

# Enterprise Systems & Architecture

Reference: *Management Information Systems* – James O'Brien  
*Management Information Systems* – Laudon / Laudon

## Strategic IT

- Technology is no longer an afterthought in business strategy, but the cause and driver
- IT can change the way businesses compete
- A **strategic information system** is any information system that uses IT to help an organization...
  - Gain a competitive advantage
  - Reduce a competitive disadvantage
  - Or meet other strategic enterprise objectives

## Does IT matter?

- **No**
  - Nicholas Carr argues that IT is infrastructure, much like electricity
  - Too commonplace to offer a competitive advantage
- **Yes**
  - It is not just networks and computers.
  - The important part is the software and information and how IT is used

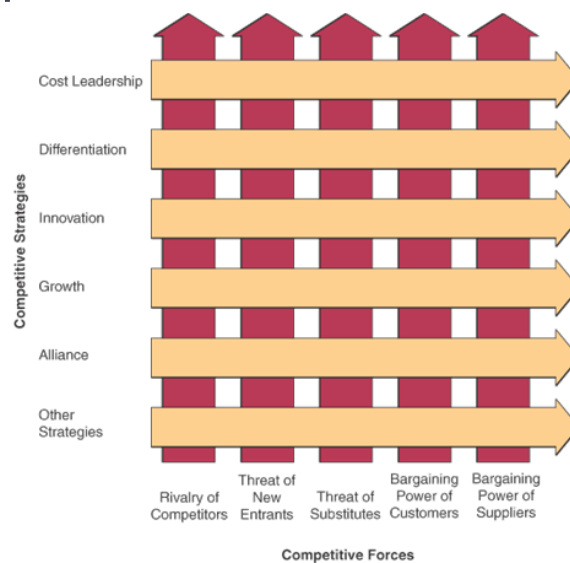
## Competitive Forces

- To succeed, a business must develop strategies to counter these forces...
  - Rivalry of competitors within its industry
  - New entrants into an industry and its markets
  - Substitute products that may capture market share
  - Bargaining power of customers
  - Bargaining power of suppliers

## Michael Porter - 5 Forces

<https://www.youtube.com/watch?v=PeN1pvahsSA>

## Competitive Forces and Strategies



## Five Competitive Strategies

- Cost Leadership
  - Become low-cost producers
  - Help suppliers or customers reduce costs
- Differentiation Strategy
  - Differentiate a firm's products from its competitors'
  - Focus on a particular segment or niche of market
    - Example: Moen uses online customer design

## Competitive Strategies (continued)

- Innovation Strategy
  - Unique products, services, or markets
  - Radical changes to business processes
- Growth Strategy
  - Expand company's capacity to produce
  - Expand into global markets
  - Diversify into new products or services

## Competitive Strategies (continued)

- Alliance Strategy
  - Establish linkages and alliances with customers, suppliers, competitors, consultants, and other companies
  - Includes mergers, acquisitions, joint ventures, virtual companies
    - Example: Wal-Mart uses automatic inventory replenishment by supplier

## Using Competitive Strategies

- These strategies are not mutually exclusive
  - Organizations use one, some, or all
  - A given activity could fall into one or more categories of competitive strategy
- Not everything innovative serves to differentiate one organization from another
  - Likewise, not everything that differentiates organizations is necessarily innovative

## Ways to Implement Basic Strategies

Basic Strategies in the Business Use of Information Technology	
<b>Lower Costs</b>	<ul style="list-style-type: none"> <li>• Use IT to substantially reduce the cost of business processes.</li> <li>• Use IT to lower the costs of customers or suppliers.</li> </ul>
<b>Differentiate</b>	<ul style="list-style-type: none"> <li>• Develop new IT features to differentiate products and services.</li> <li>• Use IT features to reduce the differentiation advantages of competitors.</li> <li>• Use IT features to focus products and services at selected market niches.</li> </ul>
<b>Innovate</b>	<ul style="list-style-type: none"> <li>• Create new products and services that include IT components.</li> <li>• Develop unique new markets or market niches with the help of IT.</li> <li>• Make radical changes to business processes with IT that dramatically cut costs, improve quality, efficiency, or customer service, or shorten time to market.</li> </ul>
<b>Promote Growth</b>	<ul style="list-style-type: none"> <li>• Use IT to manage regional and global business expansion.</li> <li>• Use IT to diversify and integrate into other products and services.</li> </ul>
<b>Develop Alliances</b>	<ul style="list-style-type: none"> <li>• Use IT to create virtual organizations of business partners.</li> <li>• Develop interenterprise information systems linked by the Internet and extranets that support strategic business relationships with customers, suppliers, subcontractors, and others.</li> </ul>

## Other Competitive Strategies

- Lock in Customers and Suppliers
  - Deter them from switching to competitors
- Build in Switching Costs
  - Make customers and suppliers dependent on the use of innovative IS
- Erect Barriers to Entry
  - Discourage or delay other companies from entering the market
  - Increase the technology or investment needed to enter

## Other Competitive Strategies

- **Build Strategic IT Capabilities**
  - Take advantage of strategic opportunities when they arise
  - Improve efficiency of business practices
- **Leverage Investment in IT**
  - Develop products and service that would not be possible without a strong IT capability

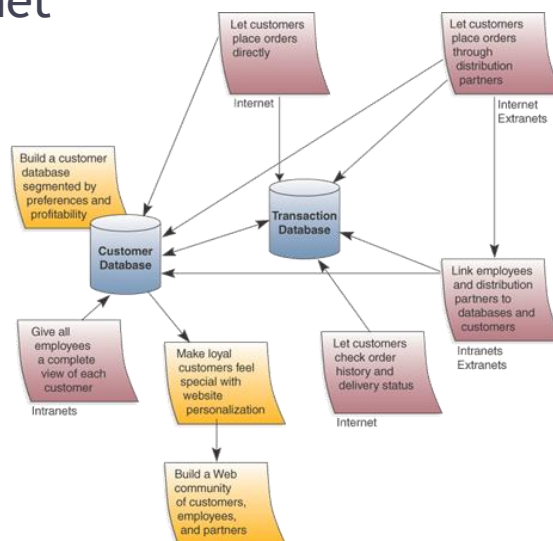
## Customer-Focused Business

- **What is the business value in being customer-focused?**
  - Keep customers loyal
  - Anticipate their future needs
  - Respond to customer concerns
  - Provide top-quality customer service
- **Focus on customer value**
  - Quality, not price, has become the primary determinant of value
  - Consistency

## Providing Customer Value

- Companies that consistently offer the best value from the customer's perspective...
  - Track individual preferences
  - Keep up with market trends
  - Supply products, services, and information anytime, anywhere
  - Tailor customer services to the individual
  - Use Customer Relationship Management (CRM) systems to focus on the customer

## Building Customer Value via the Internet





## The Value Chain and Strategic IS

- View the company as a chain of basic activities that add value to its products and services
  - *Primary processes* directly relate to manufacturing or delivering products
  - *Support processes* help support the day-to-day running of the firm and indirectly contribute to products or services
- Use the value chain to highlight where competitive strategies will add the most value

## Using IS in the Value Chain



## Strategic Uses of IT

- A company that emphasizes strategic business use of IT would use it to gain a competitive differentiation
  - Products
  - Services
  - Capabilities

## What do you think?

- Does IT matter?

## Reengineering Business Processes

- Called BPR or simply Reengineering
  - Fundamental rethinking and radical redesign of business processes
  - Seeks to achieve improvements in cost, quality, speed, and service
- Potential payback is high, but so is risk of disruption and failure
- Organizational redesign approaches are an important enabler of reengineering
  - Includes use of IT, process teams, case managers

## BPR Versus Business Improvement

	Business Improvement	Business Process Reengineering
Level of Change	Incremental	Radical
Process Change	Improved new version of process	Brand-new process
Starting Point	Existing processes	Clean slate
Frequency of Change	One-time or continuous	Periodic one-time change
Time Required	Short	Long
Typical Scope	Narrow, within functions	Broad, cross functional
Horizon	Past and present	Future
Participation	Bottom-up	Top-down
Path to Execution	Cultural	Cultural, structural
Primary Enabler	Statistical control	Information technology
Risk	Moderate	High

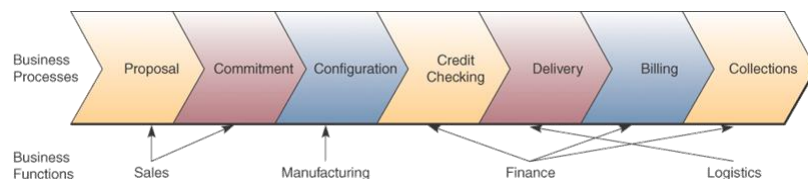
Source: Adapted from Howard Smith and Peter Fingar, *Business Process Management: The Third Wave* (Tampa, FL: Meghan-Kiffer Press, 2003), p. 118.

## The Role of Information Technology

- IT plays a major role in reengineering most business processes
  - Can substantially increase process efficiencies
  - Improves communication
  - Facilitates collaboration

## A Cross-Functional Process

- Many processes are reengineered with...
  - Enterprise resource planning software
  - Web-enabled electronic business and commerce systems



## Reengineering *Order Management*

- IT that supports this process...
  - CRM systems using intranets and the Internet
  - Supplier-managed inventory systems using the Internet and extranets
  - Cross-functional ERP software to integrate manufacturing, distribution, finance, and human resource processes
  - Customer-accessible e-commerce websites for order entry, status checking, payment, and service
  - Customer, product, and order status databases accessed via intranets and extranets

## Becoming an Agile Company

- **Agility** is the ability to prosper
  - In rapidly changing, continually fragmenting global markets
  - By selling high-quality, high-performance, customer-configured products and services
  - By using Internet technologies
- An agile company profits in spite of
  - Broad product ranges
  - Short model lifetimes
  - Individualized products

## Strategies for Agility

- An agile company...
  - Presents products as solutions to customers' problems
  - Cooperates with customers, suppliers and competitors
  - Brings products to market as quickly and cost-effectively as possible
  - Organizes to thrive on change and uncertainty
  - Leverages the impact of its people and the knowledge they possess

## How IT Helps a Company be Agile

Type of Agility	Description	Role of IT	Example
<b>Customer</b>	Ability to co-opt customers in the exploitation of innovation opportunities <ul style="list-style-type: none"> <li>• As sources of innovation ideas</li> <li>• As cocreators of innovation</li> <li>• As users in testing ideas or helping other users learn about the idea</li> </ul>	Technologies for building and enhancing virtual customer communities for product design, feedback, and testing	eBay customers are its de facto product development team because they post an average of 10,000 messages each week to share tips, point out glitches, and lobby for changes.
<b>Partnering</b>	Ability to leverage assets, knowledge, and competencies of suppliers, distributors, contract manufacturers, and logistics providers in the exploration and exploitation of innovation opportunities	Technologies facilitating interfirm collaboration, such as collaborative platforms and portals, supply-chain systems, etc.	Yahoo! has accomplished a significant transformation of its service from a search engine into a portal by initiating numerous partnerships to provide content and other media-related services from its website.
<b>Operational</b>	Ability to accomplish speed, accuracy, and cost economy in the exploitation of innovation opportunities	Technologies for modularization and integration of business processes	Ingram Micro, a global wholesaler, has deployed an integrated trading system allowing its customers and suppliers to connect directly to its procurement and ERP systems.

Source: Adapted from V. Sambamurthy, Anandhi Bhaharadwaj, and Varun Grover, "Shaping Agility Through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms," *MIS Quarterly*, June 2003, p. 246.

## Creating a Virtual Company

- A **virtual company** uses IT to link...
  - People
  - Organizations
  - Assets
  - Ideas
- Inter-enterprise information systems link...
  - Customers
  - Suppliers
  - Subcontractors
  - Competitors

## Virtual Company Strategies

- Basic business strategies
  - Share information and risk with alliance partners
  - Link complimentary core competencies
  - Reduce concept-to-cash time through sharing
  - Increase facilities and market coverage
  - Gain access to new markets and share market or customer loyalty
  - Migrate from selling products to selling solutions

## Building a Knowledge-Creating Company

- A **knowledge-creating company** or learning organization...
  - Consistently creates new business knowledge
  - Disseminates it throughout the company
  - Builds it into its products and services

## Two Kinds of Knowledge

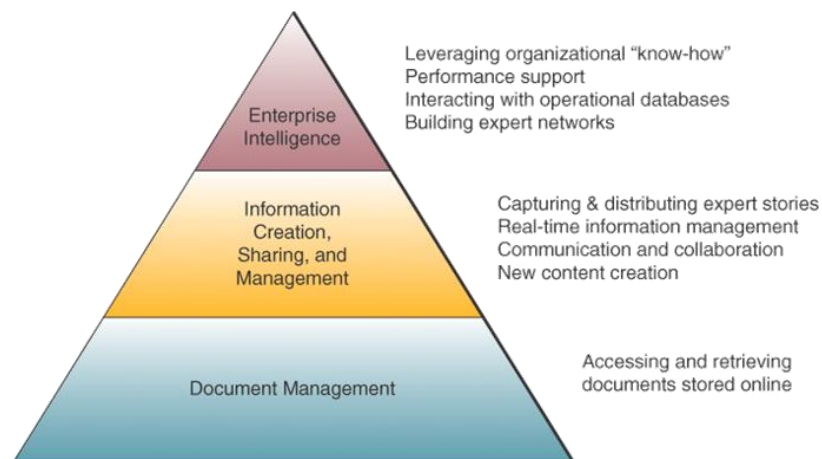
- Explicit Knowledge
  - Data, documents, and things written down or stored in computers
- Tacit Knowledge
  - The “how-to” knowledge in workers’ minds
  - Represents some of the most important information within an organization
    - A knowledge-creating company makes such tacit knowledge available to others



## Knowledge Management

- Successful knowledge management
  - Creates techniques, technologies, systems, and rewards for getting employees to share what they know
  - Makes better use of accumulated workplace and enterprise knowledge

## Knowledge Management Techniques



## Knowledge Management Systems (KMS)

- Knowledge management systems
  - A major strategic use of IT
  - Manages organizational learning and know-how
  - Helps knowledge workers create, organize, and make available important knowledge
  - Makes this knowledge available wherever and whenever it is needed
- Knowledge includes
  - Processes, procedures, patents, reference works, formulas, best practices, forecasts, and fixes

## Strategy

- [https://www.youtube.com/watch?v=vzB1HVt6\\_sk](https://www.youtube.com/watch?v=vzB1HVt6_sk)