

# LOGISTICS

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## INTRODUCTION TO THE ISSUE

*The aim of this lecture is to get acquainted with the history of logistics and define it in the current concept in the economic sphere*



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# **Logistics**

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## **Introduction to the issue**

**Structure of the lecture**

**Historical roots of logistics content**

**Origin of the word logistics**

**Essence of logistics**

**Definition of logistics**

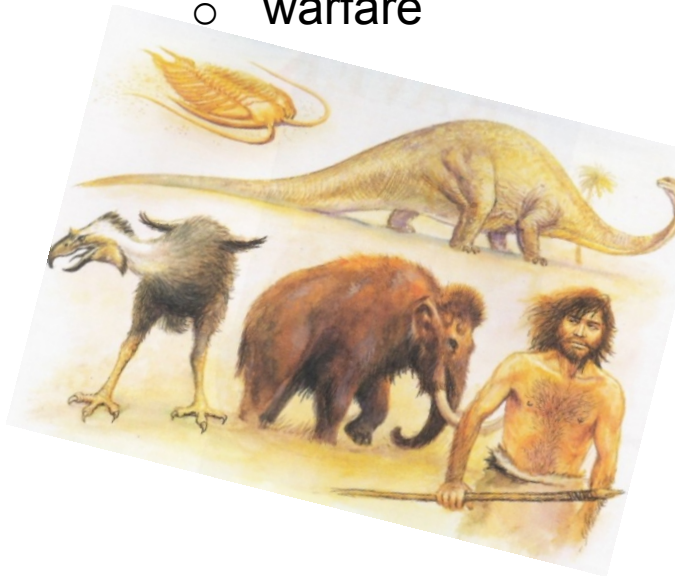
**Economic logistics – definition and development**





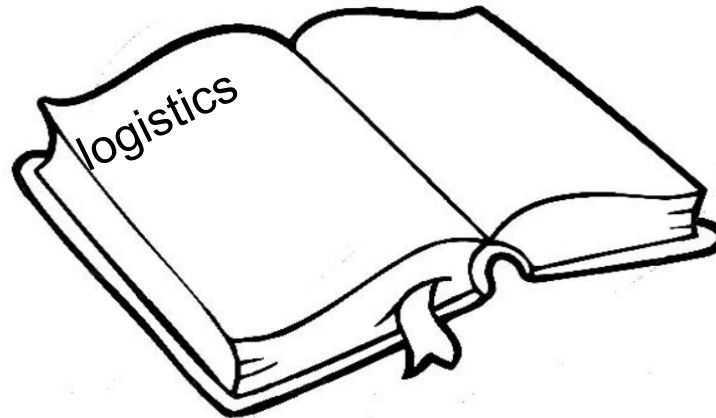
# HISTORICAL ROOTS

- as a kind of activities thousands years old
- origin associated with:
  - the earliest forms of organized trade
  - warfare





- subject of investigation at the beginning of the 20th century
- more attention was paid to logistics after the World War II and in the 1990s
- 1960s – the first comprehensive texts about logistics





Peter Drucker:

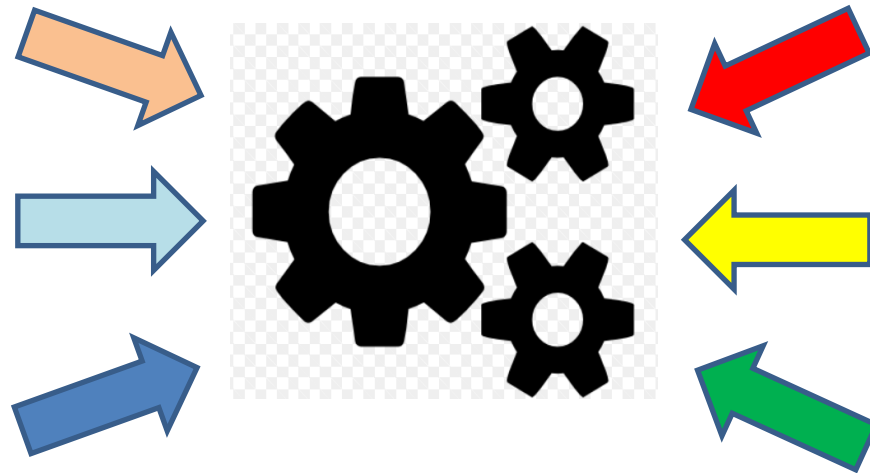
Logistics is one of the last chances and opportunities to increase efficiency of companies







- end of the 1980s – penetration of logistics into the Eastern bloc countries
- today logistics is considered a **scientific discipline** characterized by a system approach





# ORIGIN OF THE WORD LOGISTICS

- Origin in Greek:

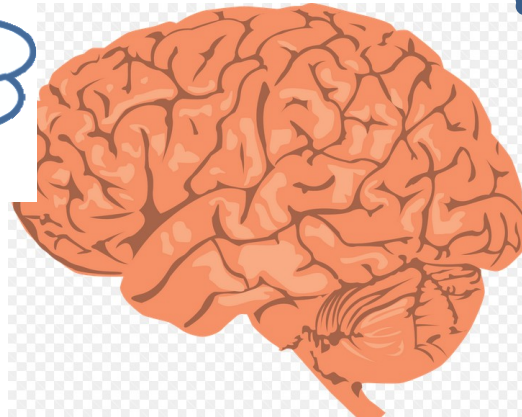
*logos* – word, reason, speech, counting

*logistikon* – ingenuity, invention, reason

*logistikos* - counting, numerical art

$$\text{Min } N = c_1x + c_2y$$

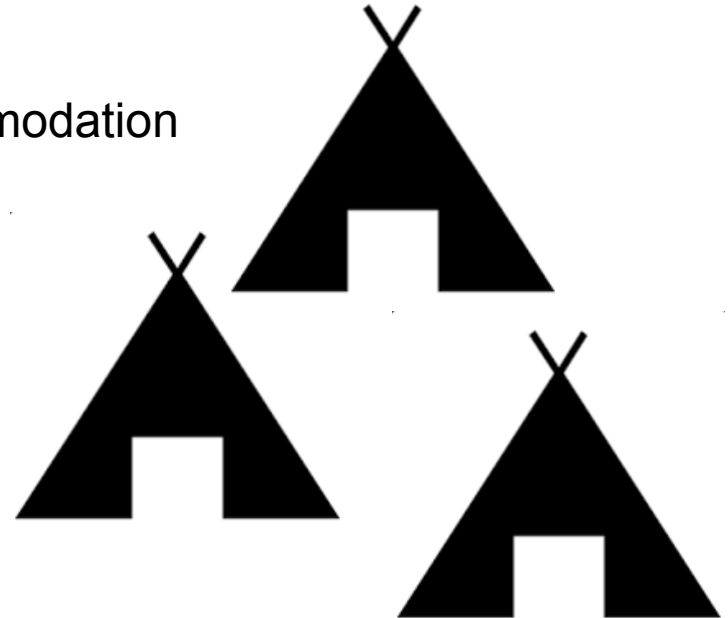
$$N = vQ + F$$







- later these words were modified in Latin:  
*logicus* - logical, scientific  
*logica* - logical interpretation, theory
- in Romance languages it means:  
*logis* – apartment, temporary accommodation  
*loger* – live, house someone





# CONTEMPORARY CONCEPT OF LOGISTICS

**logistics is a science dealing with material flows and related information and financial flows**





# LOGISTICS VS. OTHER FIELDS

- **Mathematics:**
  - Formerly as practical counting with numbers
  - Today the concept of logistics function
- **Military:**
  - Science of movement, supply and accommodation of troops
- **Economy:**
  - Science of movement, supply and storage of goods



# ECONOMIC LOGISTICS

- result of the integration of technical, economic and social sciences
- deals with the flow of goods from place of origin to the place of consumption, respectively also back to the place of disposal





- Definition of economic logistics from 1988 by H. C. Phol:

**Logistics should ensure, that the place of receipt is supplied according to its requirements from the place of delivery with the right product, in the right quantity and condition, at the right time and at the same time, at minimal costs.**





- another definition of economic logistics
  - Olšovský:  
**Economic logistics deals with all movement and storage that allow the flow of the product from the location of the raw materials to the place of final consumption, as well as information flows that set the product in motion so as to provide adequate customer service at reasonable costs. By product we mean both goods and services.**





- Schulte:  
**Logistics is integrated planning, formation, implementation and monitoring of tangible and related information flows from supplier to enterprise, within the enterprise and from enterprise to customer.**
- Rupper:  
**Logistics is a set of complex tasks and measures derived from them to optimally ensure the flow of material, information and values in the company's transformation process.**





- Kortschak:  
**Logistics is the science of coordination of the active and passive elements of an enterprise, aiming at the lowest cost over time, improving the flexibility and adaptability of the business to changing general economic conditions and changing market.**
- Kirch:  
**logistics is a summary of all technical and organizational activities by which material flow operations are planned. It includes not only the flow of material but also the flow of information between all objects and spans various industrial and business processes over time.**







- **Objects of economic logistics:**
  - all kinds of materials and goods (production materials, auxiliary and operating materials, subcontracting and spare parts, commercial goods, as well as semi-finished and finished products) – the boundary to other procured factors (equipment, labor and capital) is clearly defined





- **logistically thinking and acting** = involves looking for time savings, cost savings, striving for effective interconnection of supply, production and trade activities, applying flexible organizational structure to generally reduce the tying of current assets, increasing the flow of production and meeting the needs of customers



- Logistics service function – attempt to secure the following three essential facts:
  - **The existence of an exchange of goods**
  - **The existence of a serious supply of goods**
  - **The existence of a flexible and economical offer**



- at the enterprise level it covers:
  - pre – production stages
  - production stages
  - distribution stages
- cooperates with marketing to achieve the ultimate synergic effect in **performance** and **cost**





- it has a huge impact on customer satisfaction - the necessary activity in the realization of sales of any kind of goods or services
- participates in the creation of added value:
  - **product** (transformation process of production of goods or creation of services)
  - **ownership** (the fact, that the customer can gain real ownership of the product or service)
  - **time** (item is available when customer needs it)
  - **place** (item is available where customer needs it)

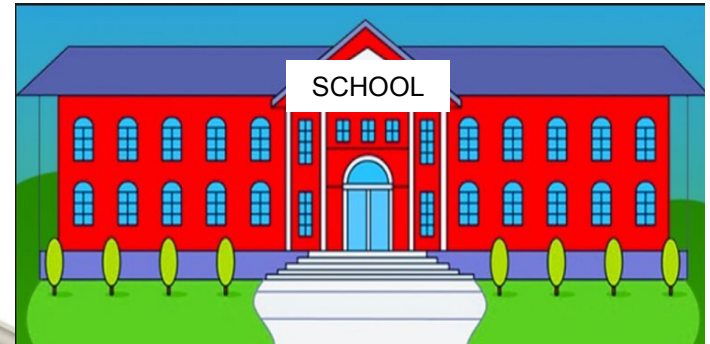
**Place + time = customer satisfaction base**



- **Basic features:**
  - complexity and system approach
  - concept of object dynamics, resp. its transformation
  - access to temporal, spatial and economic discrepancies and relation to market environment
  - relation to management practice



- It applies to all types of organizations:
  - production sphere
  - government
  - hospitals
  - schools
  - organizations providing business, banking or financial services





# HISTORICAL DEVELOPMENT OF LOGISTICS IN THE ECONOMIC SECTOR

1. Period to 1950 - the period of “logistics sleep“:
  - gradual emergence of theoretical concepts and practical activities in interaction with sales activities and emerging marketing concepts
  - application of partial elements of logistics without interconnection
  - identification of the nature of **physical distribution** - physical movement of materials and final products from the place of origin to the place of use, which should ensure the fulfillment of customer and business requirements and bring profit





- development of logistics management practice overtakes the development of logistics theory
- at the end of the period, due to the overall economic recovery, the rapid development of logistics networks (distribution and supply)
- substantial growth of logistics infrastructure (vehicles and equipment, warehouses, transshipment points and communication networks)



## 2. 1950 to 1970 = „the preparation period for the start of logistics theory and practice“

- Distribution is still a problematic element of marketing mix
- Harvard University (1956):
  - ❑ role of air transport in physical distribution
  - ❑ possibility of substitution of one type of costs for another and principle of the importance of total, not partial costs
  - ❑ decisive for the creation of the so-called **Total Costs concept** - the basic principle of logistics

$$CN = f(N_1, N_2, \dots, N_m)$$

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- significant structural changes in consumer demand with an emphasis on the differentiation of offers
- change in the structure of production and distribution with a direct impact on the efficiency of these processes
- **system concept of logistics** - recognition of an alternative approach to solving logistic problems and recognition of the fact that if a problem is signaled within a certain subsystem, its solution must be complex and often outside its own subsystem, which signaled the problem
- formed logistic theory and its application in practice



### 3. Period after 1970 - the "logistics success period":

- expanding logistics in the US and Western Europe
- development of flexible manufacturing systems: Just In Time (JIT) and Total Quality Management (TQM) systems, which have their roots in Japan, the USA and the UK.
- in the 1990s in Western European countries there was a tendency to market saturation ⇒ increasing the importance of marketing
- Eastern bloc – ideological condemnation, something used, but not called



- in the former GDR, the concept of so-called TUL processes (*Transport, Umschlag, Lagerung*) – focusing on material chains in physical distribution (transport, circulation and storage of materials and products) in order to streamline supply structures and processes by optimizing their technical component
- concept of **integrated material management**



- at present, along with a qualitative leap in transport, the rapid development of information systems and public communication networks for the remote transmission of information for production, trade and transport
- Euro logistics was established in Europe



# Summary of the lecture



## You can:

- **Explain the historical roots of logistics**
- **Describe the origin of the word logistics**
- **Clarify the essence of logistics**
- **Define general and economic logistics**
- **Define important historical milestones of general logistics as well as economic logistics**