Supply Chain Management

Introduction to Logistics & Distribution Structures

Exercise:

What is Supply Chain Management and what is Logistic?

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Definitions

- **Logistics:** the science of the efficient flow of materials.
  - That is; all the activities, which together ensure that materials and products are at the right place at the right time, thus creating financial gain for the company

- **To create efficient logistics** it is necessary to have both efficient end effective internal material flows between companies

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Definitions

- **Supply Chain Management:** is used as a similar concept, but emphasize the significance of integrating flows within the individual company with other companies in the supply chain…

- **Supply Chain Management also** encompasses the planning and management of all activities involved in logistics management, such as coordination and collaboration with suppliers, intermediaries, third-party service providers, and customers
  - Also, it involves more processes than just the logistics, such as product development, marketing and so on

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Logistics as a system

- **Logistics is an open system that has en exchange with its surroundings – the aim is to supply customers efficiently with their required products through different subsystems;**
  - **the material supply system;** purpose is to supply production with raw materials and components
  - **the production system;** co-ordinates machines, personnel and materials to achieve an efficient production process
  - **the distribution system;** has a close relationship with the company's overall market strategy, which originates in the market's and customer's needs, and determines what delivery service distribution must achieve

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The logistics systems

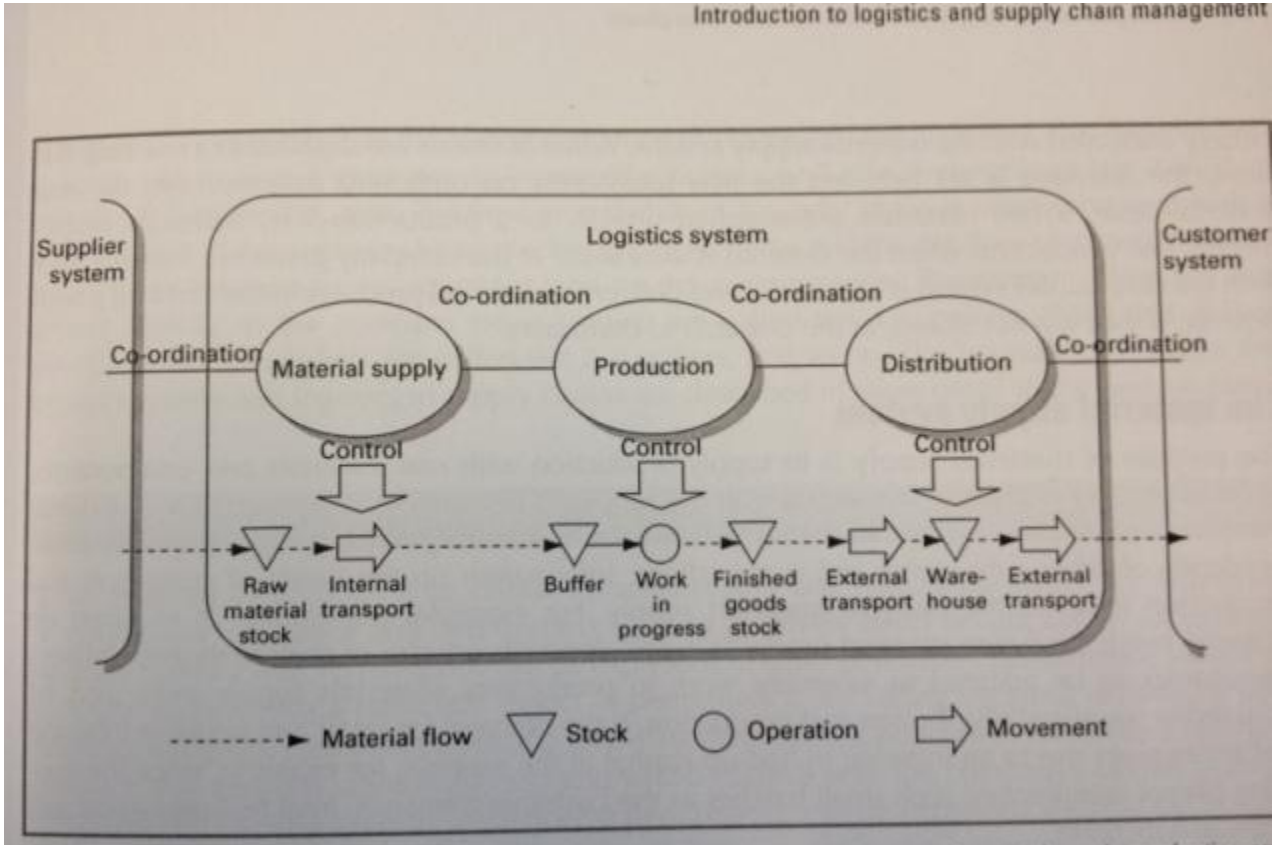

FIGURE 1.1 Logistics systems with the company as a limit. It consists of the subsystems' material supply, production an distribution

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Goals of logistics

The goal is to create competitiveness and improve efficiency that positively affect profits by:

1. Creating good **customer service;** flexible delivery service and information on material flows
2. Focusing on **cost;** avoid high warehouse costs, shortage costs, delay costs
3. Minimizing **tied-up capital;** capital (currents assets) involved in the flow of materials, such as raw materials, stocks in production and so forth

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Goals of logistics

The goal is to create competitiveness and improve efficiency that positively affect profits by:

4. **Flexibility** of the logistics system; has an impact on customer service, cost and tied-up capital
5. Focusing on **TIME**!

   TTC: Time-to-customer

   TTM: Time-to-market; from product concept to product launch, affects competitiveness
6. Minimizing **environmental impact;** through use of alternative vehicles, engines and fuels, flexible road transportation

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Exercise: Conflicting goals

- Goal conflicts are not uncommon between the marketing and production functions of a company. Identify some of these conflicts and give examples of how they could be eliminated. (Table 1.1, p. 16-17)

- Groups of 4-5 students
- Prepare to present to the rest of the class
- Time: 45 min.

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Distribution structures

Chapter 10

Distribution structure design and the role of distribution for supply chain value adding

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Distribution utility values

Activities in a supply chain are aimed at satisfying customers' needs by supplying different types of products. To achieve this, 4 types of utility must be performed in the supply chain:

- **Form utility** – value refinement of input goods to end products
- **Place utility** – available at the right place
- **Time utility** – available at the right time
- **Ownership utility** – transfer of ownership to customer

- Marketing/sales – ownership
- Production – form
- Distribution – place and time

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Division of utilities

- Division of utility-performing activities divided between functions in a company*
- But it can also be divided between companies in the supply chain

- ***Example: IKEA**
  - Place: customers fetch their goods themselves
  - Form: divided between IKEA and customers as customers assemble the goods themselves
  - Time: goods in stock and available at the warehouse
  - Ownership: transferred through cashier function in the warehouse

The distribution gaps

- The division of activities in the supply chain to create utility is one of the fundamental problems in the planning of distribution structures

- Important to bridge the gap between the producing company and the consuming customers by using intermediaries, such as retailers, agents, distributors and so on

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Five gaps

Manufacturer vs. customer

- Pace gap – different intervals
- Distance gap – few locations vs. widespread market
- Quantity gap – produce more than consumption
- Range gap – wide product range is demanded – might be financially difficult
- Variant gap – access to more variants

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The intermediary roles

Intermediaries are players that carry out distribution functions between producers and consumers.

They are used to achieve *cost-efficient bridging of gaps*. It is possible to identify 5 roles for intermediaries:

- **Aggregation role;** delivers quantity according to each customer's needs = place utility
- **Spreading role;** stock-keeping intermediary, short delivery time = time utility
- **Contact & Service-providing role;** direct customer support & order-specific configuration intermediary = ownership utility
- **Consolidation role;** represents several companies and distribute their products = time & place utility

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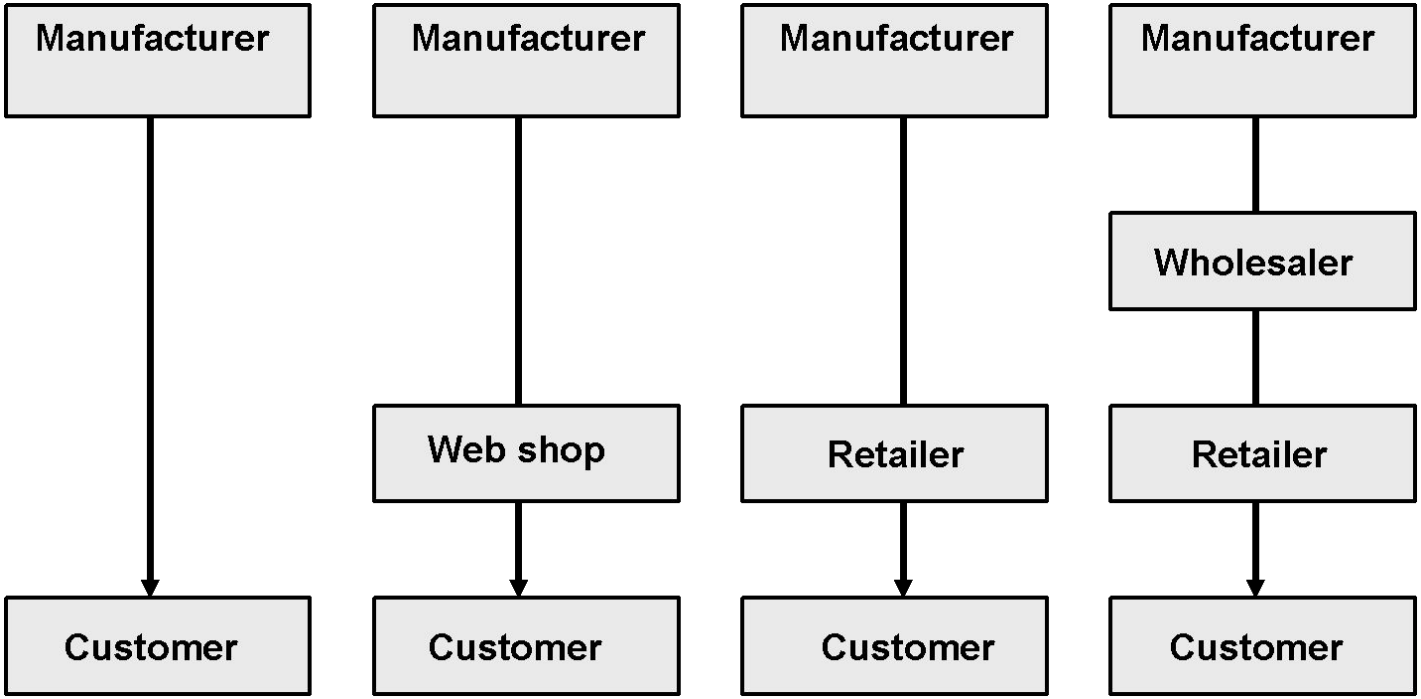
Distribution channels

Transaction channels for consumer goods



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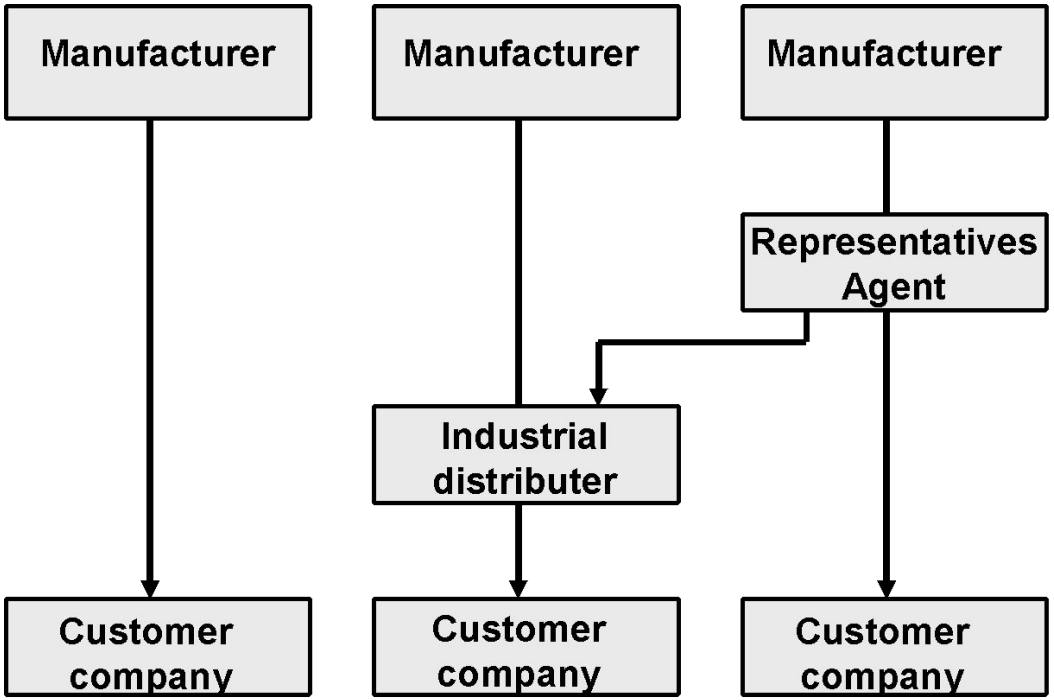
Distribution channels

Transaction channels for industrial goods

Fewer customers and higher order values, direct delivery more common



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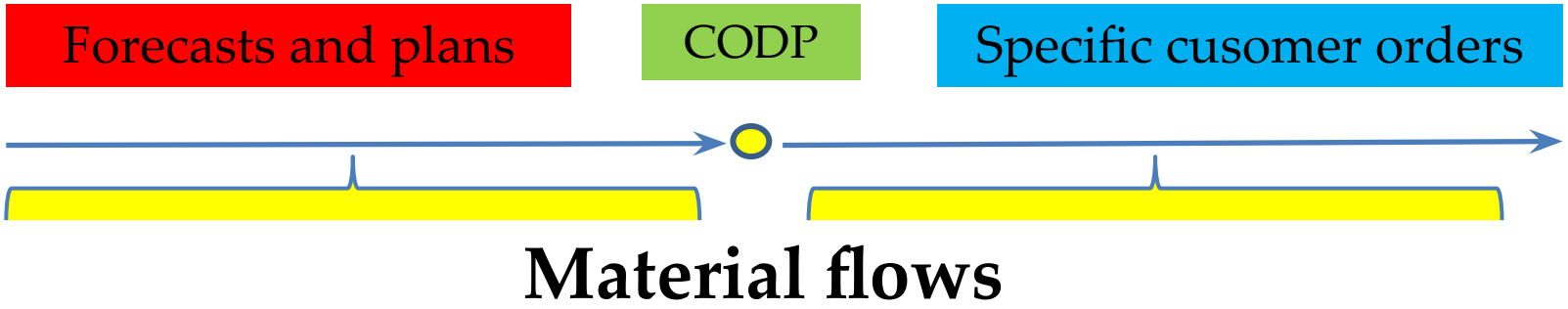
Customer Order Decoupling Point (CODP)

- The point in the supply chain from which a product is destined to a certain customer



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Material flows in distribution channels

When the transaction channel and the material flow channel are separated, there are 2 general alternatives:

a) **Direct material flow channel**: the intermediary may represent different suppliers at the same time of sale and ordering, and as such provide a type of one-stop shopping

b) **Direct transaction channel**: transaction channels initially going to the product-supplying company while the material flow channel goes from intermediary company to the customer

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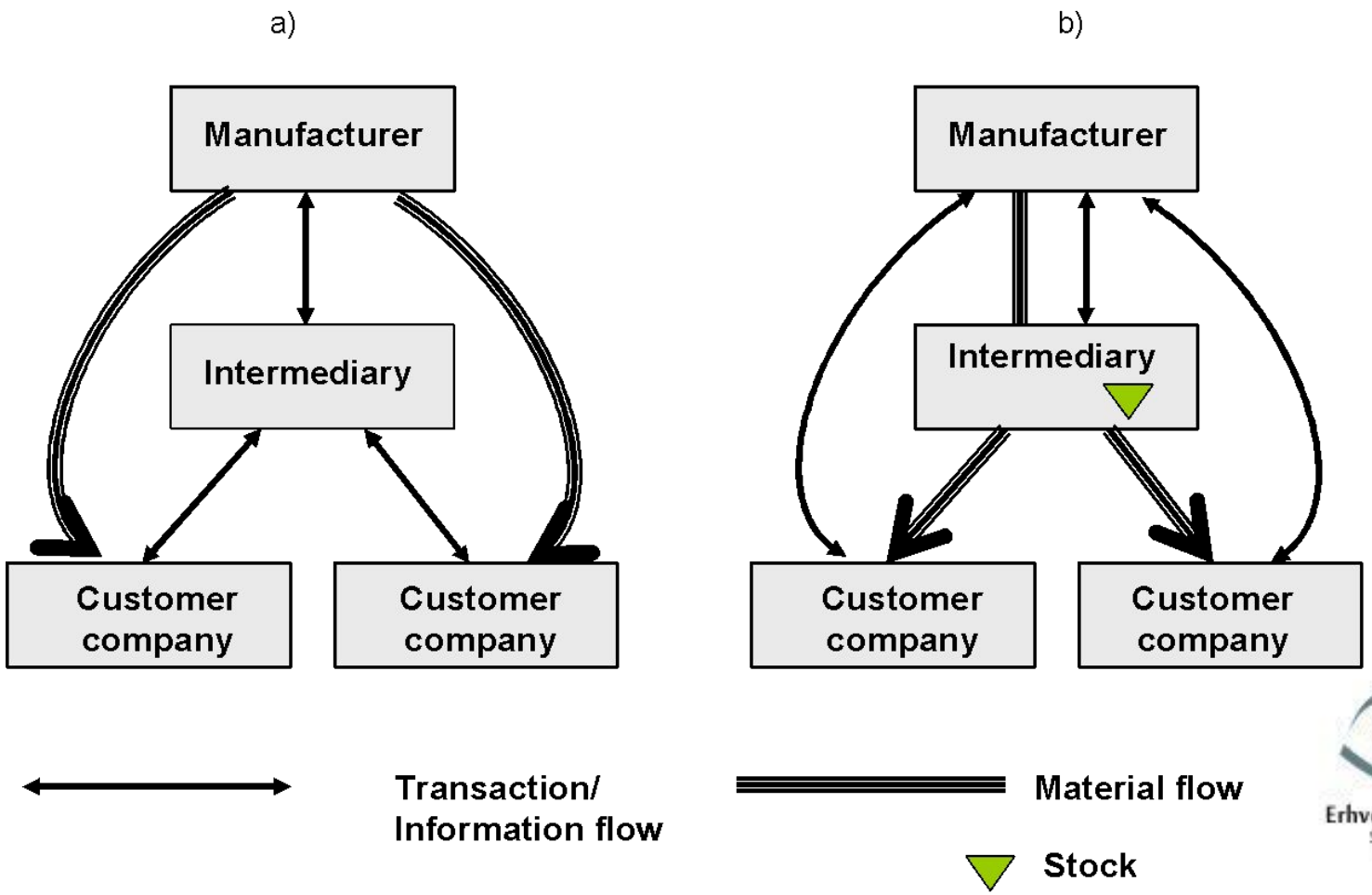
Transaction and material flow channels



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Warehouse structures

- When transaction channels and material flow channels is handled by the company itself it is often necessary in a distribution system to have a warehouse or a hierarchy of warehouses (central vs. regional)
- There are pro's and con's of a centralized warehouse structure:

+ Economy of scale
+ Reduced bullwhip-effect
+ Reduces non-value activities
+ Reduced risk of incomplete

- Increased transportation costs
- Longer delivery times
- No local existence
- Longer proximity to customers

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eThe Bullwhip Effect

- Demand variability increases as one moves up the supply chain away from the retail customer, and small changes in consumer demand can result in large variations in orders placed upstream.
- Eventually, the network can oscillate in very large swings as each organization in the supply chain seeks to solve the problem from its own perspective. This phenomenon is known as the **bullwhip effect** and has been observed across most industries, resulting in increased cost and poorer service.

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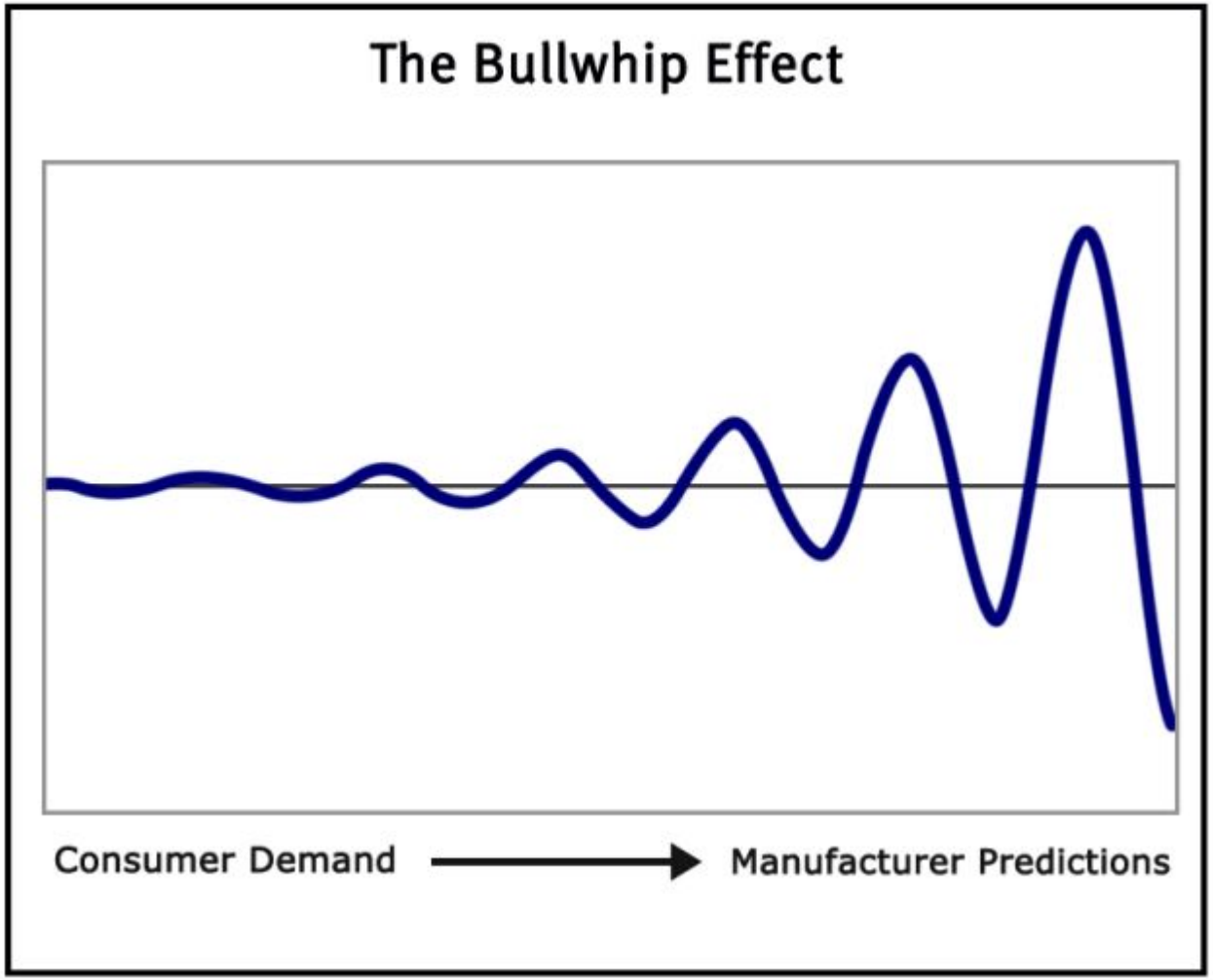
The Bullwhip Effect



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The Bullwhip Effect

- http://www.youtube.com/watch?v=wLNdDSYqhNw

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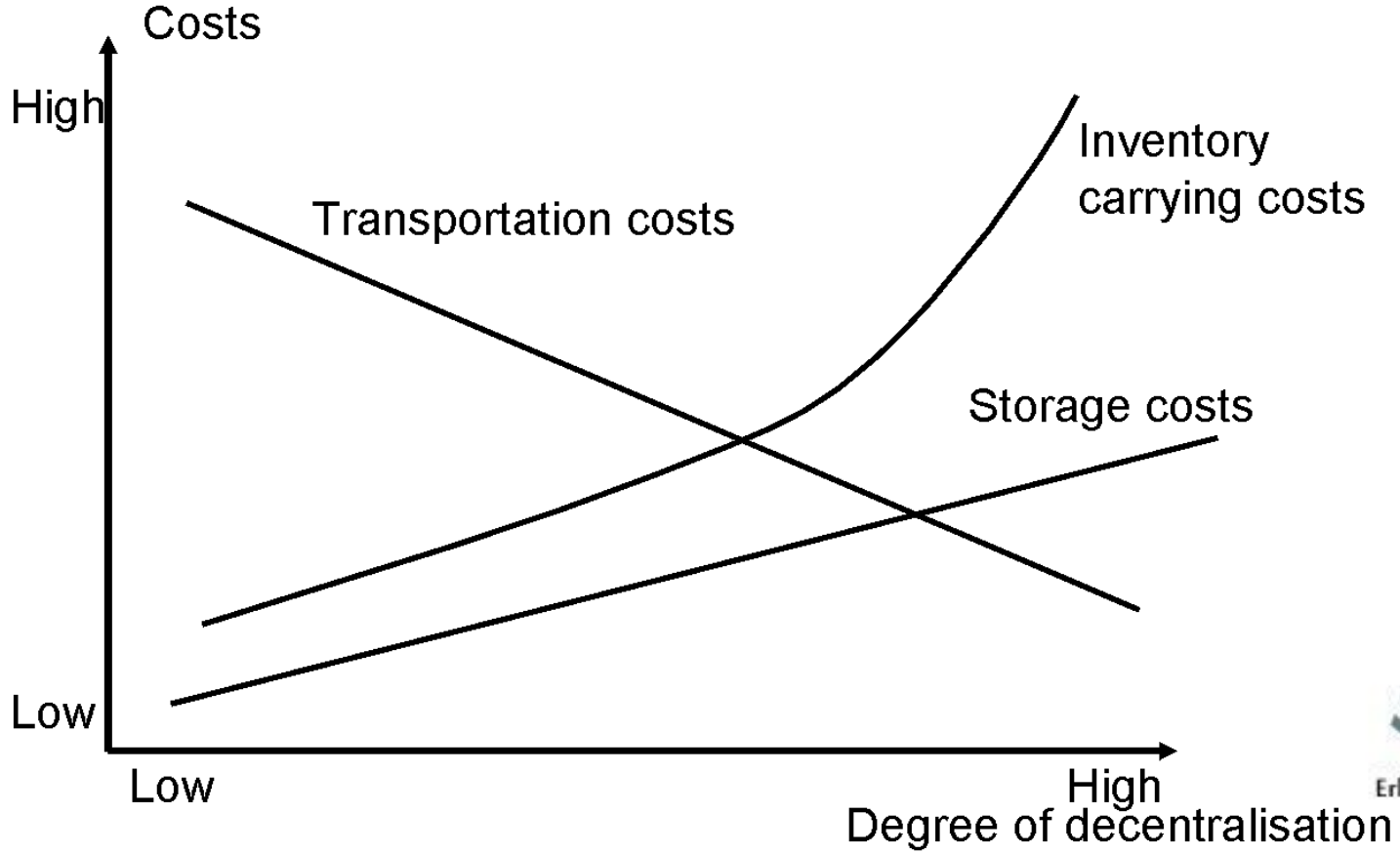
How should companies decide on the degree of centralization?

The relationship between logistics costs and the degree of centralization



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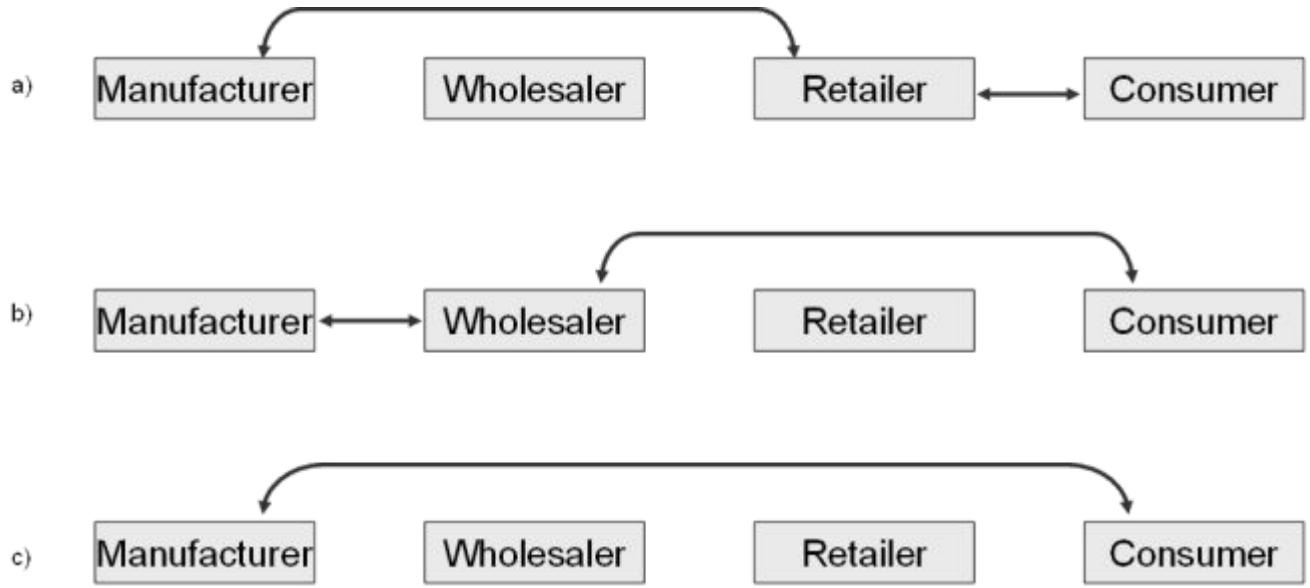
Changing conditions for intermediaries

- During the past decade the existence and value of intermediaries has been questioned
- Different forms of intermediaries have been eliminated as distribution systems have become more efficient (disintermediation), mainly because of developments in the area of IT



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Group exercise

- Discuss and answer question 4 and 5 - page 239
- Be prepared to present your answer to the rest of the class
- Time: 45 min.
- In groups.

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