Chapter 3

Essentials of Management Information Systems, 6e

Information Systems, Organizations, Management, and Strategy

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Objectives

1. What do managers need to know about organizations in order to build and use information systems successfully?

2. What impact do information systems have on organizations?

3. How do information systems support the activities of managers in organizations?

Objectives

4. How can businesses use information systems for competitive advantage?

5. Why is it so difficult to build successful information systems, including systems that promote competitive advantage?

What is an Organization?

Organizations and Information Systems

What Is an Organization?

Technical Definition

- Stable, formal social structure that takes resources from the environment and processes them to produce outputs

Behavioral Definition

- A collection of rights, privileges, obligations, and responsibilities that are delicately balanced over a period of time through conflict and conflict resolution

Organizations and Information Systems

The technical microeconomic definition of the organization

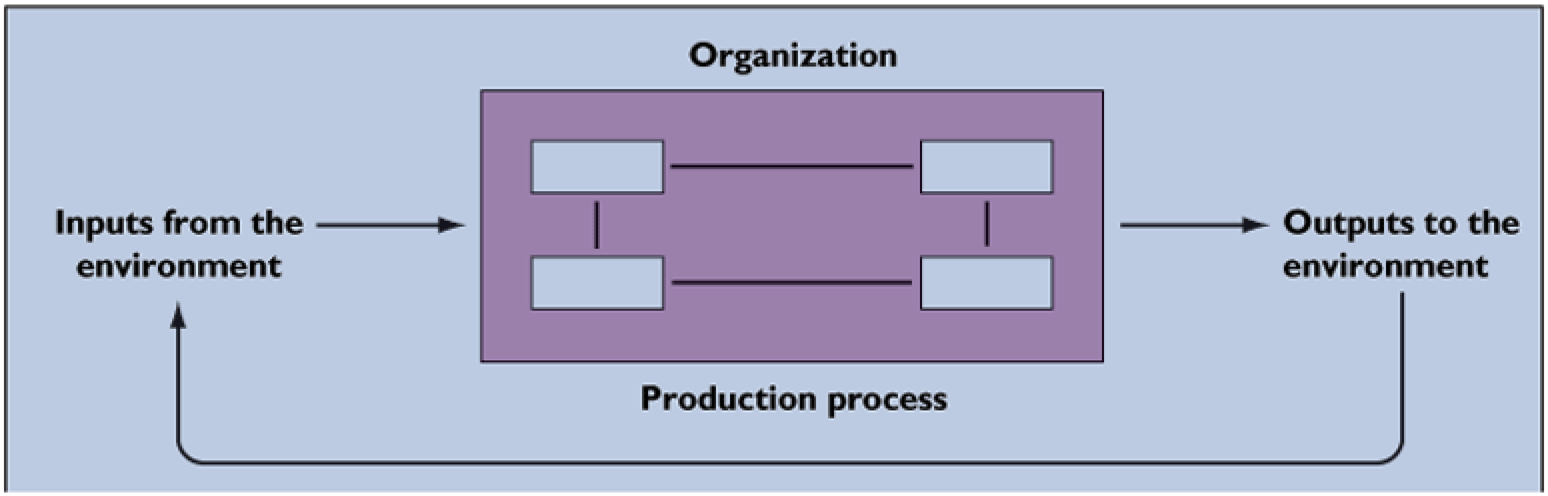


Figure 3-2

The behavioral view of organizations

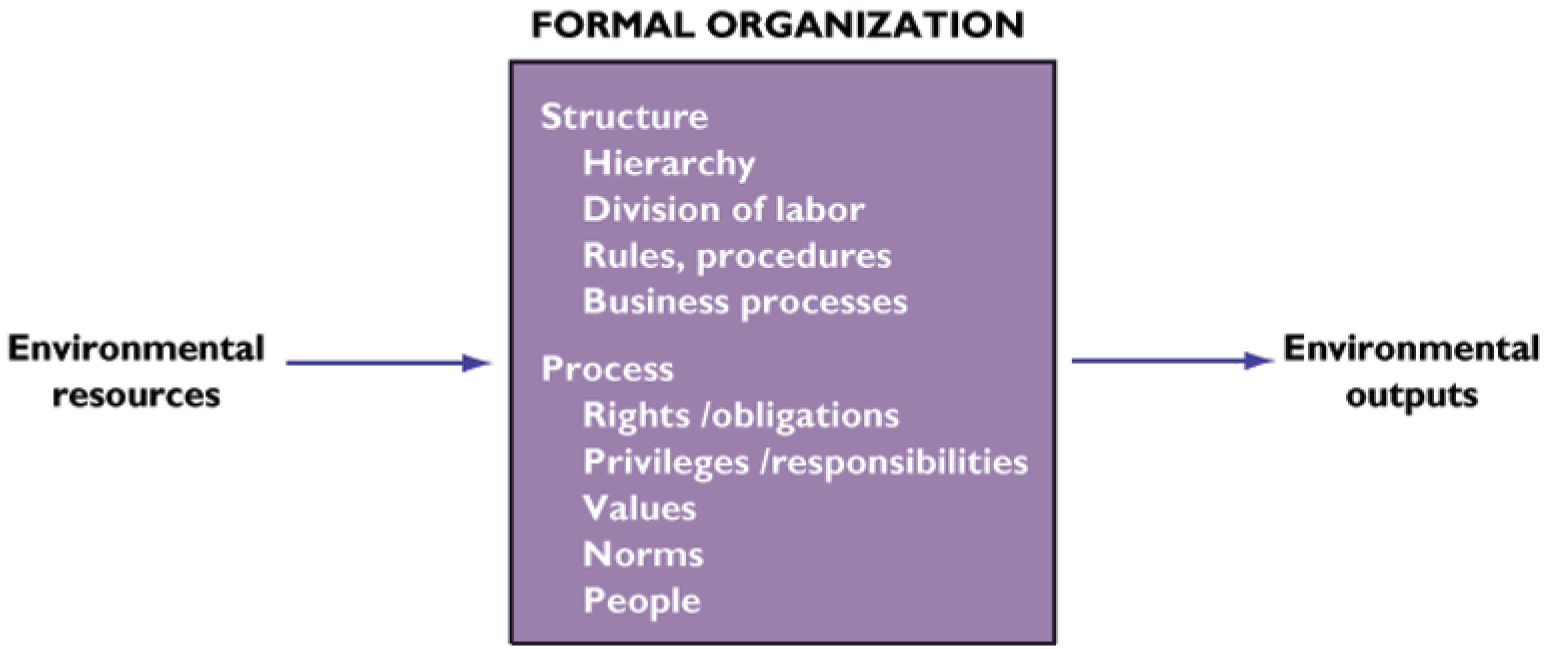


Figure 3-3

Organizations and Information Systems

Common Features of Organizations

Structural Characteristics of All Organizations

- Clear division of labor
- Hierarchy
- Explicit rules and procedures
- Impartial judgments
- Technical qualifications for positions
- Maximum organizational efficiency

Common Features of Organizations

Additional Features of Organizations

- Standard Operating Procedures (SOPs): Precise procedures to cope with all expected situations
- Organizational Politics: Struggle to resolve divergent viewpoints within the organization
- Organizational Culture: Fundamental assumptions about what products the organization should produce

Unique Features of Organizations

All organizations have different:

- Organizational type
- Environments
- Goals
- Power
- Constituencies
- Function
- Leadership
- Tasks
- Technology
- Business processes

The Changing Role of Information Systems in Organizations

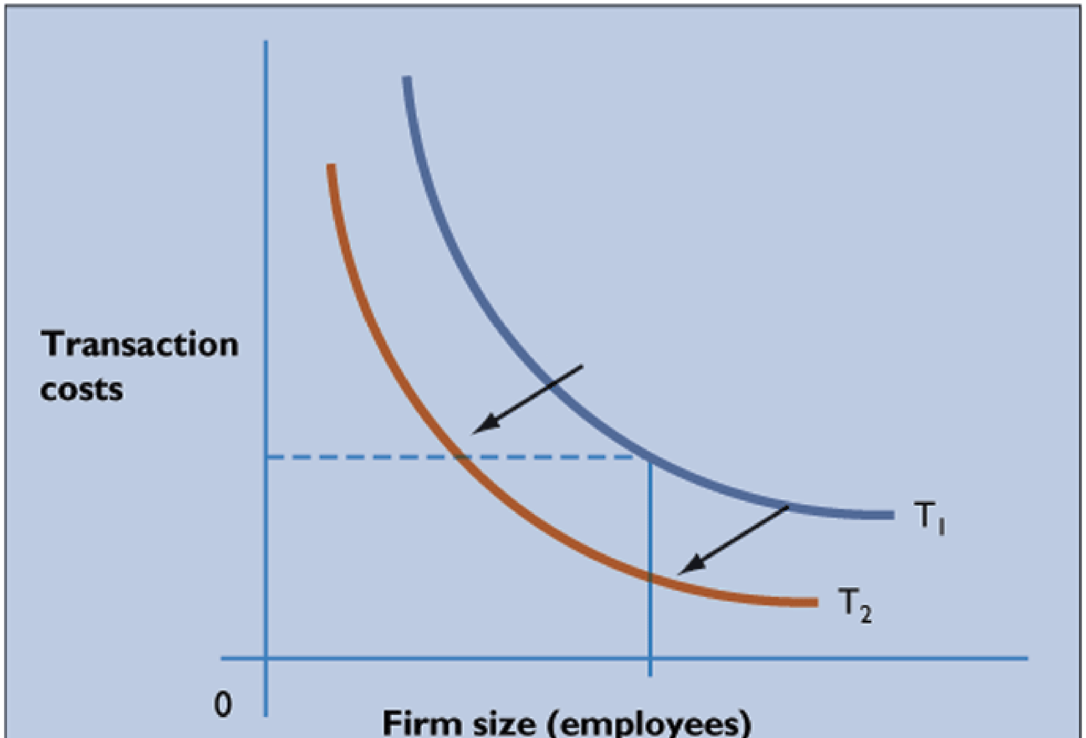
How Information Systems Affect Organizations

Economic Theories

- Information system technology is a factor of production, freely substituted for capital and labor
- Transaction cost theory: Information technology can help lower the cost of market participation

The Changing Role of Information Systems in Organizations

The transaction cost theory of the impact of information technology on the organization



Firms traditionally grew in size in order to reduce transaction costs. IT potentially reduces the costs for a given size, shifting the transaction cost curve inward, opening up the possibility of revenue growth without increasing size, or even revenue growth accompanied by shrinking size.

The Changing Role of Information Systems in Organizations

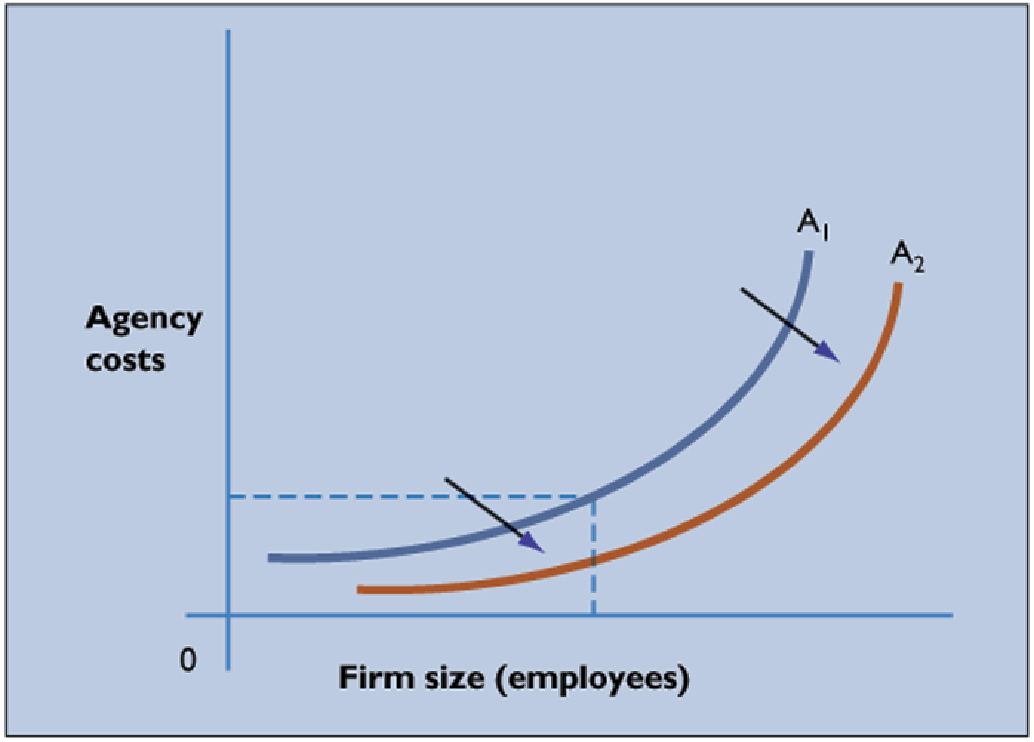
How Information Systems Affect Organizations

Economic Theories – The Agency Theory

- Agents (employees) need supervision
- As firm grows, agency and coordination costs rise
- Information technology reduces agency costs because it becomes easier for managers to oversee more employees

The Changing Role of Information Systems in Organizations

The agency cost theory of the impact of information technology on the organization



As firms grow in size and complexity, traditionally they experience rising agency costs. IT shifts the agency cost curve down and to the right, allowing firms to increase size while lowering agency costs.

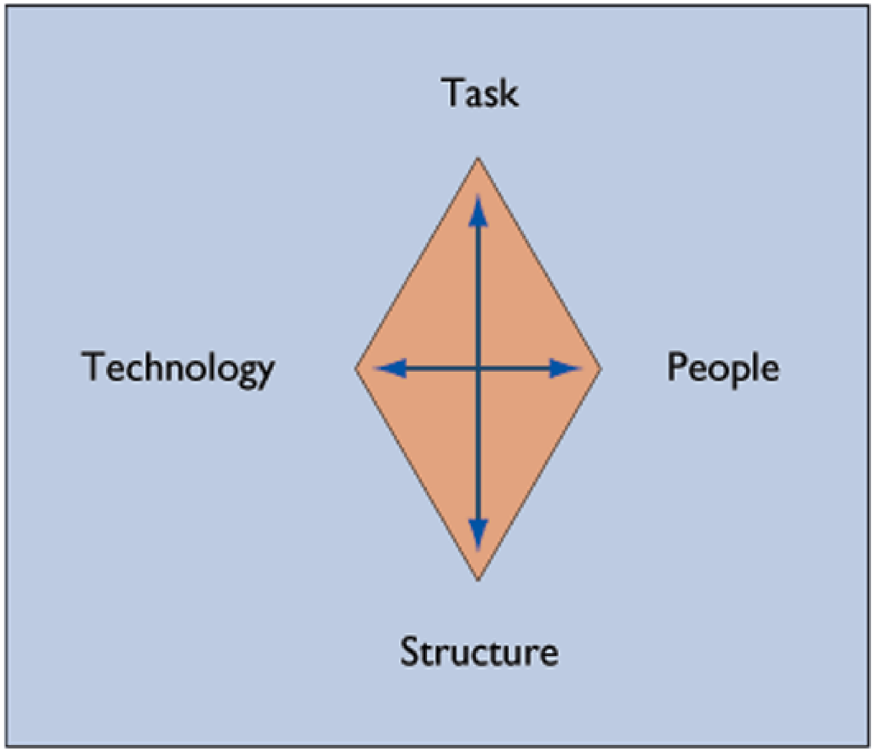
How Information Systems Affect Organizations

Behavioral Theories

- IT could change hierarchy of decision making by lowering costs of information acquisition and distribution
- Organization shape could "flatten" as decision making becomes more decentralized
- Growth of "virtual organizations"
- Information systems seen as outcome of political competition between subgroups

The Changing Role of Information Systems in Organizations

Organizational resistance and the mutually adjusting relationship between technology and the organization



Source: Leavitt, 1965.

Figure 3-8

The Changing Role of Information Systems in Organizations

The Internet and Organizations

- The Internet is capable of dramatically reducing transaction and agency costs
- Businesses are rapidly rebuilding some key business processes based on Internet technology
- Internet technology becoming a key component of IT infrastructure

The Role of Managers in Organizations

Classical Model:
Five Functions of Managers

- Planning
- Organizing
- Coordinating
- Deciding
- Controlling

Managers, Decision Making, and Information Systems

The Role of Managers in Organizations

Behavioral Models: Five Attributes of Managers

- Perform much work at non-stop pace
- Fragmented activities
- Prefer speculation, hearsay, current and ad-hoc information
- Prefer oral communication
- Maintain diverse web of contacts as informal information system.

Managers, Decision Making, and Information Systems

The Role of Managers in Organizations

Managerial Role Categories

- Interpersonal: Figurehead, leader, liaison
- Informational: Nerve center, disseminator, spokesperson
- Decisional: Entrepreneur, disturbance handler, resource allocator, negotiator

Managers, Decision Making, and Information Systems

Managers and Decision Making

Decision Making
Classified by Organizational Level

- Strategic: determines long-term objectives, resources, policies
- Management control: monitors effective usage of resources, performance
- Operational control: determines how to perform tasks and ways to distribute information

Managers and Decision Making

Decisions are classified as:

- Unstructured: Nonroutine, decision maker provides judgment, evaluation, and insights into problem definition, no agreed-upon procedure for decision making
- Structured: Repetitive, routine, handled using a definite procedure

Managers and Decision Making

Stages of Decision Making

- Intelligence: Collect information, identify problem
- Design: Conceive alternative solution to a problem
- Choice: Select among the alternative solutions
- Implementation: Put decision into effect and provide report on the progress of solution

Managers and Decision Making

Models of Decision Making

- Rational model: people engage in consistent, rational decision making. Individuals rank all alternatives and select the one that most contributes to their goal
- Critics point out that individuals can’t rank all possible alternatives; tend to select first viable alternative
- Built-in biases, frame of reference, distort decision making

Managers and Decision Making

Models of Decision Making

- Cognitive style: Describes underlying personality dispositions toward decision making
- Systematic decision makers
- Intuitive decision makers

Implications for the Design and Understanding of Information Systems

Organizational Factors in Planning New Systems

- Organization's environment
- Structure of organization
- Organization's culture and politics
- Type of organization and leadership style
- Principle interest groups and attitudes of workers
- Kinds of tasks, decisions, processes system will assist

What is a business model?

What is **business model?**

Researchers approach this concept in *different* ways

- **"Most often a business model refers to a loose conception of how a company does business and generates revenue" (Porter, 2001: 73)**
- **Magretta (2002): it should answer: Who is a customer? What does the customer value? How do we make money? What is the economic logic that explains how we deliver value to customers at an appropriate cost?**
- **Mitchell & Coles (2003): it comprises the combined elements of "who", "what", "when", "why", "where", "how", and "how much" involved in providing products or services.**
- **Amit & Zott (2001): it depicts the content, structure, and governance of transactions designed so as to create value through exploiting business opportunities.**

•Business models are about value creation.
• Normally people emphasize different aspects of it!

•Amit, R., Zott, C. (2001). "Value creation in e-business". *Strategic Management Journal*. 22, 493-520
•Mitchell, D. and C. Coles (2003). "The ultimate competitive advantage of continuing business model innovation." *Journal of Business Strategy*. 24(5), 15-21.
•Porter, M. E. (2001). "Strategy and the Internet." *Harvard Business Review*. March, 62-78

Key Points of Definition

Business Model is a *comprehensive* concept

- Afuah and Tucci (2001): a business model is *"the method by which a firm builds and uses its resources to offer customers better value than its competitors and to make money doing so"*

Key points:
a model or framework; value-focused; profit-oriented; resource-based

Business Model And Strategy

- Business model is a concept of strategic management.
- A business model defines what an organization is all about, what it does, and how it makes money. Strategy articulates how it will achieve goals and targets.
- A business model must be complemented by strategy that takes into account competition, industry forces and the like.

These two concepts seemingly overlap but in fact differ
• Business model emphasizes the target and the logic behind
•Strategy stresses action

Eight elements of business models

A firm's business model is the function of eight elements –

e1. The type of value the firm offers customers
e2. The types of customers to which it provides that value
e3. The way it prices the value
e4. The types of revenue sources it pursues
e5. The activities that create customer value as a system
e6. The implementation of the activities and value creation
e7. The capability to create that value
e8. The strategy to sustain the firm's competitive advantage

Business Model = F(e1, ..., e8)

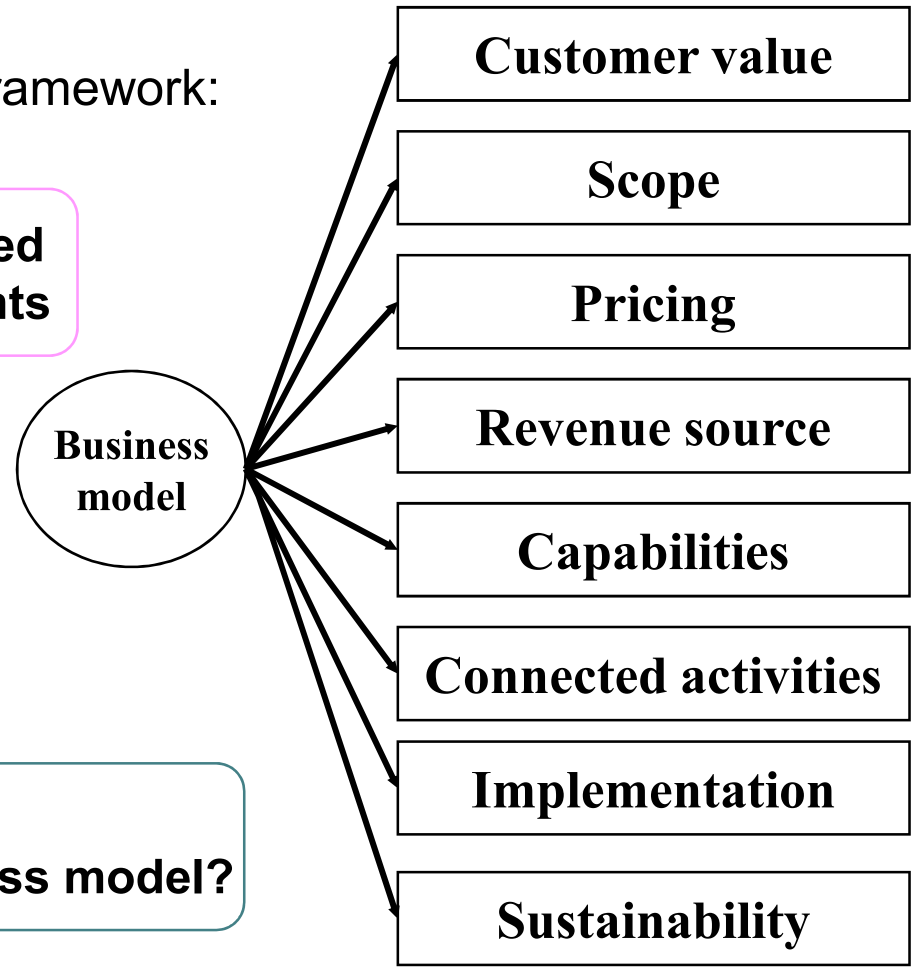
Redefine the Business Model

Comments on Afuah/Tucci framework:

•A conceptual model: detailed classification on components

•Interrelations between elements are not stressed

•Difficult to use:
how to use it to analyze a business model?



Components of Business Model:

Condensed to Three Groups

Value

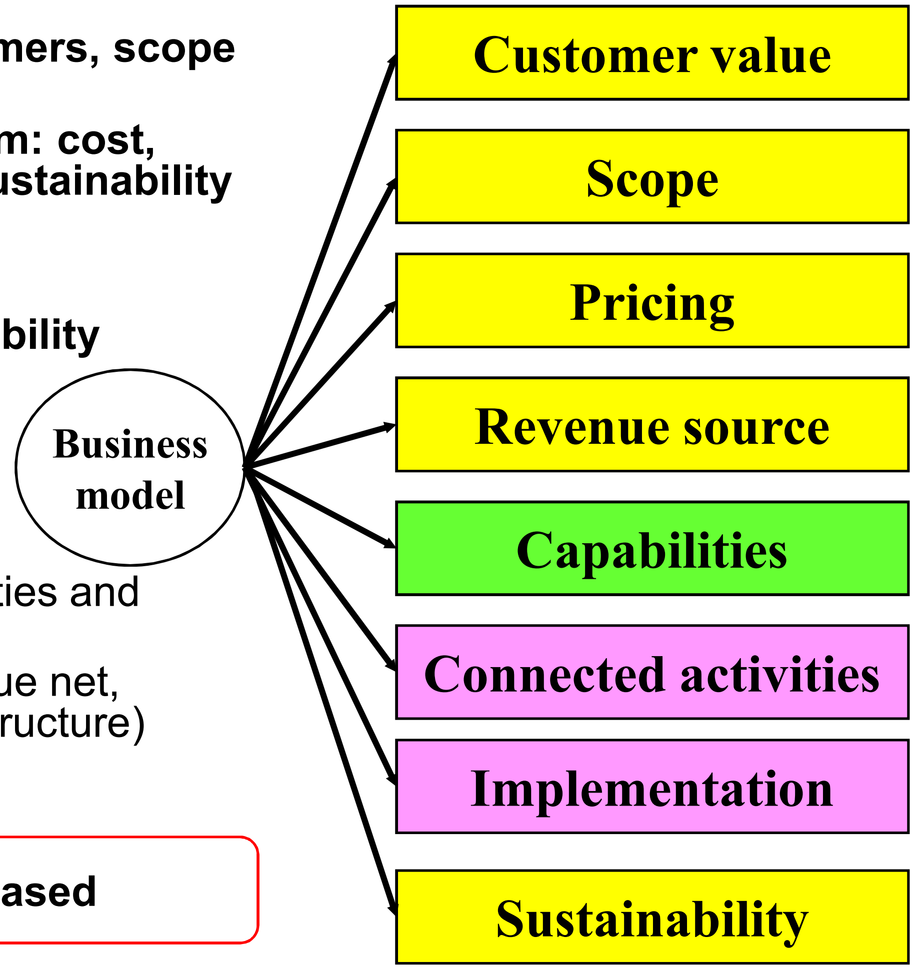
- **Value to customers, scope and pricing**
- **Value to the firm: cost, revenue and sustainability**

Firm's capability

- **Resource/capability**

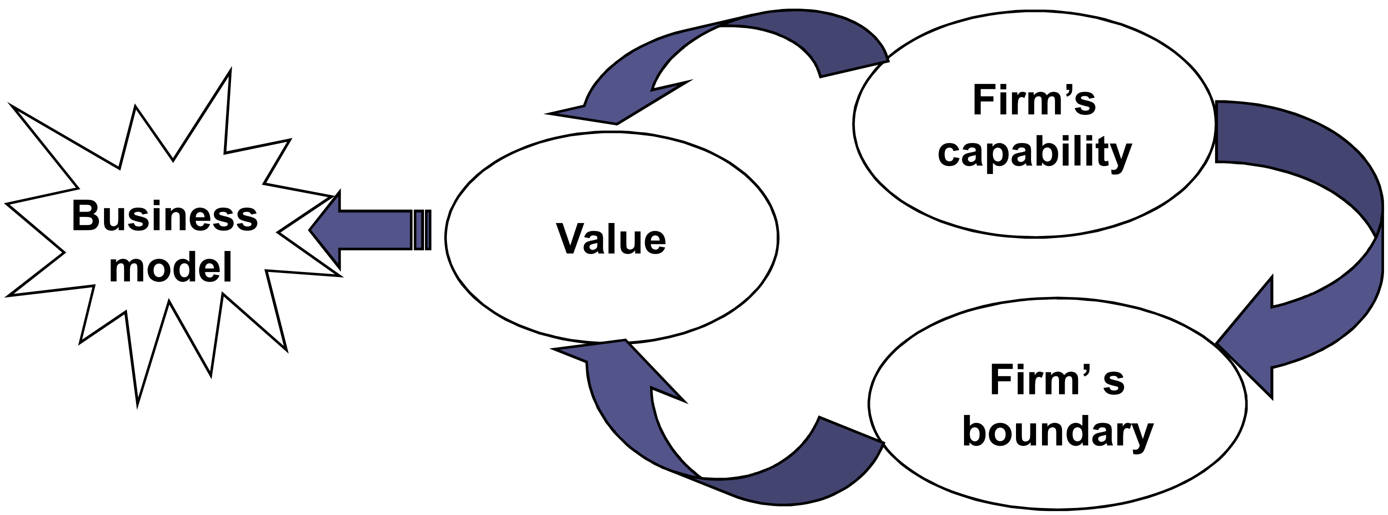
Supportive capability

- Boundary: activities and implementation
  (value chain, value net, organizational structure)



Value-focused; resource-based

Business Model: the Condensed Form

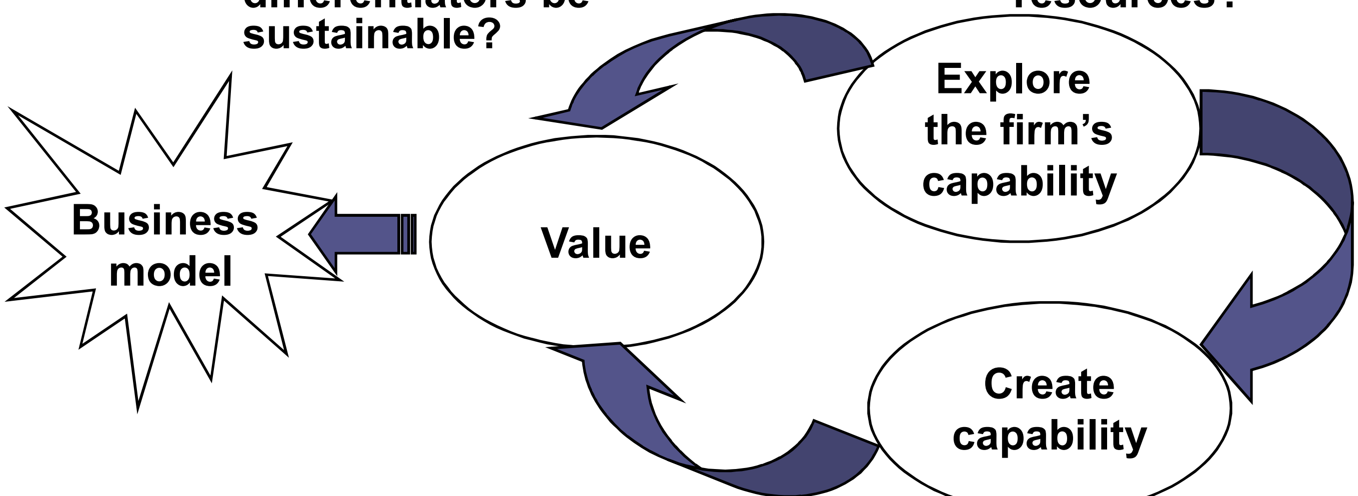


•Three Interrelated groups of elements
•You can study the whole model, or focus on one aspect

Goa, P. (2008) "e-Business: Organizations and Strategy Session 1 Handout". Manchester, UK: Msc Management and Information Systems, IDPM, University of Manchester.

Formulate a Business Model

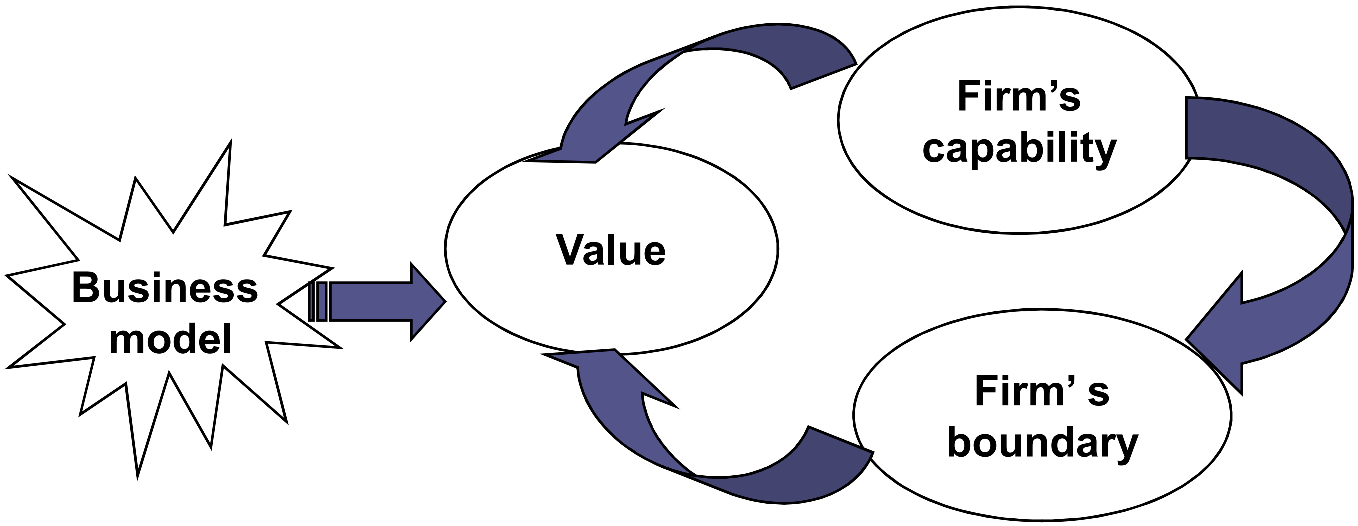
- Value analysis
  - Will the envisioned market differentiators be sustainable?
- Resource/capability analysis
  - Does your business model exploit your key resources?



Continuously reasoning: exploring the potentials to realize value maximization

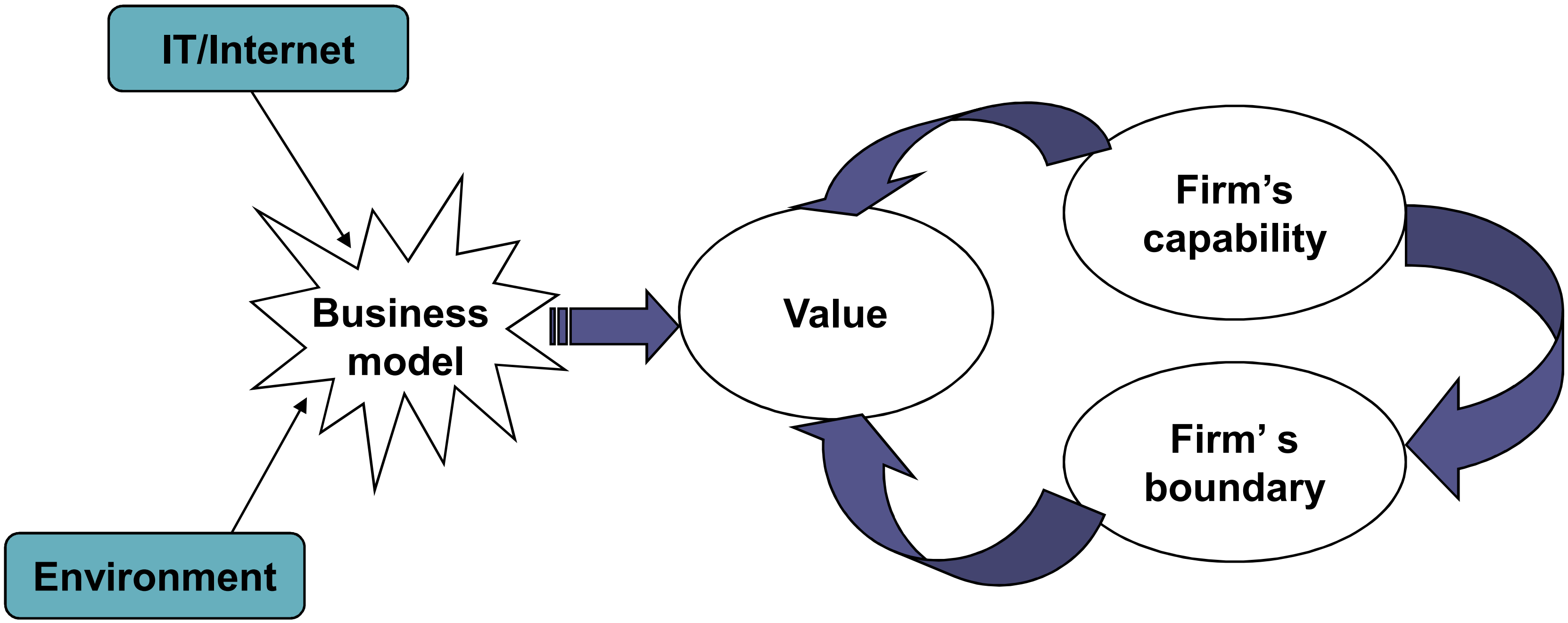
- Boundary analysis
  - Can you access enough resources to pursue this business model?
  - Boundary arrangement/ Organizational setup

Our framework



•Business Model = Optimum F (Value, Capability, Boundary)
•One business model may distinguish itself from the others in one aspect of them
•Evaluate a business model: the optimum combination of above three bubbles
•Formulate a business model: continuously reasoning to explore the potentials of value maximization

IT and the Business Model

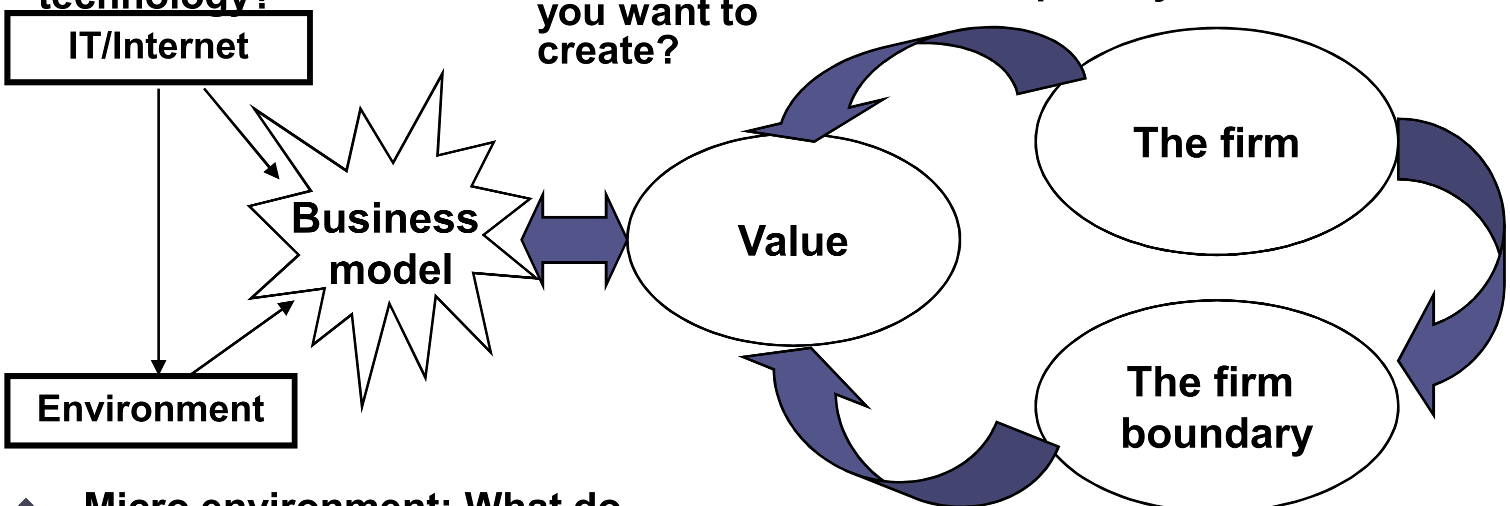


Business Model = Optimum F (Value, Capability, Boundary)

•Subject to the use of IT/Internet as an exogenous variable

Analyze Technology Business Model

- **Technology: What opportunity can your firm get from this technology?**
- **Value analysis: For users and the firm, what value do you want to create?**
- **Resource/capability analysis: Does your Internet business model exploit your key resources or increase your capability?**



- **Micro environment: What do you want to compete?**
- **What is the macro environment**

Using Internet and Environment as exogenous Variables to analyze business model

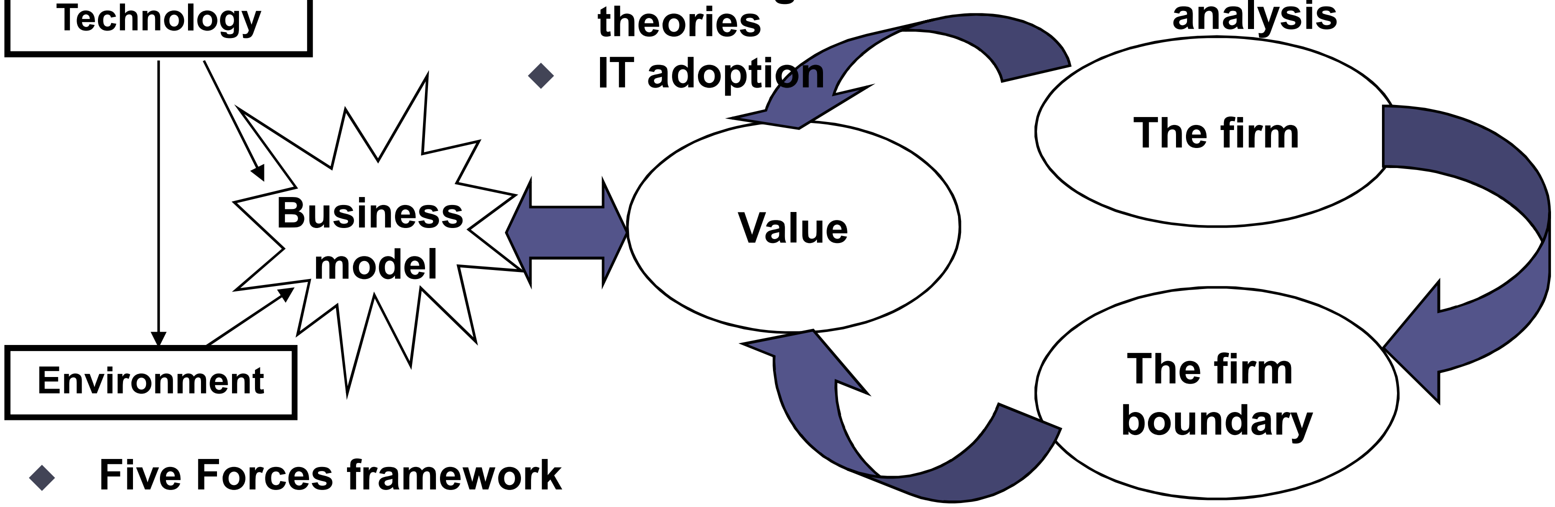
- Boundary analysis: Can you access enough resources to pursue the Internet business model? How to arrange firm boundary to create capability?

Underpinning Theories

- Network economics
- Competitive advantage

- SWOT
- Portfolio analysis
- IT and business alignment analysis

- Marketing theories
- IT adoption



- Five Forces framework
- Supply/buyer analysis
- Institutional theories
- PEST analysis

- Vertical boundary: Value chain analysis; transaction cost theory
- Horizontal boundary: Resource-based theory; economics of scale and scope

Information Systems and Business Models and Strategies

Information Systems and Business Strategy

What Is a Strategic Information System?

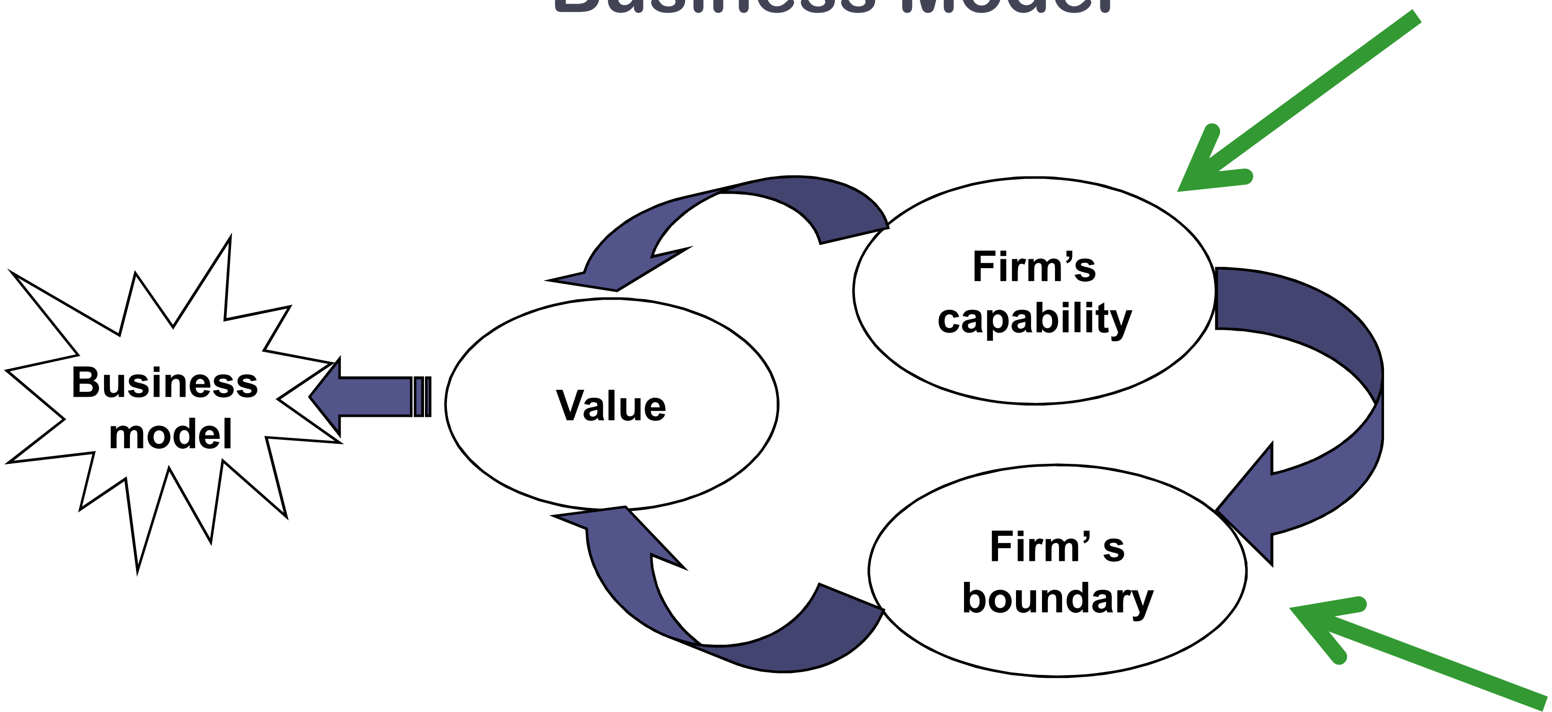
- Computer system at any level of an organization
- Changes goals, operations, products, services, or environmental relationships
- Helps organization gain a competitive advantage

Business-Level Strategy and the Value Chain Model

Business Competitive Strategies

- Become the low-cost producer
- Differentiate product or service
- Change scope of competition by enlarging or narrowing market

Business Model



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Resource Based Theory

- **Assets and Capabilities for detecting and responding to market opportunities and threats (Wade and Hulland, 2004)**

- **Assets are considered as anything tangible or intangible which a firm uses in its processes for creating, producing, and/or offering its products (goods or services) to a market, whereas capabilities are repeatable patterns of actions in the use of assets to create, produce, and/or offer products to a market (Sanchez et al. 1996 cited in Wade & Hulland 2004, p. 109).**

- **heterogeneous and immobile – valuable, rare, imperfectly imitable and not strategically substitutable (Barney 1991)**


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Discover the unique taste of our product
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Take an interactive tour through our production facility.
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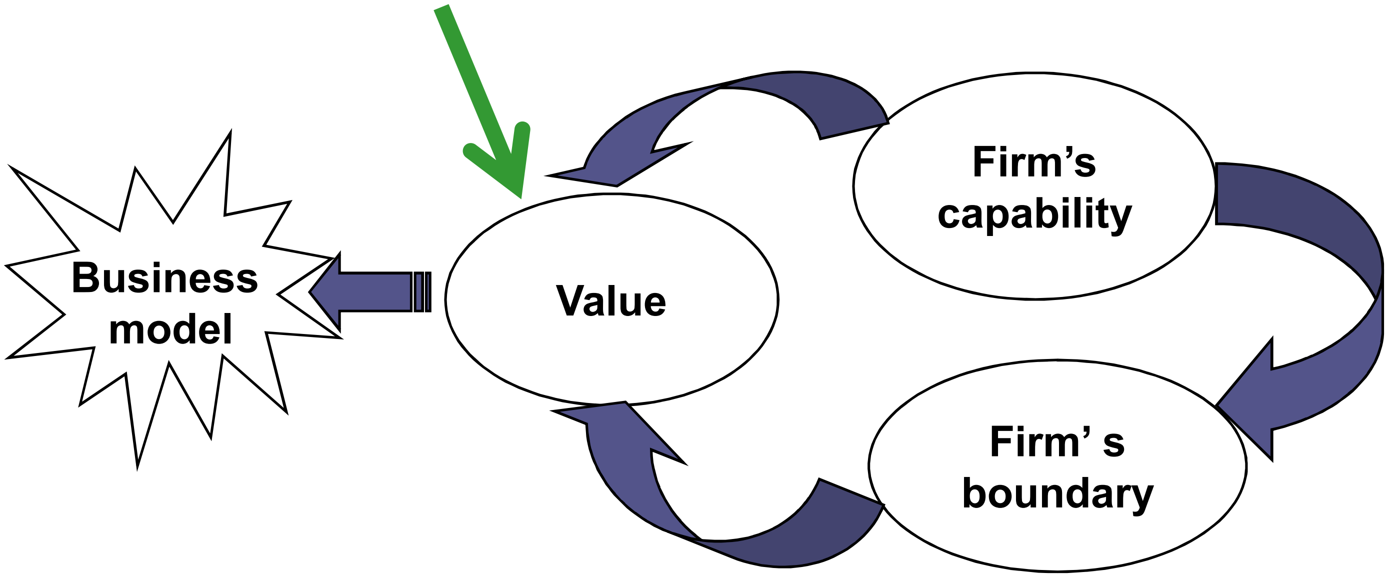
Business Model



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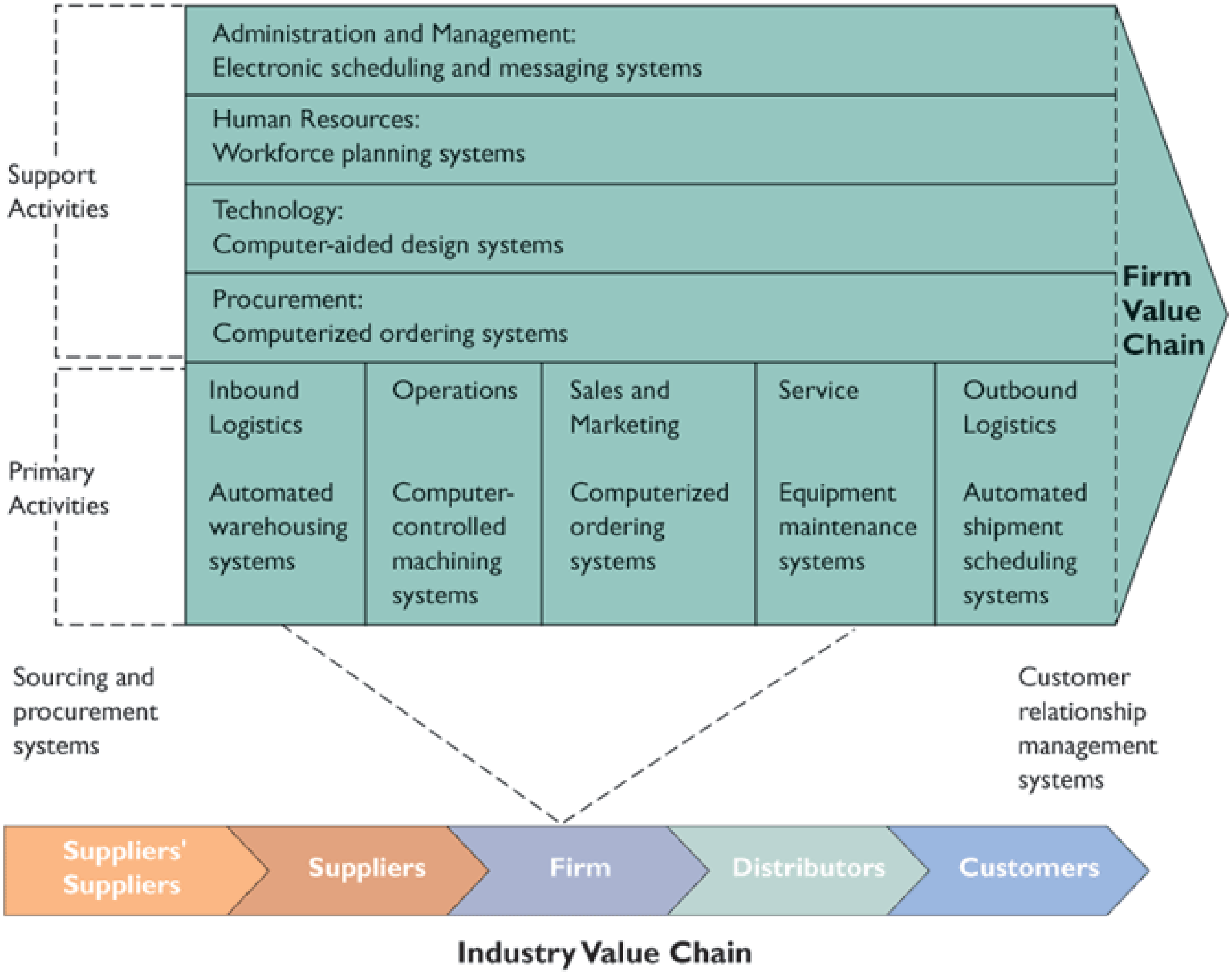
Business-Level Strategy and the Value Chain Model

Value Chain Model

- Firm seen as series or "chain" of activities that add a margin of value to firm's products or services
- Highlights activities in business where competitive strategies are best applied
- Primary or support activities
- Firm's value chain linked to value chains of other partners

The firm value chain and the industry value chain



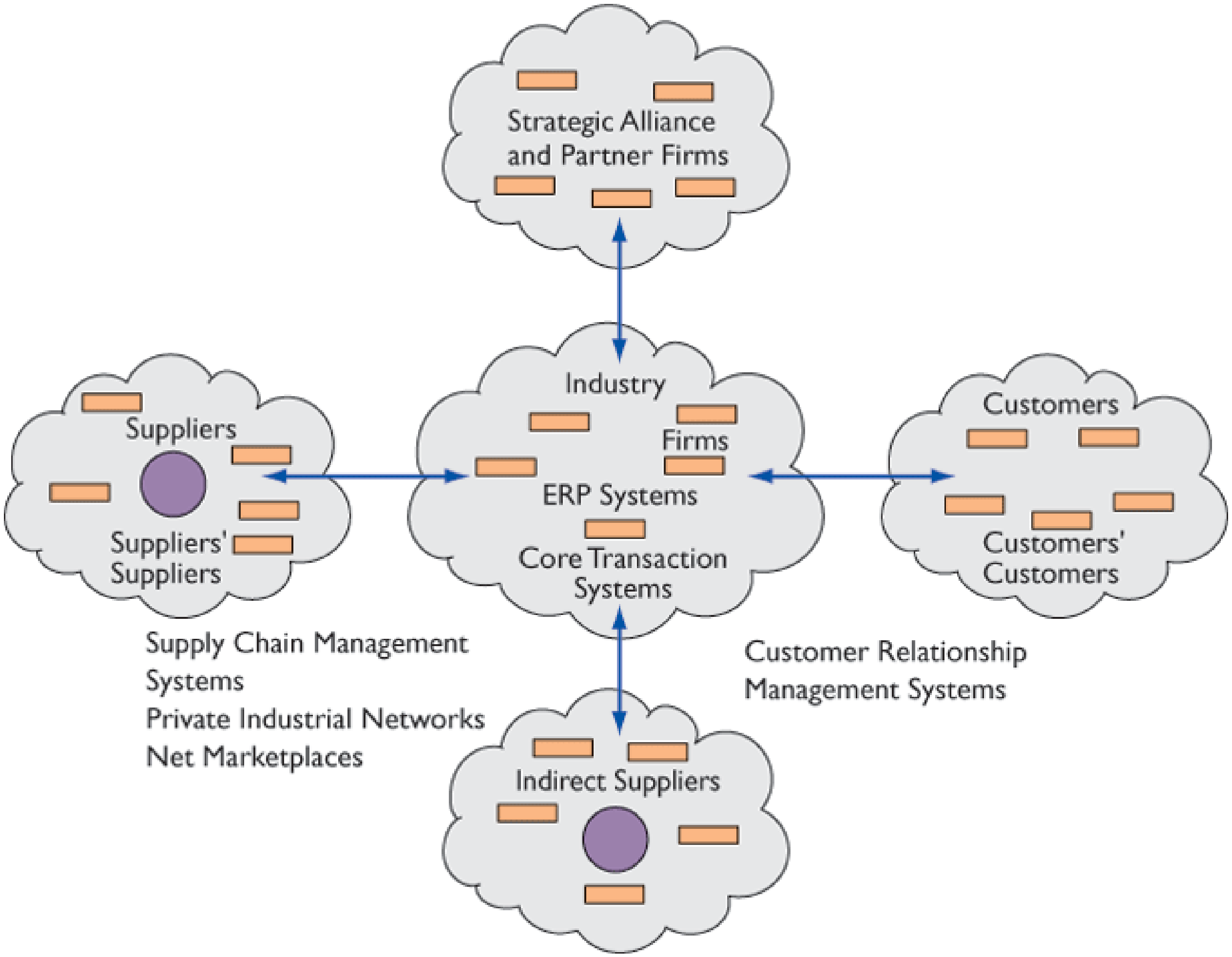
Business-Level Strategy and the Value Chain Model

Value Web

- Value chain extended by Internet technology that connects all the firm's suppliers, partners, and customers
- Collection of independent firms using IT to coordinate value chains to collectively produce a product or service
- More customer-driven, less linear than value chain
- Flexible, adaptive to changes in supply and demand

Information Systems and Business Strategy

The value web



Information Systems and Business Strategy

Business-Level Strategy and the Value Chain Model

Product Differentiation

- Strategy for creating brand loyalty by developing new and unique products and services not easily duplicated by competitors
- Information systems used to create new information technology-based products and services
- Examples: ATMs, computerized reservation services

Business-Level Strategy and the Value Chain Model

Focused Differentiation

- Strategy for developing new market niches for specialized products and services
- Information systems used to produce data for sales and marketing; analyze customer behavior
- Examples: One-to-one and customized marketing

Business-Level Strategy and the Value Chain Model

Efficient Customer Response Systems

- Links consumer behavior back to distribution, production, and supply chains
- Information systems used to link customer's value chain to firm's value chain
- Reduce inventory costs; deliver product or service more quickly to customer

Business-Level Strategy and the Value Chain Model

Switching Costs

- Cost of switching to competitive product; higher switching costs discourage customers going to competitors
- Information systems offer convenience, ease of use, raise switching costs

Firm-Level Strategy and Information Technology

At firm level, information technology can:

- Promote synergies between business units, pool resources
- Tie together operations of disparate business units
- Improve core competencies

Information Systems and Business Strategy

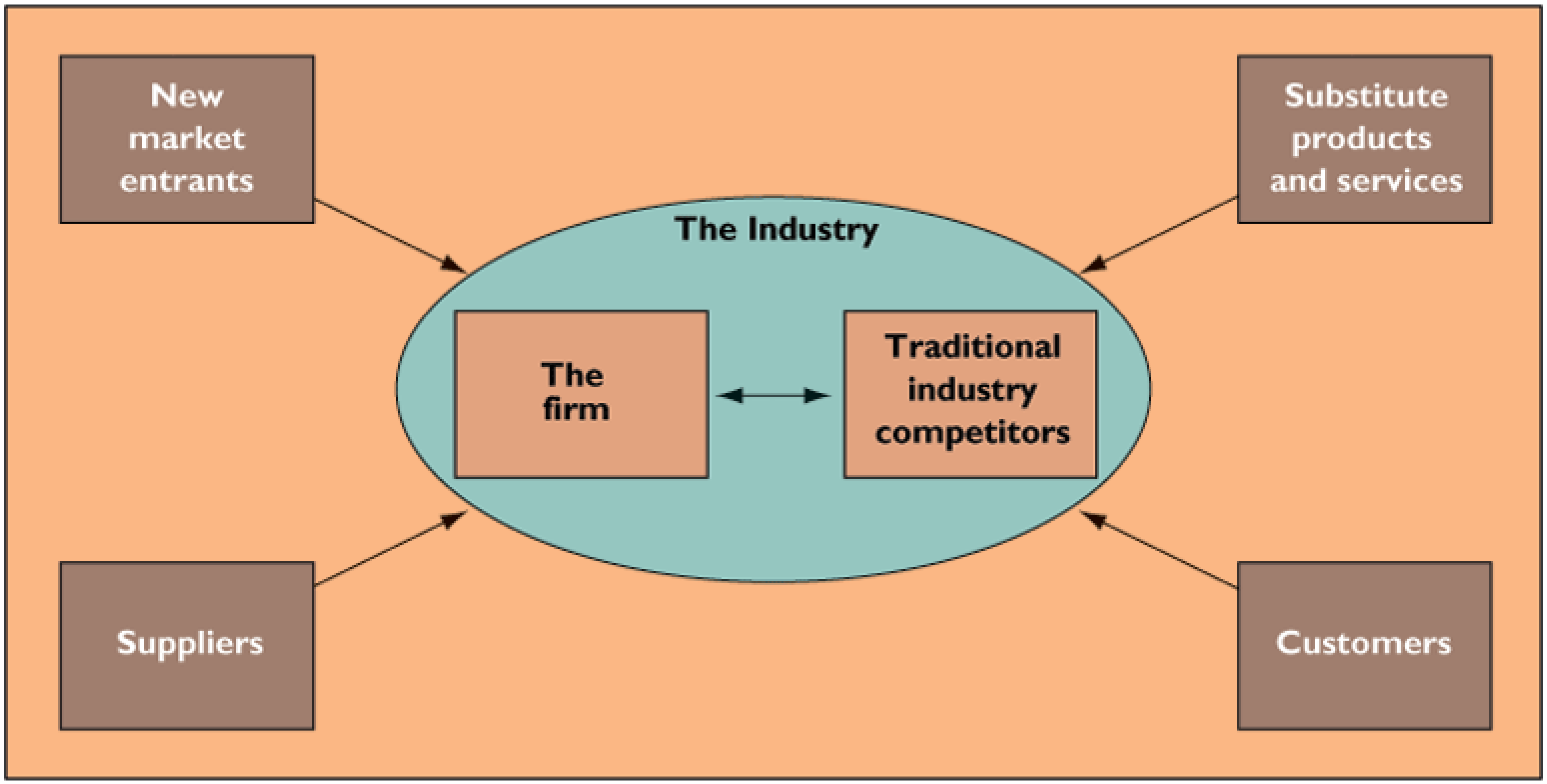
Industry-Level Strategy and Information Technology

Industry-Level Strategies:

- Information partnerships
- Competitive forces model; e.g., developing industry standards
- Network economics: cost of adding new participant negligible, but adds great marginal gain

Information Systems and Business Strategy

Porter's competitive forces model



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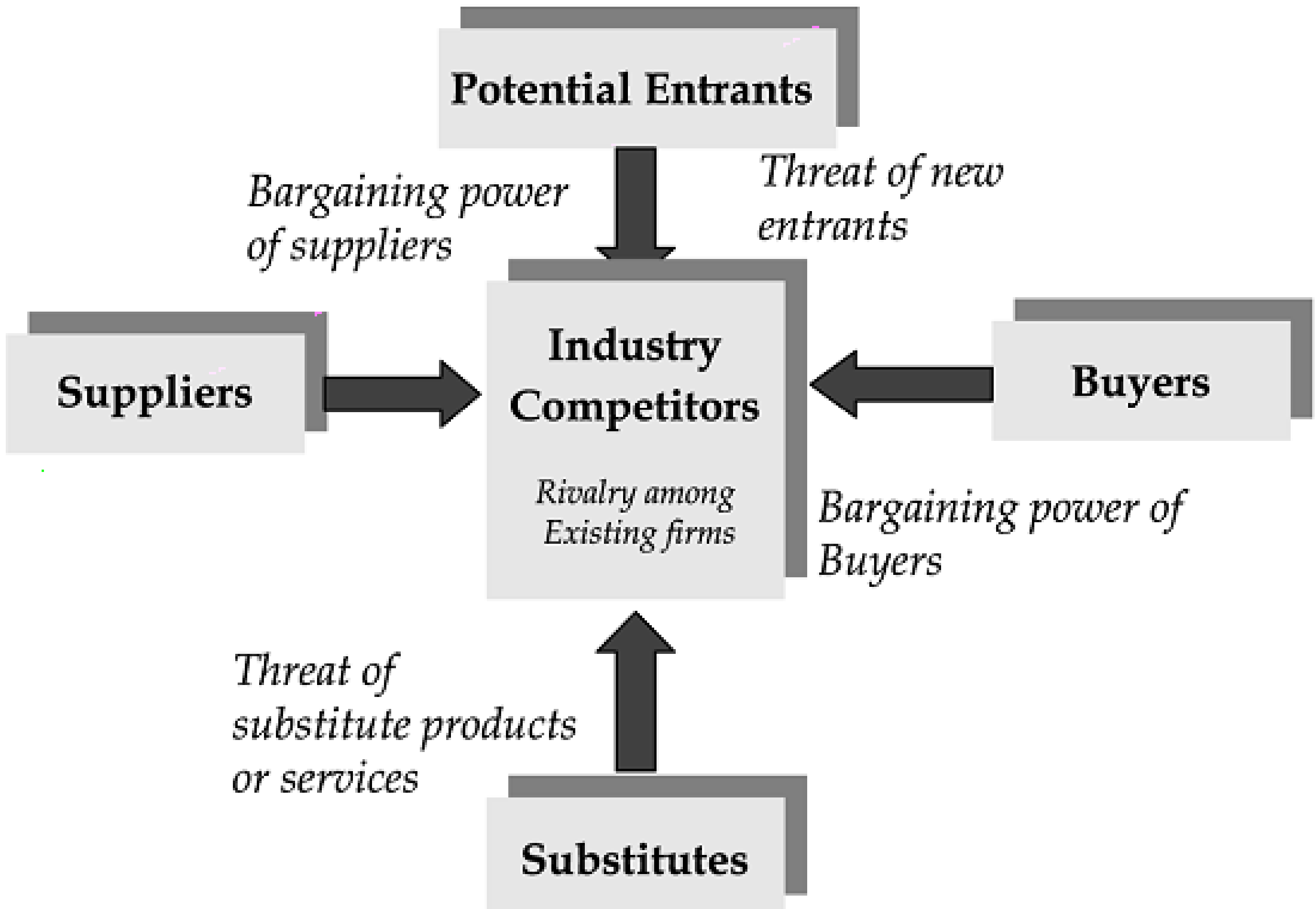
Information Systems and Business Strategy



Information Systems and Business Strategy

Industry-Level Strategy and Information Technology

Impact of Internet on Competitive Forces

- Reduces barriers to entry
- Enables new substitute products and services
- Shifts bargaining power to customer
- Raises firm's bargaining power over suppliers
- Suppliers benefit from reduced barriers to entry and from elimination of intermediaries
- Widens geographic market, increases number of competitors, reduces differentiation among competitors

Information Systems and Business Strategy

The new competitive forces model

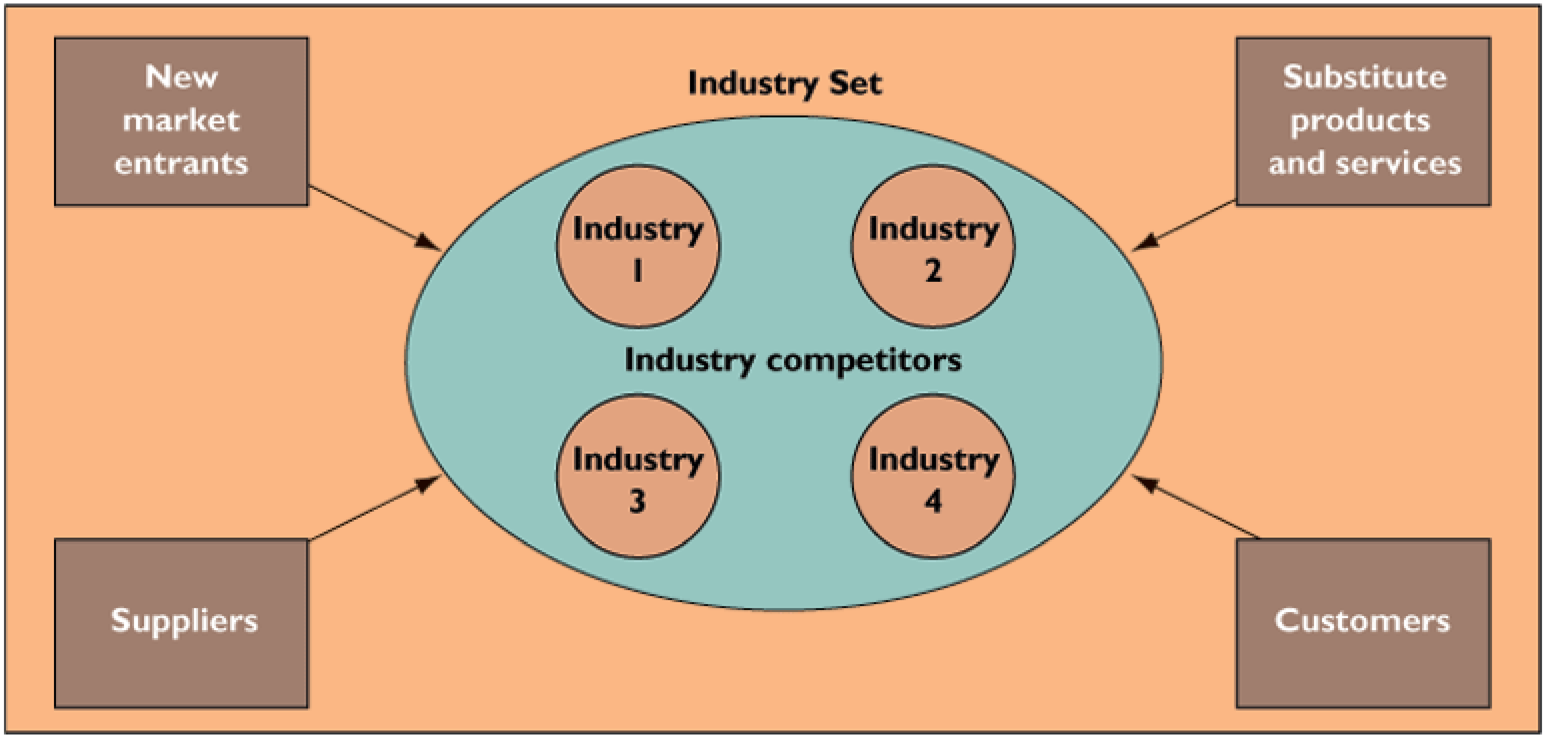


Figure 3-16

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Group Assignment

Chapter 3 Case Study

How Much Can New Information Systems Help GM?

1. Analyze GM by using the value chain and competitive forces models.
2. Describe the relationship between GM’s organization and its information technology infrastructure. What management, organization, and technology factors influenced this relationship?

Chapter 3 Case Study

How Much Can New Information Systems Help GM?

3. Evaluate the current business strategy of GM in response to its competitive environment. What is the role of information systems in that strategy? How do they provide value for GM?
4. How successful have GM's strategy and use of information systems been in addressing the company's problems? What kind of problems can they solve? What are some of the problems that they cannot address?

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- *Thank You for Listening*

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