1,000 new rooms.  
A platform adds 1,000,000 rooms in 6 months by writing code.

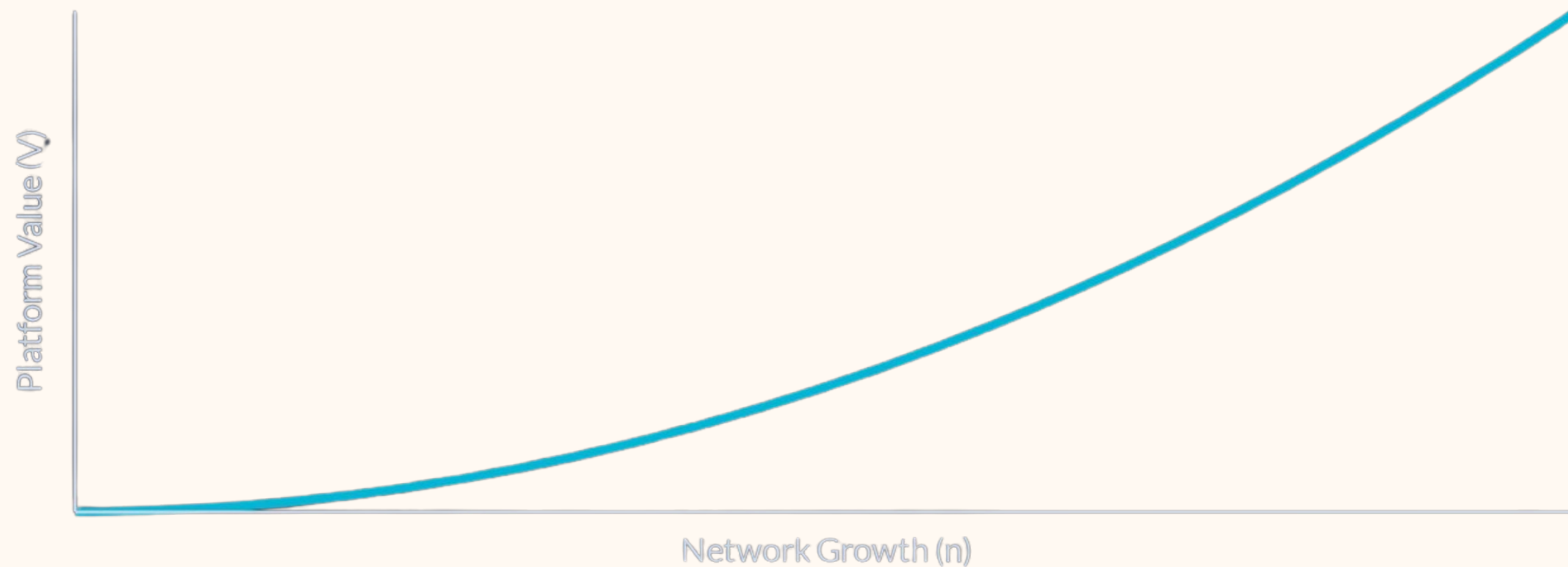
- **Pipelines:** Limited by physical production.
- **Platforms:** Limited only by network growth.
- **Result:** Platforms achieve massive scale with zero marginal cost of replication.



Source: <https://cdn.dribbble.com/userupload/45941593/file/9206875ab99d2e083ea900993e1c71a3.png?resize=400x0>

# Exponential Returns to Scale

Unlike pipeline businesses that face diminishing returns, platforms benefit from compounding value.



# Pipeline vs. Platform

## Pipeline Model

Value is created sequentially. Control of resources is the primary goal.

- Focus: Efficient Supply Chain
- Asset Ownership: High
- Gatekeepers: Firm Employees

## Platform Model

Value is created by facilitating interactions. Orchestration is the primary goal.

- Focus: Ecosystem Engagement
- Asset Ownership: Near Zero
- Gatekeepers: Algorithmic Curation

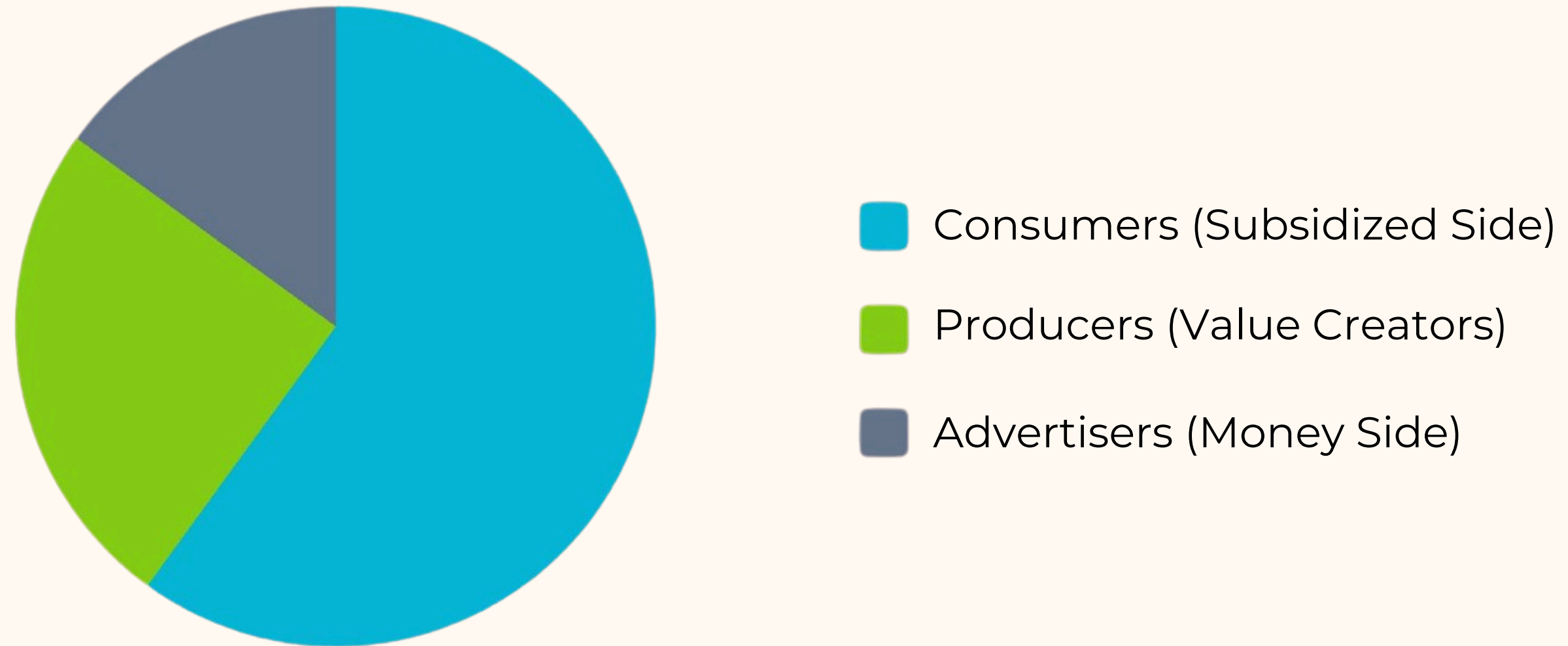
# Metcalfe's Law: Network Value

$$V \approx n^2$$

The systemic value of a network is proportional to the square of its users. If you double the users, the value quadruples.

- **Direct Effects:** More users make the app better for users (e.g. WhatsApp).
- **Indirect Effects:** More buyers attract more sellers (e.g. Amazon).

# Multi-Sided Market Dynamics



# Subsidization Strategies



## The Dilemma

Chicken-and-egg:  
Producers won't join  
without buyers; buyers  
won't join without content.



## The Subsidy

Give away one side for free  
(e.g. gaming consoles sold  
at a loss) to build the critical  
mass.



## The Monetization

Charge the "Money Side"  
(e.g. game developers)  
licensing fees for access to  
the huge user base.

# Algorithmic Governance

## How to manage what you don't own?

- **Reputation Systems:** Replacing formal legal contracts with 5-star rating feedback loops.
- **Automated Curation:** Algorithms decide who gets visibility and who gets banned based on performance data.
- **Standardization:** Enforcing strict interaction rules (e.g., Airbnb photography standards) to ensure brand consistency across thousands of third-party assets.

# Platform Success Metrics

**GMV**

Gross Merchandise Value

**CAC**

Customer Acquisition Cost

**CLV**

Customer Lifetime Value

**Rule of Thumb:** CLV must be at least 3x higher than CAC for sustainable growth.

## **Part 3:**

# **ORGANIZATIONAL CHANGE**

**The Socio-Technical Challenge of Digital Transformation**

# Culture Rejection Syndrome

Technological change often fails because the human "**immune system**" of the organization rejects it.

- **Fear of Obsolescence:** Employees worry that automation will replace them.
- **Process Friction:** Forcing new software onto old, broken manual habits.
- **Silo Mentality:** Departments refuse to share data, breaking the digital ecosystem.



# System Failure Audit Risks

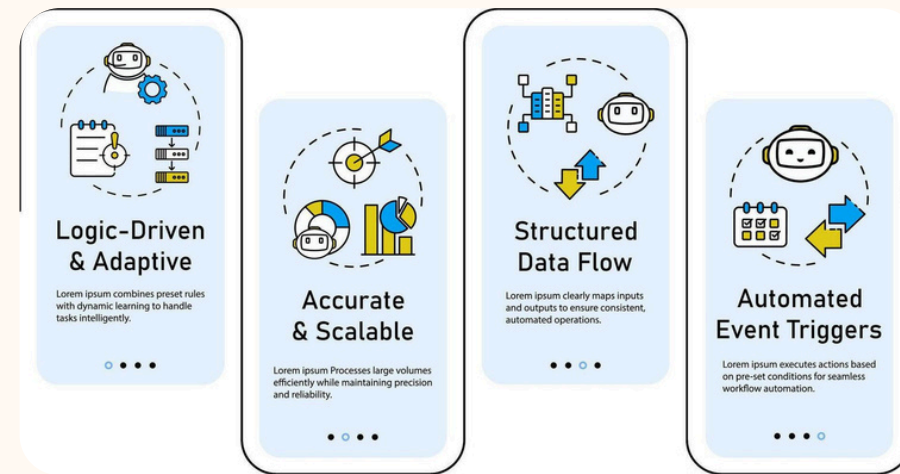
Risk Category	Audit Concern	Digital Control
Data Integrity	Siloed databases leads to conflicting financial records.	Master Data Management (MDM)
Sunk Cost	Capitalizing failed projects that should be impaired.	Agile Milestone Reviews
Shadow IT	Employees using insecure Excel workarounds.	User Experience (UX) Redesign

# Leavitt's Diamond Framework



## People

Skills, training, and cultural mindset.



## Task

The actual business processes performed.



## Technology

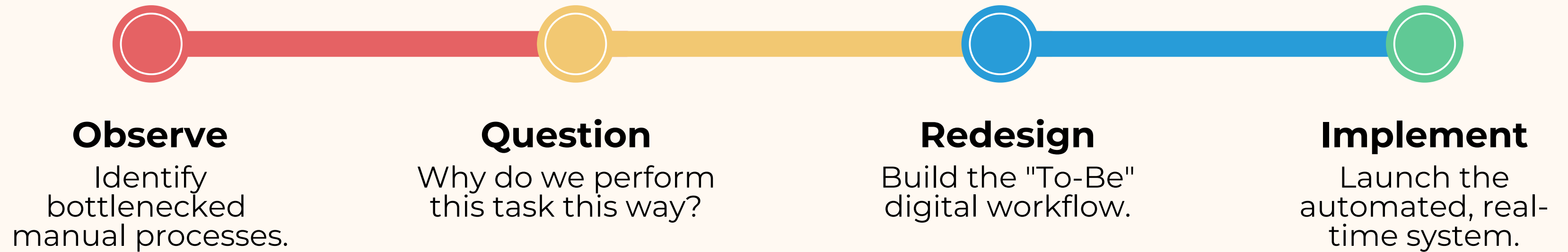
The IT systems and digital infrastructure.

Change in one requires adjustment in ALL to succeed.

# Managing User Resistance

- **Participatory Design:** Involve end-users in the requirement phase so they feel ownership.
- **Incentive Alignment:** Ensure that adopting the system directly benefits the user's KPIs or the ease of work.
- **Phased Rollout:** Avoid the "Big Bang" approach; let small groups test and champion the system first.

# BPR: Reinventing Workflows





# THE RISE OF DIGITAL ECOSYSTEMS

**Firms no longer compete as standalone entities.  
They compete as modular networks of partners, developers, and platforms.**

# Backbone: The API Economy



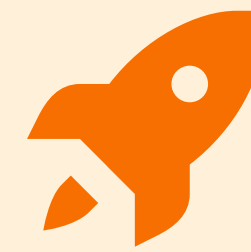
## Modularity

Companies plug into external services (Stripe for pay, FedEx for ship) via APIs instead of building everything.



## Integration

APIs are the digital glue that allow different applications to talk and share financial data securely.



## Agility

Allows legacy firms to launch new digital features in weeks rather than years.

# Controls in Digital Ecosystems

- **Data Privacy (GDPR/CCPA):** Ensuring customer data shared with API partners is compliant.
- **Vendor Risk Management:** Auditing third-party platform reliability (Uptime/Security).
- **API Authentication:** Using tokens (OAuth) to prevent unauthorized access to the corporate ledger.

# **STRATEGIC ROADMAP**

**Mastering Information Systems Leadership**

# Pipeline or Platform?

## Asset-Heavy Pivot

Focus on disintermediation and direct-to-consumer digital channels to protect existing margins.

## Ecosystem Pivot

Open up the company's data via APIs to allow third-party developers to create new value on your foundation.

# MIS Management Checklist

Domain	Critical Question	Target Outcome
Strategy	Do we own the asset or orchestrate the network?	Platform Scaling
Finance	Is our CapEx-to-OpEx ratio optimized?	High Liquidity
IT Audit	Are our API integrations SOC 2 compliant?	Data Security

# Key Frameworks Review

## **Bidgoli**

Taxonomy of B2B/B2C models and the structural components of MIS.

## **Laudon**

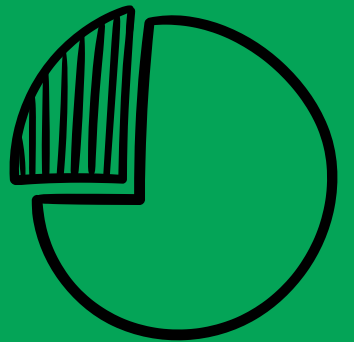
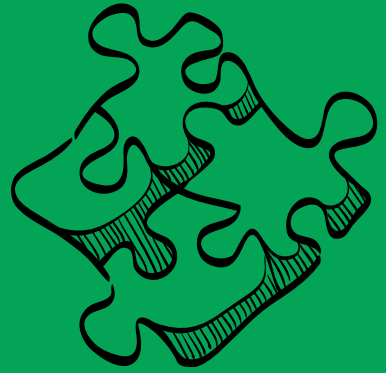
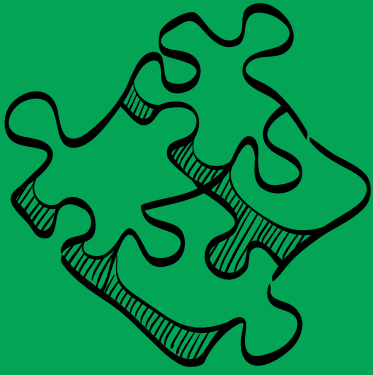
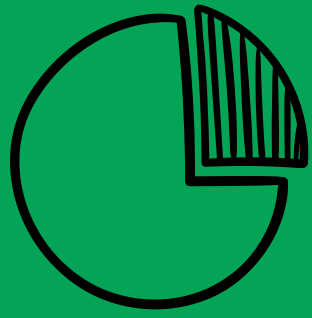
The "Digital Firm" and managing socio-technical systems implementation.

## **Metcalfe**

Economic power of network effects driving the platform economy.

# Case Studies for Analysis

- **The Amazon Flywheel:** How disintermediation and platform network effects created a global monopoly.
- **FinTech vs. Banking:** How the API economy allows modular startups to steal market share from legacy banks.
- **Failed ERP Case:** Analyzing why a \$100M project was scrapped due to Leavitt's Diamond misalignment.



**Thankyou!**

# Reference

- Management Information System, Hossein Bidgoli. Cengage. 10th Edition. 2020
- Management Information System: Managing the Digital Firm. Kenneth C. Laudon & Jane P. Laudon. Pearson. 16th Edition. 2020.