Management Information Systems

Management Information Systems

B12. Using Information Technology for Strategic Advantage





- Code: 166137-01+02
- · Course: Management Information Systems
- Period: Spring 2013
- Professor: Sync Sangwon Lee, Ph. D

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Learning Objectives

- 01. Describe ways of interpreting the strategic impact of information systems.
- 02. Describe IT-enabled strategies that companies can use to achieve competitive advantage in their industry.
- 03. Describe information technology skills and resources as they relate to the achievement of sustained competitive advantage.
- 04. Explain the four-stage model of information systems planning, and discuss the importance of aligning information systems plans with business plans.
- 05. Describe information requirement analysis, project payoff and portfolios, resource allocation, and project planning.
- 06. Discuss the meaning and importance of IT alignment.
- 07. Identify the different types of IT architectures and outline the processes necessary to establish an information architecture.



Learning Objectives

- 08. Discuss the major issues addressed by information systems planning.
- 09. Distinguish the major Web-related IT planning issues and understand application portfolio selection.

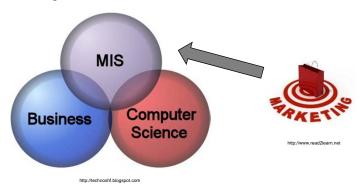


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01. Strategic Management

- Competitive Advantage
 - Any information system--EIS, OIS, TPS, KMS--that changes the goals, processes, products, or environmental relationships to help an organization gain a competitive advantage or reduce a competitive disadvantage.



01. Strategic Management

- Competitive Advantage
 - An advantage over competitors in some measure such as cost, quality, or speed
 - A difference in the value chain data
 - Improving core competency
 - Employee productivity
 - Operational efficiency



http://communications.webalue.com

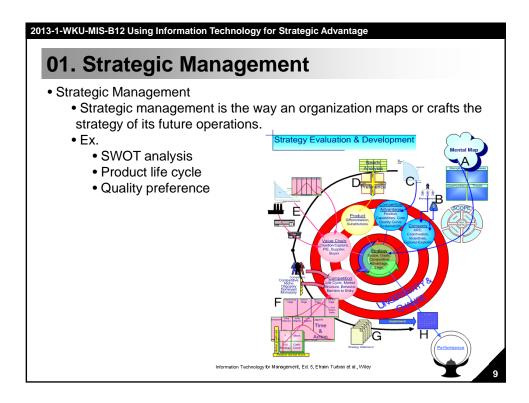
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01. Strategic Management

- Competitive Advantage
 - The goals, processes, products, or environmental relationships that help an organization gain a competitive advantage or reduce a competitive disadvantage.



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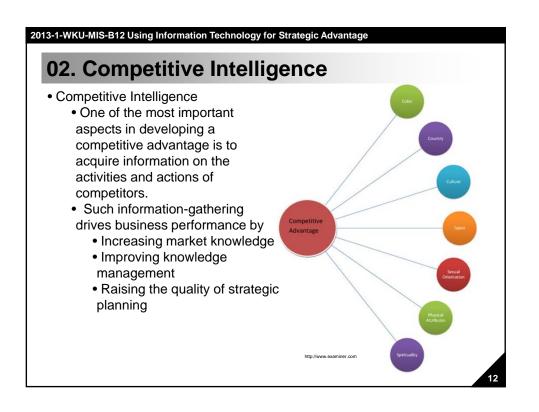
01. Strategic Management

- Information Technology for Strategic Management
 - Innovative applications: Create innovative applications that provide direct strategic advantage to organizations.
 - Competitive weapons: Information systems themselves are recognized as a competitive weapon
 - Changes in processes: IT supports changes in business processes that translate to strategic advantage

• Links with business partners: IT links a company with its business partners effectively and efficiently.

nttp://www.myvirtualgenie.com

O1. Strategic Management Information Technology for Strategic Management Cost reductions: IT enables companies to reduce costs. Relationships with suppliers and customers: IT can be used to lock in suppliers and customers, or to build in switching costs. New products: A firm can leverage its investment in IT to create new products that are in demand in the marketplace. Competitive intelligence: IT provides competitive (business) intelligence by collecting and analyzing information about products, markets, competitors, and environmental changes.



02. Competitive Intelligence

- Competitive Intelligence
 - However once the data has been gathered it must be processed into information and subsequently business intelligence.
 - Porters 5 Forces is a well-known framework that aids in this analysis.



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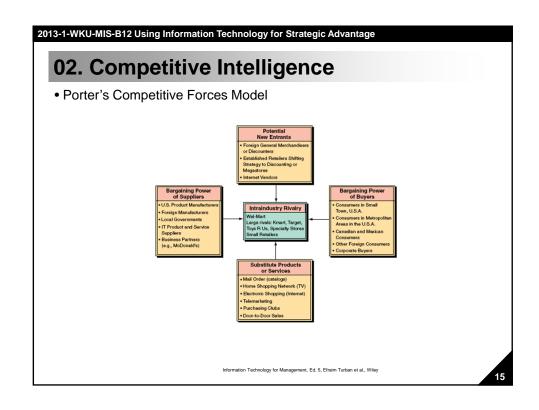
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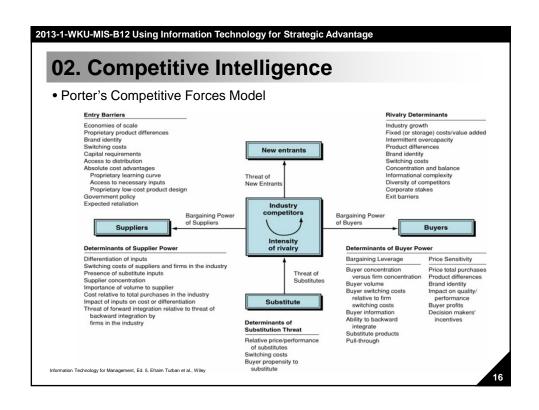
02. Competitive Intelligence

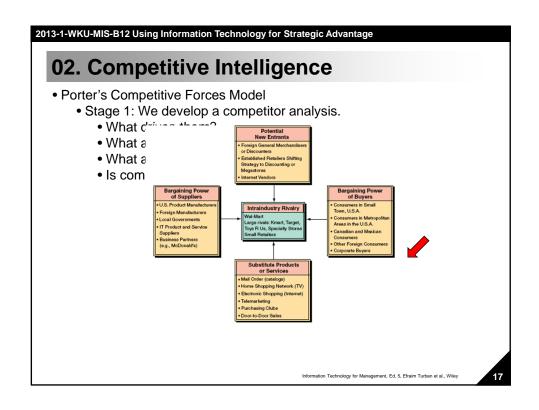
- Porter's Competitive Forces Model
 - The model recognizes five major forces that could endanger a company's position in a given industry.
 - 5 Forces
 - The threat of entry of new competitors
 - The bargaining power of suppliers
 - The bargaining power of customers (buyers)
 - The threat of substitute products or services
 - The rivalry among existing firms in the industry

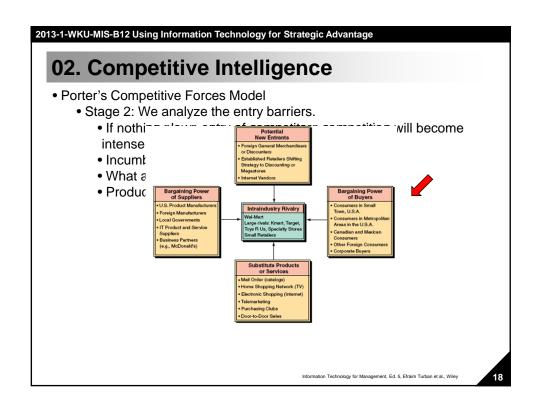


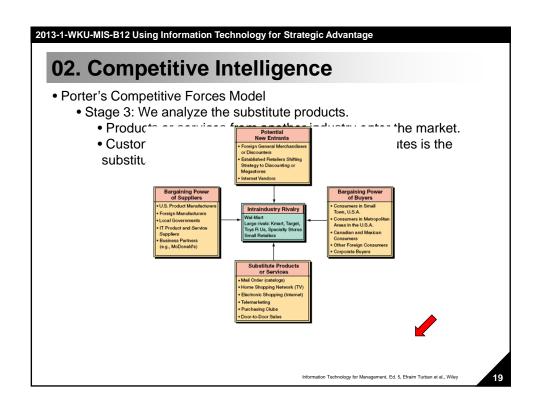
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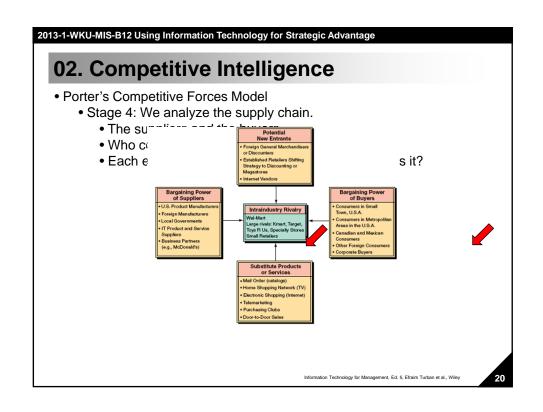












03. Generic Strategies

- Developing a Sustained Competitive Advantage
 - Analyzing the forces that influence a company's competitive position will assist management in crafting a strategy aimed at establishing a sustained competitive advantage.
 - To establish such a position, a company needs to develop a strategy of performing activities differently than a competitor.



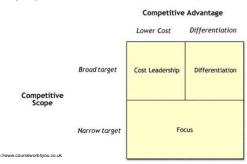
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03. Generic Strategies

- Developing a Sustained Competitive Advantage
 - Generic strategy options
 - Cost leadership strategy: Produce products and/or services at the lowest cost in the industry.
 - Differentiation strategy: Offer different products, services, or product features.
 - Niche strategy: Select a narrow-scope segment (niche market) and be the best in quality, speed, or cost in that market.



03. Generic Strategies

- Developing a Sustained Competitive Advantage
 - Types of strategy
 - Growth strategy: Increase market share, acquire more customers, or sell more products.
 - Alliance strategy: Work with business partners in partnerships, alliances, joint ventures, or virtual companies.
 - Innovation strategy: Introduce new products and services, put new features in existing products and services, or develop new ways to produce them.
 - Operational effectiveness strategy: Improve the manner in which internal business processes are executed so that a firm performs similar activities better than rivals.



http://www.qualit/scores.com

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03. Generic Strategies

- Developing a Sustained Competitive Advantage
 - Types of strategy
 - Customer-orientation strategy: Concentrate on making customers happy.
 - Time strategy: Treat time as a resource, then manage it and use it to the firm's advantage.
 - Entry-barriers strategy: Create barriers to entry.
 - Lock in customers or suppliers strategy: Encourage customers or suppliers to stay with you rather than going to competitors.
 - Increase switching costs strategy: Discourage customers or suppliers from going to competitors for economic reasons.



03. Generic Strategies

- Developing a Sustained Competitive Advantage
 - Our goal is to perform activities differently than a competitor.
 - Those activities can be linked in a Value Chain Model.



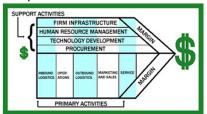
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03. Generic Strategies

- Value Chain Model
 - According to the value chain model (Porter, 1985), the activities conducted in any organization can be divided into two parts:
 - Primary activities
 - Support activities
 - The initial purpose of the value chain model was to analyze the internal operations of a corporation, in order to increase its efficiency, effectiveness, and competitiveness.
 - We can extend that company analysis, by systematically evaluating a company's key processes and core competencies to eliminate any activities that do not add value to the product.

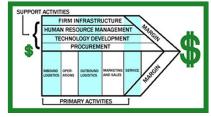


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03. Generic Strategies

- Value Chain Model
 - Primary activities are those activities in which materials are purchased, processed into products, and delivered to customers.
 - Each adds value to the product or service hence the value chain.
 - Inbound logistics (inputs)
 - Operations (manufacturing and testing)
 - Outbound logistics (storage and distribution)
 - Marketing and sales
 - Service



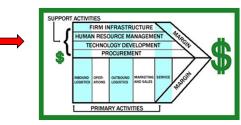
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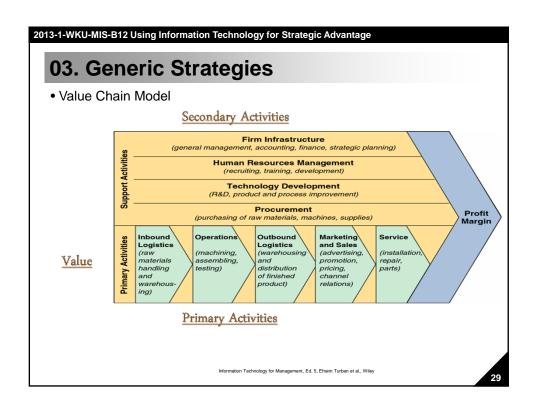
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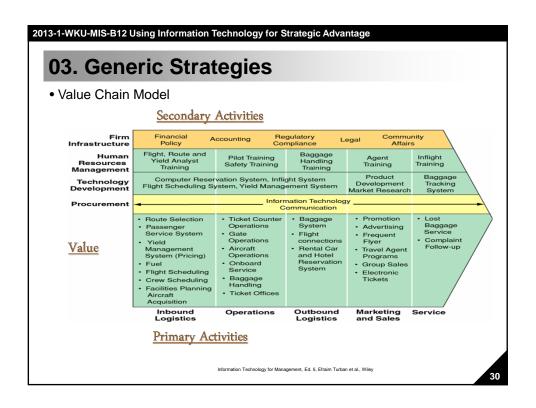
03. Generic Strategies

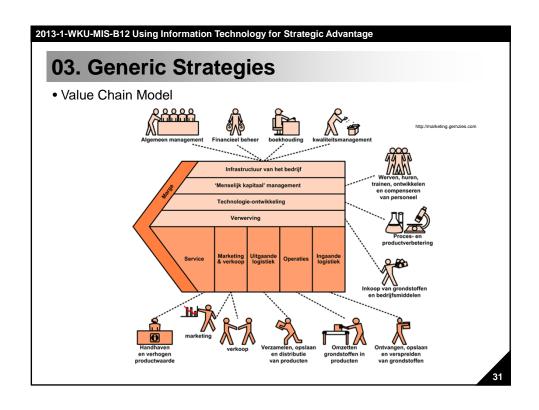
- Value Chain Model
 - Unlike the primary activities, which directly add value to the product or service, the support activities are operations that support the creation of value (primary activities)
 - The firm's infrastructure (accounting, finance, management)
 - Human resources management
 - Technology development (R&D)
 - Procurement

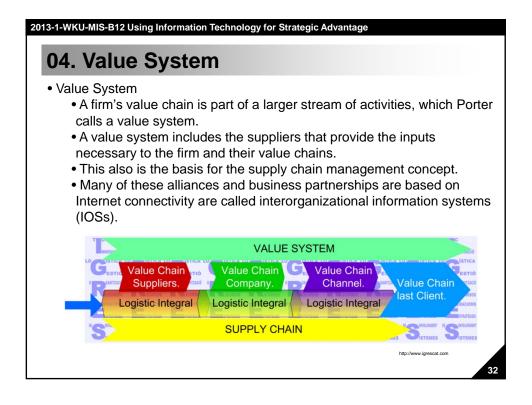


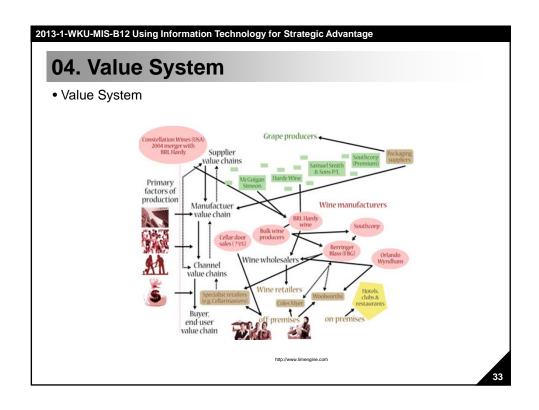
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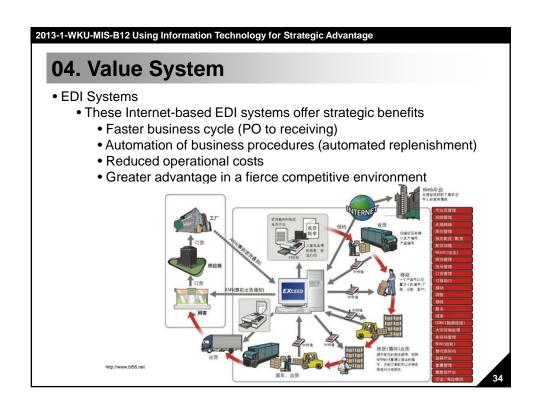












05. Strategic Information System

- Strategic Information System (SIS)
 - Strategic information systems are designed to establish a profitable and sustainable position against the competitive forces in an industry.
 - Due to advances in systems development it has become increasingly difficult to sustain an advantage for an extended period.
 - Experience also indicates that information systems, by themselves, can rarely provide a sustainable competitive advantage.
 - Therefore, the major problem that companies now face is how to sustain their competitive advantage.



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05. Strategic Information System

- Strategic Information System (SIS)
 - One popular approach is to use inward systems that are not visible to competitors.
 - These proprietary systems allow the company to perform the activities on their value chain differently than their competitors.



http://www.denovo-us.com

05. Strategic Information System

- Strategic Resources and Capabilities
 - Key resource attributes that create competitive advantage

Resource Attributes	Description	
Value	The degree to which a resource can help a firm improve efficiency or effectiveness.	
Rarity	The degree to which a resource is nonheterogeneously distributed across firms in an industry.	
Appropriability	The degree to which a firm can make use of a resource without incurring an expense that exceeds the value of the resource.	
Imitability	The degree to which a resource can be readily emulated.	
Mobility	The degree to which a resource is easy to transport.	
Substitutability	The degree to which another resource can be used in lieu of the original resource to achieve value.	

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05. Strategic Information System

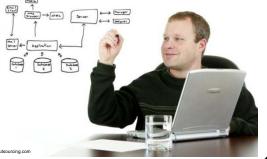
- Strategic Resources and Capabilities
 - IS resources and capabilities

IS Resource/Capability	Description	Relationship to Resource Attributes
Technology resources	Includes infrastructure, proprietary technology, hardware, and software.	Not necessarily rare or valuable, but difficult to appropriate and imitate Low mobility but a fair degree of substitutability.
IT skills	Includes technical knowledge, development knowledge, and operational skills.	Highly mobile, but less imitable or substitutable. Not necessarily rare but highly valuable.
Managerial IT resources	Includes vendor and outsourcer relationship skills, market responsiveness, IS-business partnerships, IS planning and management skills.	Somewhat more rare than the technology and IT skill resources. Also of higher value. High mobility given the short tenure of CIOs. Nonsubstitutable.

Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

06. IT Planning

- IT Planning
 - IT planning is the organized planning of the IT infrastructure and applications portfolios for all levels of the organization.
 - Corporate IT planning determines the IT infrastructure which in turn determines what applications end users can deploy.
 - Aligning the goals of the organization and the ability of IT to contribute to those goals can deliver great gains in productivity to the organization.



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06. IT Planning

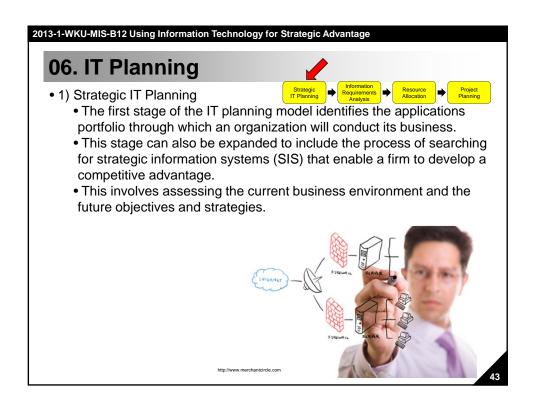
- IT Planning Approaches
 - Business-led approach: The IT investment plan is defined on the basis of the current business strategy.
 - Method-driven approach: The IS needs are identified with the use of techniques and tools.
 - Technological approach: Analytical modeling and other tools are used to execute the IT plans.
 - Administrative approach: The IT plan is established by a steering committee.
 - Organizational approach: The IT investment plan is derived from a business-consensus view of all stakeholders in the organization.

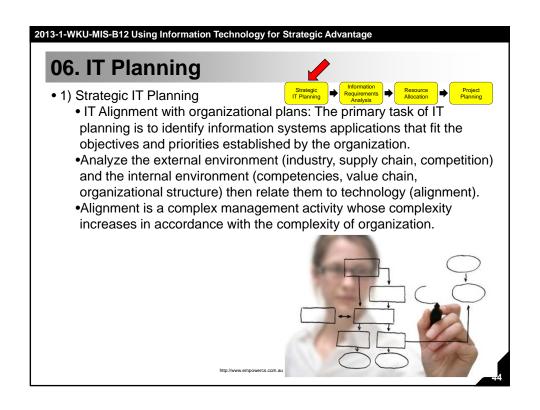


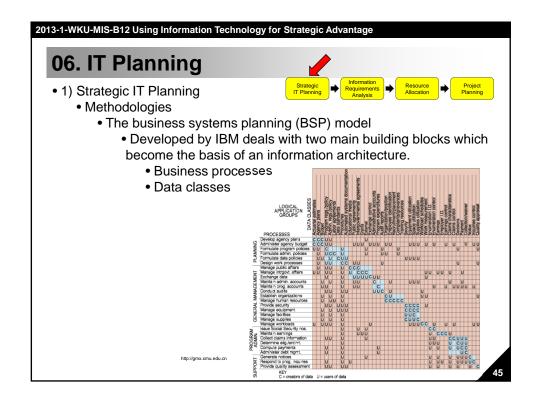
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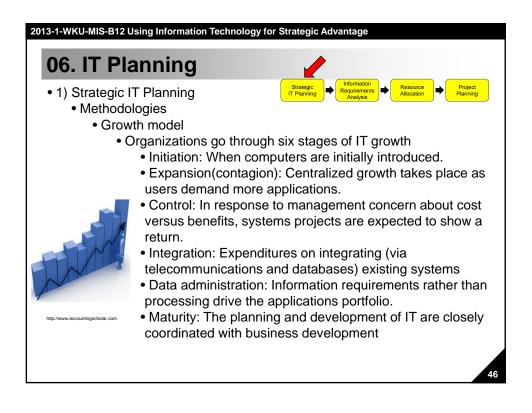
2013-1-WKU-MIS-B12 Using Information Technology for Strategic Advantage 06. IT Planning • 4 Stage Model of IT Planning • A four-stage model of IT planning that consists of four major activities. • The four-stage planning model is the foundation for the development of a portfolio of applications that is highly aligned with the corporate goals and has the ability to create an advantage over competitors. Information Strategic Resource Project Requirements **IT Planning** Allocation **Planning** Analysis

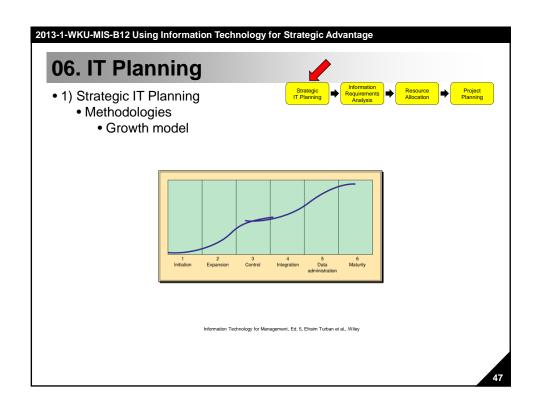
2013-1-WKU-MIS-B12 Using Information Technology for Strategic Advantage 06. IT Planning • 4 Stage Model of IT Planning • 1) Strategic IT planning: Establishes the relationship between the overall organizational plan and the IT plan. • 2) Information requirements analysis: Identifies broad, organizational information requirements to establish a strategic information architecture that can be used to direct specific application development. • 3) Resource allocation: Allocates both IT application development resources and operational resources. • 4) Project planning: Develops a plan that outlines schedules and resource requirements for specific IS projects. Information Strategic Resource **Project** Requirements **IT Planning** Allocation **Planning** Analysis

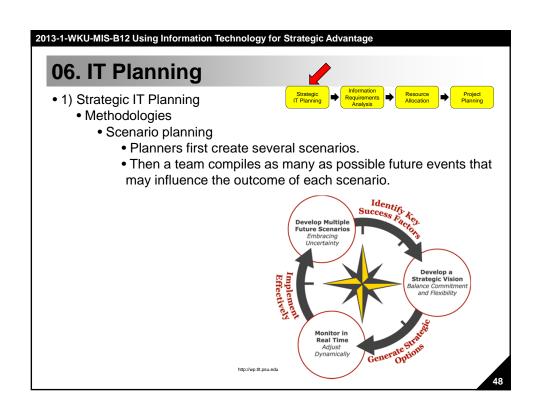


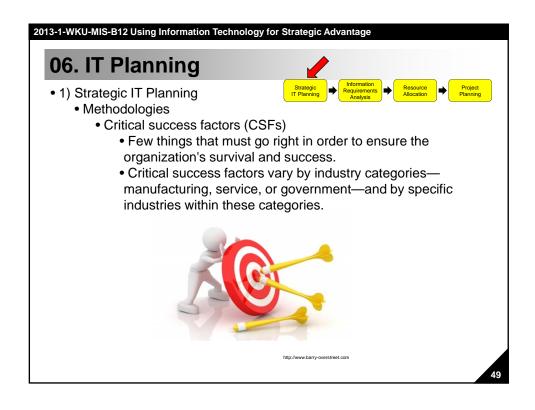


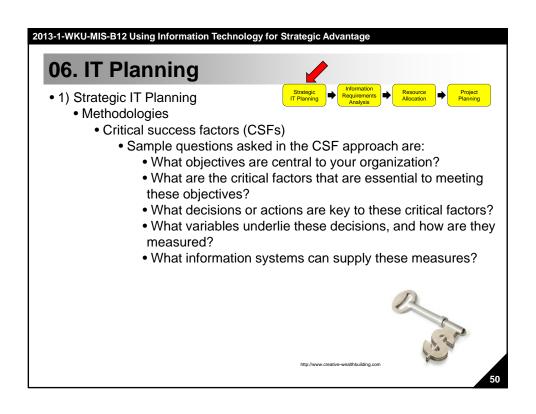


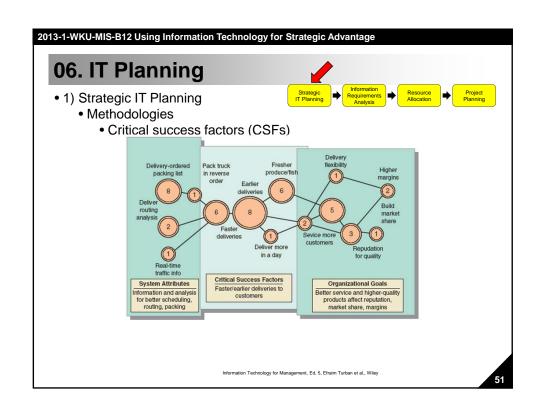


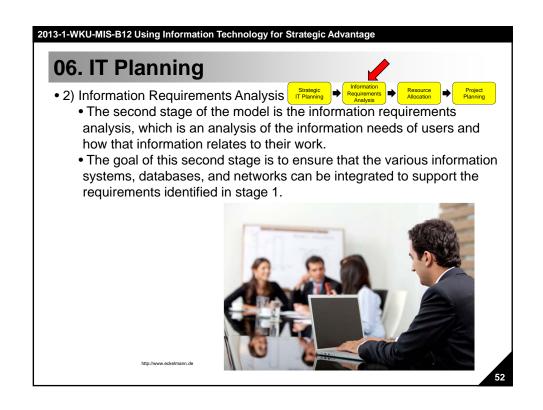


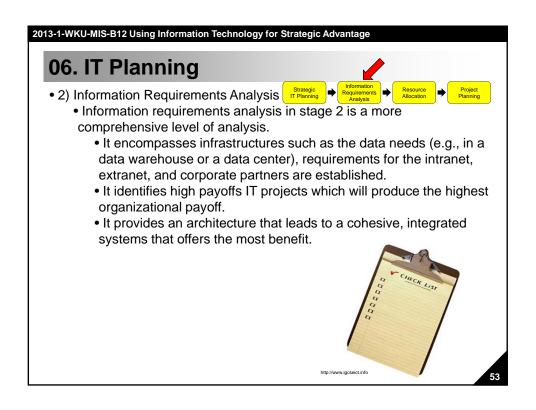


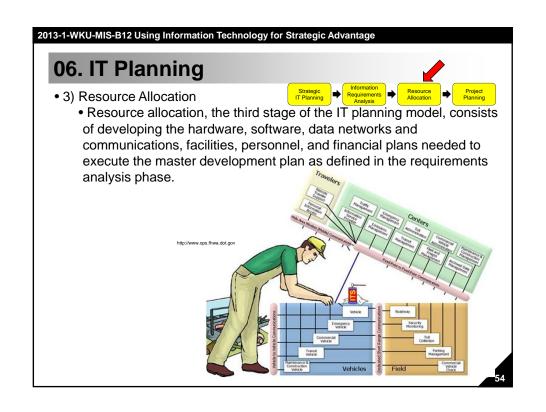


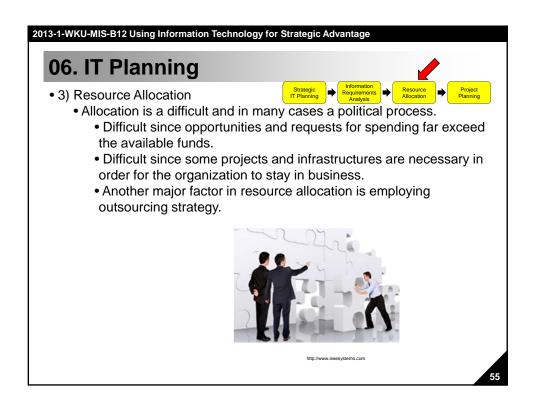


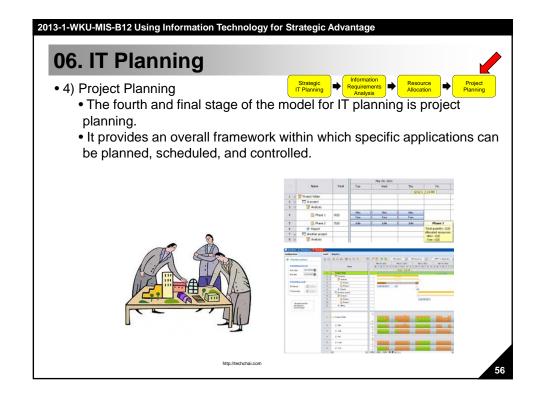


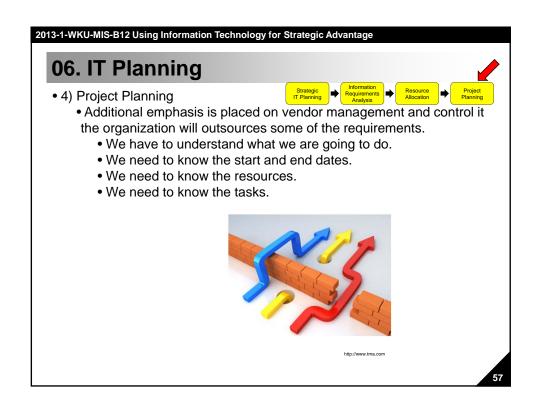


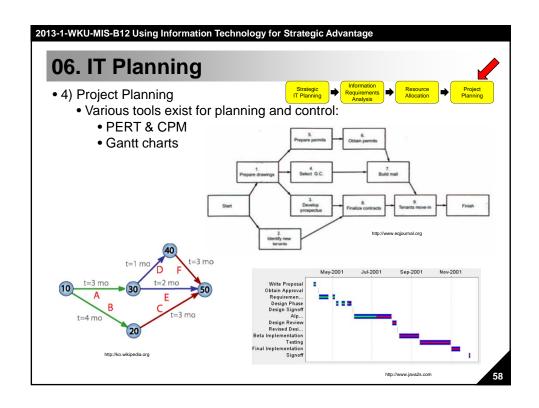


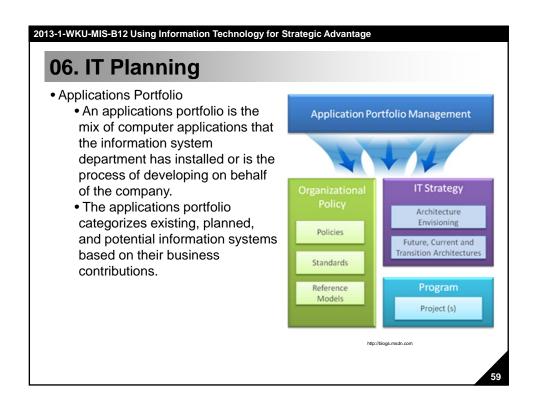


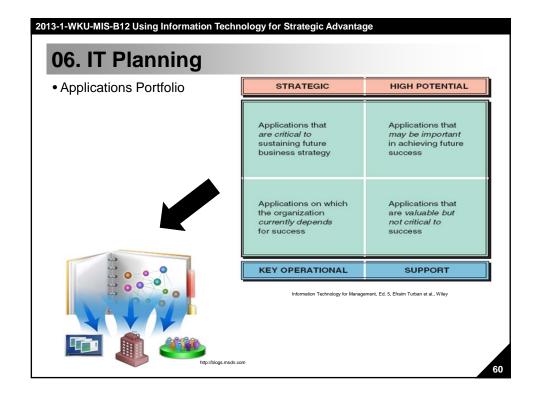




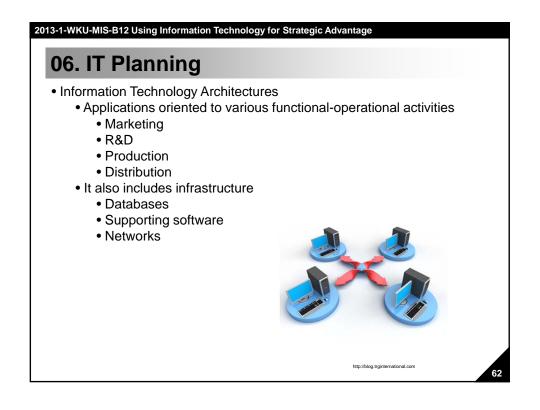








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06. IT Planning

- Information Technology Architectures
 - Different organizations have different IT infrastructure requirements.
 - Two general factors that influence infrastructure levels
 - Information intensity (the extent to which products or processes incorporate information)
 - Strategic focus (the level of emphasis on strategy and planning)



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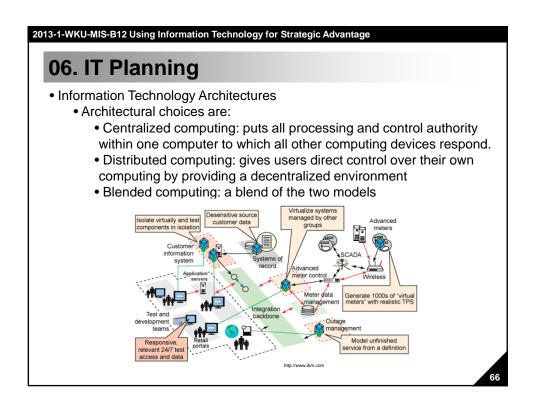
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06. IT Planning

- Information Technology Architectures
 - Firms with higher levels of these two factors use more IT infrastructure services,
 - Industry: Manufacturing firms use fewer IT infrastructure services than retail or financial firms.
 - Market volatility: Firms that need to change products quickly use more IT infrastructure services.
 - Business unit synergy: Firms that emphasize synergies (e.g., cross-selling) use more IT infrastructure services.
 - Strategy and planning: Firms that integrate IT and organizational planning, and track or monitor the achievement of strategic goals, use more IT infrastructure services.

http://blog.trginternational.com

O6. IT Planning Information Technology Architectures Each organization has its own particular needs and preferences for information. Therefore, today's IT architecture is designed around business processes rather than traditional departmental hierarchy. Service owned by operations 2 hours a week Customer portions and preferences for information. Service owned by other group or pather company and the system? Test and development and the system? Test and the system is not developed yet and the system?



06. IT Planning

- Information Technology Architectures
 - End-user configurations (workstations):
 - Centralized computing with the PC functioning as "dumb terminals" or "not smart" thin PCs.
 - A single-user PC that is not connected to any other device.
 - A single-user PC that is connected to other PCs or systems, using a telecommunications connections.
 - Workgroup PCs connected to each other in a small P2P network.
 - Distributed computing with many PCs fully connected by LANs via wireline or Wi-FI.



http://blog.kofc.ed

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06. IT Planning

- Planning Challenges
 - Information technology planning gets more complicated when several organizations are involved, as well as when we deal with multinational corporations.



http://vtiinformation.com

06. IT Planning

- Planning Challenges
 - Planning for interorganizational systems (IOS) involving several organizations may be complex.
 - Those involved with hundreds or even thousands of business partners is extremely difficult.
 - IT planners in those cases should focus on groups of customers, suppliers, and partners.



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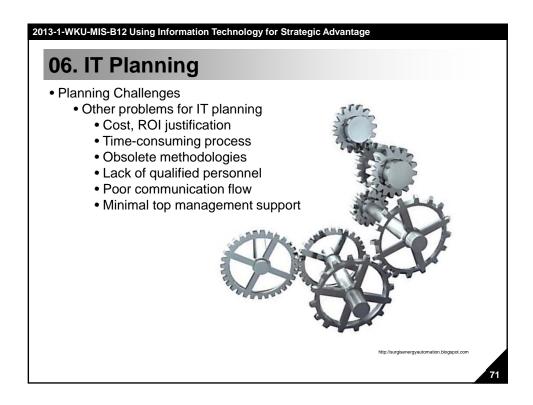
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06. IT Planning

- Planning Challenges
 - IT planning for multinational corporations face a complex legal, political, and social environment, which complicates corporate IT planning.
 - Therefore, many multinational companies prefer to decentralize their IT planning and operations.
 - Thus evolving into local systems.



http://www.inovision.ne



06. IT Planning

- Global Competition
 - Many companies are operating in a global environment.
 - Doing business in this environment is becoming more challenging as the political environment improves and as telecommunications and the Internet open the door to a large number of buyers, sellers, and competitors worldwide.
 - This increased competition is forcing companies to look for better ways to compete globally.



06. IT Planning

- Global Competition
 - Global dimensions along which management can globalize
 - Product
 - Markets & placement
 - Promotion
 - Where value is added to the product
 - Competitive strategy
 - Use of non-home-country personnel labor



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06. IT Planning

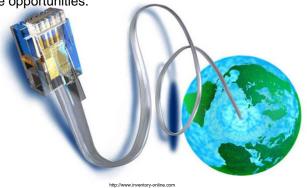
- Global Competition
 - Strategies for global dimensions
 - Multidomestic strategy: Zero standardization along the global dimensions
 - Global Strategy: Complete standardization along the seven global dimensions.



http://aloktyagi.wordpress.com

06. IT Planning

- Web-based Systems
 - Strategic planning for Web-based systems can be viewed as a subset of IT strategic planning.
 - However, in many cases it is done independently of IT planning.
 - E-planning mostly deals with the EC infrastructure uncovering business opportunities and deciding on an applications portfolio that will exploit those opportunities.



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06. IT Planning

- Web-based Systems
 - The Web environment is very turbulent.
 - E-planning is usually less formal
 - E-planning must be more flexible
 - In e-planning more attention is given to:
 - · Applications portfolio
 - Risk analysis, the degree of risk in Web-based systems can be high
 - Strategic planning issues such as the use of metrics (industry standards)
 - Strategic planning must integrate, ebusiness and knowledge management



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