e-Business Relationships

406.306 Management Information Systems

Jonghun Park

jonghun@snu.ac.kr

Dept. of Industrial Engineering

Seoul National University

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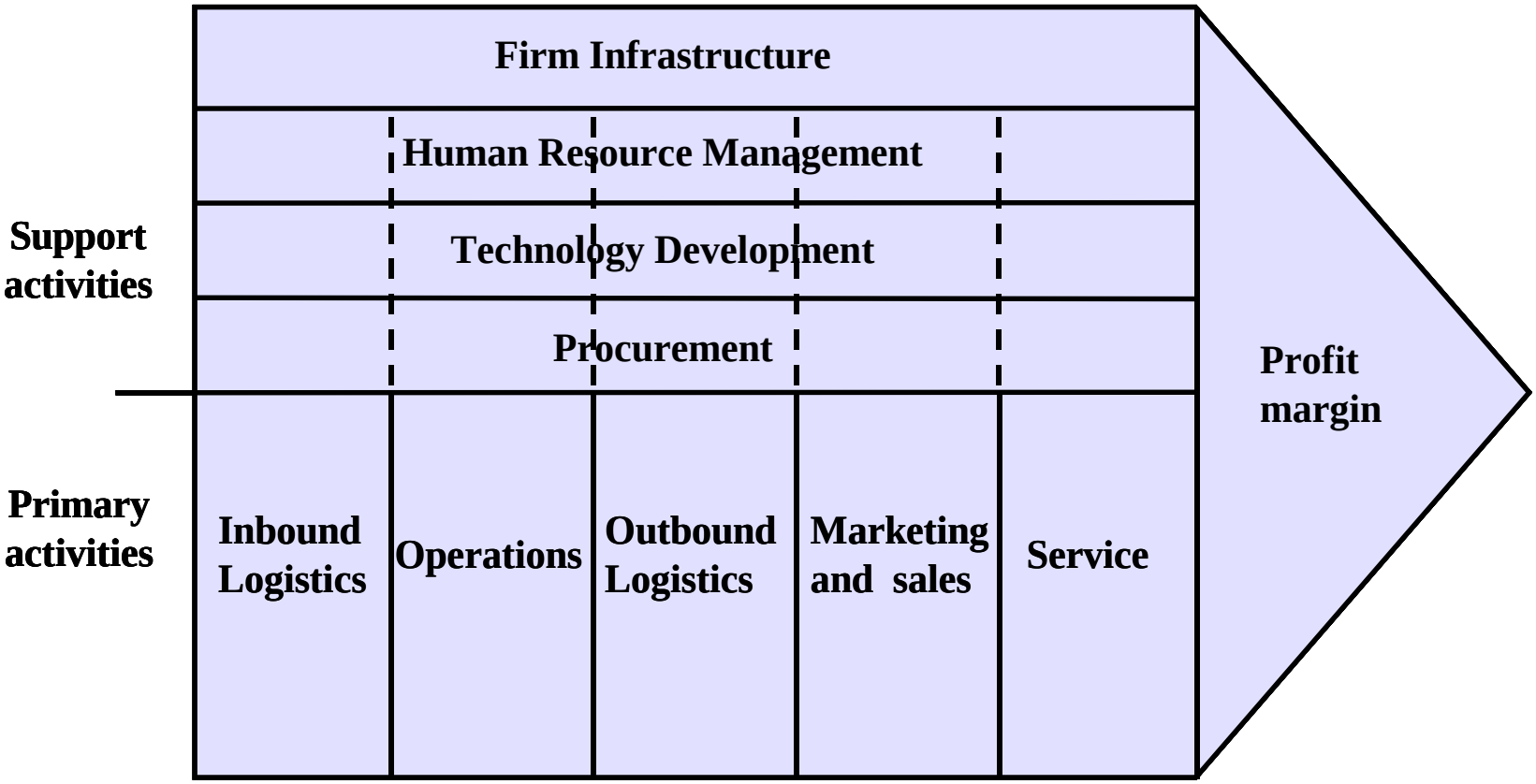
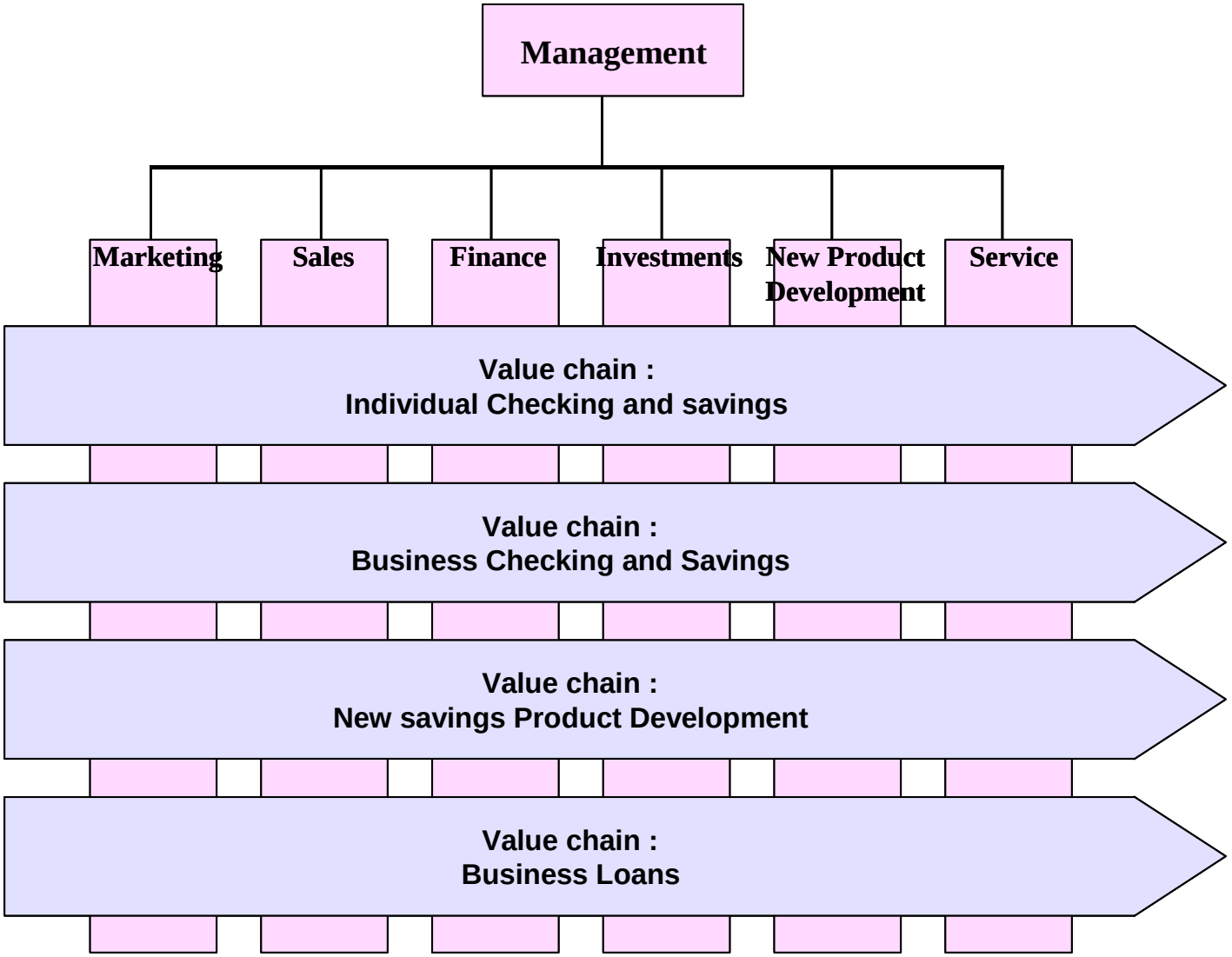
value chain

- proposed by Porter
  - “every firm is a collection of activities that are performed to design, produce, market, deliver, and support its products or services. value chains can only be understood in the context of the business unit”
- a model that describes **a series of value-adding activities** connecting a company’s **supply side** (raw materials, inbound logistics, and production proceses) with its **deman side** (outbound logistics, marketing, and sales)
- provides manageres with a tool to analyze and redesign their internal and external processes to improve efficiency and effectiveness
- analysis objectives:
  - how activities add value
  - distinction between activities that directly add value to the customer and those that indirectly add value
- organizations typically support from 3 to 15 value chains

value chain model



an example: financial company



primary activities

- inbound logistics: receiving, storing, and disseminating inputs to the production process or service
- operations: transforming the inputs to outputs
- outbound logistics: distributing the products or services to customers
- marketing & sales: advertising, pricing, tendering, sales force mgmt., selection of distribution channels
- service: repairs, maintenance, spare parts supply, product upgrades, follow-up services , training and installation

support activities

- firm infrastructure: administration and management for overall planning and control
- human resource management: recruiting, traininig, devloping, appraising, promoting, and rewarding of personnel
- product / technology development: all activities related to product and process development
- procurement: purchasing goods, services, and materials

benefits of value chain analysis

- seen as a major differentiating factor in a company
- enterprises that implement value chain planning applications with a continuous improvement program are likely to increase ROI by 40% over a 5-year lifecycle (Gartner)
- corporations need to
  - continuously ask themselves questions about the organizaiton, designing, and management of efficient processes
  - keep in mind issues such as shareholder value and returns, competition and margin pressures, M & A, shifts in cost and service structures, new markets and new products, customer requirements and demands, capacity constraints and sourcing, and supplier requirements

value chain analysis

- value: the amount buyers are willing to pay for what a firm provides them
- two main questions for analysis
  - what activities should a firm perform, and how?
  - what is the configuration fo the firm's activities that would enable it to add value to the product and to compete in its industry?
- 4 steps
  - defining the strategic business unit
  - identifying critical activities
  - defining products
  - determining the value of an activity
- sources of value creation
  - policy choices (what activities to perform and how), linkages (within the value chain or with suppliers and channels), timing (of activities), locaiton, sharing of activities among business units, learning, integration, scale and instituitional factors

5 steps by which org can impact on value chain by IT

- assess the information intensity of the value chain
- determine the role of information systems in the industry structure
- identify and rank the ways in which informatin systems might create competitive advantage
- investigate how information systems might spawn new business
- develop a plan for taking advantage of information systems
  - business-driven rather than technology driven

value stream analysis

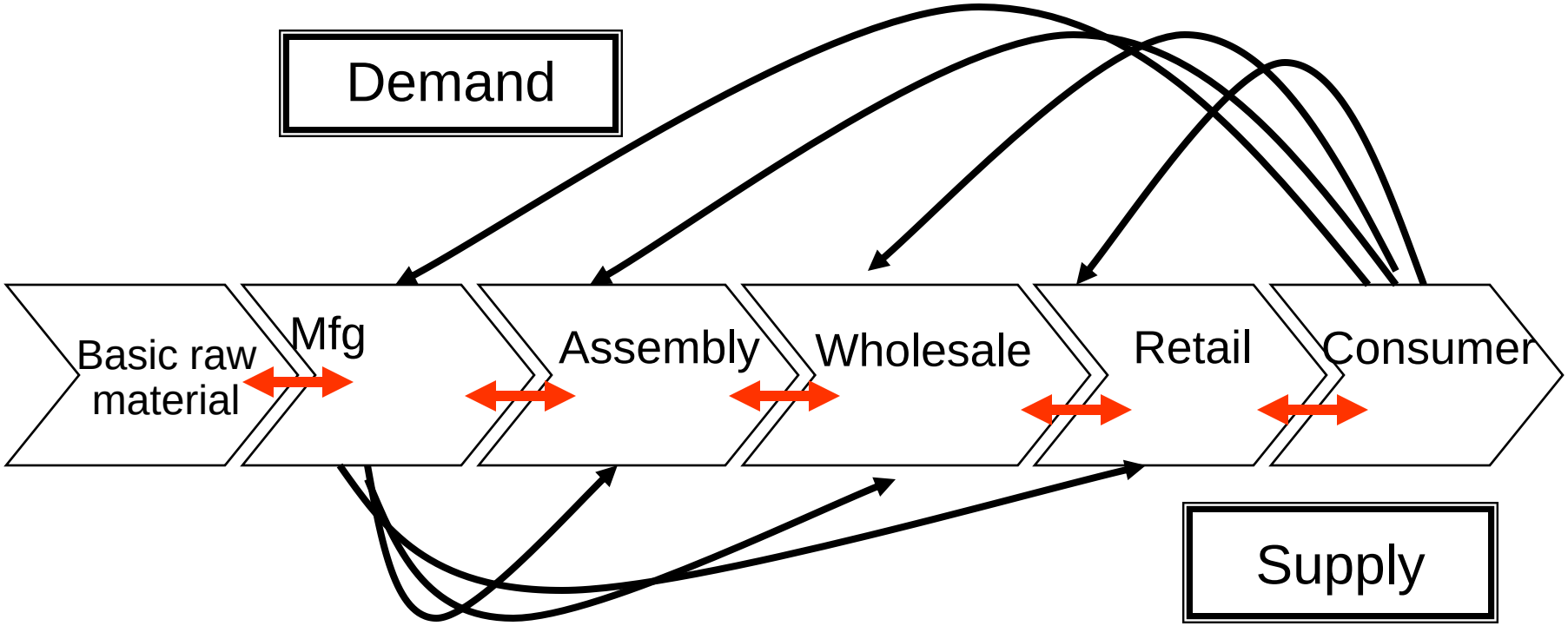
- considers how the whole production and delivery process can be made more efficient
- categorizes activities into those that
  - create value as perceived by the customer
  - create no value -> elminated
  - do not add value -> eliminated
- value stream: set of all the specific actions required to bring a specific product through 3 critical management tasks
  - problem-solving: from concept to production lanunch
  - information management: from order-taking to delivery
  - physical transformation: from raw materials to finished products delivered to customer

unbundling value chain

- concentration on what is considered a unique and core competence and outsourcing the rest
- 70% of electronics manufacturing use contract manufacturing
- result of outsourcing
  - unbundled value chain
  - more complex e-business relationships

industry value chain

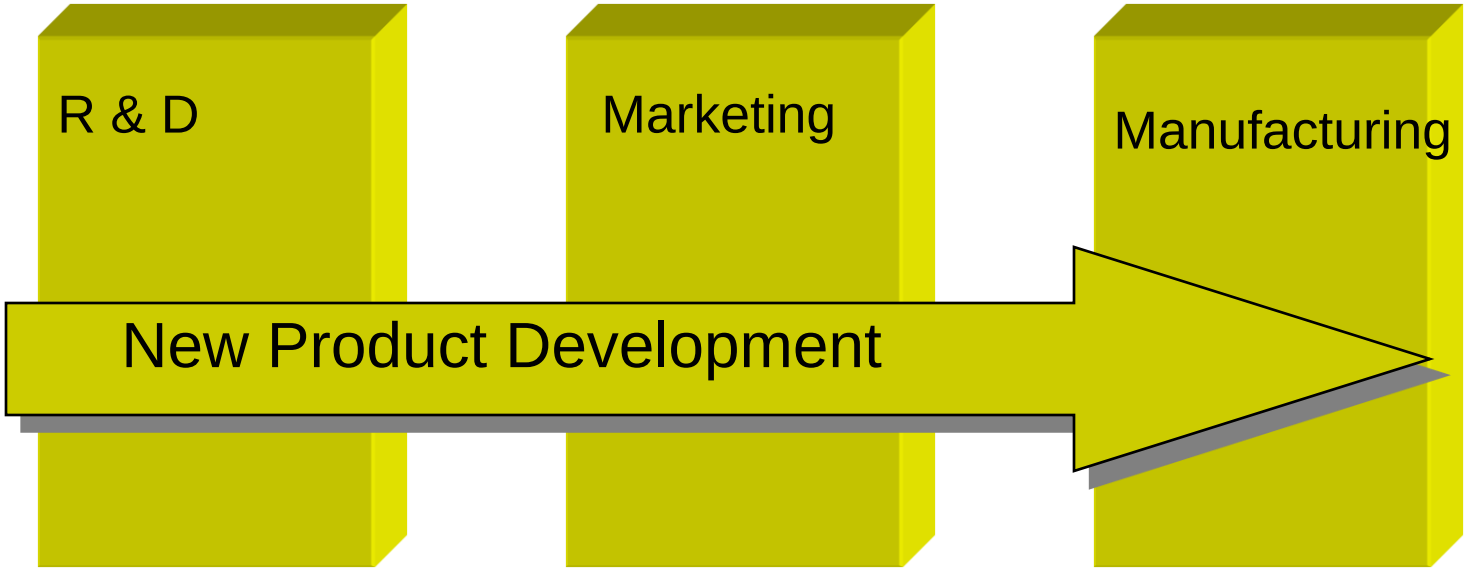
- a collection of individual business unit value chains that together produce and deliver the goods and services to the final customer
- every business unit value chain is part of a larger industry value chain
- helps a company to position itself relative to other companies
- four types of info flows: transaction, customer demand, supplier information, knowledge flows



process

- process
  - an ordering of activities with a beginning and an end
  - has inputs (in terms of resources, materials and information) and a specified output
  - can be measured, and different performance measures apply, like cost, quality, time and customer satisfaction
- process definition
  - any sequence of steps that is initiated by an event, transforms information, materials, or business commitments, and produces an output
- **business process**
  - consists of one or more related activities that together respond to a business requirement for action
  - defines the results to be achieved, the context of the activities, the relationship between the activities, and the interactions with other processes and resources
  - implies an horizontal view on a business organization

process view de-emphasizes the functional structure

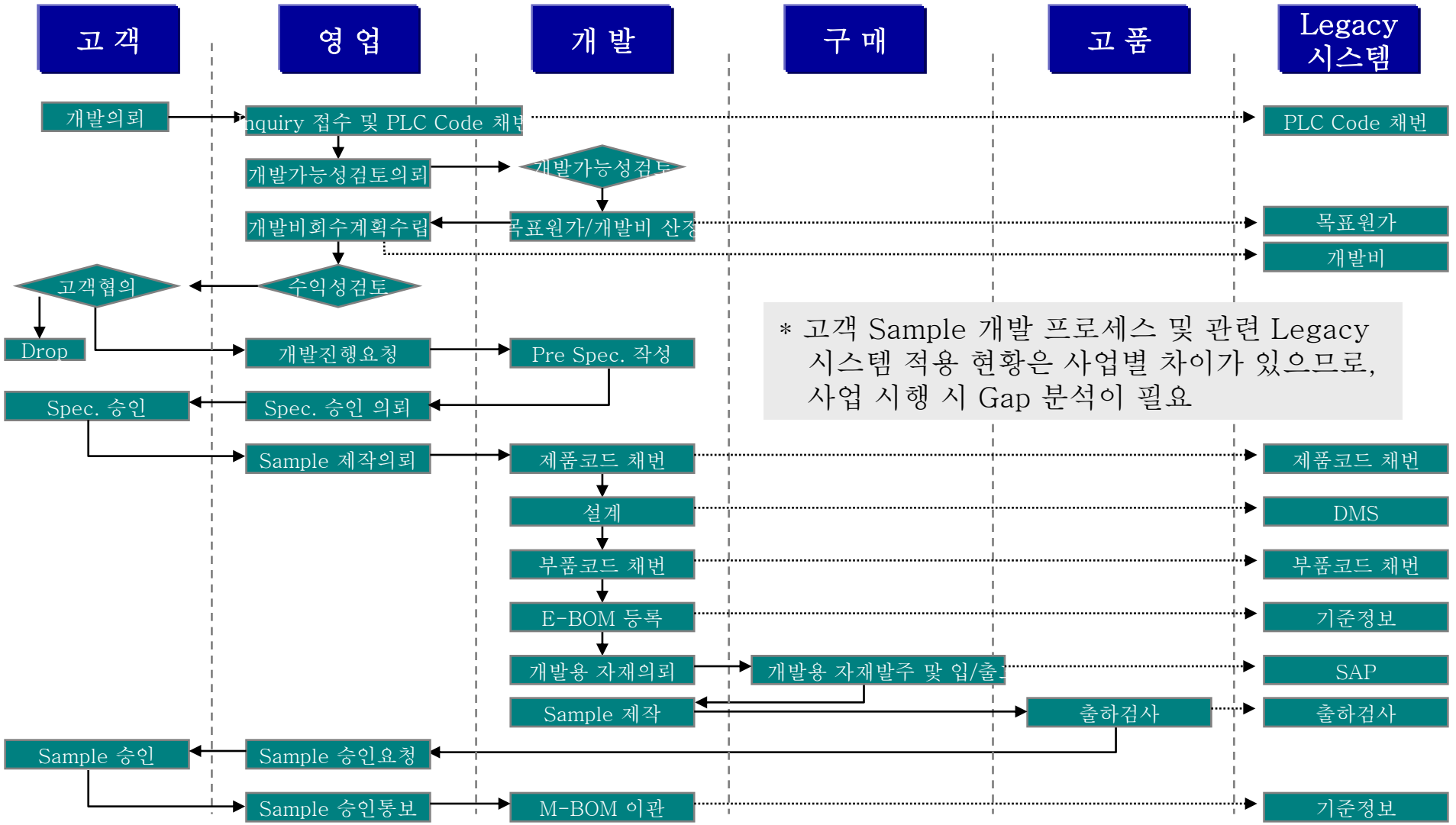


Most companies can be broken down into fewer than 20 processes [Davenport]

typical processes in a manufacturing firm (Davenport)

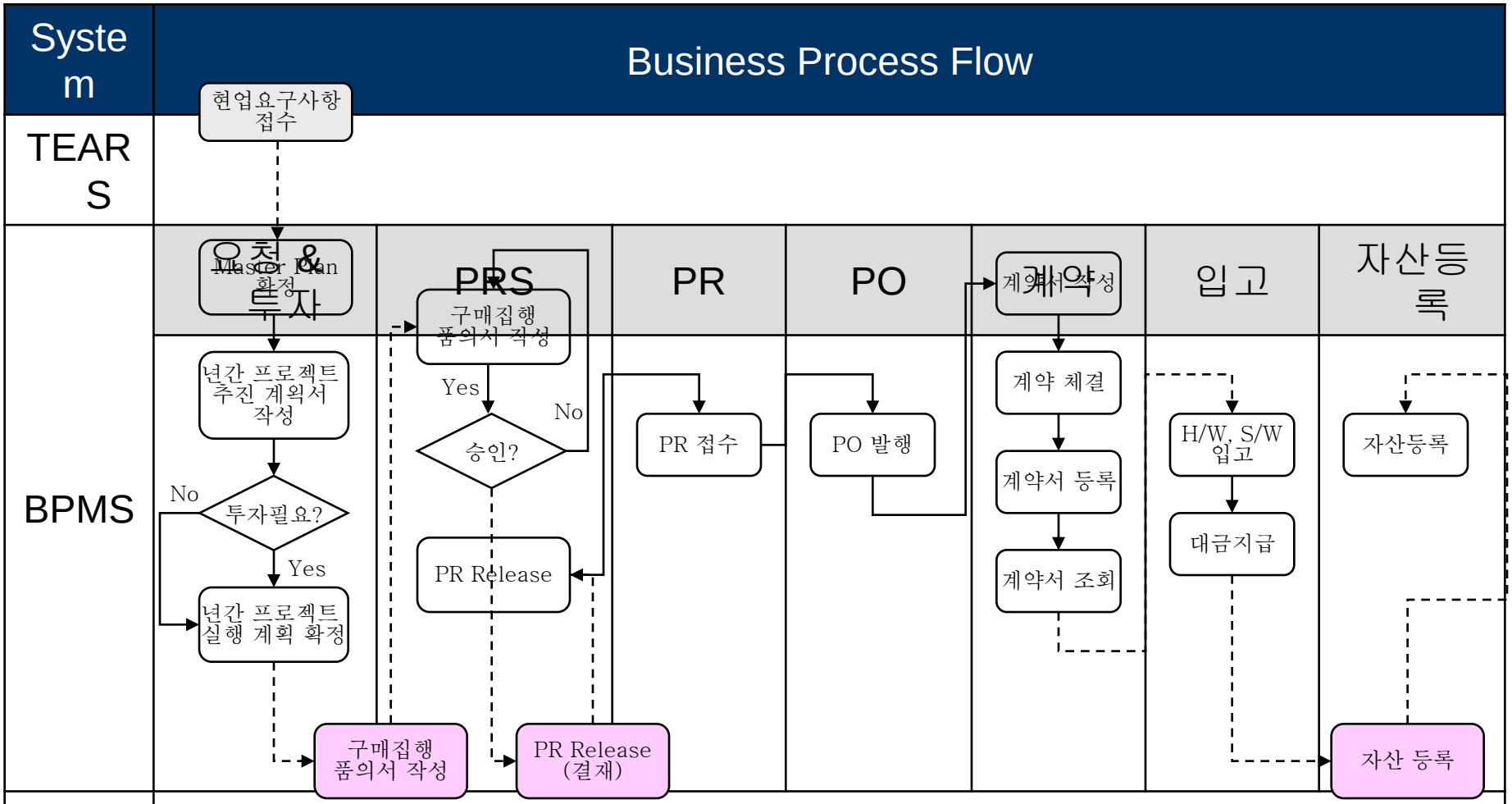
- product development
- customer acquisition
- manufacturing
- order management
- after-sales service
- human resource management

a BP example (1)

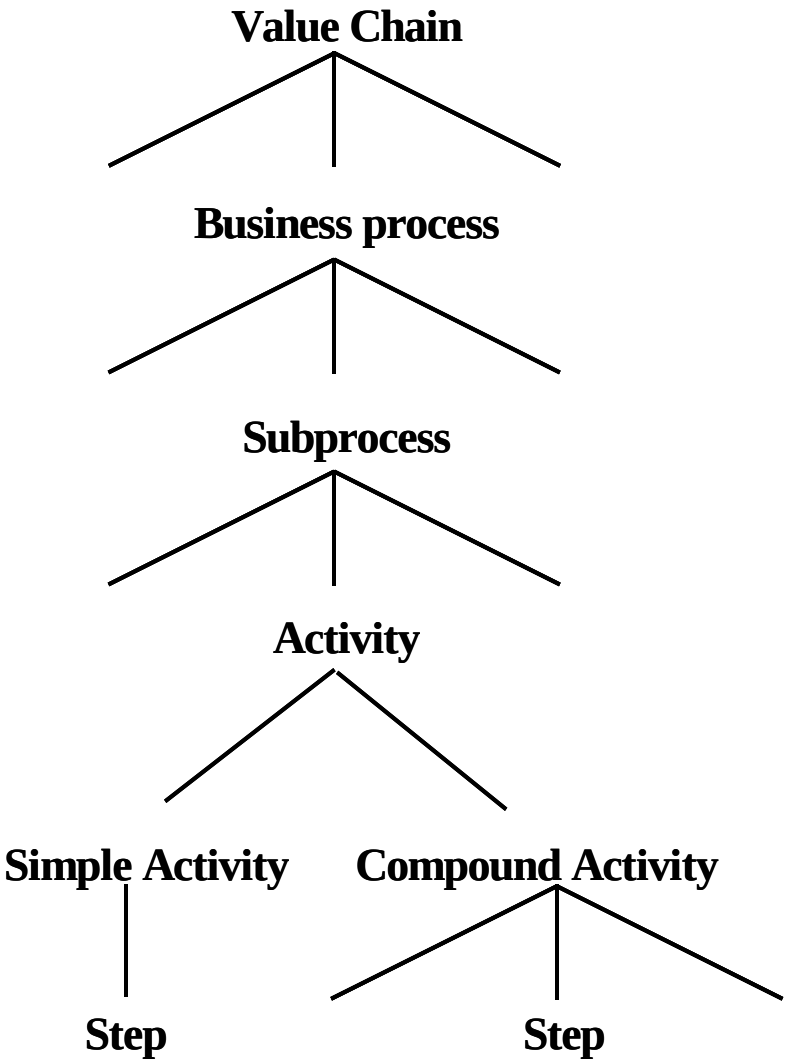


a BP example (2)

- 목표 시스템 구성도 - 프로세스 플로우



BP hierarchy

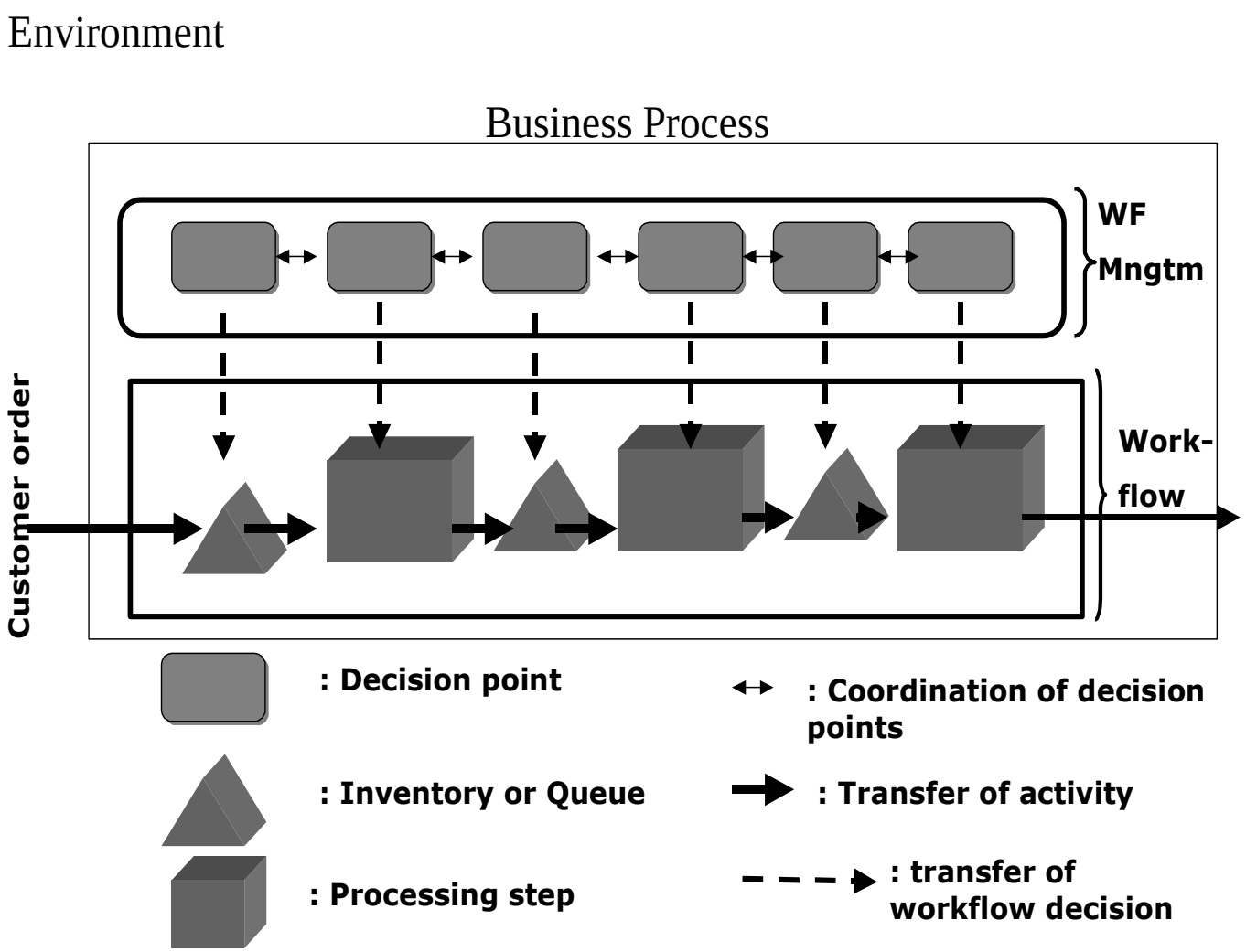


- subprocess
  - reusable business service
  - e.g., identifying a customer
- activity
  - simple: a single step
  - compound: multiple steps
- an activity may invoke another BP in the same or a different domain
- processes may cross org boundaries
- at run-time, a BP definition may have multiple instantiations

characteristics of BP

- processes exist within the internal business environment as well as external organizational environment that can trigger the process
- every process has a customer and is directly or indirectly initiated by a customer order (e.g., final customer, another process)
- every process implies processing: a series of activities leading to some form of **transformation** of data or products
  - geographic, technological, linguistic, syntactic, semantic transformation
- communication is an important part of any process
  - the more uncertainty, the more communication
- workflows have inventories or queues
  - lack of processing capacity, geographic transformation, availability of all data to accomplish the process
- processes have decision points
  - routing, allocation
- every process delivers a product (and service)

representation of a BP



types of BP

- type of activity
  - workflows where information processing supports a physical process
  - workflows where information processing is the process itself
- degree of repetition
  - low degree of repetition -> ad hoc
- expertise required to execute the process
  - high level of expertise -> project style BP
- level of anticipation of the stimulus that triggers process
  - low anticipation -> highly customized services & products

Mintzberg's typology of organization

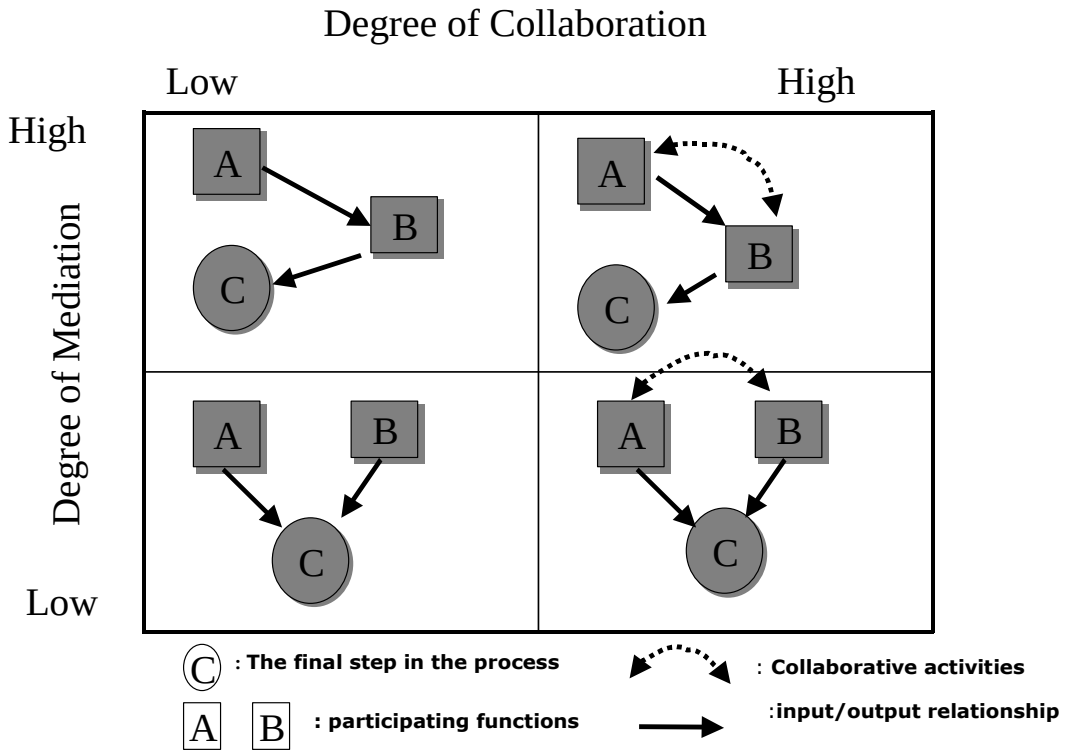
Four Basic Forms (Mintzberg)

Environments	*Stable*	*Dynamic*
Complex	Professional Bureaucracy	Adhocracy
Simple	Machine Bureaucracy	Simple Structure

Divisions: each division may have a different structure

functional coupling framework for BP

- degree of **mediation**: the sequential flow of different functions involved in the process
- degree of **collaboration**: the extent of collaboration between functions involved in a process



improvement possibility

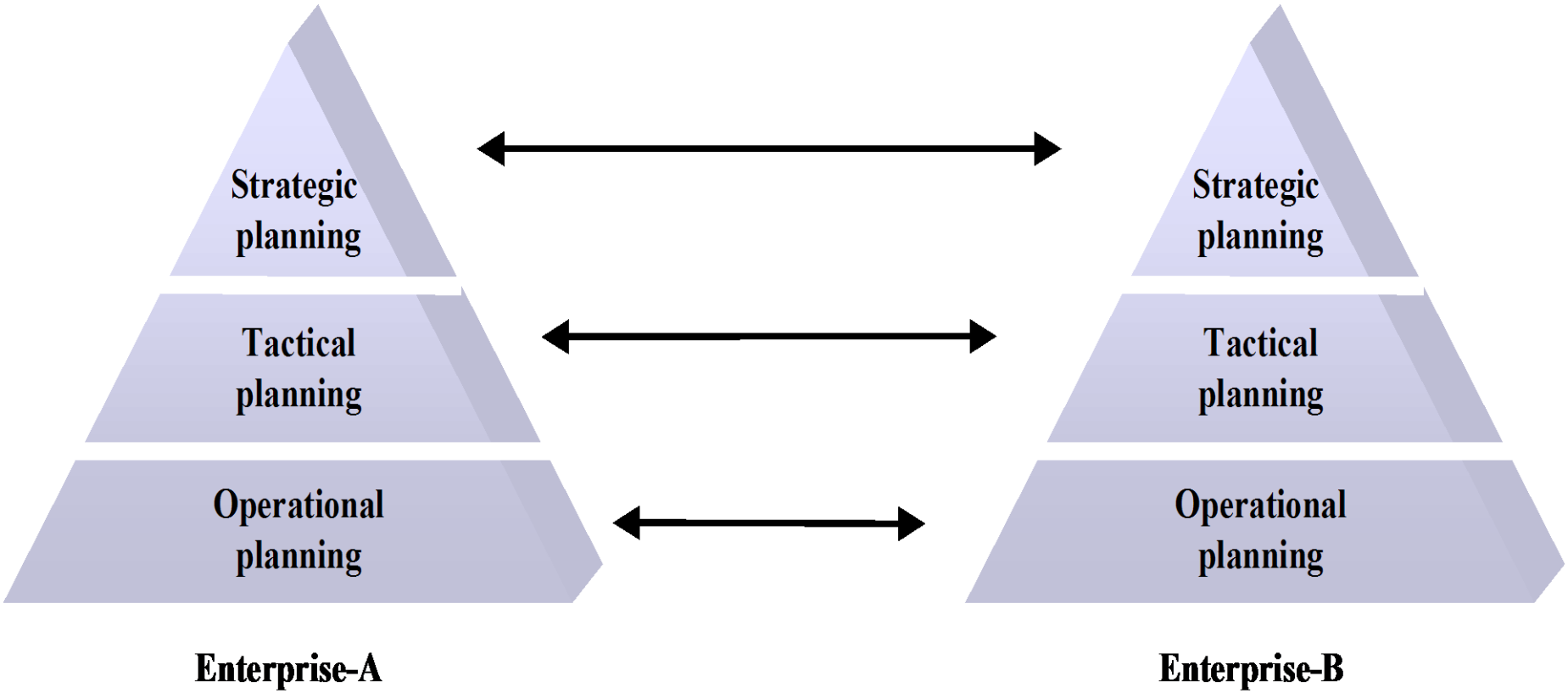
- low mediation / low collaboration
  - functions that directly contribute to the output w.o. interaction
  - few possibilities of improvement
- high mediation / high collaboration
  - functions participate in the process sequentially and with mutual information exchanges
  - most opportunities for BPR
  - e.g., development of a highly customized product
- low mediation / high collaboration
  - functions contribute to directly to the process outcome, but have an intensive collaboration
  - CSCW can help
- high mediation / low collaboration
  - functions participate in the process sequentially with no mutual exchange of information
  - e.g., highly standardized processes

impact of IT on BPs

CAPABILITY	ORGANIZATIONAL IMPACT / BENEFIT
TRANSACTIONAL	UNSTRUCTURED PROCESS INTO ROUTINIZED TRANSACTIONS
GEOGRAPHICAL	ELECTRONIC TRANSFER MAKES PROCESSES INDEPENDENT OF GEOGRAPHY
AUTOMATIONAL	REPLACES/REDUCES HUMAN LABOR
ANALYTICAL	USES COMPLEX ANALYTICAL METHODS
INFORMATIONAL	BRINGS GREAT AMOUNTS OF DETAILED INFORMATION INTO PROCESS
SEQUENTIAL	ENABLES CHANGES IN SEQUENCE OF TASKS; POSSIBLE TO RUN SIMULTANEOUSLY
KNOWLEDGE MANAGEMENT	CAN CAPTURE, DISSEMINATE KNOWLEDGE, EXPERTISE TO IMPROVE PROCESS
TRACKING	ALLOWS DETAILED TRACKING OF TASK STATUS, INPUTS, OUTPUTS
DISINTERMEDIATION	CAN CONNECT PARTIES DIRECTLY, NO LONGER REQUIRING INTERMEDIARY

Source: Davenport & Short "The New Industrial Engineering"(1990)

types of e-business relationships



types of e-business relationships (cont.)

- **operational** level
  - companies decide internally what they need, and look outside to see who can deliver at the lowest possible price
  - no sharing of information, only exchanging order information for spot buying / selling
  - advantages: flexibility, quick change
  - disadvantages: uncertainty -> long delivery times, high inventories, …
- **tactical** level
  - agreements for some period about amount and type of products to buy or sell, manufacturing series and reservation of production capacity, moments of delivery, inventories, …
  - joint planning: weekly demand forecasts, distribution and transportation planning, production planning, MRP
  - reduced uncertainty
- **strategic** level
  - act collaboratively in a specific market
  - joint decision making on investments, market approach, design, location, production decisions, …

problems for which e-business can provide solutions

- most interactions between businesses are complex and information intensive
- supply chains suffer from inefficiencies because of the inability to forecast the right product volumes and mixes
- markets are fragmented and lack transparency
  - price transparency
  - availability transparency
  - supplier transparency
  - product transparency

electronic links

- examples of electronic links: EDI, JIT, e-markets, virtual organizations
- impact
  - producers of information: information products can be sold, transported, and delivered on demand at almost no cost
  - producers of physical goods: the level of possible customization of products and services is affected
  - e-tailers
  - physical and e-markets
  - physical distribution networks: simplified by disintermediation
  - access to buyers and sellers