

# Supply Chain Management

# Introduction to Logistics & Distribution Structures

Exercise:

What is Supply Chain Management and  
what is Logistic?

# 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 and effective internal material flows between companies

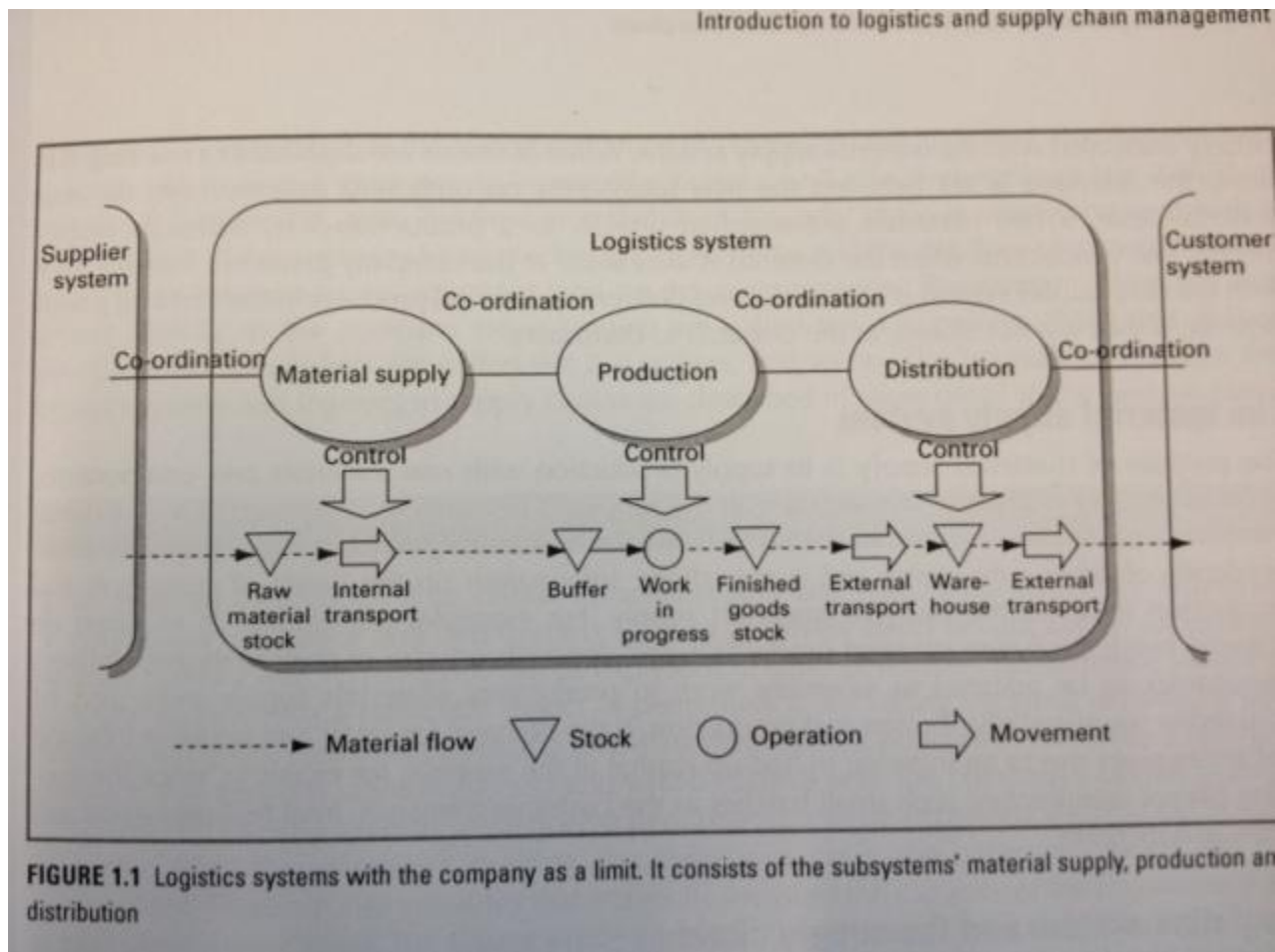
# Definitions

- **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

# Logistics as a system

- **Logistics is an open system that has an 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

# The logistics systems



# 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 (current assets) involved in the flow of materials, such as raw materials, stocks in production and so forth

# 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

# 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.



# Distribution structures

## Chapter 10

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

# 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
-

# 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

# 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

# The intermediary roles

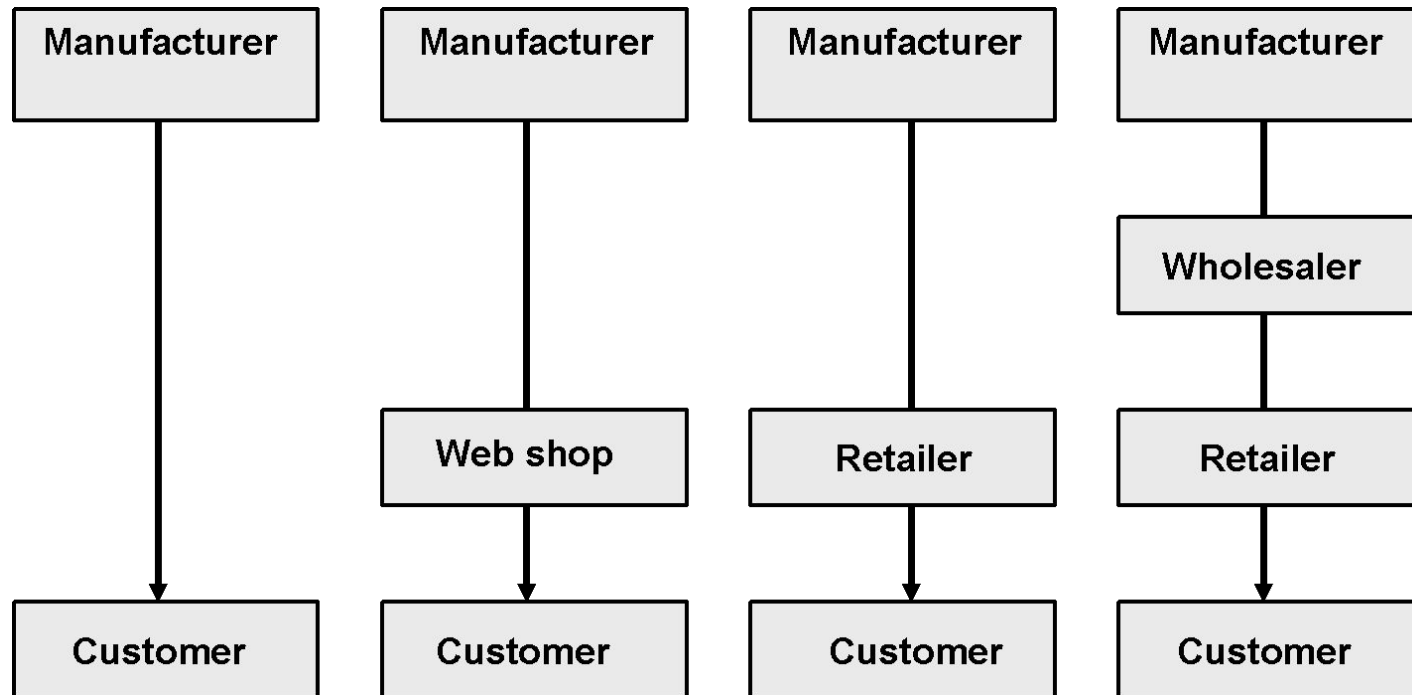
**Intermediaries** are players that carry out distribution functions between producers and consumers.

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

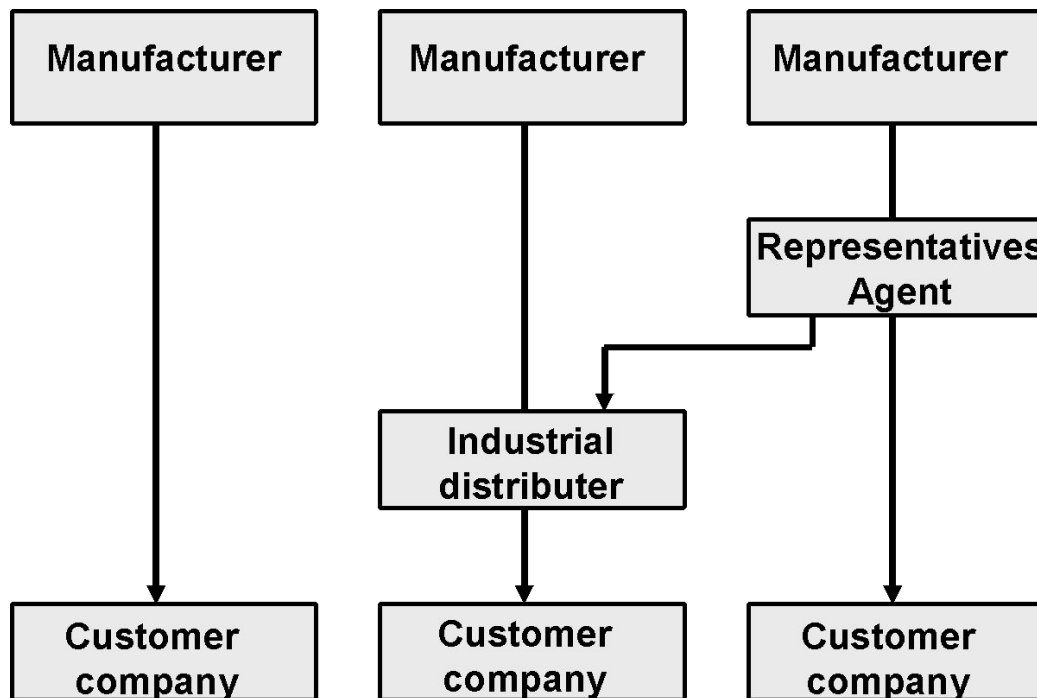
## Transaction channels for consumer goods



# Distribution channels

## Transaction channels for industrial goods

Fewer customers and higher order values,  
direct delivery more common

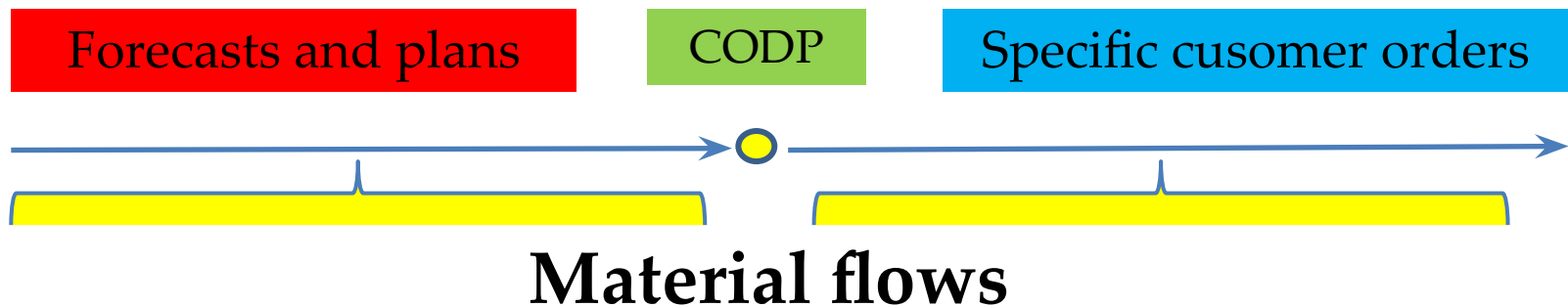




# Customer Order

## Decoupling Point (CODP)

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

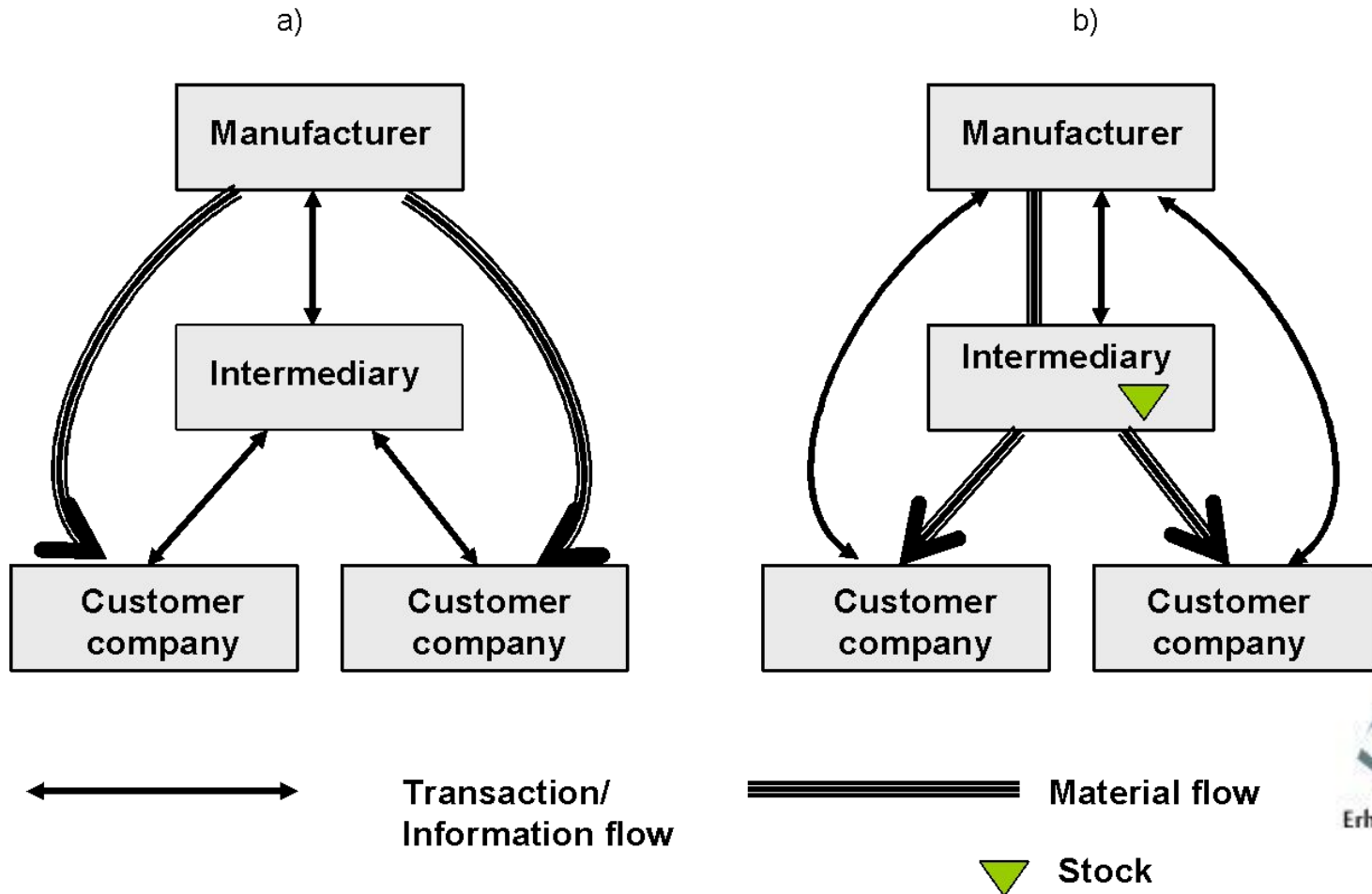


# Material flows in distribution channels

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

# Transaction and material flow channels



# 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:

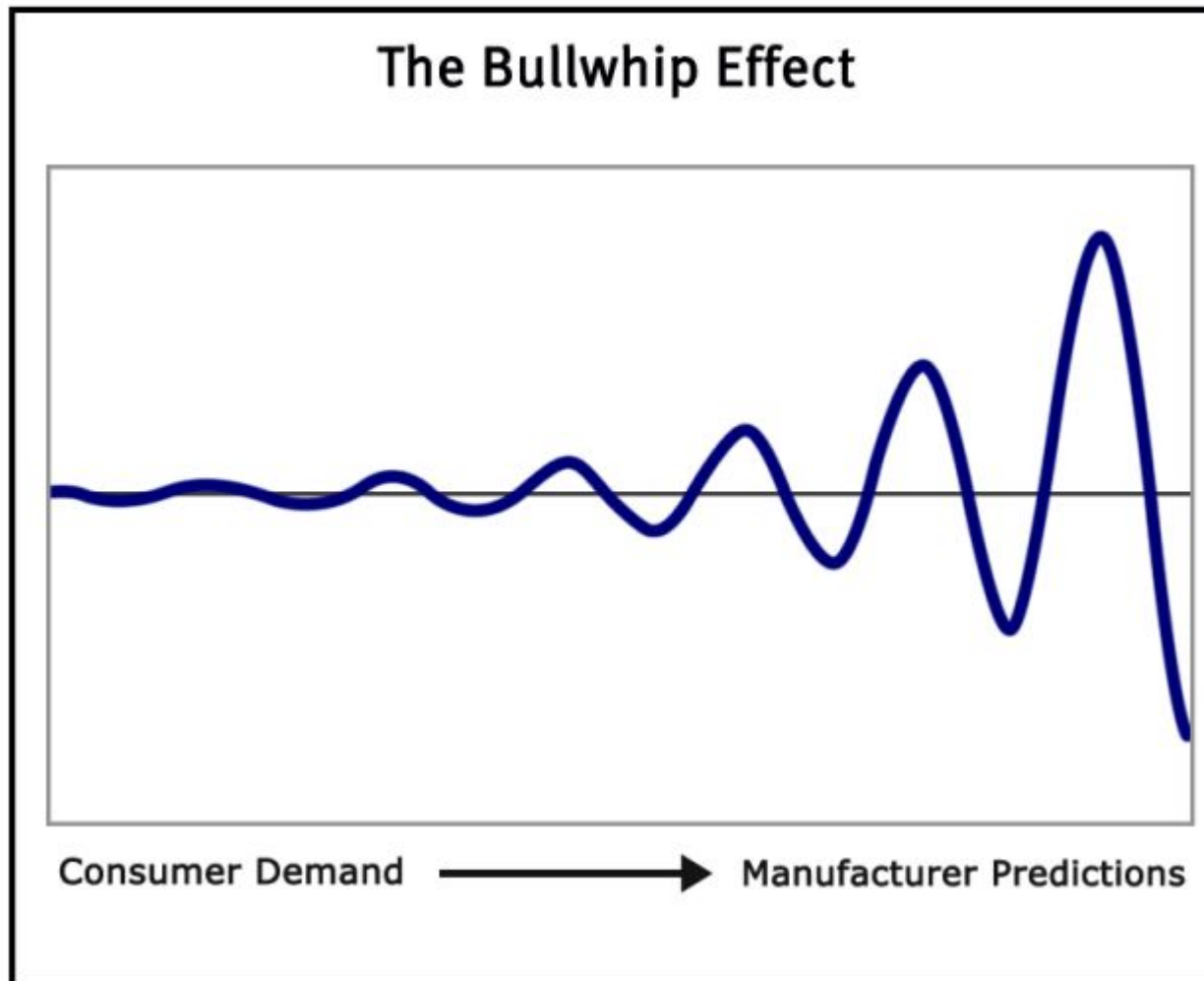
- + **Economy of scale**
- + **Reduced bullwhip-effect**
- + **Reduces non-value activities**
- + **Reduced risk of incomplete**

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

# 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.

# The Bullwhip Effect

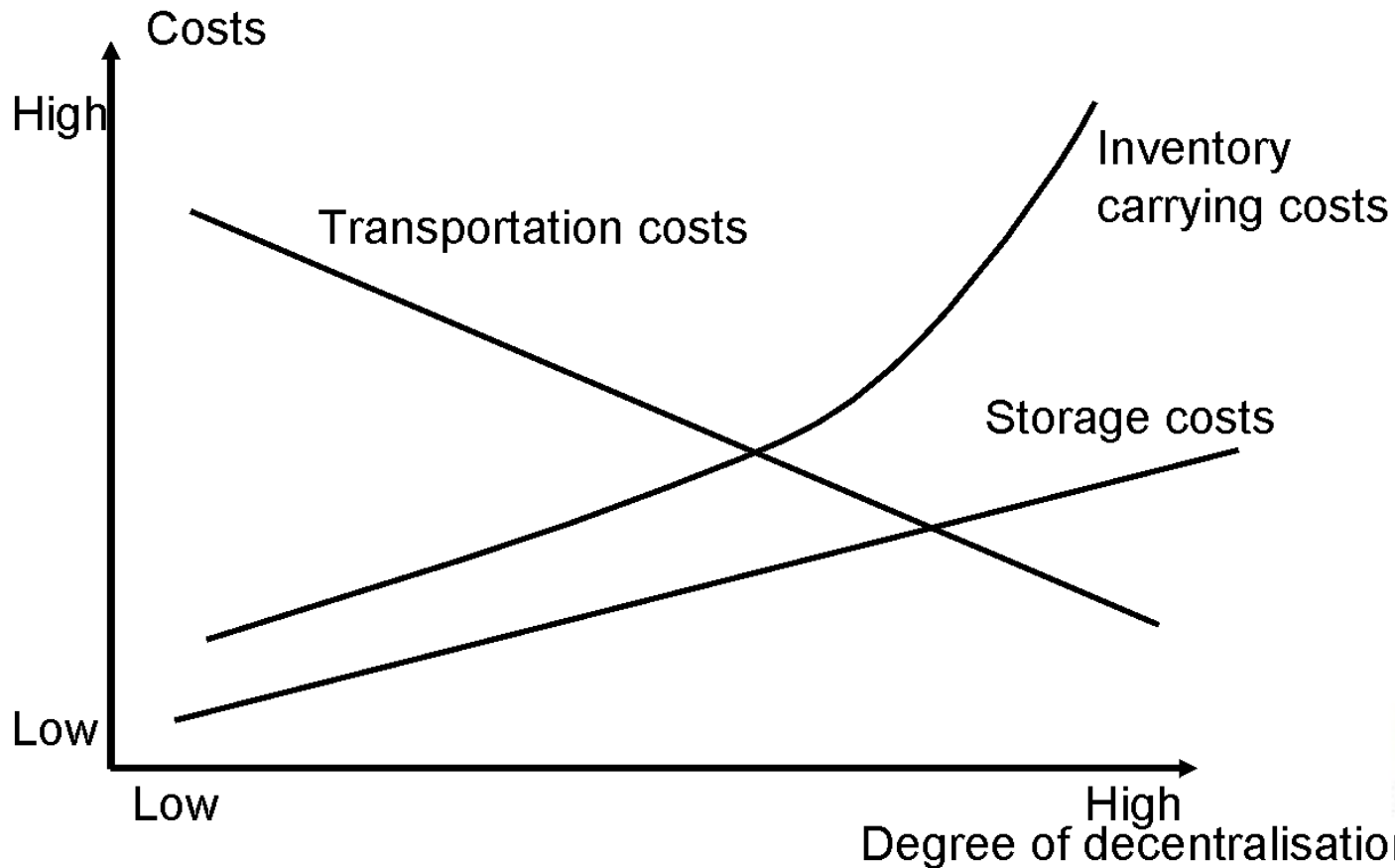


# The Bullwhip Effect

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

# How should companies decide on the degree of centralization?

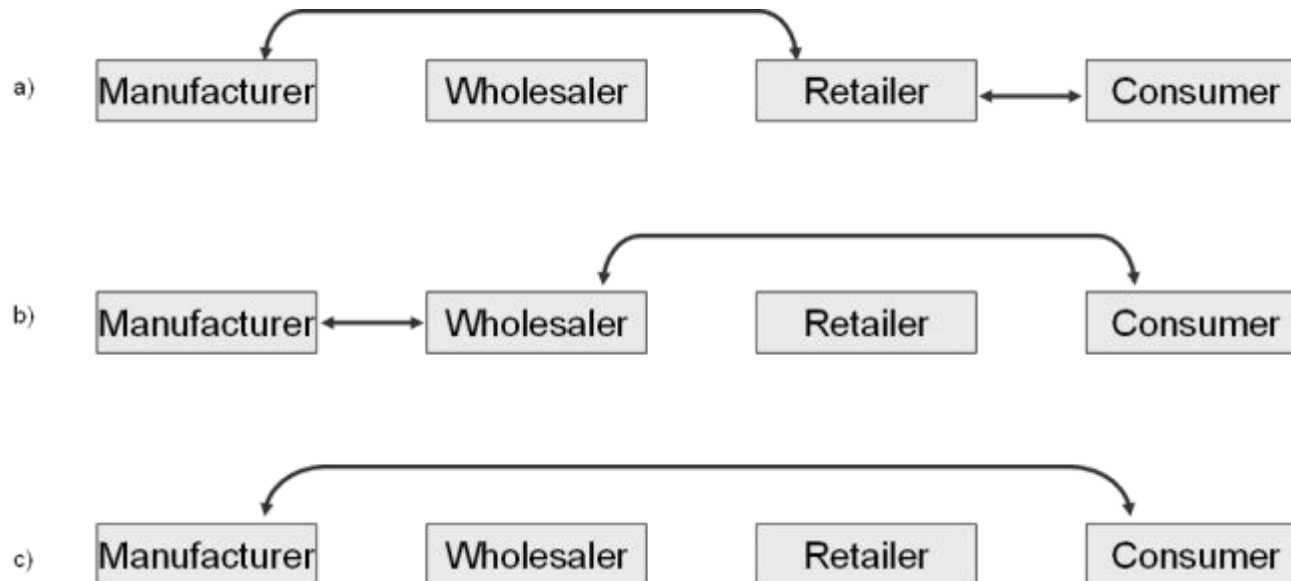
The relationship between logistics costs and the degree of centralization





# 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



# 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.