

The World of e-Business

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9/20/2007

electronic commerce

- The **buying** and **selling** of information, products, and services via computer networks and distributed media, usually the World Wide Web
- From a **business process** perspective
 - an **application of IT and communications** toward the support and automation of business transactions and workflows
- From a **service** perspective
 - a **tool** to address the need for **cutting service costs** while improving **service quality** and **speed of delivery**
- From an **online** perspective
 - EC provides the **capability** of buying and selling information, goods and services over the Internet and other online services

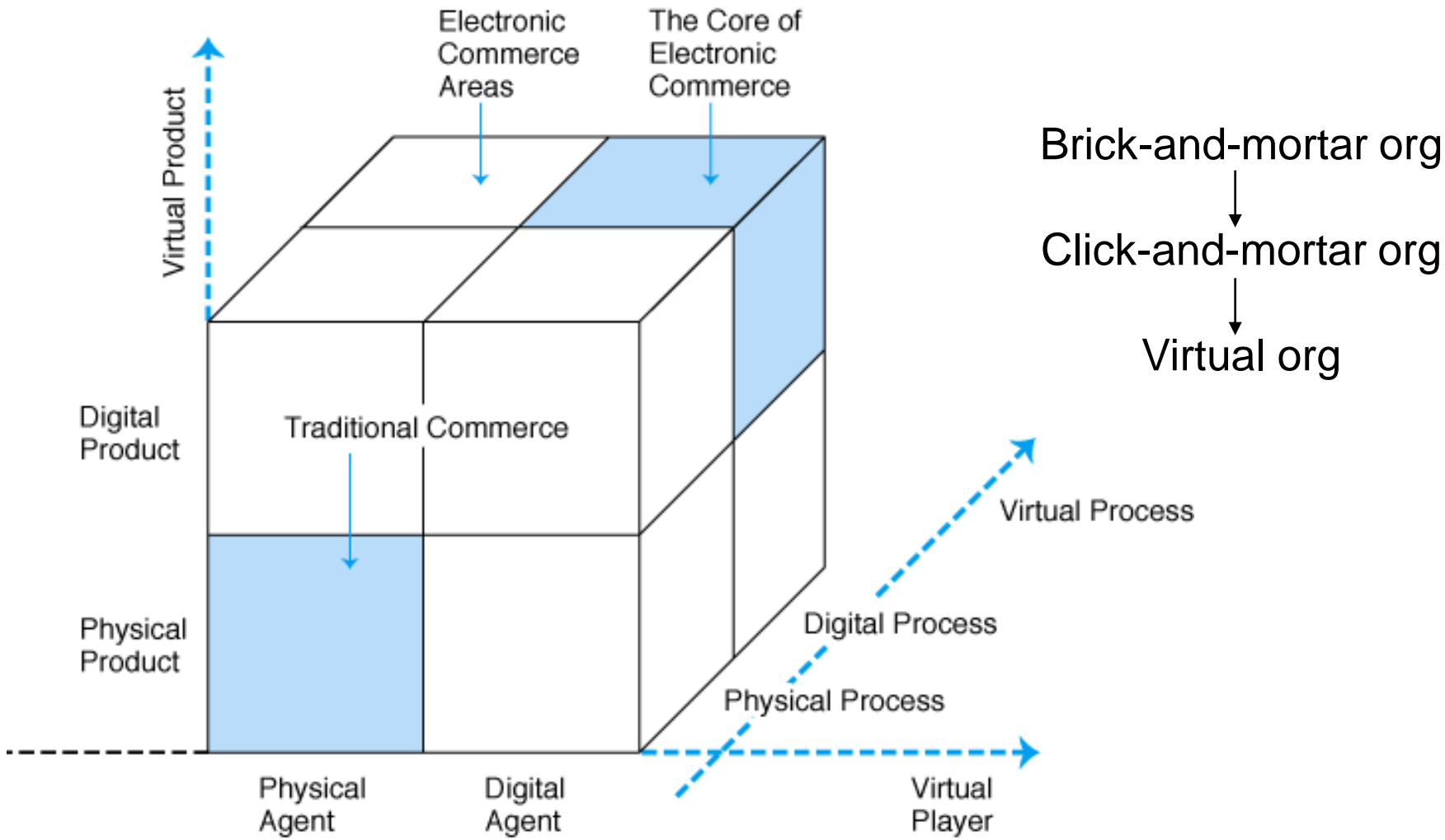


Types of e-Commerce

- business-to-consumer (B2C)
 - E-commerce between organizations and individual consumers
- business-to-business (B2B)
 - E-commerce between businesses
 - Accounts for a much larger portion of e-commerce than business-to-consumer
- business-to-administration
- consumer-to-administration
- ...



Dimensions of EC



E-Business: Definition from the source

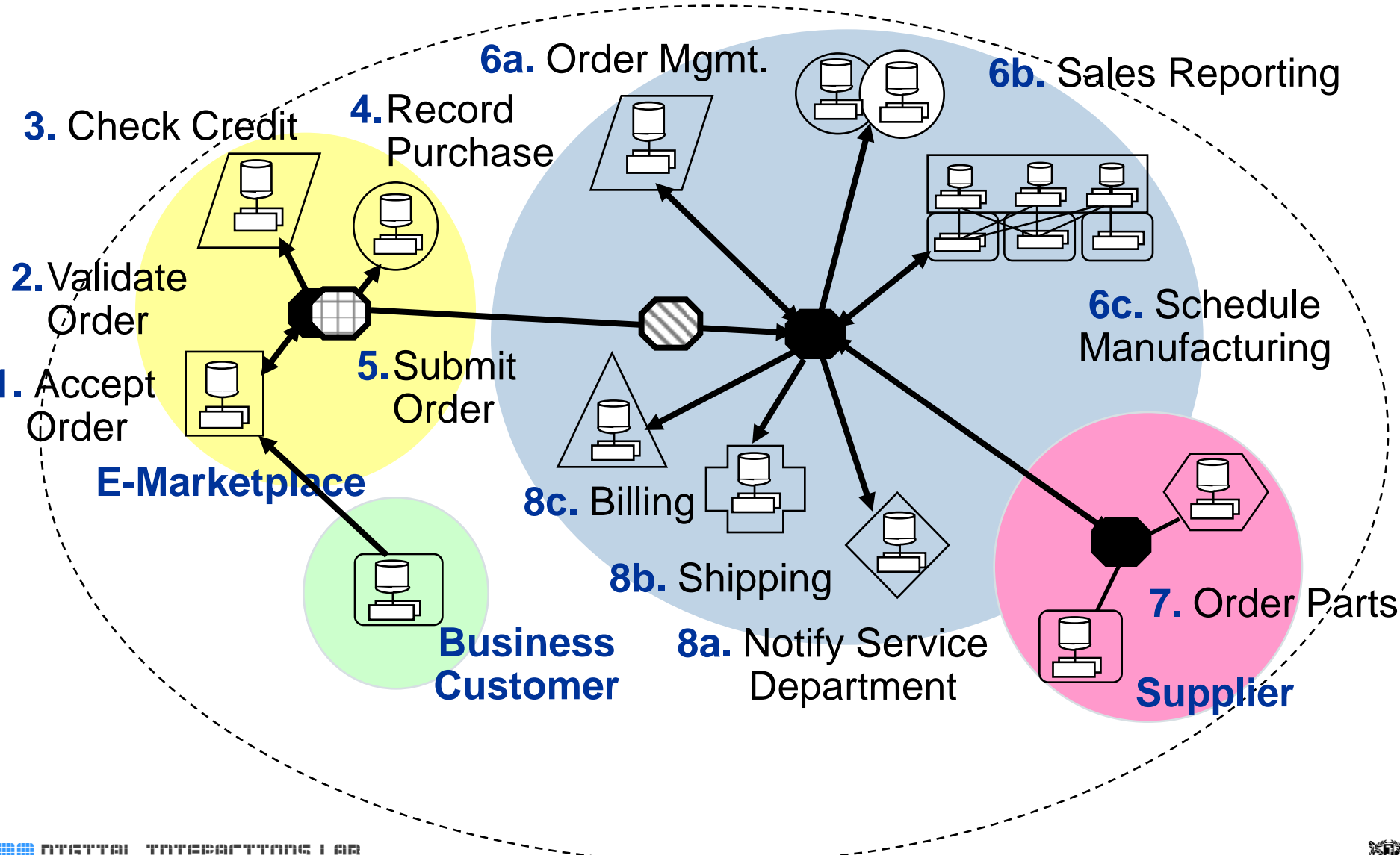
- “E-business is all about time cycle, speed, globalization, enhanced productivity, reaching new customers and sharing knowledge across institutions for competitive advantage” (L. Gerstner, IBM CEO)

electronic business

- conduct of **business transactions** by means of electronic **communications networks** (e.g., via the Internet and/or possibly private networks) end-to-end
 - enables companies to link their internal and external processes more efficiently and flexibly, work more closely with suppliers and better satisfy the needs and expectations of their customers
 - end-to-end process: designers, suppliers, buyers, trading partners, logistics providers, and end-customers in the entire planning and execution process
- The ultimate objective of e-Business is to **automate and integrate business processes** of an enterprise
 - **Intra-enterprise**: divisions, departments, employees
 - **Inter-enterprise**: suppliers, partners, customers
- Most e-Business interactions are **complex** and **information intensive**
 - Complex, collaborative processes
 - Timely and accurate information exchange is a challenge



need for integration



e-Business drivers



Critical response activities

Challenges of e-Business environment

- **New usage patterns**
 - 24 hours per day, Millions of customers a day, Many types of customer interaction types
- **New customer expectations**
 - Faster service, More product choices, Seamless support, Easy to use user interface, Acceptable level of performance (not more than 5 seconds), Personalization, Globalization
- **Integration, interoperability, and collaboration**
 - legacy integration, Application interoperation, Information transparency, Increased process visibility, Outsourcing, Virtual distribution
- **Need for agility**
 - Increased time pressure for new services and products, Rapid application development and deployment, Dynamic configuration of processes & rules, Discover, monitor, manage, optimize processes
- **Technological advancements**
 - Middleware, Mobile & pervasive computing, Internet II, IPv6, ASPs, USN



e-Business evolution

Past

- Fax, paper, and telephone
 - Inefficient and error-prone
- EDI networks
 - Proprietary VANs with point-to-point connections
 - Standardized but lack visibility (price, availability, supplier, product, ...)
- Web-based sales
 - Mostly brochureware
 - Primitive transactions

Future

Collaborative network of trading communities

Ubiquitous

Extensive automation

Increased market visibility

Complex business workflow between demand and supply chains

Real-time, dynamic trade

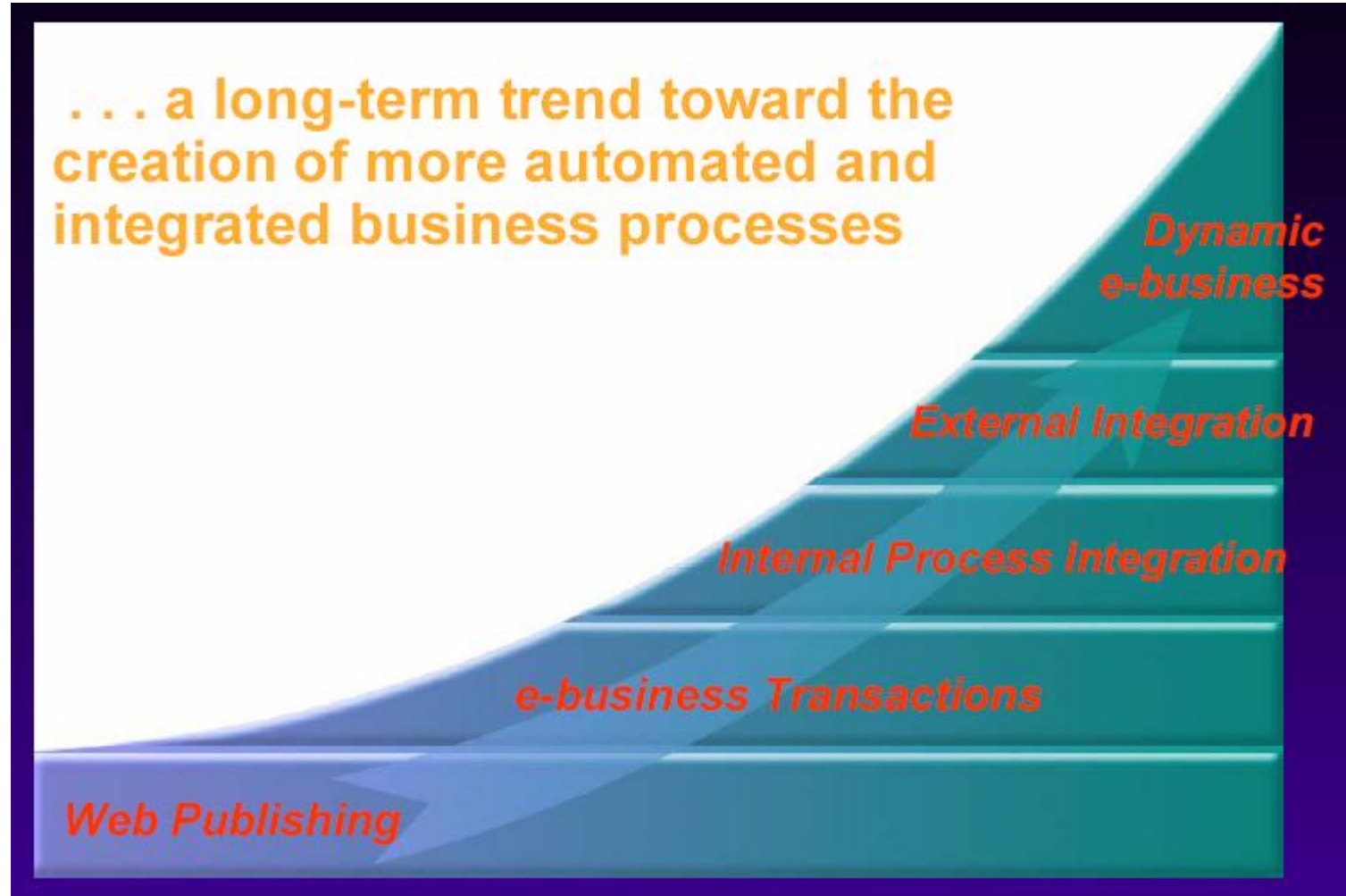
New intermediaries

Supports transactional and value added services



Dynamic e-Business

Aka “Business On-Demand”



Source: C, Mohan, Tutorial: Application servers and associated technologies, VLDB, 2002

e-commerce vs. e-business

- e-commerce: a focus on **buying** and **selling products** and **services** on the internet
 - includes cataloging, ordering, billing, customer service, payment, ...
 - does not include CRM, SCM, and ERP
- e-business: more generic
 - refers not only to information exchanges related to buying and selling but also to **servicing customers** and **collaborating** with business partners, distributors and suppliers
 - encompasses sophisticated **business-to-business interactions** and **collaboration** activities at a level of enterprise applications and business processes
 - across the entire value chain
 - **back-office** processes include distribution, manufacturing, SCM, product development, billing, order processing, and accounting
 - **front-office** processes include these processes that connect an organization to its customers and suppliers



internet-based e-business

- reasons for firms to create the ability to exchange transactions over the internet
 - internet is a publicly accessible network with **few geographical constraints**. Its largest attribute, **large-scale connectivity** (without the need to have special company networking architecture) is a seedbed for growth of a vast range of business applications.
 - internet global inter-network connections offers the potential to reach the **widest possible number of trading partners** of any viable alternative currently available
- WWW is the fastest growing activity on the Internet
 - companies advertising their presence
 - companies searching for information and products
 - companies buying and selling intellectual property, physical goods, and professional services

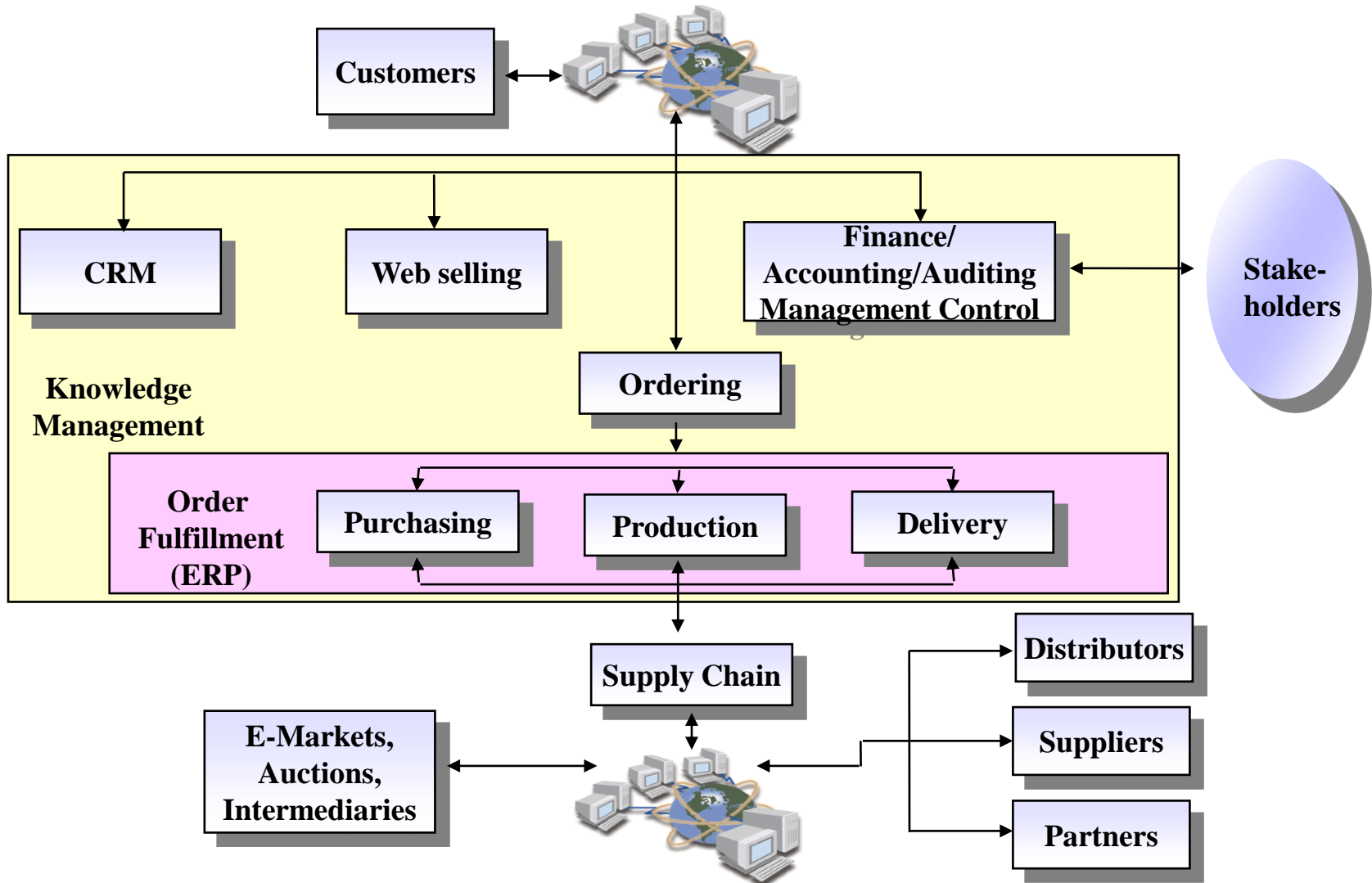


Characteristics of e-Business

- e-Business is about integrating external company processes with an organization's internal business processes
 - collaborative product development
 - collaborative planning, forecasting and replenishment
 - procurement and order management
 - operations and logistics
 - sharing of critical and timely data



Ingredients of an e-Business Solution



basic elements of e-business system

- CRM
 - customer relationship management
- ERP
 - enterprise resource planning
- SCM
 - supply chain management
- KM
 - knowledge management
- e-markets

CRM

- process of creating relationships with customers
- “front-office” systems that help the enterprise deal directly with their customers
- integrates & automates customer-serving processes within a company (personal information gathering & processing, and self-service throughout the supplying company in order to create value for the customer)

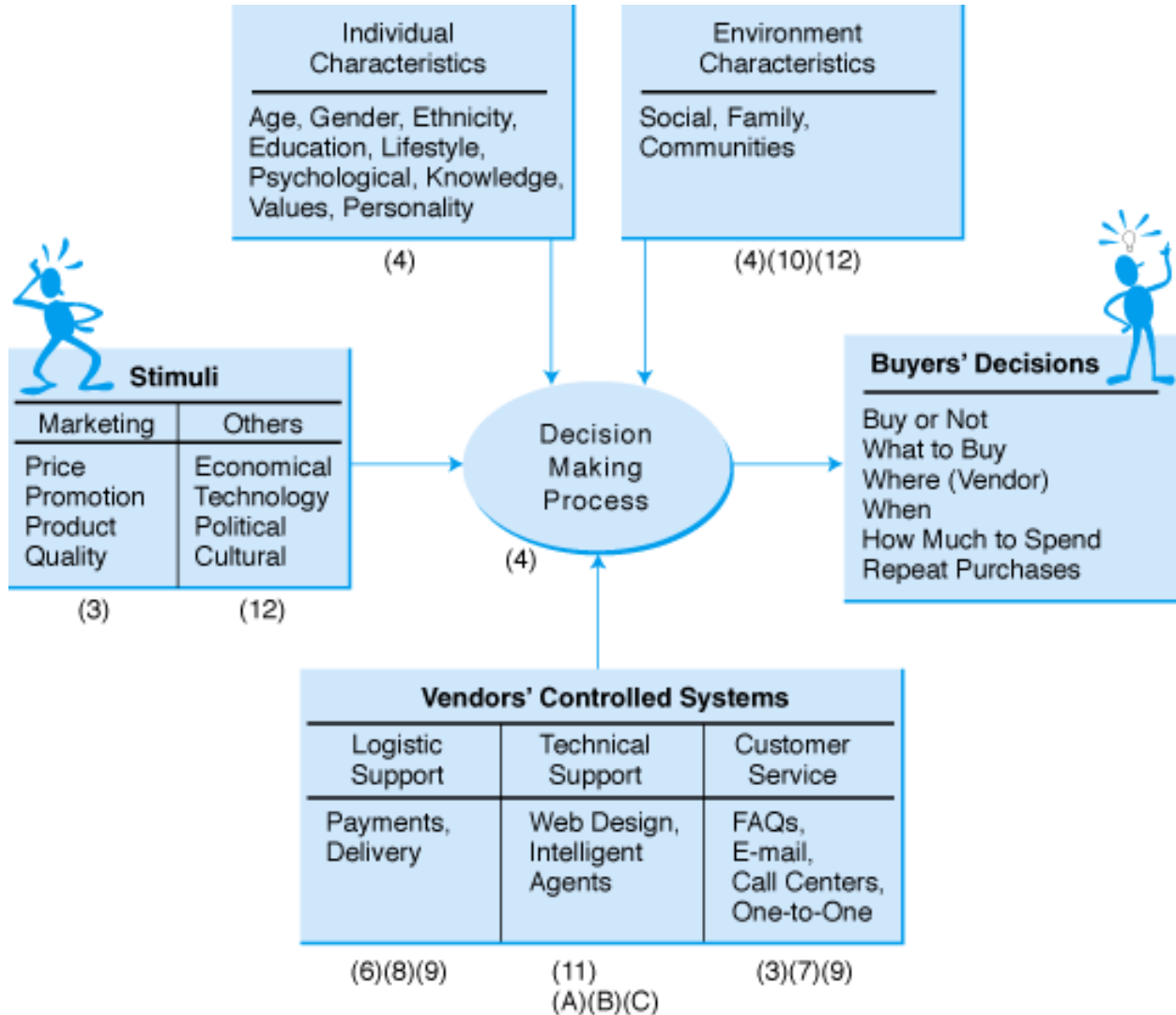


CRM

- An approach that recognizes that customers are the core of the business, and that a company's success depends on effectively managing their relationship with them
- CRM Metrics: To determine how much service to provide
 - Response time
 - Site availability
 - Download time
 - Up-to-date
 - Security and privacy
 - Order fulfillment speed
 - Return policy
 - Navigatability



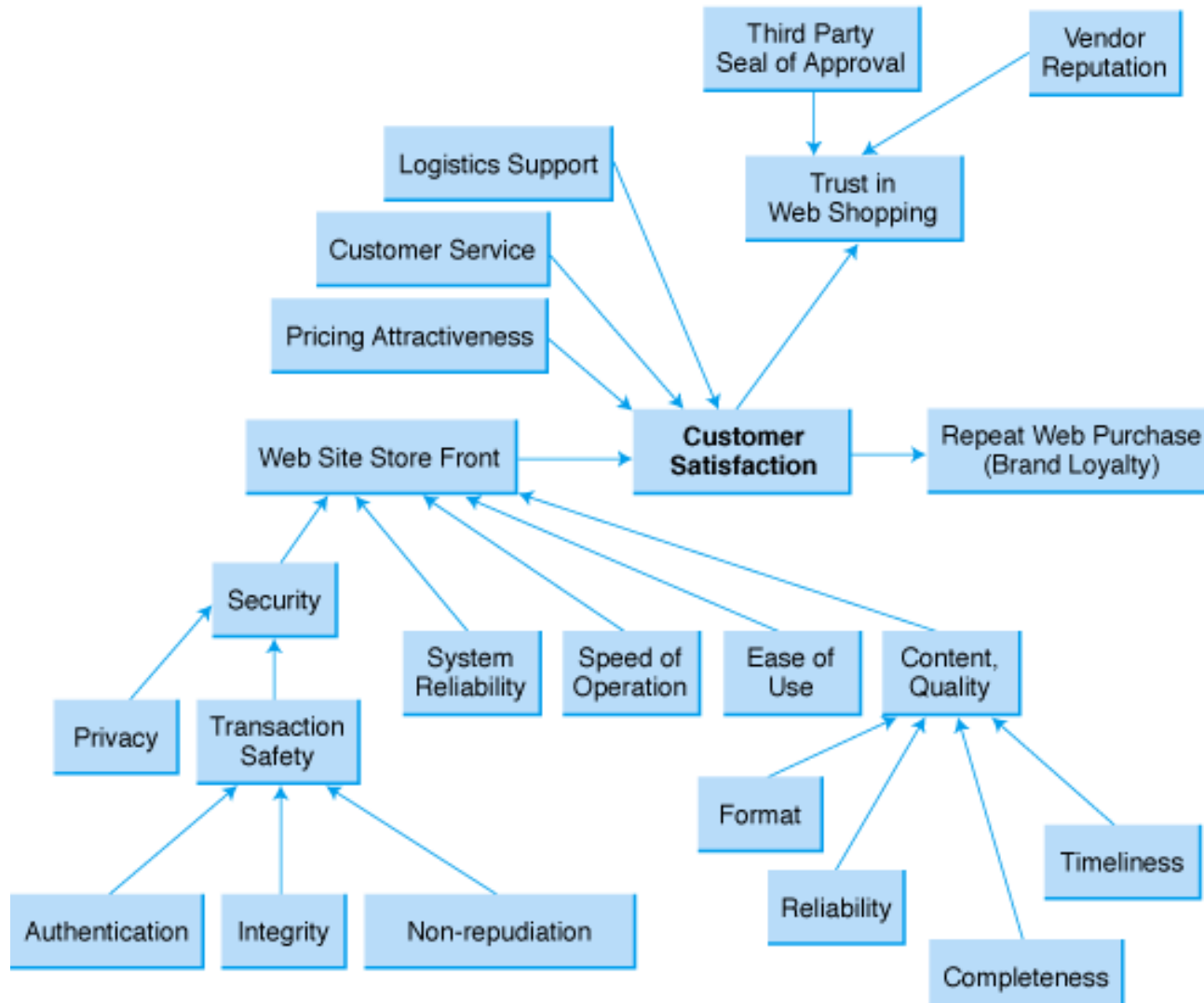
EC consumer behavior



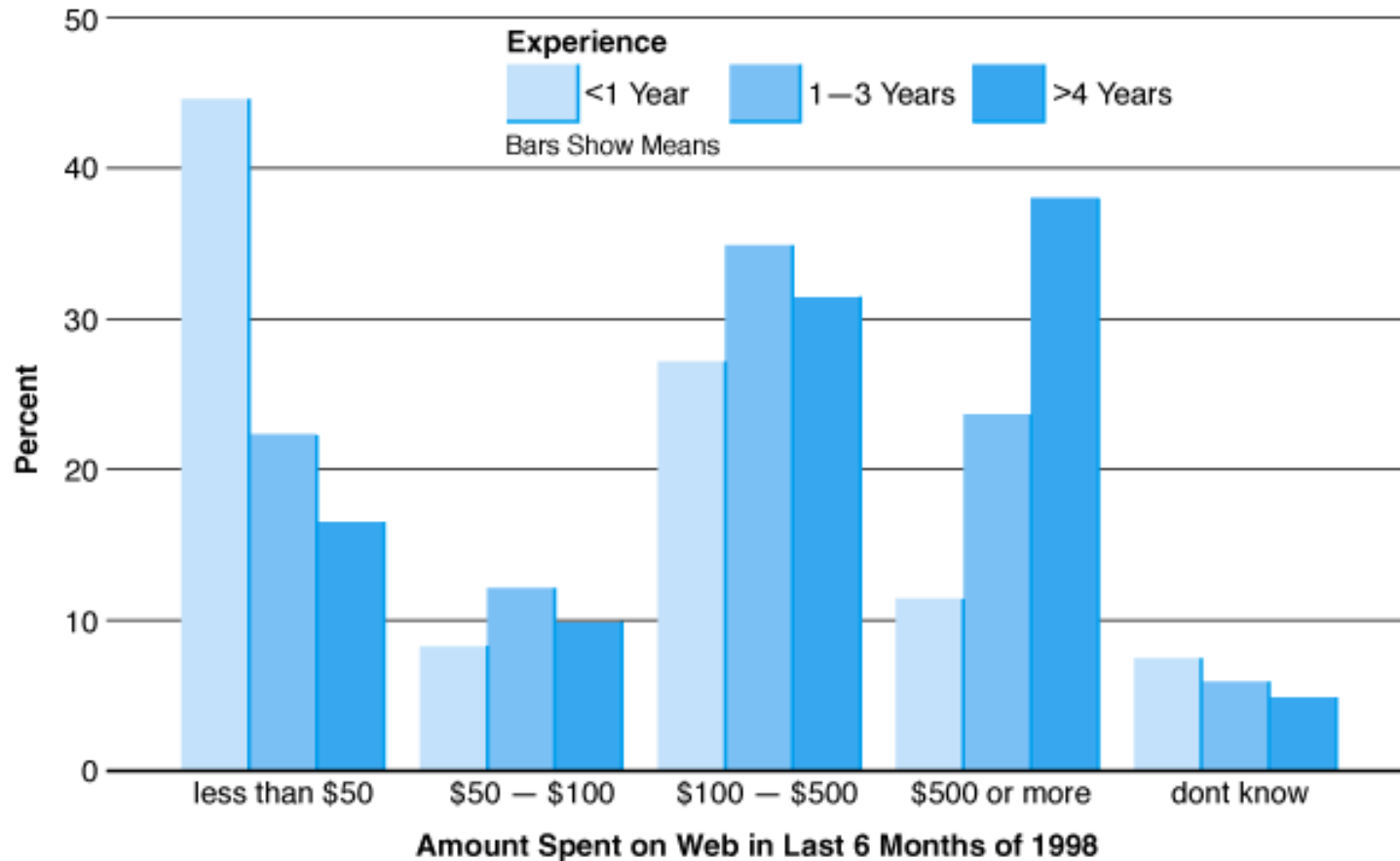
Impulsive
Patient
Analytical
Window shopper



a model of internet consumer satisfaction



Internet experience and amount spent on web



ERP

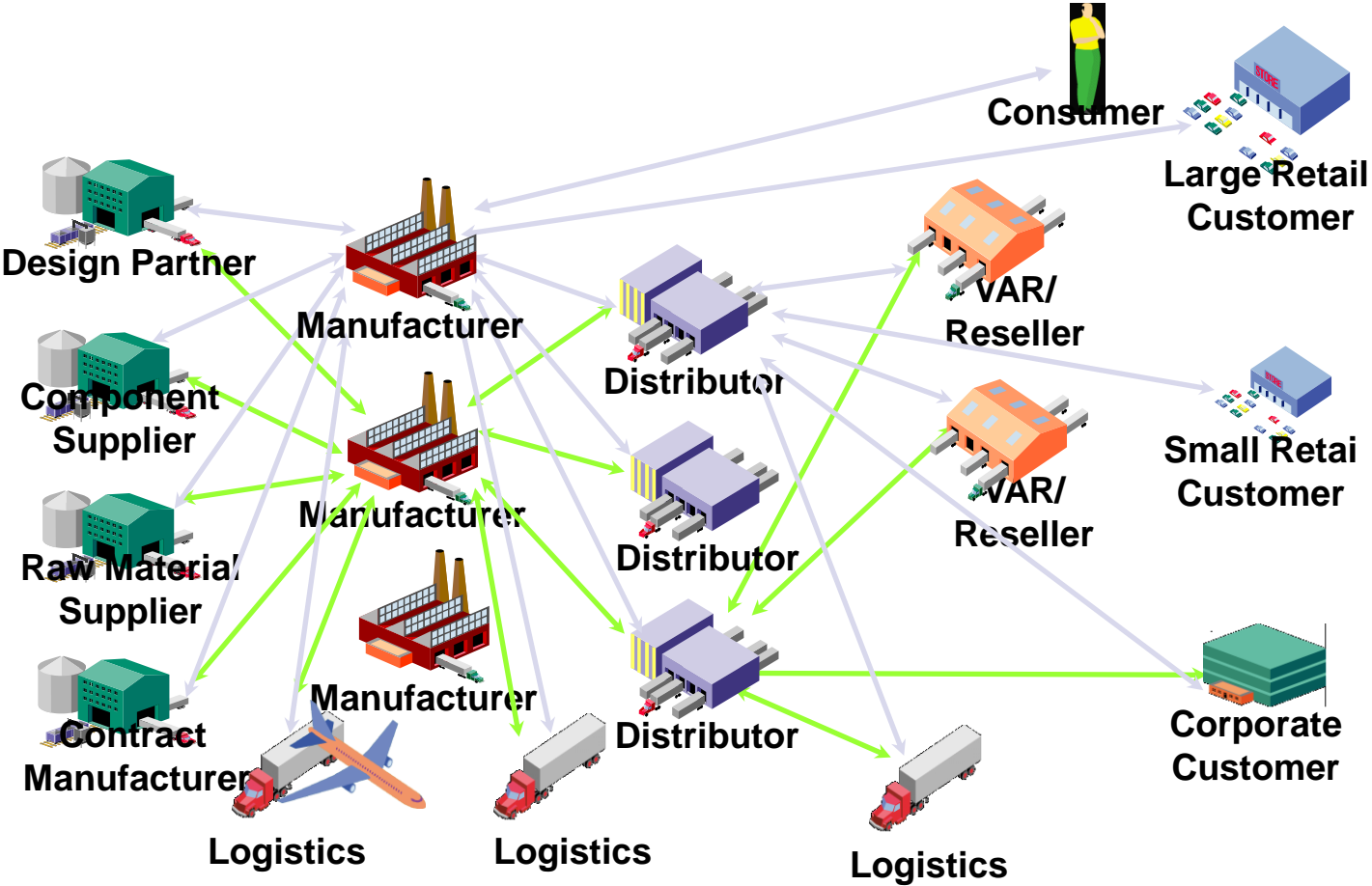
- management information systems that integrate & automate many of the business practices associated with the operations or production aspects of a company
- includes
 - production: manufacturing resource planning and execution process
 - buying a product: procurement process
 - sales of products and services: customer order management process
 - costing, paying bills and collecting: financial/management accounting and reporting process.



SCM

- supply chain
 - a **network** of facilities and distribution options that performs the functions of **procurement** of materials; **transformation** of these material into intermediate and finished products & **distribution** of these finished products to customers
 - has three main parts, the **supply**, **manufacturing** and **distribution**

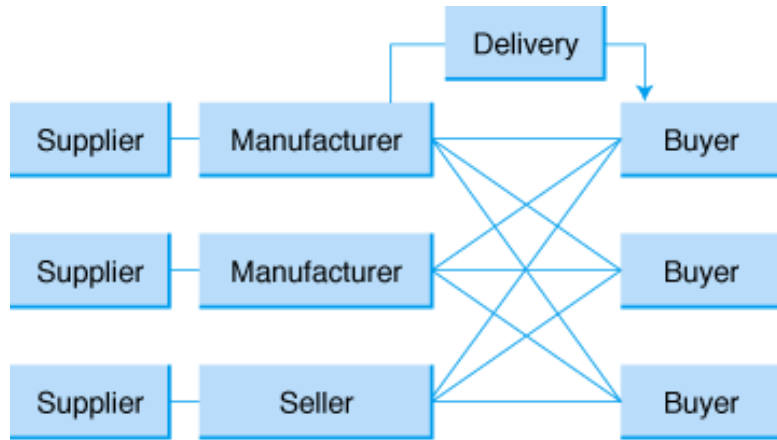
Global supply chain perspective



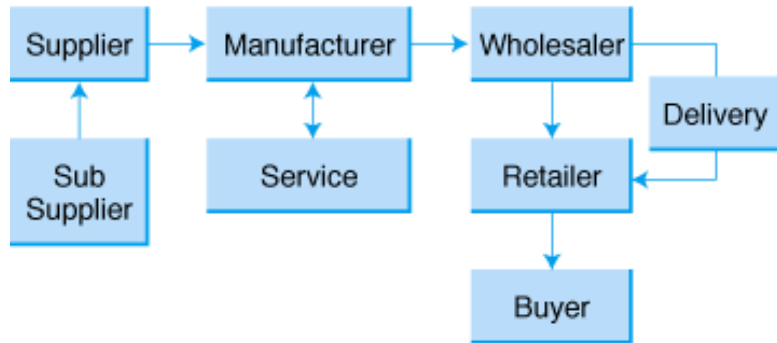
Source: J. Lee, Electronic Commerce Lecture Note, KAIST, 2001



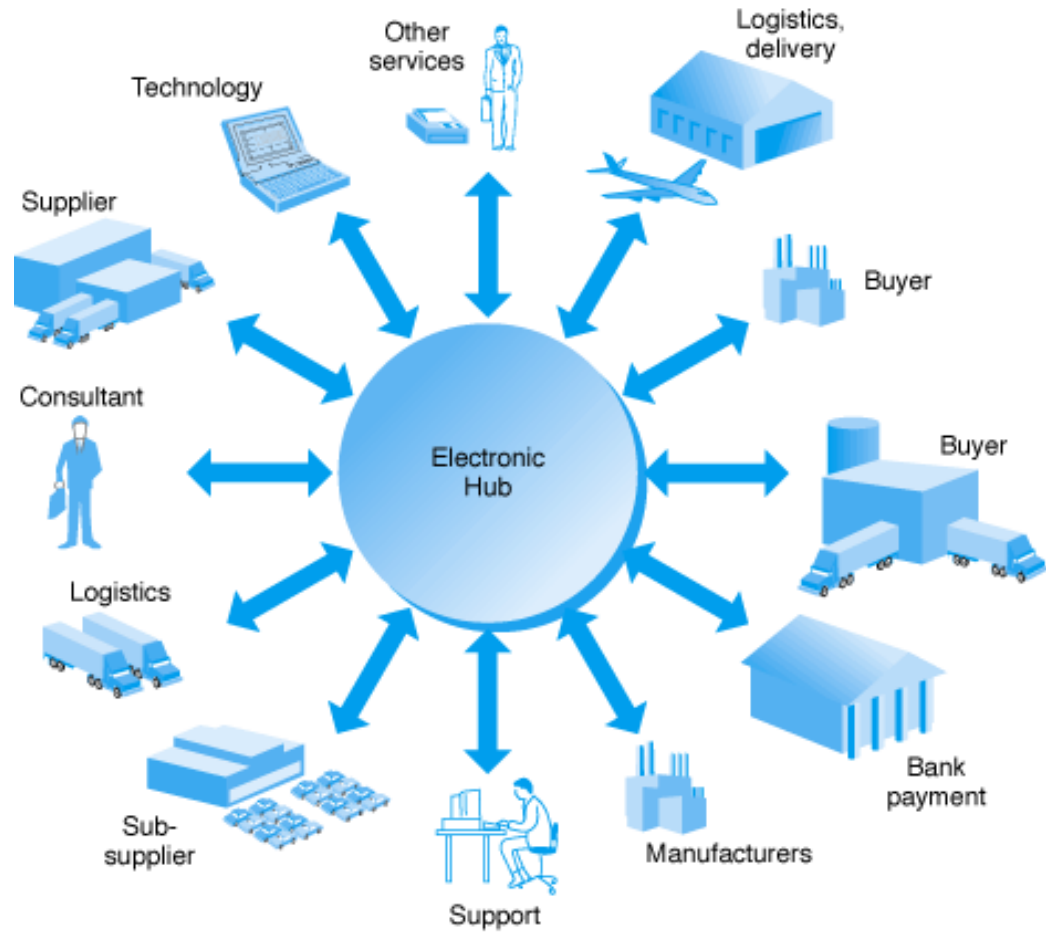
Impacts on supply chain structure



a. Direct Relationship (point-to-point)



b. Traditional Intermediaries



c. Hub-Based Chain

KM

- identification and analysis of available and required knowledge assets and related processes
- knowledge regarding markets, products, processes, technologies, & organizations that a business owns that enable its business processes to generate profits
- also includes the subsequent planning and control of actions



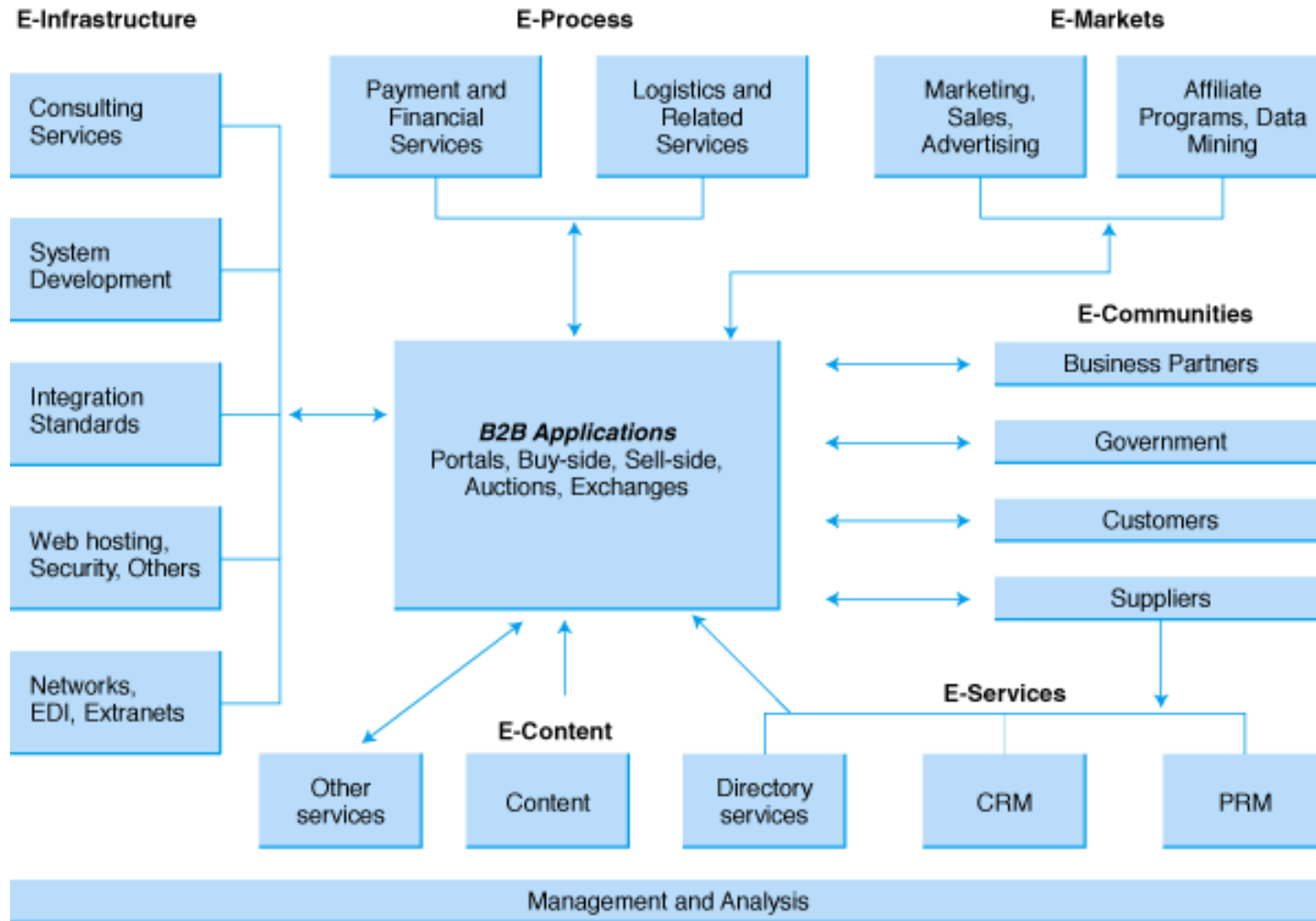
e-market

- an electronic gathering place that brings multiple buyers & sellers together
- provides to its participants a unified view of sets of goods & services
- enables them to transact via automated means



B2B support services

(source: delphigroup.com)



e-business roles and their challenges

- e-business applications have two sides
 - buy side
 - organizations that use e-business facilities for their buying needs,
 - e.g., spot purchasing and/or enterprise-wide procurement
 - sell side: businesses that sell their products via the transaction mechanisms offered in e-business applications
 - manage multiple selling channels
 - ability to take multiple types of orders from customers.
 - ability to differentiate and customise products and services from other suppliers
 - ability to adapt and grow the e-business without dramatic technology changes, organizational restructurings, business processes or radical new investments.
- need to empower suppliers and buyers & enable suppliers of all sizes



e-business requirements

- identify / measure quantifiable business objectives
- ensure organizational/operational flexibility
- re-think entire company supply chains
- transform the company to a process-centric one
- define business processes
- understand security requirements
- align business organizations with a flexible IT architecture
- establish ubiquity within standards
- adoption of technologies
 - efficient business process management technology
 - efficient enterprise application integration technology
 - efficient b2b communication technology



advantages of Electronic Business

- improved operational efficiency and productivity
- reduction in operating costs and costs of goods and services
 - by enabling collaboration with external partners
- improved competitive position
 - 70% higher profitability
- penetration into new markets through new channels
 - extending the reach beyond the organizational and geographic boundaries
- improved communications, information and knowledge sharing
- harmonization and standardization of processes
- improved internal information access
- improved relationships with suppliers and improved customer service



inhibitors of electronic business

- management / strategy issues
 - lack of a clearly defined e-business strategy
 - organisational changes required by e-business
 - management attitudes and organizational inflexibility
 - more serious in SMEs
- cost / financing
 - costs of implementation of e-business
 - difficulty in calculating the Return on Investment (ROI)
- insufficient security & trust
- legal issues
 - e.g., cross-border e-biz activities
- technology concerns
 - limited interoperability as most existing applications depend on proprietary solutions which do not interoperate

