Lecture 2
Strategic Role of IS

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Recap- Types of IS?

Business Functions

- The operations function is one of the three core functions of any organization.
- There are the support functions which enable the core functions to operate effectively:
  - the accounting and finance function,
  - the technical function,
  - the human resources function,
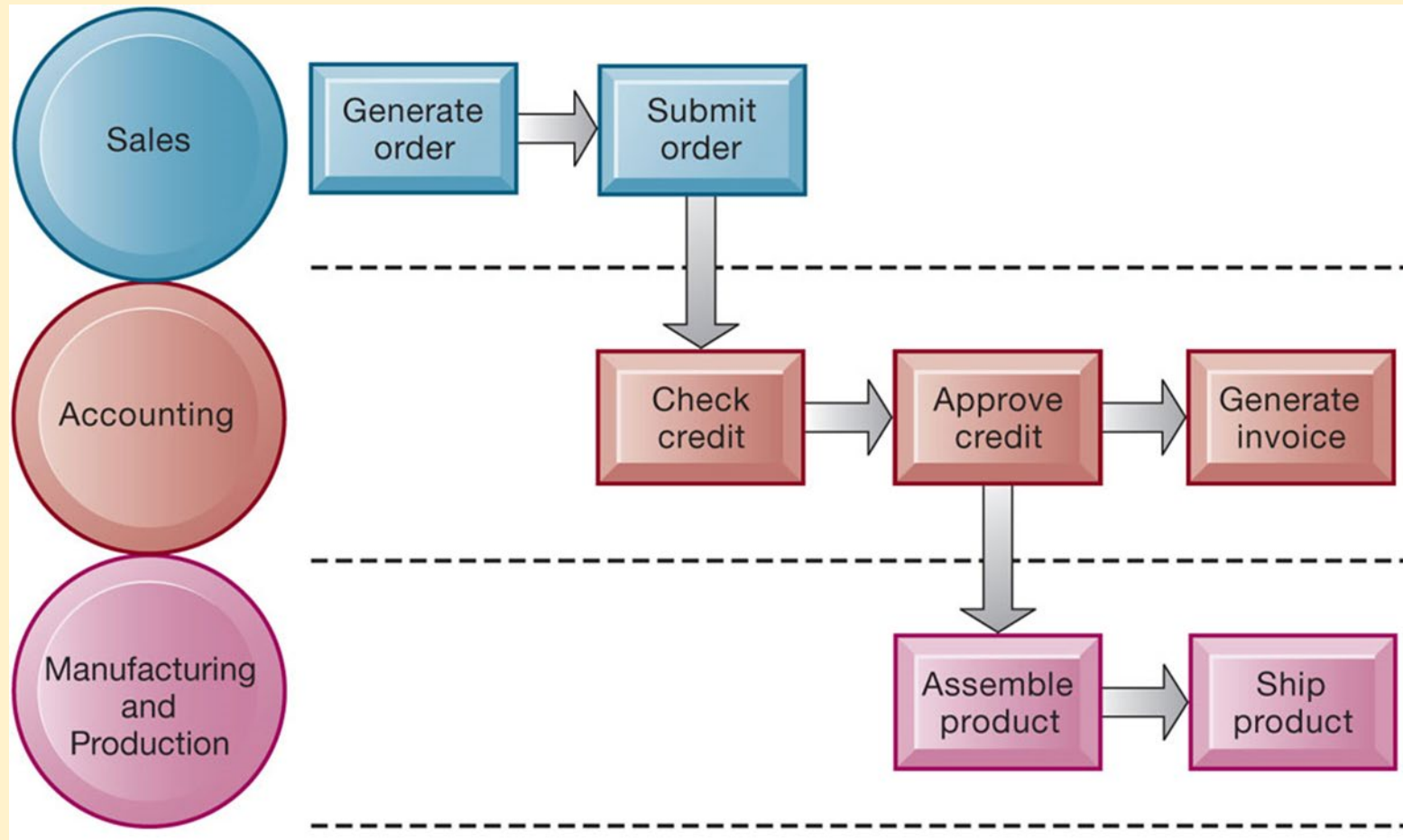 - the information systems function

Laudon and Laudon (2013)

Business Processes

- The actual steps and tasks that describe how work is organized in a business

- Logically related set of activities that define how specific business tasks are performed.

- Business processes also refer to ways in which work, information, and knowledge are coordinated in a specific organization

Functional Area	Business Process
Manufacturing and production	Assembling the product
	Checking for quality
	Producing bills of materials
Sales and marketing	Identifying customers
	Making customers aware of the product
	Selling the product
Finance and accounting	Paying creditors
	Creating financial statements
	Managing cash accounts
Human resources	Hiring employees
	Evaluating employees' job performance
	Enrolling employees in benefits plans

Laudon and Laudon (2013)

Example: Order Fulfilment Process

Laudon and Laudon (2013)

Types of Information Systems

Laudon and Laudon (2006)
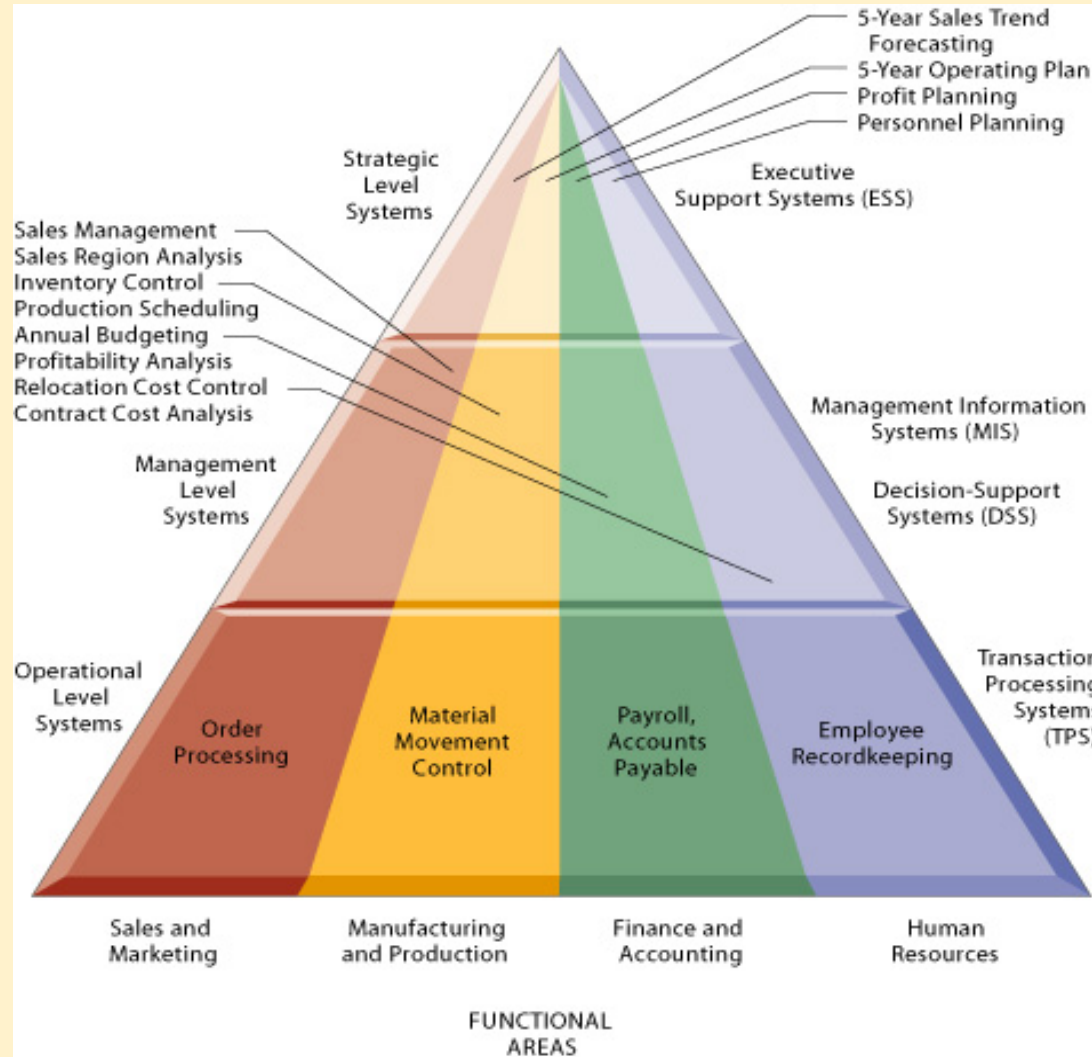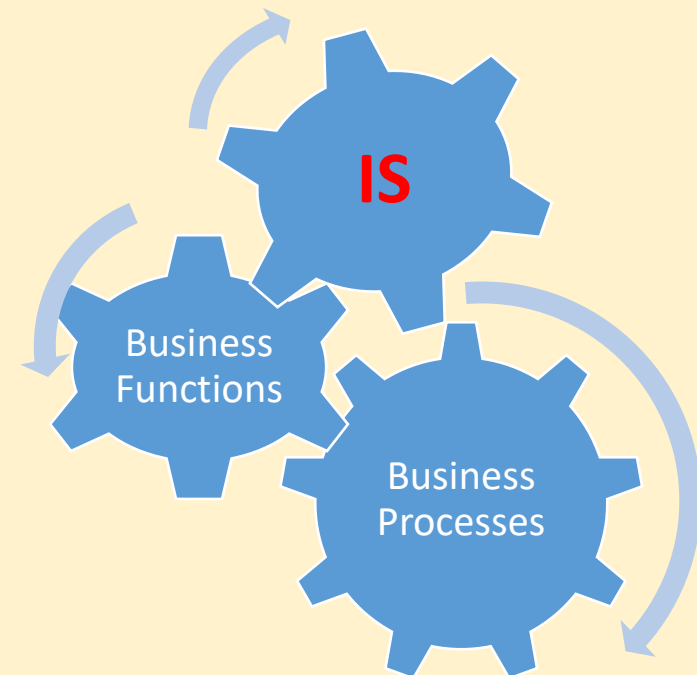
- **Strategic Level- Senior Mgrs:**
  - Executive support systems (ESS)
- **Management Level- Middle Mgrs:**
  - Management information systems (MIS)
  - Decision support systems (DSS)
- **Operational Level-Operational Mgrs:**
  - Transaction processing systems (TPS)

Examples of TPS, DSS, MIS, and ESS

5-Year Sales Trend Forecasting
5-Year Operating Plan
Profit Planning
Personnel Planning

Executive Support Systems (ESS)

Strategic Level Systems

Sales Management
Sales Region Analysis
Inventory Control
Production Scheduling
Annual Budgeting
Profitability Analysis
Relocation Cost Control
Contract Cost Analysis

Management Information Systems (MIS)

Management Level Systems

Decision-Support Systems (DSS)

Operational Level Systems

Order Processing

Material Movement Control

Payroll, Accounts Payable

Employee Recordkeeping

Transaction Processing Systems (TPS)

Sales and Marketing

Manufacturing and Production

Finance and Accounting

Human Resources

FUNCTIONAL AREAS

Laudon and Laudon (2006)

- Information Systems are needed:
  - at all levels of management
  - Within each business function
  - And to support the business processes

IS

Business Functions

Business Processes

Typical applications of TPS

TYPE OF TPS SYSTEM					
	Sales/ marketing systems	Manufacturing/ production systems	Finance/ accounting systems	Human resources systems	Other types (e.g., university)
Major functions of system	Customer service Sales management Promotion tracking Price changes Dealer communications	Scheduling Purchasing Shipping/receiving Operations	General ledger Billing Cost accounting	Personnel records Benefits Compensation Labor relations Training	Admissions Grade records Course records Alumni records
Major application systems	Sales order information system Sales commission system Sales support system	Machine control systems Purchase order systems Quality control systems	General ledger Payroll Accounts receivable/payable Funds management systems	Employee records Benefit systems Employee skills inventory	Registration system Student transcript system Curriculum class control systems Alumni benefactor system

Laudon and Laudon (2006)

How UPS Is Using Big Data To Transform Package Deliveries | NetNet | CNBC
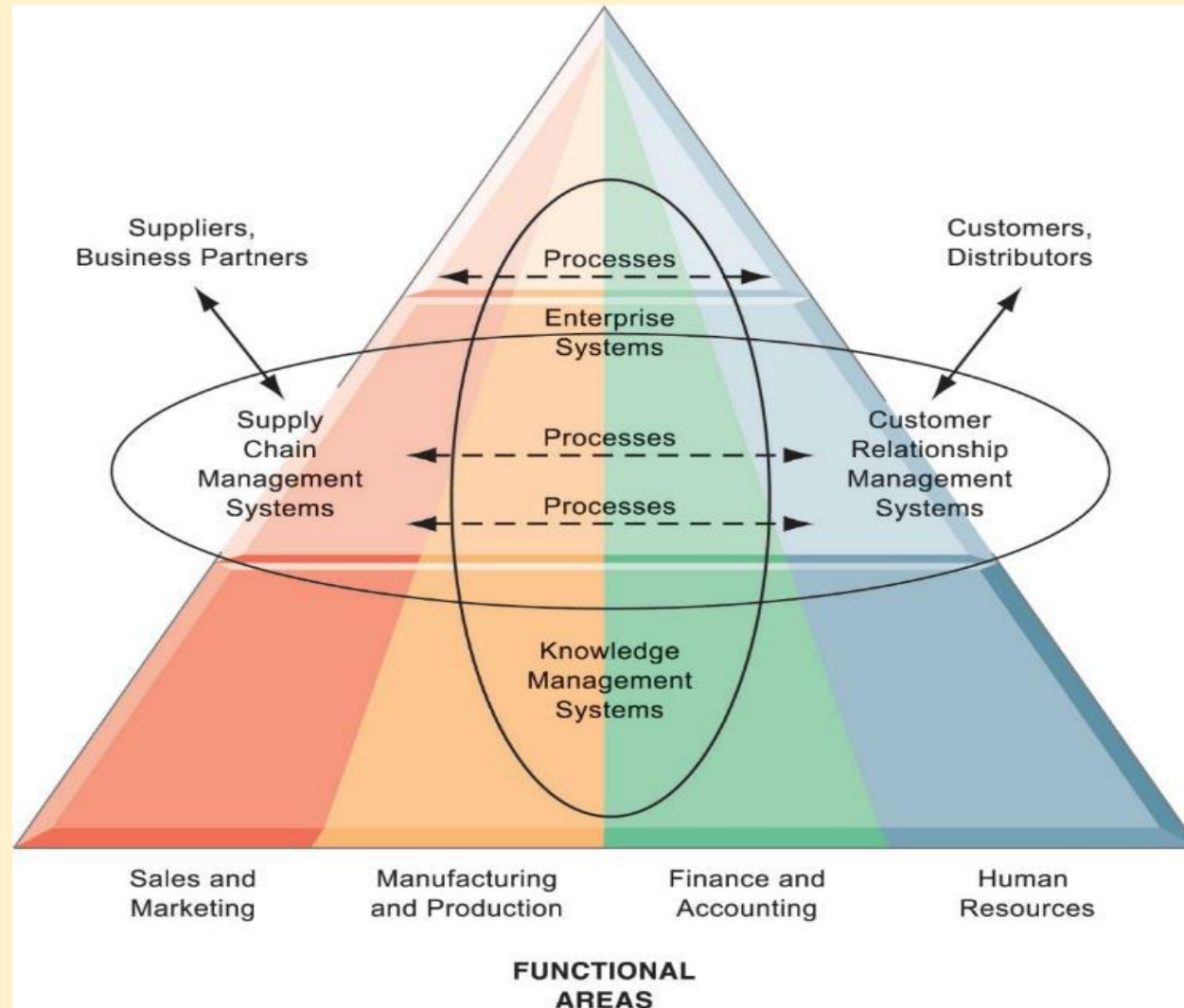

https://www.youtube.com/watch?v=PSNIr1EMu_I

Discussion: What technologies are used by U P S ?

Systems for Linking the Enterprise

- **Enterprise applications**
  - Systems that span functional areas, focus on executing business processes across the firm, and include all levels of management

Enterprise Application Architecture

Laudon and Laudon (2013)

Four major types of Enterprise Applications

- Enterprise systems
- Supply chain management systems
- Customer relationship management systems
- Knowledge management systems

Enterprise Systems

- Also called enterprise resource planning (ERP) systems
- **Integrate data from key business processes into single system**
- Speed communication of information throughout firm
- Enable greater flexibility in responding to customer requests, greater accuracy in order fulfillment
- Enable managers to assemble overall view of operations

Supply Chain Management (SCM) Systems

- Manage **relationships with suppliers**, purchasing firms, distributors, **and logistics companies**
- **Manage shared information about orders, production, inventory levels**, and so on
  - Goal is to move correct amount of product from source to point of consumption as quickly as possible and at lowest cost
- Type of inter-organizational system
  - Automating flow of information across organizational boundaries

Customer Relationship Management (CRM) Systems

- Help **manage relationship with customers**.
- Coordinate business processes that deal with customers in sales, marketing, and customer service
- Goals:
  - Optimize revenue
  - Improve customer satisfaction
  - Increase customer retention
  - Identify and retain most profitable customers
  - Increase sales

Knowledge Management Systems

- Manage processes for **capturing and applying knowledge and expertise**

- Collect relevant knowledge and make it available wherever needed in the enterprise to improve business processes and management decisions

- Link firm to external sources of knowledge

Strategy?

What can you buy for $5?

The question is how is it possible to produce these products at a low cost?
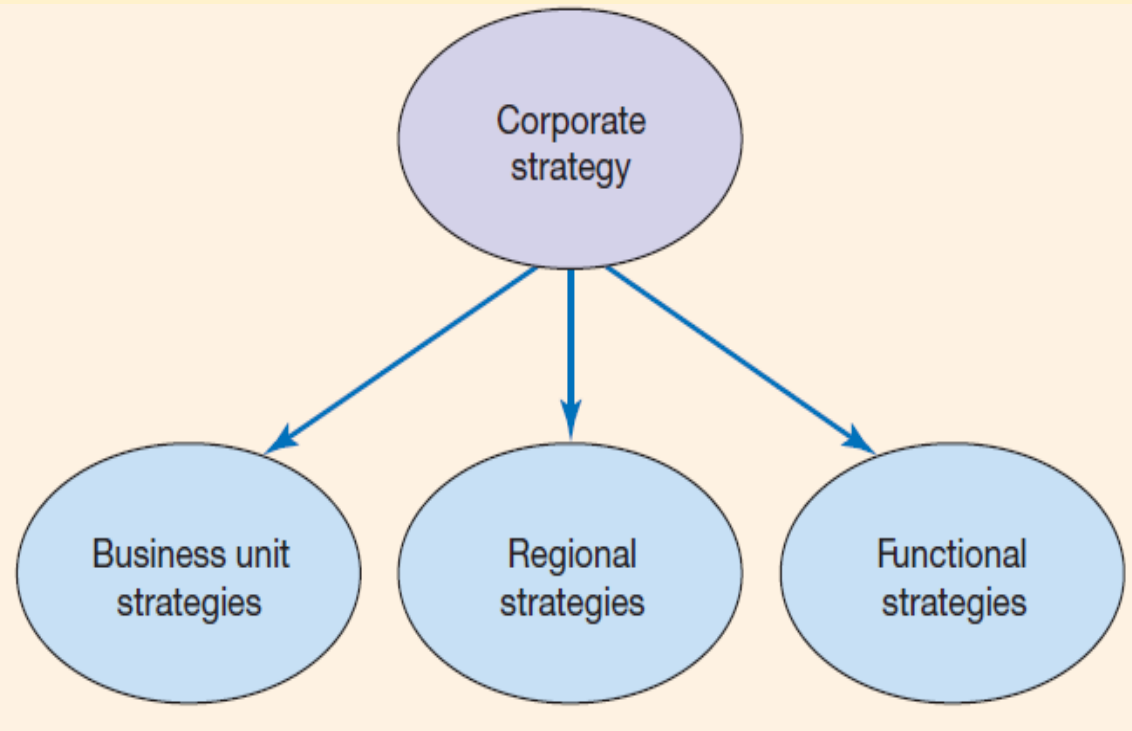
Strategy?

Johnson and Scholes (2006)

- the direction and scope of an organization over the long-term:
- which achieves advantage for the organization through its configuration of resources
- within a changing environment
- to meet the needs of markets and to fulfil stakeholder expectations.

Lynch (2005)

- organization's sense of purpose. However, he notes
- that purpose alone is not strategy
- plans or actions are also needed
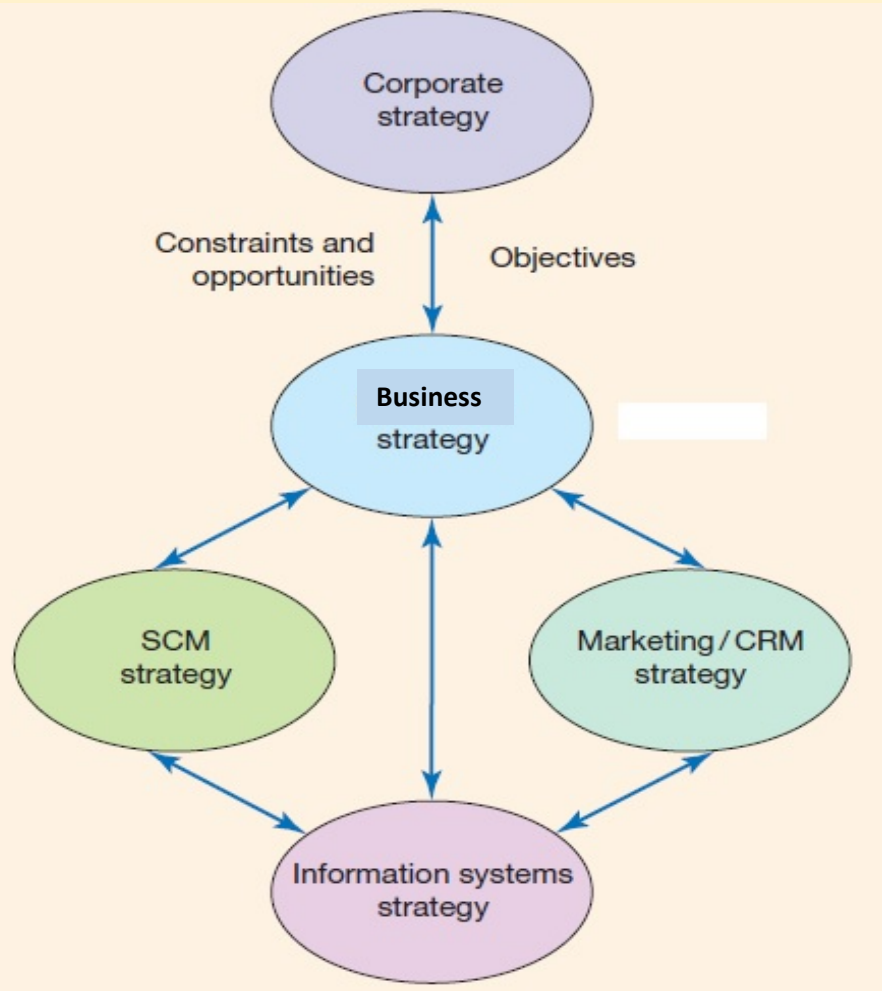
Levels of Strategy

Chaffey (2009)

Lynch (2018)

# Relationship between Business Strategy and IS Strategy

Adapted from Chaffey (2009)

- In essence, the organization's:
  - Business Strategy determines the IS Strategy

  OR
  - Should it be the reverse?
  - What comes first?
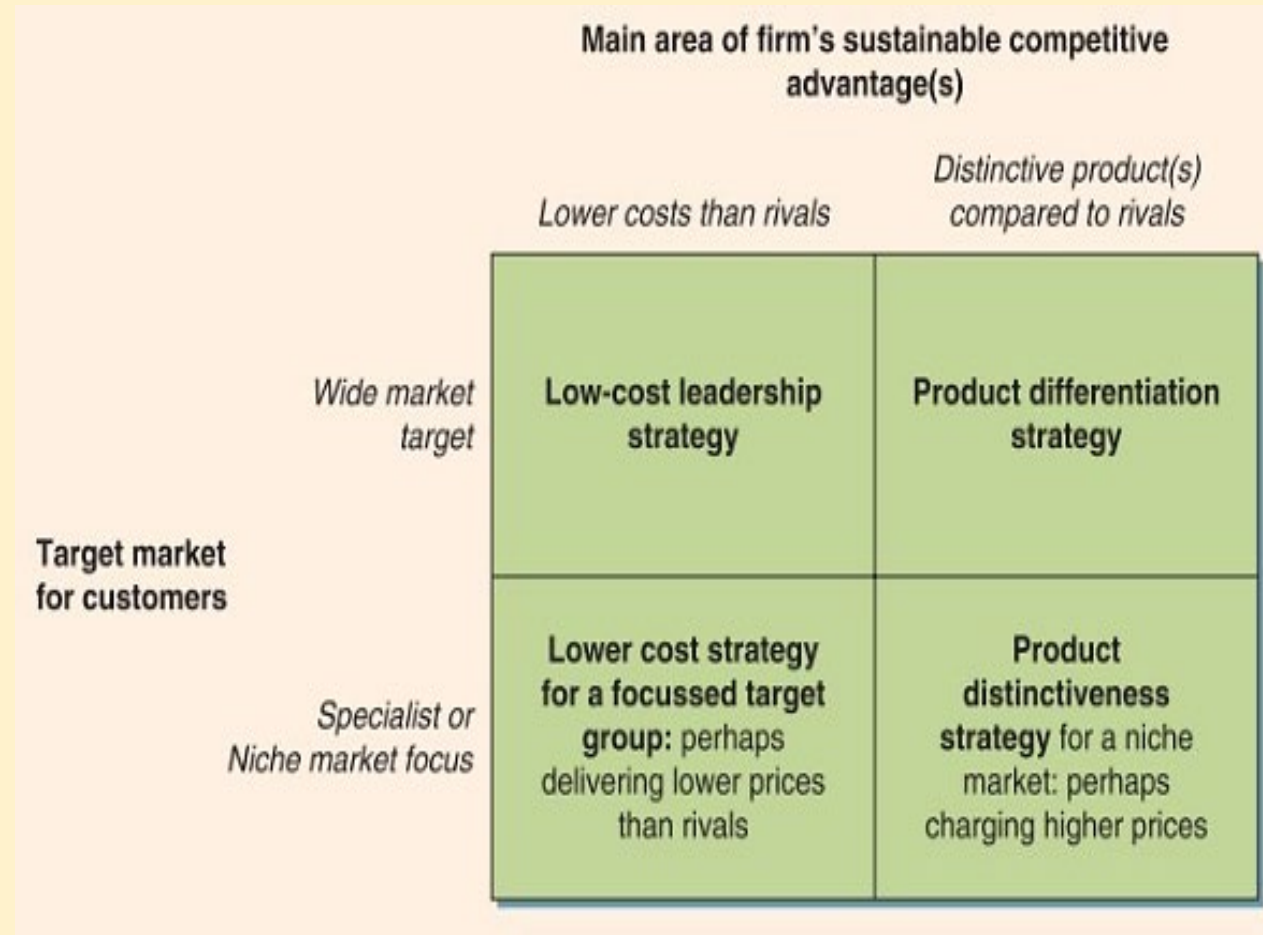
Strategic Role of IS

Role of IS to achieve competitive advantage

- Lynch (2005) asserts that strategy involves developing competitive advantage over time

- So HOW can IS assist?

- Let's first look at the concept of **Competitive Advantage**
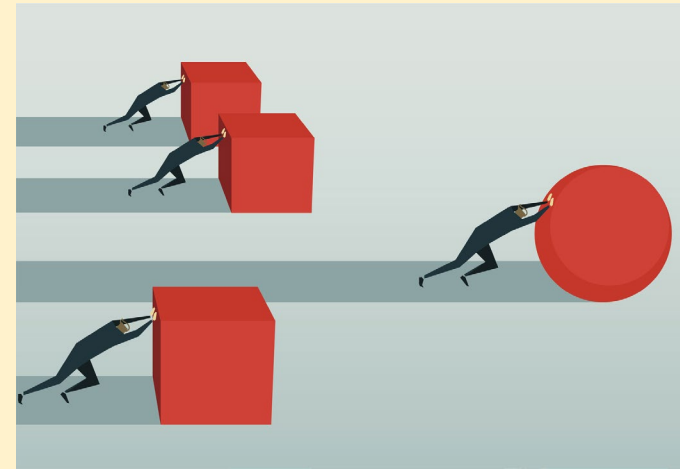
Porter's Generic Strategies for Competitive Advantage

Source: Lynch (2018)

IS Strategies for Low-cost leadership

- Use information systems to achieve the lowest operational costs and the lowest prices E.g. Walmart
- Inventory replenishment system sends orders to suppliers when purchase recorded at cash register
- Minimizes inventory at warehouses, operating costs
- Efficient customer response system

Walmart Robots Working Store Aisles, Checking Stock

https://www.youtube.com/watch?v=KRJV1SPYpIE&t=274s

IS Strategies for Product differentiation

- Use information systems to enable new products and services, or greatly change the customer convenience in using your existing products and services
- E.g., Google's continuous innovations, Apple's iPhone
- Use information systems to customize, personalize products to fit specifications of individual consumers
  - E.g., Nike's NIKE iD program for customized sneakers

How Starbucks is using AI to improve the customer experience

https://www.youtube.com/watch?v=7_GpgSpaKTg

IS Strategies for Focus on market niche

- Use information systems to enable specific market focus, and serve narrow target market better than competitors.
- Analyzes customer buying habits, preferences
- Advertising pitches to smaller and smaller target markets
- E.g., Hilton Hotel's On Q System
- Analyzes data collected on guests to determine preferences and guest's profitability

Case Study: Hotel Industry

https://www.youtube.com/watch?v=VVOH5sfMEqA

How Hotels are using Technology for Competitive Advantage

- Hotels using Technology for Competitive Advantage.pdf

- Available at:< https://www.fingent.com/blog/how-hotels-are-using-technology-for-competitive-advantage/ >

How Amazon Delivers Packages So Fast

https://www.youtube.com/watch?v=91jKeKuUaDM

Group Activity:

- Discuss:
1. What is Amazon's source of competitive advantage?
2. What technologies are being used by Amazon?
3. How has the technology help Amazon compete?

Next Session

Next Topic: Competitive Forces and Value Chain Analysis

Self Managed Learning

- Read:
  - Chapter 3- Essentials of Information Systems
  - Porter's Article- Strategy and the Internet

References

- Lynch, R 2005. Corporate Strategy, Pearson Education UK
- Lynch, R. L. 2018. Strategic management. Eighth edition. Harlow: Pearson Education.
- Chaffey, D. 2009. E-business and e-commerce management strategy, implementation and practice . 4th ed. Harlow: Financial Times Prentice Hall.
- Laudon, J. & Laudon, K. 2013. Essentials of management information systems. 10th ed. Boston: Pearson
- Laudon, K. C. & Laudon, J. P. 2014. Management information systems managing the digital firm. 13th ed. Boston: Pearson.
- Laudon, K. C. & Laudon, J. P. 2006. Management information systems managing the digital firm. 9th ed. Boston: Pearson