

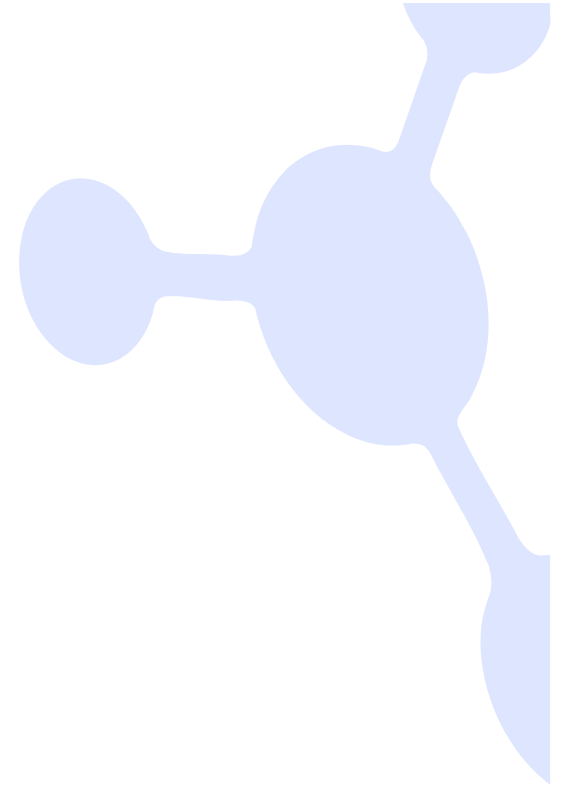


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ioBPR - BNR

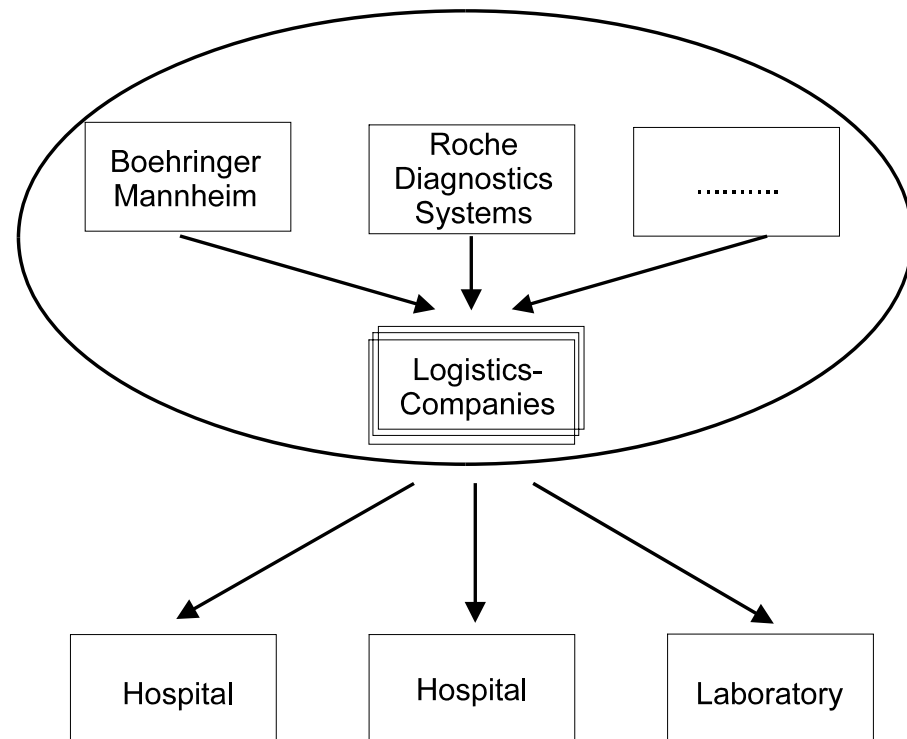


Objectives of this module

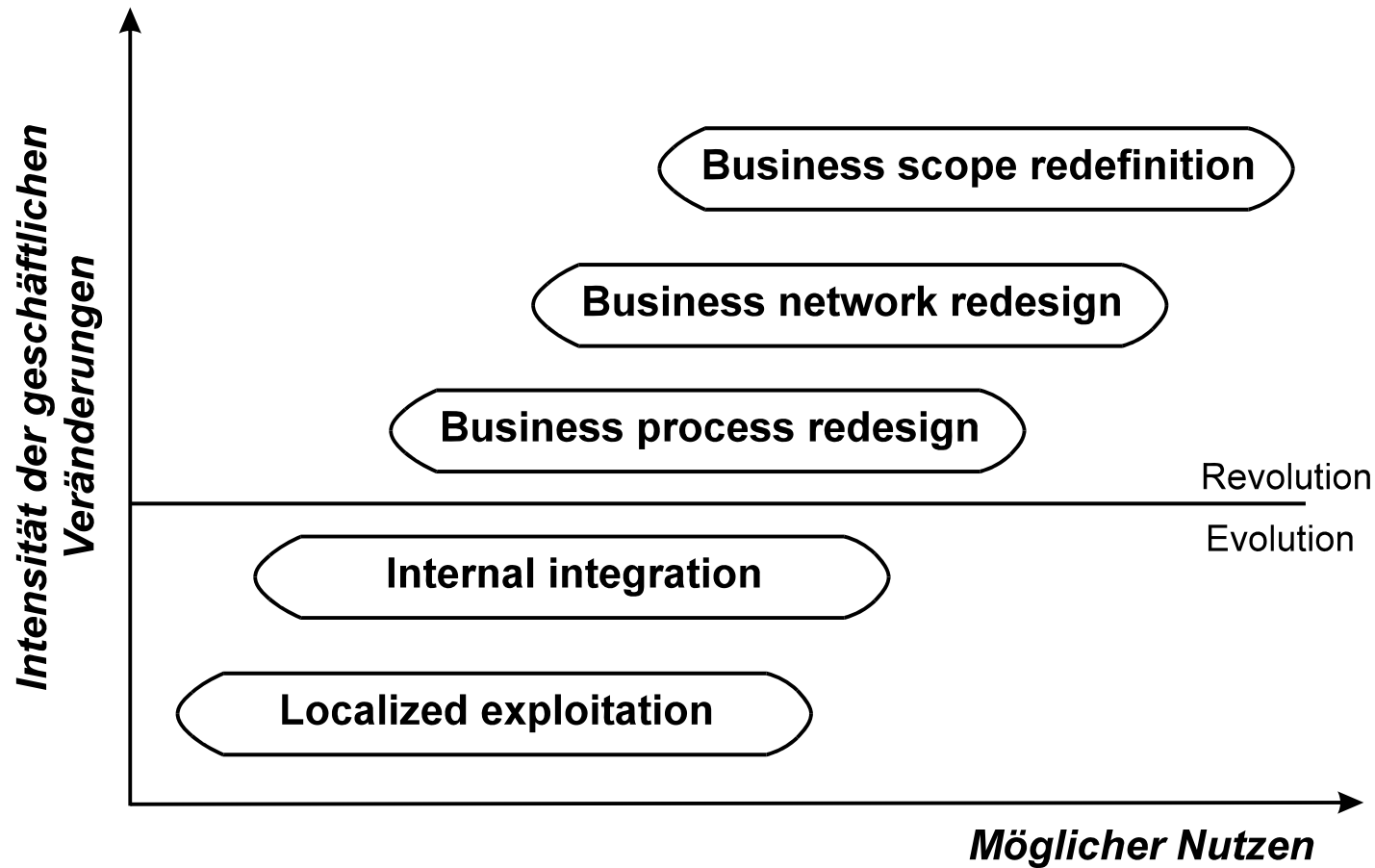
- The extension of BPR into the interorganization field.
- Opportunities for differentiation based on process or network adjustments.

Case example: Procurement of reagents for medical diagnostics

- Reagents: small volume, high price, limited shelf life
- Laboratories are dependent on sufficient supply, i.e. urgent deliveries if out of stock
- Supplier perception: fast delivery (less than 24 hours after ordering) is a critical success factor
- Customer perception: stable and predictable demand, ca. 5% urgent requisitions, consolidated deliveries are more important



The context: IT driven change



(Source: Scott Morton 1992)

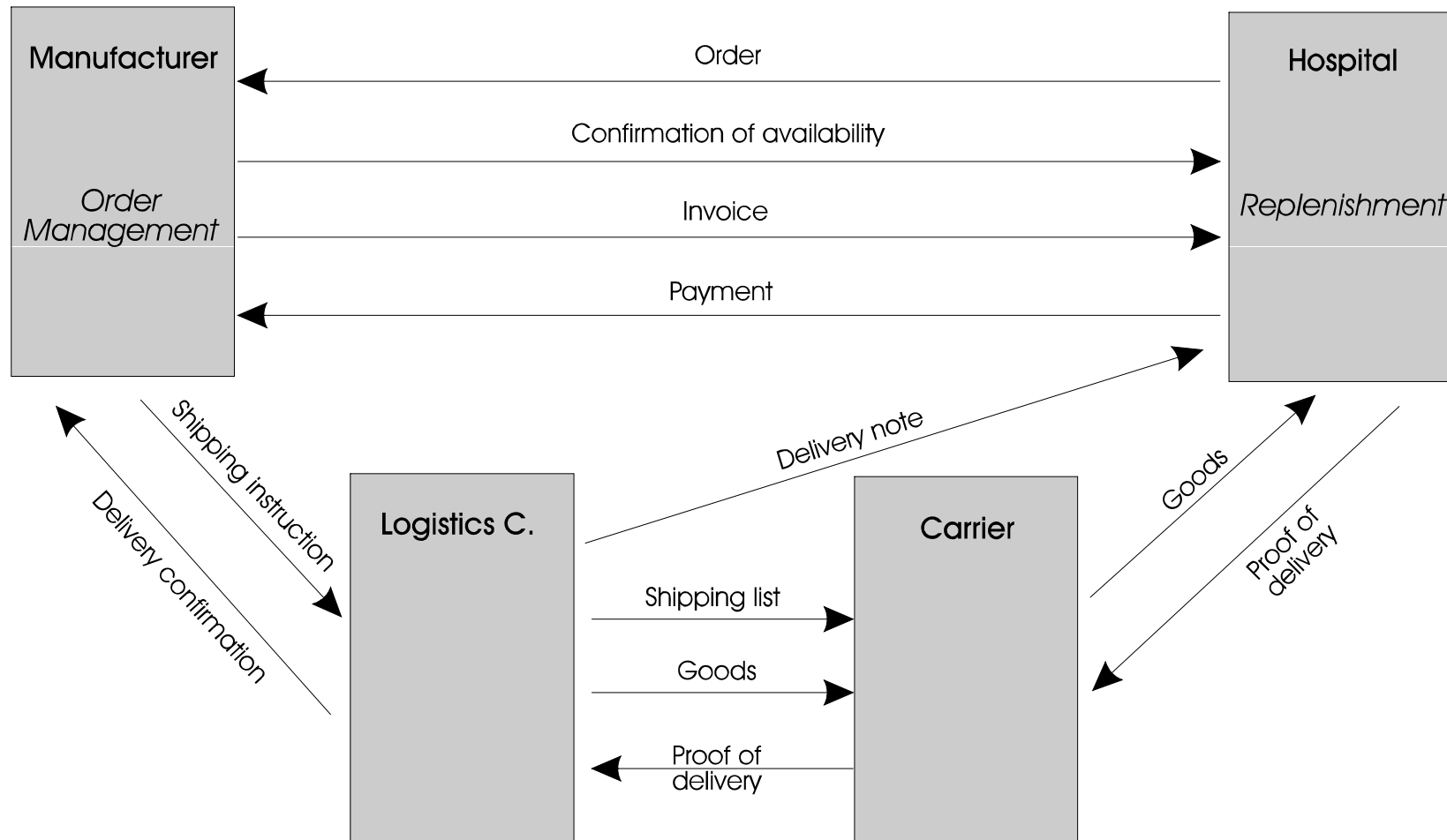
Levels of change

BPR Business Process Redesign	Improving internal processes, e.g. approval cycle, requisitioners rights, budget and knowledge management, desktop purchasing solutions
ioBPR interorganizational Business Process Redesign	Improving interorganizational processes, e.g. coordination among business partners, exchange of planning information, division of labor, e.g. continuous replenishment, materials management
BNR Business Network Redesign	Changing the structure of the supply chain, bypaasing or adding (new) players (e.g. cybermediaries), building business networks, establishing market platforms.

Process steps	Organisational scope	Technical scope
1 Contingency analysis		
1.1 industry structure	fragmentation, competition	usage of IOS in the industry
1.2 inter-organisational relationship	interdependence, power, trust	governance of IOS
1.3 process and technology	efficiency, intensity of interaction	EDI applications in related areas, existing standards that can be (re-)used, IS with external interfaces or process linkages, level of IS support for operations
1.4 competencies	strategic evaluation of business segments and functions	technical competence
2 Requirements engineering		
2.1 Individual analysis	identification of processes and their relevant contexts, process modelling and analysis	external interfaces, links to internal systems such as order management or inventory control
2.2 Participatory requirements analysis	inter-organisational process modelling and analysis, key benefit areas	specification of technical requirements
3 Identification and evaluation of alternative scenarios		
3.1 First order changes: ioBPR	interchange agreements, evaluation of the systemic and the individual process improvements, impact on internal processes (BPR)	improved informational representation of supply chain: bar coding, EDIFACT, preconditions of EDI benefits, standardisation on industry level required
3.2 Second order changes: BNR	scenarios related to coordination strategy: structural changes along the supply chain (outsourcing and intermediation), models of horizontal cooperation	standardisation issues
4 Process management and implementation		
4.1 Scope of participation	supply chain management, horizontal cooperation	standardisation and implementation issues
4.2 Negotiations	interchange agreements, division of costs and benefits	design of solutions

Process steps	Commentary	Forms/messages
Identification of needs	In the labs, deviations from budgeted amounts are forwarded to the procurement office on a monthly basis.	
Order to the central procurement dept.	Lab chief manager must sign purchase requisition legibly, he is responsible for the modification of the planned demand.	Purchase requisition (lab material requisition))
External order	Purchasing order must be signed and approved. Order is faxed to the supplier. Supplier notification follows in the case of their stock out. It takes place by the 15th of every month. It contains the product descriptions, and internal code and quantities	Purchasing order (confirmation of availability)
Delivery	Between the 20th and the 30th of each month exactly one delivery per supplier is expected. Approximately 8-10 deliveries arrive at the hospital each month.	(Shipping list and supplier delivery note)
Confirmation of delivered goods	After arrival of goods at the delivering dock, the form confirming the receipt of the goods is signed and returned to the carrier. The purchase order number, supplier number and the internal product code are entered into the system. If the goods are expected, an internal warehouse note is printed out and a receipt number is assigned (initial check).	Internal warehouse note/shipment
Checking delivery note	An on-line comparison is made between the purchase order and the delivery note based on the order number, internal and supplier product code and quantity. On average, 1 - 2% of deliveries are wrong. Bar coded labels printed.	Bar code labels
Content control	Quantities, product identification, expiration date of the reagents (minimum pre-agreed expiration date is between 60 and 90 days.) are controlled and labels are attached. 4 persons unpack and relabel in two shifts at the warehouse. Depending on the delivery schedules of the labs, the goods are temporarily stored in the main storage. A minimum buffer of four days is maintained in the main storage.	
Preparation of internal delivery note	A standard form is prepared, one per supplier, which accompanies the reagents to the lab. Hand scanners are used for exit control at the warehouse.	Internal delivery form
Delivery to the lab	The goods are physically transferred to the lab and stored on lab premises. (The internal delivery form contains updated numbers of items that are expected to be in the storage room and that will be checked when new deliveries are stored.) Coloured labels at the shelves indicate the rhythm of replenishment. The inventory is controlled every night at the decentral stock areas.	

Description of flows of information & goods



ioBPR: Analysis of bottlenecks and potential benefit areas

Player	Bottleneck	Benefit areas
Supplier	Time consuming order management, high cost of urgent deliveries	<ul style="list-style-type: none"> – Delivery contract with customer; – enhanced order lead time will reduce cost of warehousing and distribution and improve the forecast of demands as well as production and distribution planning
Inter-mediary	Consignee order information arrives too late	<ul style="list-style-type: none"> – Use of bar codes would improve inventory management and control, – enhanced order lead time will improve coordination of transports and reduce costs
Customer	High administrative costs because <ul style="list-style-type: none"> • products are not bar coded, • invoices are not sent electronically, • there is no advance delivery notification, • shipments are fragmented 	<ul style="list-style-type: none"> – Suppliers bar code their products, – suppliers send delivery note and invoice via EDI in advance which then can be compared automatically – advance delivery information and consolidated shipments facilitates the streamlining of materials management operations

- Interchange agreement
- Barcoding products
- EDIFACT based message exchange

Assessment of options

Appraisal	Supplier	Intermediary	Customer	Systemic
Changes				
Interchange agreements specifying lead times for orders and delivery notes	<i>contracting cost, order lead time</i>	<i>contracting cost, lead time, opportunity to consolidate shipments</i>	<i>contracting cost, advance information about physical delivery, transparency, influence on delivery time and mode</i>	win - win situation as long as contractual obligations are met, trust building
Bar coding	<i>standardisation cost, system investment and additional operational cost, competitive necessity</i>	<i>system investment, beneficial for inventory control and delivery process</i>	<i>adaptations to supplier system, beneficial for inventory control</i>	depends on the diffusion of bar code based inventory systems
EDIFACT	<i>standardisation cost, system investment, benefit depends on internal integration and volume of transactions, application in non-core area, competitive necessity</i>	<i>system investment, benefit depends on number of communication partners on the shipper and consignee side, volume of transactions and internal integration, application in core area</i>	<i>standardisation cost, system investment, benefit depends on volume of transactions and internal integration</i>	closing the cycle and gaining a high proportion of EDI exchange depends on the diffusion of EDI based systems throughout the industry (economies of scale and scope)

➤ IOS address systemic benefits

Ideas for improvement

Customers

- ... make planning information available to suppliers
- ... form (regional) buyers cartel and pool their demand
- ... set up virtual warehouse in order to balance demand by the participating parties (avoid returns of outdated reagents)

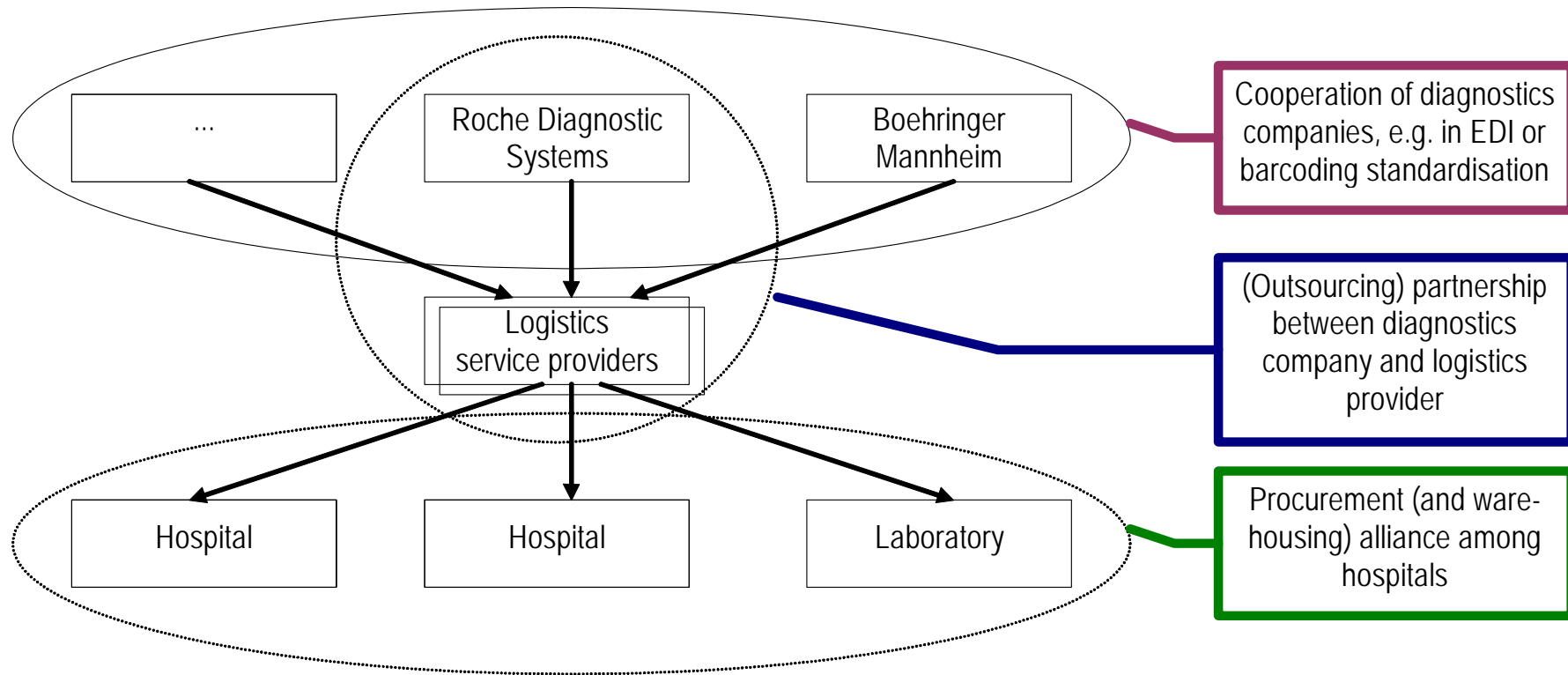
Suppliers

- ... arrange deliveries at prespecified times and send an advance delivery note
- ... coordinate deliveries, e.g. by agreeing on one integrator (FedE, UPS etc.)
- ... develop continuous replenishment („mini bar“) solutions
- ... offer new pricing models, such as price per test all-inclusive

Logistics companies

- ... extend their reach by taking over hospitals materials management

Change options in the procurement chain



Business Network Redesign Options

- Mergers and Acquisitions
- Collaborative ventures
- Entry of new intermediaries
- Redefining the scope of parties (e.g. outsourcing)

Additional design options

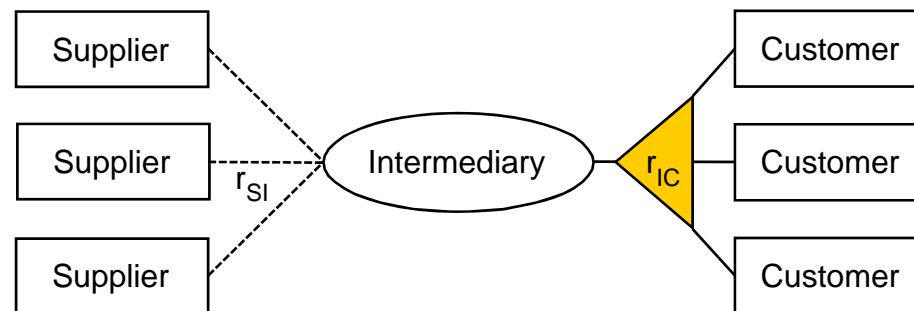
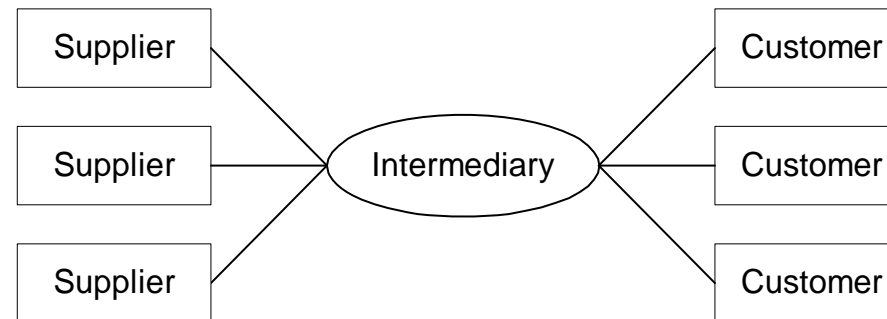
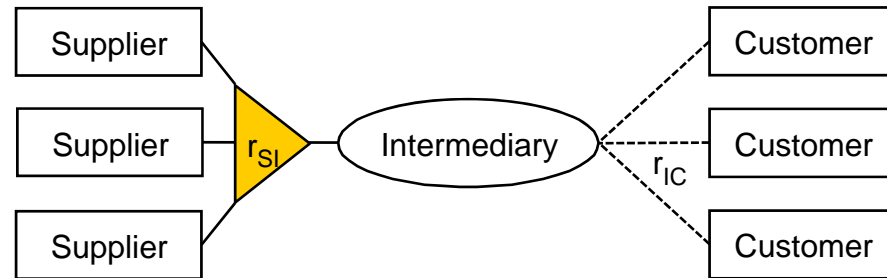
- Business models: → procurement intermediaries/ cybermediaries, procurement agents, business networking, marketplace
- Contractual models: longterm contract, all inclusive
- Coordination mechanisms: auctions, demand pooling

Intermediaries' functions

- **Providing** information services and
- efficient **coordination** of exchange relations,
- **balancing** suppliers' interest and customer needs,
- **adding** distinctive value, typically based on the potential of the Web,
- **establishing** specific exchange institutions such as trust and credibility mechanisms.

Types of intermediaries

- **Suppliers' agent:**
suppliers outsource part of their sales and distribution functions to intermediary.
- **Independent agent:**
matching supply and demand
- **Customers' agent:**
representing customers' interests



Business scenarios for a procurement intermediary

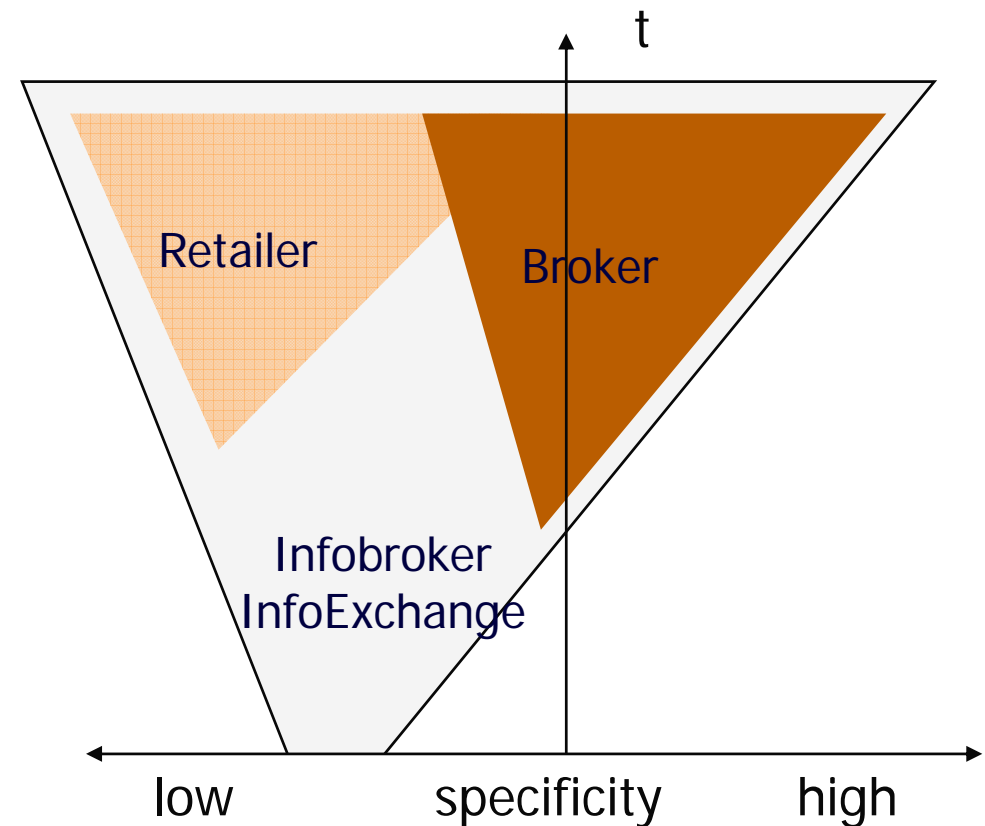
Information Broker	Information search on customer demand, identification of qualified vendors, acquisition of competitive offers for customer bids, active solicitation of suppliers/ bidders on call for tenders
Information Exchange	Collect, integrate and compare information about suppliers and products (multi-vendor catalogue)
Procurement Consultant	Activate and integrate expert knowledge, expert platform for the exchange of know how and experience, product and supplier validation, support for customer requirements specification, match customer requirements to products, combine products/services to solutions
Demand Aggregator	Negotiate volume discounts with suppliers/ vendors, collect, pool and aggregate demand for negotiation volumes, prepare transactions
Trader	Demand forecast, purchase on different (international) markets, and sell to public institutions

Business development for a procurement intermediary

Development of a hybrid intermediary

Stepwise ...

- ... building knowledge
- ... extending services
- ... securing funding
- ... integrating of non-standard, non-commodity products
- ... extending financial risks
- ... building a strong position in the market



Summary

- IOS and different forms of market transformation, specifically options for intermediaries
- A framework for stepwise analysis and a set of heuristics