



LOGISTICS

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INTRODUCTION TO THE ISSUE PART 2

The aim of this lecture is to get acquainted with goals and methods of logistics, types of logistics, its organization and supply chain

Logistics

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Introduction to the issue, Part 2

Structure of the lecture

Goals of logistics
Logistics methods
Classification of logistics
Role of logistics in the company
Organization of logistics
Supply Chain





GOALS OF LOGISTICS

- derived from whole-company goals
- **basic goal: optimal satisfaction of customer needs:**
 - supplies and other customer services must be performed at the required level with minimal costs



- fulfillment of the basic goal can be monitored from two points of view:
 - **Performance goal:** to deliver the required items in the right quantity, type and quality at the right place and at the right time
 - **Economic goal:** to provide the required services at minimal costs



- **internal logistics goals:**
 - reduction of transportation, handling, storage, production, stock and management costs
 - reduction on of the amount of capital tied up in stocks and in the technical means of the logistics system
- **external logistics goals:**
 - sustaining or increasing sales volume and market share
 - short delivery times
 - high completeness and reliability of supplies
 - sufficient flexibility of the company



METHODS OF LOGISTICS

- interdisciplinary science
- based on system theory, technical cybernetics, stochastics, mathematical programming and decision theory
- logistics master knows a number of methods that are commonly referred to as logistics (although they were not developed within logistics and used solely to solve logistics tasks)



- **Basic methods used in logistics:**
 - analytical methods:
 - system analysis
 - ABC analysis
 - value analysis
 - cost-benefit analysis, etc.
 - mathematical methods of operational analysis:
 - mathematical and especially linear programming (cutting plans, distribution problem, transport problem, etc..)
 - queuing theory



- Methods of network analysis and graph theory:
 - CPM
 - Pert
 - MPM
 - Gantt diagram, etc.
- Simulation methods
 - especially in the area of stock management
- Forecasting methods



- **Special logistics methods:**
 - Just in Time (+ Kanban)
 - centralization of warehouses





CLASSIFICATION OF LOGISTICS

1. By problem levels:
 - Macro-logistics
 - Meta-logistics
 - Micro-logistics



MACRO-LOGISTICS

- deals with global aspects of logistics in terms of national economy, regions, but also higher territorial units
- high degree of aggregation and macroeconomic aspects of investigation are applied
- main areas of interest are the issues of international transport, international and global integration of production capacities, transport, communications, duty, national or international legislation on transport and environmental impact



META-LOGISTICS

- operates in the area of supplier-customer relations
- includes the sphere of raw material suppliers, distributors, customers, transport activities, intermediate warehouses and cooperation of logistics companies within temporary or permanently established logistics companies



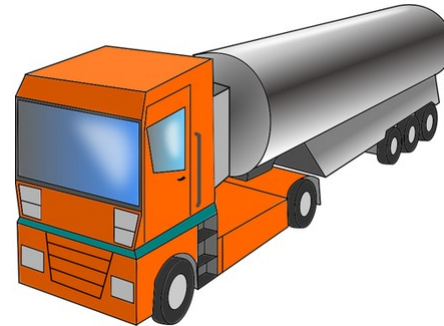
MICRO-LOGISTICS

- deals with the application of technical, economic, information and decision-making methods in the management of flows of materials, goods and services **within the company**
- if it is interconnected with meta-logistics, the external relations of the company are also taken into account and the company logistics acts as a comprehensive and systemic discipline



2. By activities:

- production logistics
- business logistics
- procurement logistics
- distribution logistics
- storage logistics
- transport logistics





ROLE OF LOGISTICS IN ECONOMY AND BUSINESS

- Why to introduce logistics into the company:
 - pressure of competition in the market
 - shortening innovation times
 - lack of raw materials
 - explosion of marketing costs
 - limited finances of economic entities
 - loss of market share: searching for and entering new markets
 - inflation, increasing the riskiness of capital



- long-term trends stimulating further development of logistics:
 - further growth in individualization of demand
 - internationalization and globalization of markets
 - shortening product life cycles
 - further growth of automation in logistics processes
 - further development of integrated production systems
 - further development of logistics information and management systems
 - need to reduce the capital tie in stocks



- tendencies in the development of logistics and its organization in the company:
 - priority of enterprise-level logistics
 - increasing importance of JIT philosophy (will be subject of a separate lecture)
 - declining number of suppliers
 - dominance of communication systems
 - providing transport by forwarders
 - outsourcing of handling activities
 - constant number of logistics staff
 - maintaining a high level of logistics costs



- growth in demand for services provided by "logistics companies,,
- growth in demand for **complex** logistics services
- criterion for selecting a logistics company is reliability of supply, logistics costs and prices, delivery time, density of transport network, possible frequency of transport, number of losses and damage, logistics know-how, fast processing of complaints, minimum size of business, customer care



ORGANIZATION OF COMPANY LOGISTICS

- there is no universal appropriate solution
- link between logistics and marketing is particularly important
- establishment of a logistics organizational unit does not automatically assume that the company's prosperity will increase



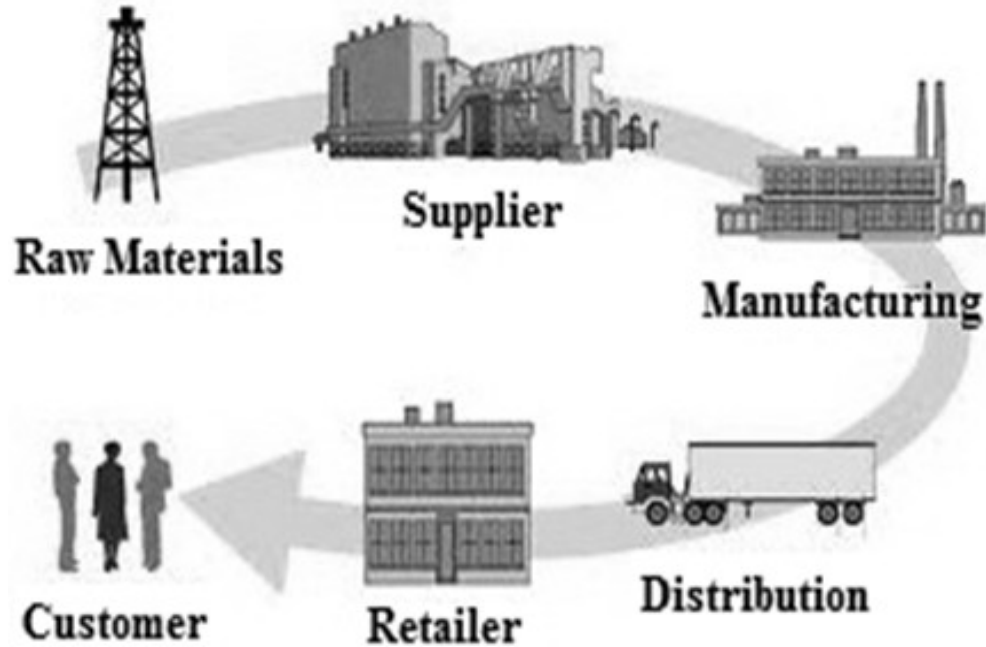
- two basic organizational arrangements:
 - establishment of the post of logistics director:
 - ❑ works closely with the Marketing Director, Production and Finance Director
 - ❑ report directly to the director of the company
 - ❑ isolation of the logistics department
 - creation of permanent working groups:
 - ❑ members are managers of individual in-house departments



- The following set of questions helps to identify the need to apply logistics knowledge in the company:
 - Are there problems with the deadline for order fulfillment?
 - Is a competitive level of service provided to customers?
 - Is there a constant need to solve conflicts in the management of the material flow of a company?
 - Are the costs of doing business relatively high?
 - Is there a lot of capital in stock?



SUPPLY CHAIN





- Supply Chain Management (SCM):
 - basic question: What, when, where and how to produce, how to transport etc. so that the requirements of the final customer are met at the required level?
 - ❑ usually only the direct supplier of goods to the end customer knows the answer
 - ❑ other chain links mostly rely on mediated information and on their own predictions
 - ❑ demand of end customers is becoming **more random**



- coordination and cooperation among the individual links in the chain:
 - ❑ shortening delivery time
 - ❑ reduction of stock
 - ❑ reducing the total cost of the supply system
 - ❑ achievement of synergies and elimination of the negative effects associated with the lack or complete absence of coordination and cooperation among elements of the system



- planning and management all activities that require resource search, purchasing, resource transformation and other logistics activities
- integration functions and responsibility for interconnecting business processes
- need to use modern means of communication:
 - in the exchange of information in the supply system
 - in the implementation of modern logistics approaches
- coordination with production, marketing, sales, product design, financing and information technology



- logistics is the part of supply chain management that plans, implements and manages effectively and efficiently:
 - forward and backward flows
 - storage of goods, services and relevant information from the place of origin to the place of consumption to meet customer requirements



- typical controlled logistics activities:
 - transport
 - fleet management
 - storage
 - material handling
 - fulfillment of orders
 - logistics network design
 - stocks
 - supply and demand planning
 - management of logistics service providers



- logistics also includes:
 - resource search and purchase
 - production planning and scheduling
 - packaging, assembly and customer service
- involvement of logistics at all levels of planning and implementation:
 - strategic
 - operative
 - tactical



SUPPLY SYSTEMS WITH LARGE SERIES, RESP. MASS PRODUCTION (CAR FACTORIES)

- framework contracts for a longer period of time
- changes in deliveries are handled daily at the operational level - usually a change in the order of several pieces



SUPPLY SYSTEMS OF RETAIL CHAINS

- wholesale organizations usually obtain information about demand from the development of orders of retail, which orders goods mostly in varying quantities and on different ordering dates
- planning of the necessary performance increases upstream of the material flow (labeled „bull-whip“ effect, „roller coaster“ effect, supply chain nervousness, chain effect, amplification effect or Forrester effect)

Summary of the lecture



You can:

- **Define logistics goals**
- **Describe the supply chain and management requirements**
- **Classify logistics from different points of view**
- **Explain the role of logistics in the company**
- **Present the possibilities of organization of logistics in the company**
- **Briefly describe methods of logistics**