THE NEW RULES OF THE LOGISTICS MANAGEMENT IN THE DIGITAL ENVIRONMENT AND EVALUATION OF RELATIONSHIP LOGISTICS MODEL

DİJİTAL ORTAMDA LOJİSTİK YÖNETİMİNİN YENİ KURALLARI VE İLİŞKİSEL LOJİSTİK MODELİNİN İNCELENMESİ

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Özet

Dijital ekonomi anlayışı 20. yüzyılın sonunda yaşanan hızlı bir değişim ve dönüşüm süreci sonrasında ortaya çıkan yeni bir gerçekliktir. Dijital ortamda, müşteri ile yüz yüze bağlantı kurulmaksızın, malın teslimatına kadar geçen süreçte bilgisayarların kullanımı yeni iş stratejilerini beraberinde getirmektedir. Dağıtım kanallarında interneti kullanan işletmeler, siparişten teslimata kadar geçen aşamalarda maliyetleri indirerek hızlı, zamanında ve minimum düzeyde hatalı teslimatı yapma imkanını elde etmektedirler.

21. yüzyılda değişen iş stratejileri aynı ölçüde işletmelerde lojistik yönetimini de etkilemektedir. Bu süreçte, ilişkisel lojistik modelinin kullanılmaya başlanması işletmelerin lojistik fonksiyonlarında hız, esneklik ve etkinliği artırmıştır.

Anahtar Kelimeler: Dijital ekonomi, dijital ortam, bilişim teknolojileri, lojistik yönetimi, ilişkisel lojistik modeli.

Abstract

The digital economy concept is a new reality that has been emerged as a result of rapid change and transformation process at the end of 20th century. The usage of computers in whole process without face-to-face connection with consumers in digital environment brought out new business strategies as well. Enterprises using internet in their distribution channels have the opportunity of delivering goods fast, on-time and with minimum level of mistake through decreasing costs in stages from ordering to the delivery.

The changing business strategies in the 21st century drive the logistics management in enterprises. Implementation of relationship logistics model in the process of logistics management provide enterprises speed, flexibility and efficiency in their logistics functions.

Key Words: Digital economy, digital environment, information technologies, logistics management, relationship logistics model.

I. INTRODUCTION

In 21st century digital technologies enable the development of new economic models. Gradual reduction in the production costs effects demand and supply equilibrium. Reduction in costs leads to increase in supply. In this case, new marketing and distribution methods are required to meet the demand. As a result of successful logistics management faster flow of goods and services is achieved. In economies based on digital technologies payment systems are transferred to the electronic environment. It is possible to reach millions of people at the same time in the digital environment. Development of digital economy enables faster and more efficient sharing of information and thus the quality of logistics process improves. In digital environment it is ensured for all units of corporation to operate over a database system together with the suppliers and distribution channels. [1]

New developments in internet area influence the market structure, consumption choices and competition in business world. As the organization structures of corporations get more simplified their logistics systems become elastic and quicker. The organization structures operating at 7 days 24 hours are becoming widespread. Markets now are more global and personal. Since customers are more informed about the developments, they desire to buy higher quality at a lower price. In digital environment everything is carried out "just in time". "Just in time" advertisement, "just in time" communication, and "just in time" delivery are becoming everyday concepts used by the marketing managers. Somewhat digital technologies mean reaching millions of people at the same time. So, as a result of the increasing importance of customers, corporations concentrate on the customer oriented marketing concept. [2]

II. THE STRATEGIC IMPORTANCE OF MARKETING AND THE INFORMATION TECHNOLOGIES IN DIGITAL ENVIRONMENT

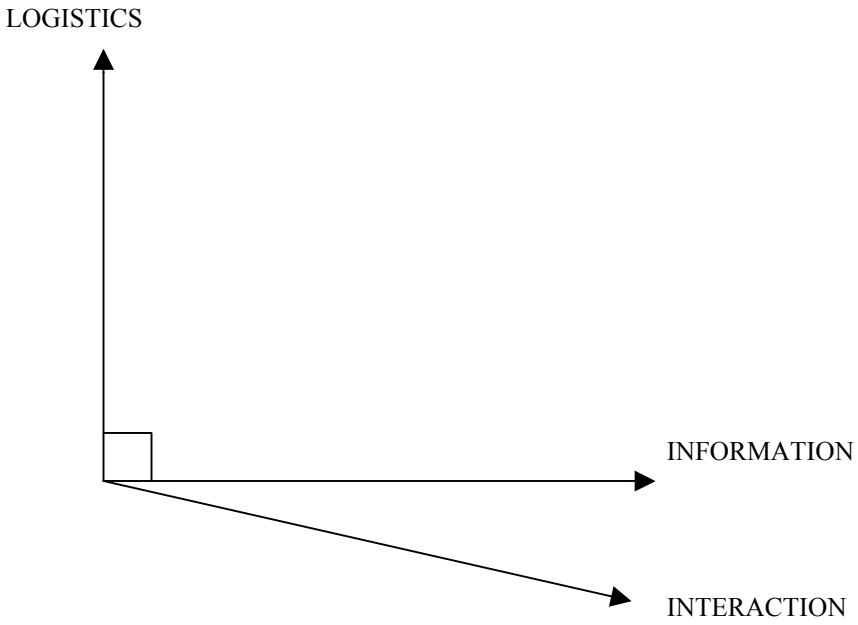
There are winds of change all over the world radically affecting the daily lives and types of running business. This change is realized incredibly fast. Digital economy offers new opportunities for the humanity. Digital technology opportunities bring in digital economy concept. Digital economy has come into being as a result of the five factors below:

- Globalization
- Internet
- National boundaries' loss of former sanctions
- Intellectual capital
- Increasing mobility and integration of the money markets

Information technology offers the business processes that are used more effectively in enterprises' production and marketing activities. Then the establishment of new competitive marketing strategies necessary for an effective sales profile is very important.[3] So it may be argued that in the near future business enter-

prises that do not use the high potential of information technology and do not develop their marketing strategies in this direction will lose their competitive advantage against the business enterprises that have the vision and capability of doing this.[4] As a result of progress in information technology, described as another version of industrial revolution, the existing marketing system must be reappraised in order to create new value for customers and to offer higher satisfaction and prosperity level for all partners of social marketing concept. In a new economic system open to the continuous innovations introduced by the digital environment, entrepreneurs with a little amount of capital benefiting from the information technology, have the opportunity of being successful by using the features of the new system as speed, efficiency and customer priority.[5] New communication network, created by information technologies in the environment that permits people to live in interconnected market economies, offers new opportunities to reach not only to the customers but also to the suppliers and business partners. In these environments enterprises are able to provide their service in a very economic platform through internet and telephone without a loss of time (see Figure 1). The relation between internet and marketing in the digital environment should be handled especially that it is used as new distribution channel functionality.[6] The enterprises having the vision of marketing information system make an attempt to increase the efficiency and profitability through rational decisions in marketing channels by using cheap and high-speed information technology.

Figure 1: Logistics in Digital Environment



Source: Adapted from Peter G. W. Keen, Walid Mougayar and Tracy Torregrossa (1998). **The Business Internet and Intranets A Manager's Guide to Key Terms and Concepts**, Harvard Business School Press Boston, Massachusetts.

III. INFORMATION TECHNOLOGY RELATED DIMENSIONS OF THE LOGISTICS MANAGEMENT

Developing digital technology has enabled the boundaries to be removed in the world trade and increased competition has brought about the necessity of delivery of right product to the customer at the right time, at best price and with minimum cost. Distribution and logistics have been conceived as much important as the high quality standards of the product. It has been accepted that the way of providing the most appropriate and quickest distribution that takes a product from its production line and delivers it to the customer's shelf is as much important as producing that product. Corporations have discovered the logistics as the most effective competitive element in the conditions of the increased competition. Logistics should be fundamentally taken into account regardless of the high quality of the product. In the digital marketing concept of 21st century logistics quality can outweigh the product itself in the competition among corporations. Now producer corporations give the same weight to the quick and effective realization of logistics services as the product and new production techniques.

Logistics management in enterprises comprises; implementing strategies related to the activities which are fulfilled so as to plan, apply and control the flow of raw materials, semi-finished products, various spare parts and end products from enterprises to consumers and users. Logistics management is expressed as the management of all activities providing the coordination of supply-demand and product movement in order to create the time and place benefits in enterprises. When the logistics management is analyzed with respect to system approach it is composed of two subsystems called physical supply and physical distribution. In both subsystems database marketing techniques is applied and thanks to the electronic communication medium that enterprises are got rid of unnecessary costs and desired distribution service level is accomplished.[7]

Thanks to the physical supply subsystem of logistics management that raw materials and necessary parts are ensured to be in right place in right time and "just in time production" is implemented.[8] Logistics information systems, in which internet and electronic commerce applications are both used, provide significant cost savings and also enable physical supply activities to be activated as a system including physical supply resources.[9] By activating their commercial activities regarding physical supply resources through the innovations and improvements in the information technology, enterprises realize three main principles of simple management known as speed, flexibility and anticipation. When this is achieved the production with minimum cost will be accomplished by cutting out unnecessary stock costs, financial expenses and labor costs. Far from the traditional logistics management tools, new logistics information systems lead to a strategic collaboration between highly expanding physical supply resources and enterprises and this enables enterprises to gain strategic advantages in the areas such as production, inventory, communication and transportation by directing their resources to the right area.[10]

Physical distribution system in logistics management is analyzed with regard to the relations between production and customers. Physical distribution subsystem defined as the activities carried out after the production stage of goods till to the deliveries of goods ensures the harmony of production and consumption in an electronic market medium. In other words, along with being successful in new economies, modern marketing actions which are accepted as the starting point of consumer needs and wants have introduced the delivery of produced goods and services to the consumers in the right place, in the right condition and at the right time.[11] Moreover, for a consumer being in communication with enterprises in each stage starting from the planning of goods and services as an idea before the production and continuing to the delivery of goods and services leads to the maximization of customers' expectations. In physical distribution functions, marketing activities are implemented in an interactive way. This means enabling the consumers to be directly effective in the production of goods and services is one of the major benefits of the use of internet as a marketing tool in information technology.[12]

In the scope of logistics management, starting point of the physical distribution subsystem must be the customers' orders. Compared to traditional marketing activities in processes such as obtaining the orders, evaluating and classifying them, logistics information systems enhance the productivity of logistics activities and offer timesaving advantage. The cost of reaching a larger body of customers in logistics system is significantly lower than the other traditional ways by using the customer basis formed for the future marketing activities. Orders when obtained through the order forms in the internet web sites filled in by the customers leads to the sales process mainly to be carried out in internet medium.[13] During this process, a new distribution strategy must be developed instead of a distribution structure in a traditional purchasing process that will enable to reach a very large consumer body simultaneously and will include new mediator types. It should meet the needs of customers by an efficient and effective physical distribution subsystem. New logistics systems have lower cost and work faster than the traditional systems in the flow of the larger scale orders to the buyers through the logistics information technologies.[14] In compliance with this, putting the enterprises' information as buyer order into the physical distribution actions compatible with the buyer demand will be a factor providing competitive advantage among enterprises. It shouldn't be disregarded that the establishment of healthy and long-term relations with consumers is dependent on the fulfillment of buyer orders perfectly and on-time.[15]

Development of appropriate and optimum transportation system and determining of transportation tools in this system considering the competitive advantages they offer is the other point that should be emphasized when the information technologies is used in logistics management.[16] Nevertheless, the enterprises which should establish a technological balance among the raw material resources, inventories, sales and production could obtain optimum stock level by taking the costs, demand, product features and competition conditions into account in the stage of inventory planning according to the quantity and variety. Warehousing is another area thought as one of the logistics actions starting point. This should be implemented in harmony with the high-tech distribution processes related to the storage of goods inside and outside of the enterprise by using the computer communication systems. While preparing the warehousing policy and strategies, the selection process of storage place which combines new technologies and the firm infrastructure in e-business environment should be planned to have minimum cost and maximum efficiency to create competitive advantage against the competitors.[17]

IV. RELATIONSHIP LOGISTICS MODEL IN THE DIGITAL ENVIRONMENT

The logistics management process in the digital environment that has started by the preparation of web sites of enterprises and ordering of consumers through Internet that is interpreted as the transformation into a virtual institution in 21st century, defines all the logistics activities once again. The logistics manage-

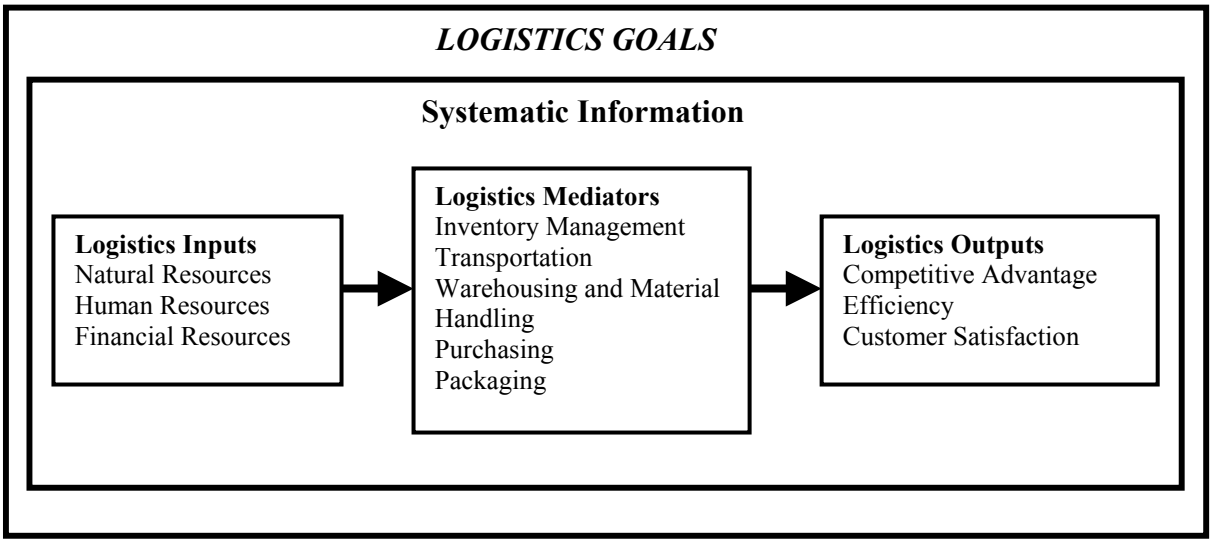
ment realized by using the information technologies changes the business type of enterprises with their customers and workers. This yields the potential of shared use of technology and more importantly, update of order conditions and distribution mutual with suppliers in the future.

Relationship logistics model concept is based on effective and efficient information sharing principle as one of the basic conditions in use of information technology in logistics practices frame. Logistics practices frame's function is the connection of production and marketing activities of enterprises.[18] While studying the logistics activities those have significantly high costs from the viewpoint of relationship logistics model considering the efficiency of marketing efforts, significant amount of savings and successful results will be achieved provided that rational information flow among logistics functions is achieved. Process of Relationship Logistics Model is illustrated in Figure 2 below.

V. EVALUATION ON RELATIONSHIP LOGISTICS MODEL AS A METHOD PROVIDING COMPETITIVE ADVANTAGE IN THE LOGISTICS SYSTEM

Pelton, Strutton and Lumpkin's studies had important contribution in the study of the analysis of relationship logistics model. Relationship logistics activities develop within the systematic information structure in the comprehensive realization process of logistics objectives in enterprises. Systematic information concept in logistics management explains the communications between the parties implementing logistics functions in the management, market and industry data level. Systematic information is a cornerstone of logistics as a result of logistics activities that involve the efforts providing place and time utility in enterprises, for the aim of products being presented in the right place, at the right time and in the right amount. Relationship logistics requires high levels of coordination within logistics functions and the achievement of coordination between functions is dependent upon a complete and regular exchange of information among the parties within logistics activities.

Figure 2: Relationship Logistics Model



Source: Adapted from Lou E. Pelton, David Strutton, James R. Lumpkin (1997). **Marketing Channels A Relationship Management Approach**, Irwin.

Logistics inputs involve the necessary raw material resources, human and other capital resources that contribute to the efficient movement of goods and services to enterprises' consumers. These logistics inputs may display variation among the functions with regard to the logistics actions being implemented. In addition to this, the other point that is compulsory for the relationship logistics activities to operate is the commitment of each function member to the agreed-upon resources at the beginning of exchange relationship.

Performance in enterprise logistics system is formed by the logistics objectives in distribution channel. The objectives determined in the logistics management are the main targets guiding the logistics activities. When tendency towards the relationship logistics rules dominate completely in an enterprise, functional members share common and complementary objectives about market coverage, customer satisfaction, etc. Furthermore another point that shouldn't be disregarded is that, when all the members in distribution channel agree on the logistics results at the beginning then the accomplishment of all these will be highly possible.

Logistics functions, meaning the flow of goods and services through the distribution channels, are the activities members should perform to ensure the physical flow process cost-effectively and efficiently.[19] When the implementation of logistics activities is handled in the context of whole process, delivery of raw material, semi-finished product and the other inputs to the consumers as the end products is realized under the efficacy of enterprise logistics. Logistics activities

carried out during this process also shapes the nature of exchange relationship among the partners.

The outputs exposed by the system concerning the logistics activities, are the results such as the competitive advantage, productivity and consumer satisfaction that are the direct consequences of performance of members in the enterprise logistics within the system. In the frame of stated approaches, for displaying the desired performance in the process of relationship logistics expected logistics results should have fare and acceptable nature for every channel member.

VI. DISCUSSION

Analysis of the relationship logistics model in accordance with the explanation of new rules of the logistics management in the digital environment is emphasized in this study. How digital economy and new digital technologies will affect the logistics process and logistics increasing strategic importance in digital economy is stated in this study. According to the relationship logistics model analyzed in this study, effective and efficient sharing of information is ensured in supply chain by using information technologies in the logistics activities. It states that relationship logistics model ensures cost saving and efficiency increase by enabling the rational flow of information among logistics functions. Relationship logistics model receives Natural Resources, Human Resources, and Financial Resources variables as inputs. Competitive Advantage, Efficiency, and Customer Satisfaction are obtained as outputs at the end of the process applied in the model.

Relationship logistics model is grounded on the assumptions below:

1. Corporations in different sectors have similarities and common tendencies in logistics functions.

2. Logistics functions of corporations are affected by the Natural Resources, Human Resources, and Financial Resources variables.

3. Analysis and application of relationship logistics model on corporations can increase the competitive position of corporations.

VII. CONCLUSION

Logistics management is concerned with planning and control of the flow of raw materials, semi-products, products and services between outlets and consumption points. Increasing customer needs and developments in information technologies force the corporations to make permanent investments for the success of logistics functions. Furthermore, corporations should establish the logistics systems, which will give them necessary support in order to take the advantage of e-business. Corporations should be able to deliver the orders taken in the digital environment to their addresses and to plan all goods and currency movements between

the suppliers and customers. An on-time delivery in digital economy without a problem is the common goal of both corporations and customers. The corporations that will take the advantage of technology in 21st century will be able to transform the fast developing technology into a more effective and economic logistics service. Therefore, corporations should be founded on a technological infrastructure that is fast and reliable in the internet and intranet based technologies. In this century it is impossible to fulfill suitable and efficient logistics services without using digital technologies. Hence, benefiting from relationship logistics model in logistics system will cause the corporation to gain competitive advantage by increasing control and coordination in the logistics activities. Relationship logistics model will minimize the error probability by systemizing the corporation's logistics activities. This study is the theoretical analyze of the logistics relationship model and practical applications of this model in subsequent researches will increase its reliability and validity.

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