LOGISTICS IN KNOWLEDGE BASED ECONOMY

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Abstract:

In the context of contemporary economy logistics changes refer to the emergence of new inter-organizational logistics structures such as logistics networks, and to a number of alterations in organizations' vision and conduct regarding the role and importance of knowledge. The research focuses on identifying the instruments promoting inter-organizational knowledge transfer within logistics networks provided that each organization relies on its own knowledge and organizational skills to ensure a competitive advantage.

Keywords*:* levels of logistics development, environmental factors, logistics principles, knowledge-based economy.

JEL Classification: M21

In present-day economy the conceptual and operational development of logistics is the outcome of organizations' increased experience in the sectors they operate in and it included a number of evolution **levels**:

♣ coordinating the activities which ensure the actions of the logistics process are carried on (transport, warehousing, storage and processing of orders, customer service, purchasing, sales);

♣ grouping and regrouping staff in well defined structures in order to maintain the logistics process;

♣ integrating logistics activities to ensure low cost utilities of time, place and orders' procurement;

♣ strategic approach of logistic activities to ensure organization's competence and securing of inter-organizational alliances (suppliers, customers) and to ensure the competitive advantage.

This development of logistics was influenced by several **environmental factors** of the organization, such as:

- Transportation costs;
- Quality assurance;

- Diversification of production;
- Stock control;
- Protection of the environment;
- Intensification of marketing;
- Variety of technical instruments for data and information collecting, processing, transmission and storage

a) Transportation costs determined by: fuel price; diversification of transport means; identification and implementation of new distribution methods can produce changes in the organization's logistics development.

b) Quality assurance includes: inclusion of logistics activities in the quality system procedures developed by international standards ISO-9000/version 2000; reassessing logistics activities taking into account customers' explicit and implicit requirements regarding quality; application of quality assurance methods and techniques to eliminate or reduce quality costs.

c) Diversification of production can influence the evolution of logistics by: improvement of existing production technologies; use of new raw materials and resources of higher quality than the existing materials; customers' various requirements regarding supply of goods/services; research and marketing development; organizations' competitiveness; reducing the life span of products and increasing the renewal level of products/services.

d) Stock control causes changes in logistics due to: tendency to reduce stocks in different phases of product manufacturing; finding and applying new methods of stock administration; use of computer technique in stock control; stock planning in circumstances of certainty and uncertainty.

e) Protection of the environment has an impact on logistics development as it implies: using reusable or fast biodegradable packaging; using recyclable materials and manufacturing recyclable products which result from the production or consumption processes; withdrawal from the market of products not complying with quality standards or causing health problems for consumers.

f) Intensification of marketing via: development of marketing activities within the organization; creation of specialized structural components; selection and employment of marketing experts; diversification of promoting methods: advertising, sales promotion, individual sale compels the organization's management to consider the influence of this factor on decision making in logistics.

Any change in the content of these factors determines in general adjustments in the content of the logistics components of an organization: specialized or support activities (customer service; procurement; order processing; transportation; storage; stock administration; handling of raw materials, resources, fuel, parts, semi-finished products, assemblies, subassemblies, finished goods; distribution; packaging), material flow; informational flow.

g) The variety of technical instruments for data and information collecting, processing, transmission and storage characterized by: the ability to use in the logistics activities a large volume of processed, organized and systematized data and information; to study the quality of distribution services for customers, as well as services provided by suppliers; identification, evaluation and selection of suppliers that meet the needs imposed by achieving quality products and service delivery; knowledge of quantity and product structure, raw materials, resources, fuels present in the organization storage, distributed to customers or purchased from suppliers.

Also, in present-day economy, compliance with certain **principles** by all structural components of the organization is an important part in achieving performance in logistics:

- Provide a link between logistics and organization's strategy.
- Creating a global organization.
- Enhance the power of information.
- Emphasis on human resources.
- Establishment of strategic alliances.
- Focus on financial performance.
- Establish optimal level of services.
- The importance of solving details.
- Volume of goods optimization.

These core principles are valid regardless of the sector of activity, type of organization and geographic position.

In the context of economic development towards new tendencies which place information elements at the heart of the production and exchange processes, the concepts of knowledge and information are increasingly more important, being regarded as the essential element in ensuring the competitiveness both at organizational level and at the level of economic sectors, national economies and the global economy as a whole.

By their nature, organizations operating in a knowledge-based economy require collective management skills as sources of systemic viability. In the most general terms, skills refer to what an organization knows and is able to do in relation with its own objectives and in given environmental conditions, based on the individual skills of their members, systemically articulated and strategically mobilized. Knowledge-based economy encourages the establishment of new specific skills which will be the basis of the development of a unique competitive profile for each organization.

Information and knowledge flows play a decisive role in confirming the knowledge based economy as belonging to contemporary reality, both as a determinant of professional and managerial activities, as well as the scientific research object.

By way of manifestation, by complexity and expression forms the factors influencing logistics (transportation costs, quality assurance, production diversification, stock control, environmental protection, intensification of marketing) also contribute to the development of the content of information and knowledge flow, both in terms of producing knowledge (innovation) and dissemination (communication) and their acquisition (learning).

Thus, regarding the knowledge production, most of the influence factors produce the experience effect, materialized in productivity increase at production level. Reducing the life span of products / services and accelerating their renewal encourage innovation - the production of knowledge - and their dissemination, which leads to the establishment of general guidelines capitalized individually by organizations. Distribution of products / services (considered a logistics specific activity), in conjunction with promoting expansion, contributes to the expansion of the knowledge base by diversifying the usable methods and techniques, by assimilating the feed-back from the environment, with influences upon the reevaluation of the decision-making process regarding the substantiation upon factual and current information.

Environmental protection brings about the organization's social responsibility, which is reflected in utilization of reusable or biodegradable materials or withdrawal from the market of substandard quality products or affect the health of users. By ensuring quality, the organization contributes to: educating consumers, encouraging communication on the supplier - manufacturer – client axis, organization's involvement in sectors which are normally outside its area of expertise.

The knowledge base can be found in the content of the strategies conveyed at the level of the new model of economy and society, strategies that require alliances and structural reconstructions (e.g. cluster networks) and informational (aggregation of information and common knowledge of a domain which can be customized depending on the competitive profile of each organization).

In the knowledge based economy, control of the elements of logistics components is reduced given the information and knowledge flow has a high degree of self-control, not being subject to traditionally and hierarchical authoritarian routing. Controlling the information elements in the field of logistics is based on the revaluation of the knowledge base.

The context created by the knowledge-based economy results in a new level of development of logistics, namely the operation of a system capable of self-development and learning, able to assimilate information structures and to process them, identifying and eliminating deviations from the set alternatives strategic.

Globalization of certain activities generating added value, one of the characteristics of the knowledge based economy, applies a strong pressure on organizations to stimulate adaptability, innovation and shortening processes, which requires an awareness of the value of specialized knowledge related to organizational processes (management and execution) to control this pressure.

This awareness of the value of knowledge requires their inclusion in logistics principles fact which will lead to their rephrasing based on the concepts of the knowledge-based economy.

The first principle of logistics (*logistics connection with the organization's strategy*) thus acquires a new meaning in the context of organizational competence concept, a notion that draws a competitive advantage based on organization specialization. This specialization (as the effect of the experience gained by the organization in various logistics or production activities) will be the basis of *the creation of strategic alliances and organizations networks*.

This development entails refinement of the principle on *enhancing the power of information*. Without diminishing the importance of the information and communication part of logistics activities, the preparation of methods to identify and store the relevant elements to be subsequently included in the organization epistemic base and to be used in the construction of new techniques, procedures and instructions (prescriptive knowledge) within the organization should also be taken into account. The principle regarding *the focusing on human resources* also acquires a new dimension given that the knowledge-based economy is built on

increasing the training level of people, both quantitatively and qualitatively, given that access to training and education is also easier and less expensive. Moreover, educational processes themselves go through a series of changes to, shifting the focus from the transfer of information (usually through memory) to assimilation and processing the information in order to stimulate individual processes of knowledge creation. Managers in the field of logistics activities (as well as all economic activities) are therefore faced with the challenge of selecting and using staff with personal competencies higher than those of 20 years ago, with a higher creative and innovative capacity and an opening towards intellectual work incomparably greater than in the past. These features justify discussing human resources as an "intellectual capital" and one of the most valuable assets of the organization.

Regarding the principle *emphasis on financial performance*, the mark of the knowledge and characteristics of knowledge based economy will become noticeable, especially in terms of increasing efficient assets use. As a result, economic and financial markers will not only reflect the economic performance of the organization, but also the volume of organizational knowledge and the human resources quality as a factor in their execution.

According to the definition, logistics is intended to procure all the necessary production elements and to ensure the transfer of results to clients in order to serve them. However, taking into account the constant fluctuations in clients requirements, preferences and expectations, and the need to include knowledge in commercial transactions, inputs and outputs, logistics is forced to develop a dynamic character, motivated by the existence of a number of factors:

- Scientific and technical skill;
- Production and consumption diversification;
- The client's level of education and culture;
- The resources level.

Scientific and technical skill is determined by the accumulation and use of technical, economic and administrative information and knowledge by the organization, and is the only internal factor through which action can be taken to determine, obtain or modify the content and expectations level of customers (expectations reflected in the quality parameters of the products or required services). Moreover, this factor leads to activation within the logistics activities of a series of synergistic articulated behaviors of *co-development* (interactive

generation of new knowledge), *co-learning* (mutual validation of new cognitive acquisitions) and *co-management* of capitalized knowledge.

Production and consumption diversification, although manifested at the level of the producing organization, is a result of the changes recorded in the social need (necessity) system. Through market research, organizations determine and define the customers requirements and expectations about products or services and the data needed to achieve those at an optimal cost (adequate) and in accordance with defined specifications (standards or other normative documents).

The client's level of education and culture is determined mainly by the client's propositional but also by the prescriptive knowledge base, thus making this feature impossible to be controlled by the producing organization.

In the context of the knowledge based economy, both increasing customer education and production and consumption diversification (in many cases a consequence of raising the level of training and customer culture) arise mainly from the availability of information regarding the best products and prices, information often obtainable at low cost and in a short time.

The resources level (especially knowledge resources) is another factor underlaying the dynamic nature of logistics in the context of the knowledge based economy. If the volume of material and financial resources is a factor conditioning requirements and the behavior of producers and customers, intangible resources can compensate to some extent the physical limits of the other resources, improving their utilization efficiency and incorporating in the production results a series of non corporate elements impacting on performance and their life span. However, these intangible resources are limited by the quality of human resources within the organization and their ability to capitalize on the highest possible level personal and collective skills, this being actually one of the reasons that continuous learning is situated on a prominent place in the knowledge based economy.

As knowledge gains an increasing importance in the economy, not only as resources, products and object of sale – purchase but also as solutions to meet the pressures of globalization and international competitiveness, organizations in all economic sectors must find ways to acknowledge intellectual capital and the epistemic foundations they own, and to capitalize on the advantages that those offer. In this respect logistics plays a decisive role, in his field of action entering most of the organizations' activities of procurement, storage and dissemination of knowledge in, which highlights its importance in ensuring the competitive advantage of organizations (asset focused precisely on the ability to form and

operate a specific type of organizational competency in knowledge based economy).

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