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Management Information Systems
Eleventh Edition
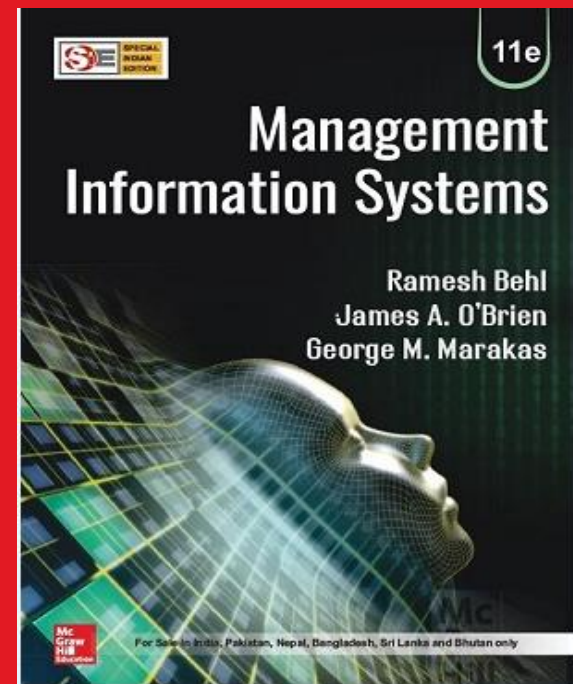
Chapter 2 : Competing with Information Technology
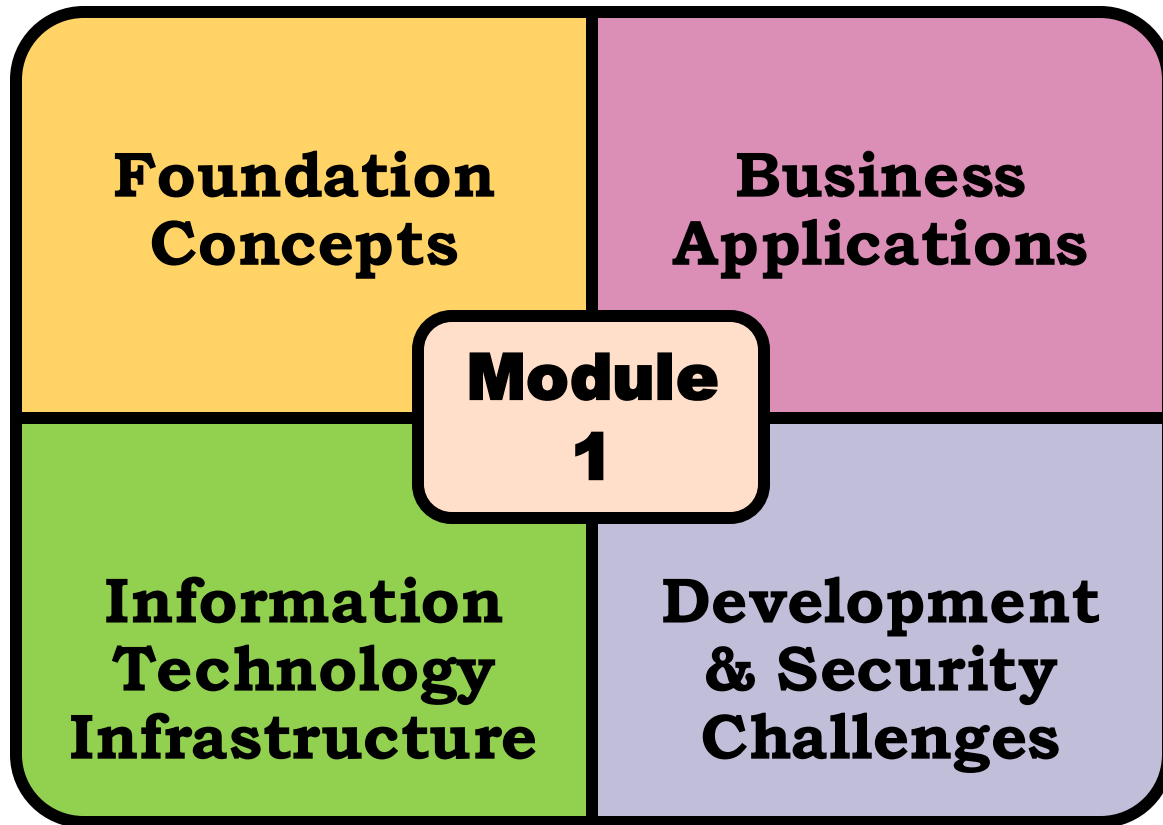
Learning Objectives

Understand the concept of a system and how it relates to information system.

Explain fundamental role and importance of information system in business.

What are the new trends in information systems?

Provide examples of several major types of information systems from business organizations in the real world.

Learning Objectives

Understand the basic competitive strategies and how to use information technologies to confront the competitive forces faced by a business.

Identify several strategic uses of Internet technologies and how they can help a business in gaining competitive advantages.

Understand how business process reengineering is involved in the strategic use of Internet technologies.

Learning Objectives

Recognize the business value of using Internet technologies to become an agile competitor or to form a virtual company.

Explain how knowledge management systems can help a business gain strategic advantages.

Competitive Strategy Concepts

A strategic information system uses IT to help an organization…

- Gain a competitive advantage

- Reduce a competitive disadvantage

- Meet other strategic enterprise objectives

What is Competitive Advantage?

- Capability for advantage over competitive forces

- Leading the industry in some identifiable way

- Sustains profits above the industry average

- Hard to maintain over a long period of time

RWC 1: Quantify IT Risks and Value

IT is a business asset, like buildings and land

Quantify IT Value and Risks

- How much would normal operations cost without IT systems?

- How much would operations cost if the IT system goes down?

IT is investment not cost

Must align IT with company strategy

Porter's Five Forces of Competition

Rivalry of Competitors
- Positive, natural, healthy

Threat of new entrants
- Apple, TRS 80, Commodore, IBM, HP, Compaq, Gateway, Dell, Acer

Threat of substitutes
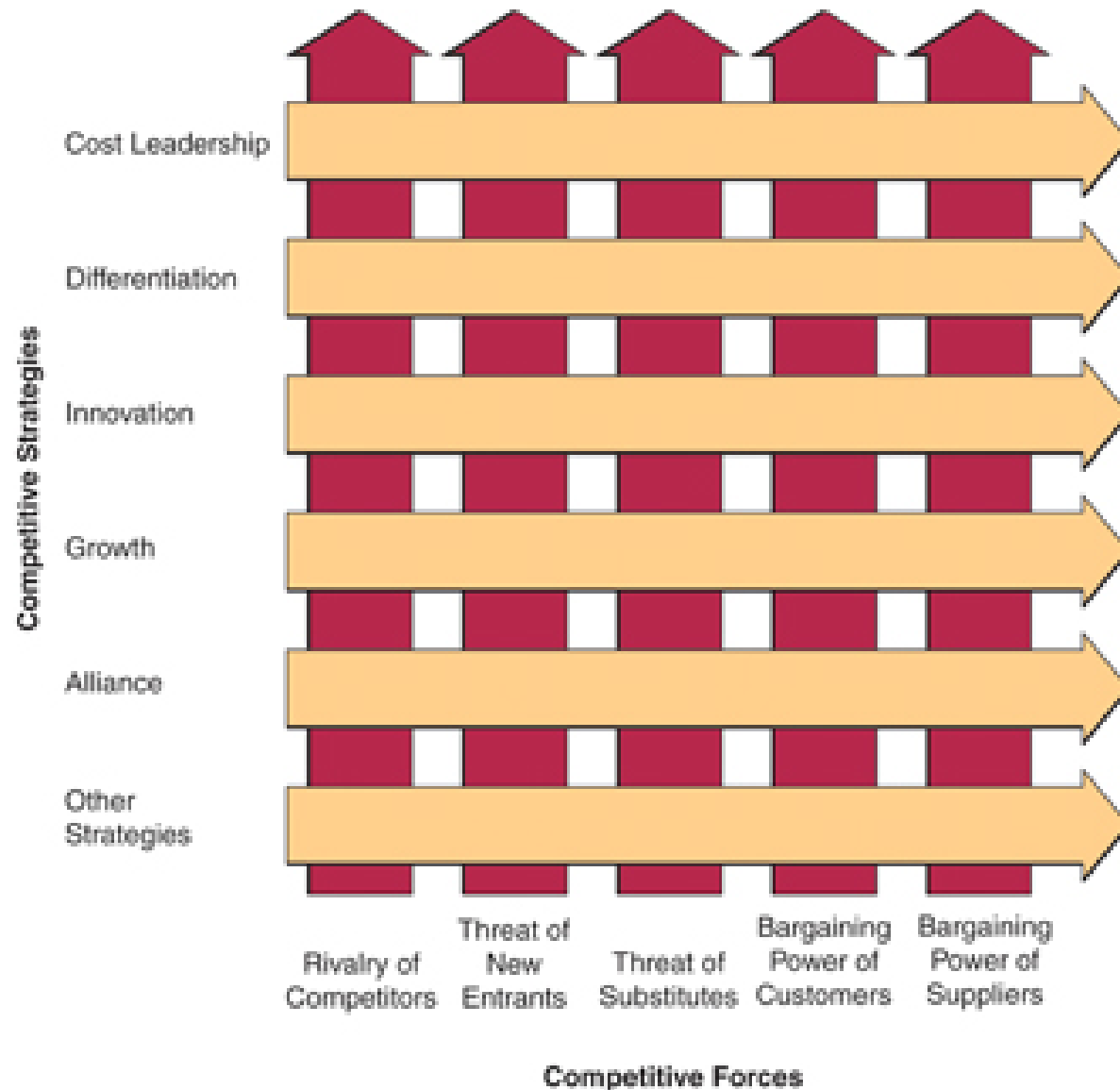- Salon shampoo vs Wal-Mart brand
- VCR vs DVD vs BluRay

Customer bargaining power
- Buy from competitors or don't buy

Suppliers bargaining power
- Your competitor pays in days not weeks

Competitive Forces and Strategies

Five Competitive Strategies

Cost Leadership:

- Focus on becoming the lowest-cost producer in the industry.
- Achieve cost savings through efficient operations, economies of scale, and supplier management.
- Offer products or services at lower prices than competitors.
- Example: Walmart.

Differentiation:

- Distinguish products or services from competitors through unique features, superior quality, or exceptional customer service.
- Create value for customers based on perceived differences.
- Example: Apple.

Competitive Strategies (continued)

Focus Strategy:

- Concentrate on serving a specific market segment or niche.

- Tailor products or services to meet the unique needs of targeted customers.

- Achieve competitive advantage by serving a specialized market more effectively than broader competitors.

- Example: Rolex.

Growth Strategy:

- Expand market share, customer base, or geographic reach.

- Pursue initiatives such as market penetration, product development, diversification, or acquisition.

- Example: Amazon.

Competitive Strategies (continued)

Innovation Strategy:

- Continuously introduce new products, services, processes, or business models.

- Stay ahead of competitors and meet evolving customer needs.

- Invest in research and development and foster a culture of creativity and experimentation.

- Example: Tesla.

Alliance Strategies

- Forming partnerships or alliances with other companies.

- **Purpose:** Leverage strengths, resources, and capabilities while reducing risks.

- **Goals:** Expand into new markets, access new technologies, share resources, reduce costs, enhance competitive advantage.

- **Example**: Toyota and Mazda collaboration to develop electric vehicles.

Using IT to Implement Basic Strategies

Basic Strategies in the Business Use of Information Technology
Lower Costs   • Use IT to substantially reduce the cost of business processes.   • Use IT to lower the costs of customers or suppliers.
Differentiate   • Develop new IT features to differentiate products and services.   • Use IT features to reduce the differentiation advantages of competitors.   • Use IT features to focus products and services at selected market niches.
Innovate   • Create new products and services that include IT components.   • Develop unique new markets or market niches with the help of IT.   • Make radical changes to business processes with IT that dramatically cut costs; improve quality, efficiency, or customer service; or shorten time to market.
Promote Growth   • Use IT to manage regional and global business expansion.   • Use IT to diversify and integrate into other products and services.
Develop Alliances   • Use IT to create virtual organizations of business partners.   • Develop interenterprise information systems linked by the Internet and extranets that support strategic business relationships with customers, suppliers, subcontractors, and others.

Implementing Competitive Strategies

Strategy	Company	Strategic Use of Information Technology	Business Benefit
Cost Leadership	Dell Computer Priceline.com eBay.com	Online build to order Online seller bidding Online auctions	Lowest-cost producer Buyer-set pricing Auction-set prices
Differentiation	AVNET Marshall Moen Inc. Consolidated Freightways	Customer/supplier of e-commerce Online customer design Customer online shipment tracking	Increase in market share Increase in market share Increase in market share

Innovation	Charles Schwab & Co.
	
	Federal Express
	
	Amazon.com
		Online discount
		  stock trading
		Online package tracking and
		  flight management
		Online full-service
		  customer systems
			Market leadership
			
			Market leadership
			
			Market leadership

Growth	Citicorp Wal-Mart Toys 'R' Us Inc.	Global intranet Merchandise ordering by global satellite network POS inventory tracking	Increase in global market Market leadership Market leadership

Alliance	Wal-Mart/Procter &
	  Gamble
	Cisco Systems
	
	Staples Inc. and
	  Partners
		Automatic inventory
		  replenishment by supplier
		Virtual manufacturing
		  alliances
		Online one-stop
		  shopping with partners
			Reduced inventory
			  cost/increased sales
			Agile market
			  leadership
			Increase in market share

Other IT strategies (update as per figure 2.5)

Other Strategic Uses of Information Technology

- Develop interenterprise information systems whose convenience and efficiency create switching costs that lock in customers or suppliers.

- Make major investments in advanced IT applications that build barriers to entry against industry competitors or outsiders.

- Include IT components in products and services to make substitution of competing products or services more difficult.

- Leverage investment in IS people, hardware, software, databases, and networks from operational uses into strategic applications.

Other Competitive Strategies

Lock in Customers and Suppliers

- Deter them from switching to competitors

Create Switching Costs

- Time, money, effort or inconvenience needed to switch to a competitor

Raise Barriers to Entry

- Discourage or delay other companies from entering the market

- Increase the technology or investment needed to enter

Other Competitive Strategies

Build a strong IT department

Use IT to:

- Take advantage of strategic opportunities
- Improve efficiency of business practices
- Develop products and services that would not be possible without a strong IT capability

Use IT to do more than automate a system, be creative

# Competitive Advantage can become Competitive Necessity

Customer-Focused Business

- Prioritizes customer needs and preferences

- Tailors products or services to meet customer requirements

- Focuses on building strong customer relationships

- Values customer feedback and incorporates it into decision-making

- Provides excellent customer service

- Considers the long-term satisfaction and loyalty of customers

Providing Customer Value

- **Tracking Preferences:** Companies monitor individual behavior to understand customer needs better.

- **Market Trends:** Staying updated on industry shifts and consumer preferences.

- **Accessible Offerings:** Products and services available anytime, anywhere.

- **Personalized Services:** Tailoring experiences to suit each customer's needs.

- **CRM Utilization**: Using CRM systems to manage customer data effectively.

Building Customer Value via the Internet
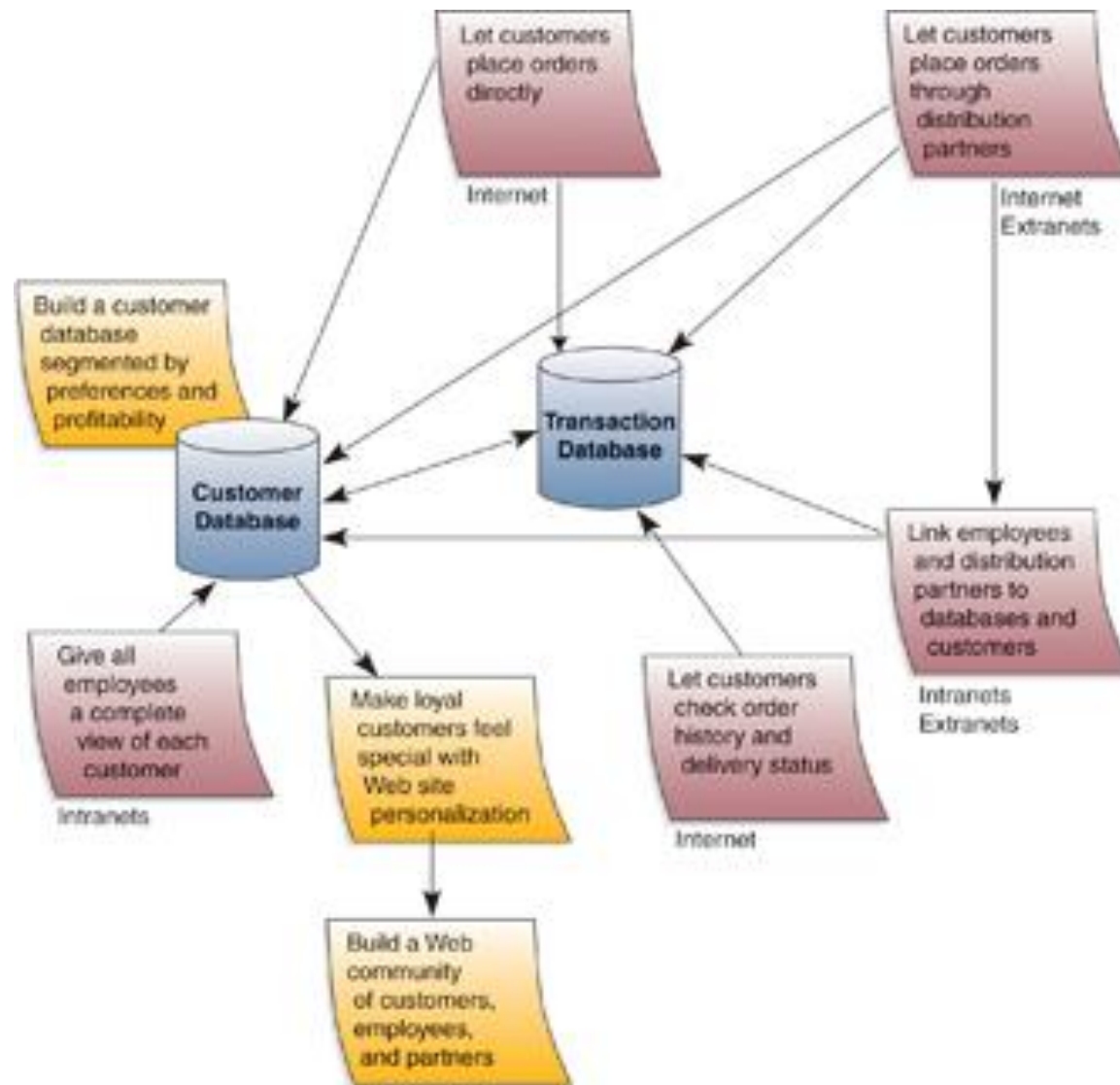
Value Chain and Strategic IS

Activities that add value

- Primary processes – direct
- Support processes – indirect

Strategic Uses of IT

IT helps to Gain a competitive differentiation by

- Enhancing Products:

- Automaticing Services

- Developing Capabilities

  - Analytics and BI for market trends, customer behaviour and operational efficiency

Somehow do things better

- Just-in-time

  - this approach reduce excess inventory and associated costs.

Business Process Reengineering

Business Process Reengineering (BPR), also known as Reengineering, involves:

- **Radical Changes:** Overhauling existing processes for significant improvements.

- **High Potential:** Offers substantial benefits but also involves high risks.

- **IT Integration:** Utilizes technology for process automation and data-driven decisions.

- **Collaborative Teams:** Work together to analyze, redesign, and implement new processes.

- **Case Managers:** Oversee BPR initiatives, ensuring alignment with objectives and managing implementation challenges.

Role of Information Technology

Major role

- **Increase process efficiencies:**

  - optimizes workflows, automates tasks, and removes bottlenecks, enhancing operational efficiency within processes.

- **Improves communication**

  - enable seamless and swift communication across departments and stakeholders, reducing barriers and ensuring effective information exchange.

- **Facilitates collaboration**

  - fosters collaborative work environments by providing tools and platforms that allow geographically dispersed teams to work together efficiently and share information seamlessly.
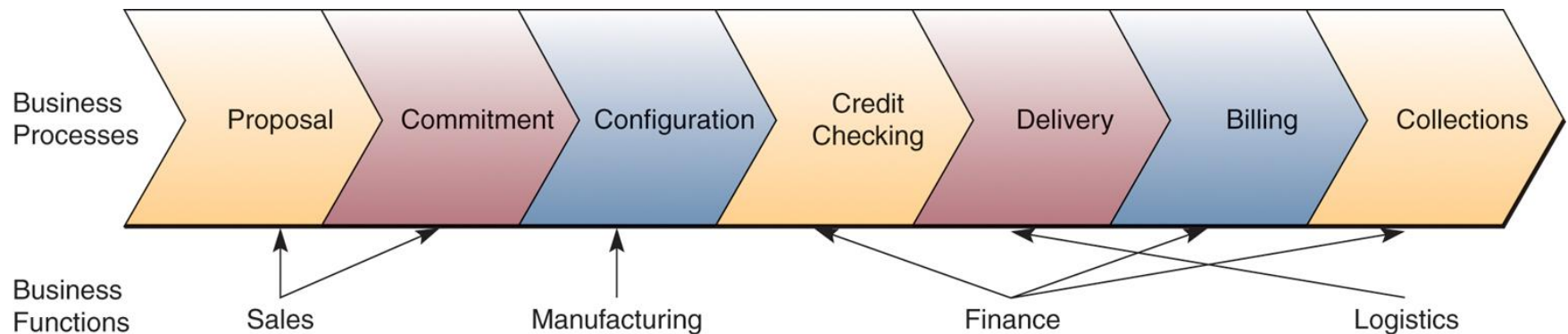
BPR Versus Business Improvement

	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

Cross-Functional Processes

A cross-functional process refers to a workflow or a series of activities that involve multiple departments or functional areas within an organization working together to achieve a common goal or outcome.

When reengineering a cross-functional process, integrating certain technologies such as

- enterprise resource planning (ERP) software and
- web-enabled electronic business and commerce systems

can significantly enhance its efficiency and effectiveness.

Business Processes: Proposal → Commitment → Configuration → Credit Checking → Delivery → Billing → Collections

Business Functions: Sales, Manufacturing, Finance, Logistics

Reengineering Order Management

Reengineering Order Management
• Customer relationship management systems using corporate intranets and the Internet.
• Supplier-managed inventory systems using the Internet and extranets.
• Cross-functional ERP software for integrating manufacturing, distribution, finance, and human resource processes.
• Customer-accessible e-commerce Web sites for order entry, status checking, payment, and service.
• Customer, product, and order status databases accessed via intranets and extranets by employees and suppliers.

Agile Company

- Emphasizes adaptability, responsiveness, and iterative development.

- Key Characteristics of Agile Companies
  - **Flexibility and Adaptability**: Respond quickly to market changes and customer needs.
  - **Customer-Centric Approach**: Focus on understanding and meeting evolving customer demands.
  - **Iterative Development:** Continuous improvement through incremental changes and feedback.

Strategies for Becoming an Agile Company

- **Customer-Centric Approach:** Focus on solving customer problems by understanding their needs and adapting products as solutions.

- **Value-Based Pricing:** Price products based on the value they offer to customers, emphasizing benefits over production costs.

- **Stakeholder Collaboration:** Foster collaboration with customers, suppliers, and even competitors for mutual benefits and innovation.

- **Rapid & Cost-Effective Development:** Implement agile methodologies to bring products to market quickly and efficiently.

- **Embrace Change & Uncertainty**: Cultivate a culture that sees change as an opportunity for growth, encouraging adaptability and learning from uncertainty.

- **Adapt to Customer Expectations:** Continuously respond to changing customer expectations and market trends.

- **Leverage Human Capital:** Recognize and utilize the knowledge, skills, and creativity of employees through collaboration and continuous learning.

- **Incentivize Responsibility & Innovation:** Encourage and reward behaviors that promote responsibility, adaptability, and innovation within the organization.

How IT Helps a Company be Agile

Type of Agility	Description	Role of IT	Example
Customer	Ability to co-opt customers in the exploitation of innovation opportunities • As sources of innovation ideas • As cocreators of innovation • As users in testing ideas or helping other users learn about the idea	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
Partnering	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	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 Web site
Operational	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 whole-saler, has deployed an integrated trading system allowing its customers and suppliers to connect directly to its procurement and ERP systems

Creating a Virtual Company

A virtual company harnesses Information Technology (IT) to connect various components:

Internal Linkages facilitated by IT:

- **People**: Enables remote collaboration and communication among employees.

- **Organizations:** Streamlines processes and information sharing across different departments or branches.

- **Assets: Manages and optimizes physical resources efficiently.**

- **Ideas:** Facilitates idea sharing and innovation through digital platforms.

External Linkages via Inter-Enterprise Information Systems:

- **Customers:** IT enables interactions through online platforms and customer service tools.

- **Suppliers:** Facilitates efficient communication and collaboration with suppliers for effective supply chain management.

- **Subcontractors:** Supports coordination with outsourced entities through project management tools.

- **Competitors:** Enables gathering market intelligence and competitor analysis using IT-driven data systems.

A Virtual Company
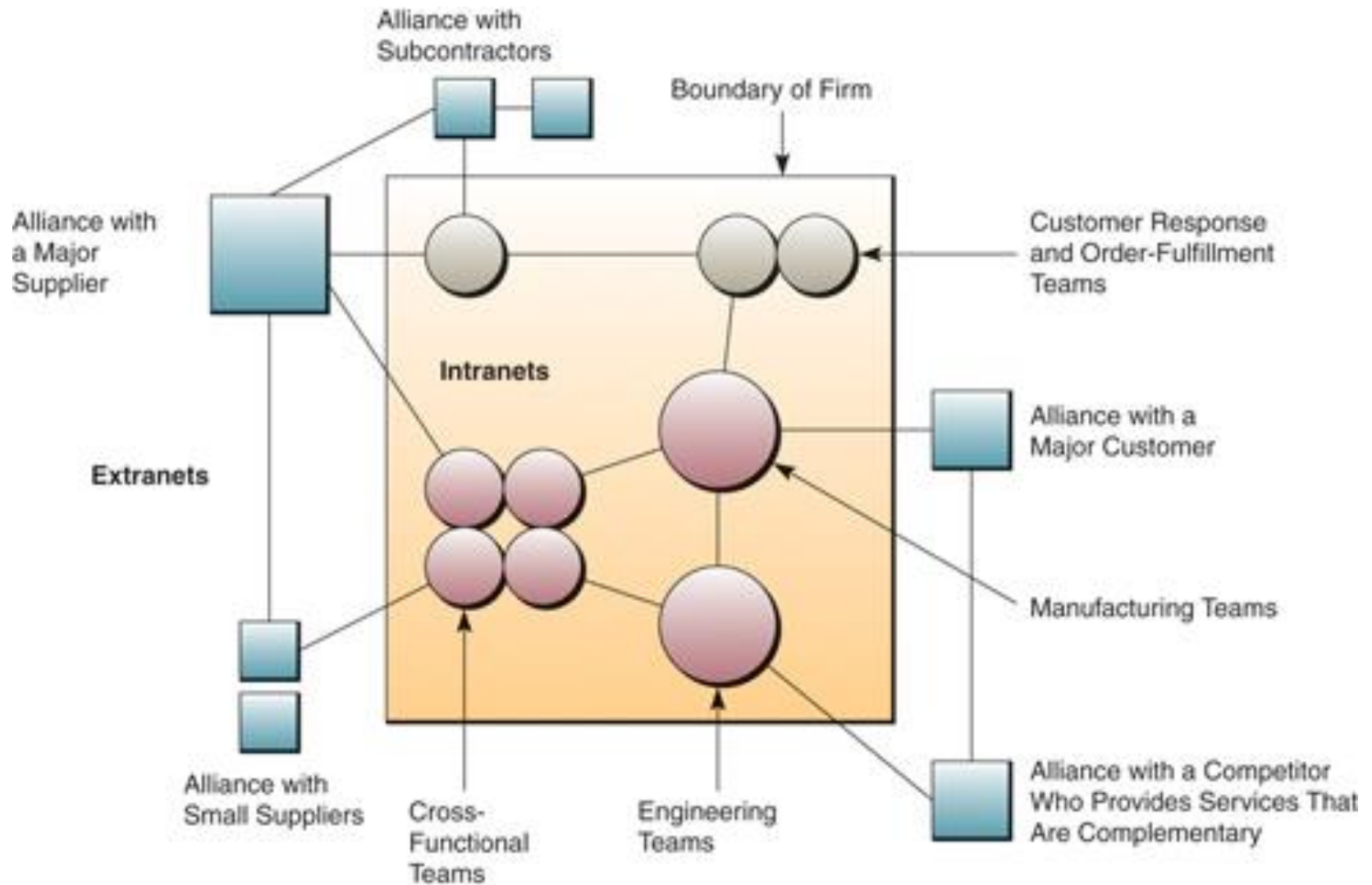
Virtual Company Strategies

- **Alliance Partnerships for Shared Infrastructure and Risk:** Collaborating with other companies to share resources, like technology or facilities, and risks, such as investments or market uncertainties.
- **Integration of Complementary Skills and Abilities:** Connecting with partners or organizations that possess different but complementary strengths to enhance overall capabilities.
- **Efficient Concept-to-Cash Cycle:** Speeding up the process from product idea conception to generating revenue by sharing resources and knowledge.
- **Expansion of Facilities and Market Reach:** Increasing the company's presence and customer base by accessing additional facilities and expanding into new markets.
- **Accessing New Markets and Sharing Customer Loyalty**: virtual companies teaming up with others to reach new customers in different places or industries. By partnering, they share the trust and loyalty one company has with its customers, which helps both companies grow their businesses by reaching more people and markets.
- **Transitioning from Product Sales to Solutions:** Moving away from just selling products to providing comprehensive solutions that cater to specific customer needs and challenges.

Building a Knowledge-Creating Company

A knowledge-creating company or learning organization is one that consistently

- **Creates New Business Knowledge:** Actively generates fresh ideas and information relevant to its field.

- **Shares Knowledge Internally:** Ensures that this new knowledge is widely disseminated throughout the company for everyone's benefit.

- **Applies Knowledge in Products/Services:** Integrates this acquired knowledge into its products, services, or processes to improve quality, efficiency, or innovation

Knowledge Management

Explicit Knowledge:

- Refers to documented or stored information like data, manuals, and written content.

- *Examples:* Employee handbooks, reports, and databases.

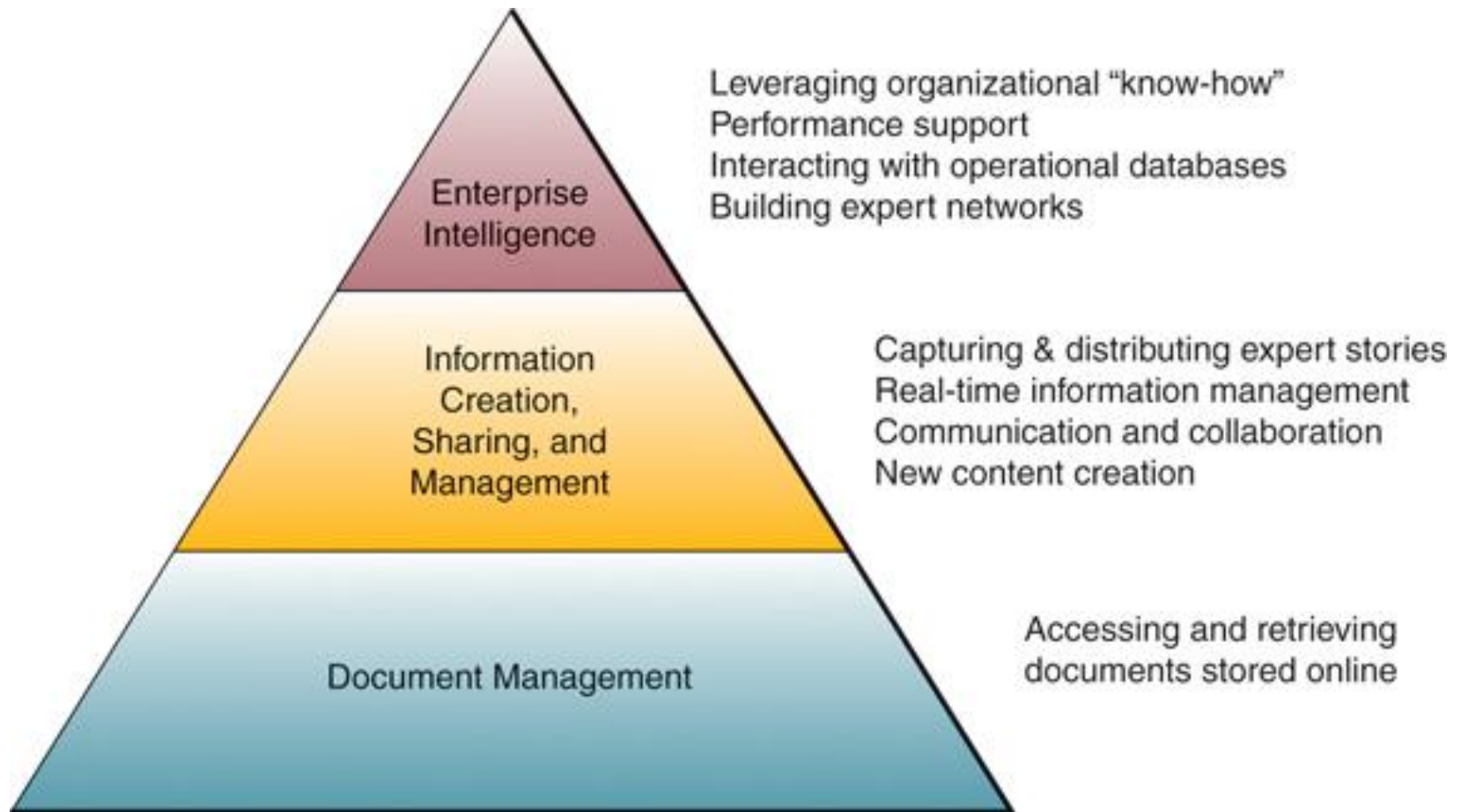- *Characteristics:* Easily codified, formalized, and shared.

Tacit Knowledge:

- Represents practical know-how and personal insights in people's minds.

- *Examples:* Skills, expertise, and personal experiences.

- *Characteristics:* Hard to formalize, gained through experience, and challenging to transfer directly.

Successful Knowledge Management Practices:

- ***Encourage Sharing:*** Reward employees for sharing their knowledge.

- ***Better Utilization:*** Develop systems to effectively use both explicit and tacit knowledge.

- ***Culture of Sharing***: Foster an environment where sharing knowledge is valued.

- ***Knowledge Transfer:*** Use mentorship or training programs to transfer expertise.

- ***Technology:*** Employ tools to organize and access explicit knowledge easily.

Knowledge Management Techniques

Enterprise Intelligence
- Leveraging organizational "know-how"
- Performance support
- Interacting with operational databases
- Building expert networks

Information Creation, Sharing, and Management
- Capturing & distributing expert stories
- Real-time information management
- Communication and collaboration
- New content creation

Document Management
- Accessing and retrieving documents stored online

Advantages & Challenges of KM

Advantages	Challenges
Help in Taking Informed Decisions	Capturing Knowledge
Faster Problem Solving	Creating Central KM Repository
Support Innovation	Motivating Employees to share tacit knowledge
Increase Organizational Agility	Aligning KM with Business Strategy
Improve Business Processes	Selecting KM technology
Support Employee Growth & Development	Building Corporate culture for KM
Developing effective strategies	Implementing Change Management
Creating New Products & Services	Getting the KM trained manpower
Increase Operational Efficiency & Productivity	
Increased Employee Involvement	

RWC 3: Transforming the Business

Transformation is about enabling the business to better engage with customers and using this to guide strategic thinking.

NIIT technologies enabled Carey to transform into an agile enterprise that has all the necessary tools in place for future growth.

"Run IT" and "Build IT" strategy

RWC 4: Trading Securities

Investment companies rely on technology to gain competitive advantage

One-second delay can be costly

Wall Street

- Fewer floor traders
- New alternative exchanges and e-communications networks

RWC 5: Reinventing IT

Reliable and excellent IT services

Innovative solutions

Create new products and services

New business models

Lower cost

Highest possible profit margins

RWC 6: Reinventing Automotive

Technology is being used as a Strategic tool for gaining competitive edge.

Customer & Competition are the key drivers in automotive sector

Shortening of Product life cycle

Innovative solutions