

## EFFECTIVE MANAGEMENT OF LOGISTICS - AN EMPIRICAL STUDY OF ALBANIA

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### ABSTRACT

Repeatedly, more and more organizations feel the need and pressure to manage efficiently their operations and other activities. In the last years, the logistic management is considered a critical point and managing organizations has become a necessity. The logistic management, as part of a supply chain management, is considered to be an added value. In this regard, this research aims to contribute in the identification of factors that influence a more efficient logistic management. Moreover, the overall purpose of this study is to point out the role and influence of factors in the logistical management. In fact, the identification and determinations of the role and contribution of these factors will help organizations to improve logistics management activities. So, which are the activities where managers need to focus more when making logistical decisions? Moreover, what activities should managers improve in the future? Logistic management is intended to help organizations to be effective in their operations including mainly low-cost sourcing, growing markets and the growing economies of scale. This is particularly helpful, serving as a link between supply chain and final customers, other organizations, and clients. To collect accurate data, we used a questionnaire as a research tool, answered by key managers of some organizations. The study involved organizations operating in the biggest cities in Albania. These cities have a higher level of the target population. From 170 questionnaires distributed, 110 questionnaires were answered, from which 105 questionnaires were used for analysis. The selection of the sample in this study was random. Subsequently, through regression analysis, we will analyze the statistical model for this study. The main findings of the study were related to the main activities, such as communication and packaging to improve logistics management.

**Keywords:** Logistics management, inventory management, packaging, effective.

### INTRODUCTION

In today's highly competitive environment, some companies are aiming to gain global market share and to obtain a higher output and efficiency of resources. Nowadays, a key determinant of the performance of business is the role of "logistic function" in ensuring the smooth flow of materials, products and information throughout supply chains organizations (Sum et al., 2001). Due to the high intensity of global competition, the performance of the supply chain through logistic, is considered increasingly important as a strategic weapon to achieve and maintain competitive strength. Moreover, the effective process of global logistics in the global range creates more opportunities for organizations. It helps to lower the costs, increase markets and increase economies of scale. Organizations that have effective logistic operations can benefit from lower cost sourcing for components or work expertise. The effective sales in international markets demand building of an international sales organization or relations with international partners to extend supply chain. Managers take a decisive role in the creation of such effectiveness. The role of managers has to be in building dynamic processes, while maintaining the organization's stability and prosperity, survival and success, in a very complex network, which are of critical importance to its constituent organizations (Harland et

al. 1999). Also, distribution management is used as a strategy to minimize transportation costs, move goods through the network of suppliers, consolidate the company, send goods to consumers (Zhang et al., 2009).

This research will focus on identifying the most important aspects of logistics, which is defined as that part of the chain management of a supply chain which plans, implements and controls the flow, efficient and effective maintenance, forward and backward movement of goods, services and related information between the point of origin to point of consumption and in order to meet the requirements of consumers (CSCMP, 2012). Considering the aspects, elements and resources that constitute the supply chain, we will explore the effectiveness in the management of logistics operations, and further more. Also, this study will examine the links between the organizations on managerial aspects of logistics management. The overall goal of this research will be the role and influence of factors affecting the logistic management. The research question of this study is: does it bring a higher effectiveness in logistics management by improving communication / information sharing, inventory management, packaging and transportation? While the hypothesis of the study will be:

H<sub>1</sub>: the effective logistics management will come through communications, inventory management, packaging and transportation.

## LITERATURE REVIEW

The concept of SCM has received increasing attention in the same academics, consultants and business managers (Croom et al., 2000; Tan et al., 2002; Feldmann and Muller, 2003). In general, the logistics chain is defined as a group of three or more organizations associated directly through an upstream or downstream range of products, services, finance and information from a source to a consumer (Mentzer et al. , 2001). Also, logistics is a part of the supply chain including reverse flow of money and goods, services, money and information (Armistead and Mapes, 1993). It also includes all transportation management, inventory, service and distribution process, the third party logistics and logistics flow of activities (Maber and Venkatara, 1998). Merriam - Webster (1995) defines logistics as “treatment of details of an operation”. Many organizations are beginning to recognize SCM as the key to building sustainable competitive advantage for their products and services to meet growing market needs (Van Hoek, 1998; Jones, 1998). It includes everything from the movement of a product or a service to be given by the management of raw incoming materials, production, storage, delivery to customers and relationship management after sales service (Pollitt, 1998). In summary we can say that logistics includes all information and the flow of materials in the organization, including everything from the movement of a product in the management of raw material entry, manufacturing, warehousing of goods, distributing them to consumers and after-sales services (Narasimhan and Jayaram, 1998). Instrument that measures SCM practices were developed by Li et al., (2002). The methods of practice SCM include four phases: (1) the generation of general data, (2) study before pilotage, (3) pilot study, and (4) analysis of data on a larger scale (Zhang 2001). Instruments that measure competitive advantage and organizational performance were adopted from Zhang (Zhang, 2001). Among the leading logistics activities are: *Transportation* - transportation is defined as one of the activities involving the relocation of finished goods or products from the supplier to a certain center, warehouse or sales center (Stephen, 2011; translation by UET Press); *Warehousing* - Merriam-Webster (1995) defines a stock as a structure or room for storage of goods . Kenyon and Meixell (2011) define as storage warehousing components, raw goods and finished goods; *Packaging* - defined as one of the most important activities of

the distribution system and supply chain (Kotler and Keller, 2012); *Inventory management* - defined as a stock or storage of goods (Hoda and Sala, 2011). It can also be considered as a bench of everything needed to make business (Jakupi and Osmani, 2012). McGinnins and Kohn (1990) in their article about logistics strategies refer logistical responsibilities. These responsibilities are classified into several stages: transportation from abroad, transport between companies, internal transport, storage for produced goods, order processing, finished goods in inventory management and raw material / work in progress on management inventory. When part of logistics, such aspects become the most important in this field.

The organizational performance is about how well an organization achieves its goals, market oriented, and financial goals (Yamin et al., 1999). The performance measurement can be defined as a process of quantitative determinants of the efficiency and effectiveness of action and a set of metrics used to determine the efficiency and / or effectiveness of an action (Gunasekaran and Ngai, 2003). Several previous studies have measured organizational performance using two criteria at the same time, financial indicators and market, including return on investment (ROI), the market share difference of profit on sales, increased ROI, increased sales, increased share the overall market and competitive position (Vickery et al., 1999; Stock et al., 2000). This definition also claims that performance measurement is essential for effective management of logistics operations.

Efficiency is one of the standard internal performance of an organization, while effectiveness is a standard external requests from different groups (Pfeffer and Salancik 2003). The efficiency is an advantage associated with the costs and effectiveness is a response to customer edge research within supply chain management. The organizational effectiveness is defined as an external standard of how well an organization meets the requirements of different groups and organizations that are interested in its activities (Pfeffer and Salancik 2003). The effectiveness is the determinant of success for our purposes and therefore should be clearly defined. The effectiveness as an effective operation measured by comparison of production cost (in energy, time and money) and / or the ratio of the power tool sent by a dynamic system, with energy supplied (Logistician, 2008). The effectiveness is concerned with obtaining the majority of a group of sources define as operating efficiency internal logistics and generally considered best expressed by some reports to normal levels over the real level inputs to outputs. A good system of transportation in the logistics activities can provide better logistics efficiency, lowers the cost of operations and promotes quality service. The improvement of transportation systems have a joint effort by public and private sector. A good system-operated logistics can increase the competitiveness between government and organizations.

## METHODOLOGY

The survey was conducted through direct survey model and a questionnaire completed respondents, which has also given them the opportunity obtain additional explanations regarding the answers. The structure of the questionnaire is composed of two sections. The first section of the questionnaire contains information about the type of activity of the organization, such as production, wholesalers and retailers. The other part contains questions about the responder's position in the company and the time work related issues. The second section constituted the most important information, after gathering information about logistics factors. There were nine questions used in this section. Each question was intended to collect information about logistics factors, such as transportation, packaging, inventory management, and communication effectiveness. Each question is measured with Likert rating

scale, namely 1-strongly disagree to 5-strongly agree. The study population consists of retail merchants, which represent the last link in a supply chain. A typical supply chain contains manufacturer, wholesale dealer and retail trader (Fabrigar and Wood, 2007). Precisely, the retail trader, has the direct contact with the final consumers of products / services. By serving as a bond between the supply chain and final customers they are able to provide information regarding the supply chain they belong to, as well as for their customers. Since the overall purpose of this research is the role and influence of the factors that affect the logistical management, it is required that data collection should be done by the last link in a supply chain, from retail companies.

The distribution of questionnaires was conducted via e-mail and contacting several businesses individually. The sample selection was made at random. The data collection is concentrated in the main cities, such as Tirana and Durrës. From 170 questionnaires distributed, 110 questionnaires were received. The study sample was based on 105 questionnaires, since 5 surveys contained multiple answers. Most of the questionnaires were completed from leading managers of organizations. Data analysis was focused in three phases. In the first phase, the factor and reliability analysis was conducted. The factorial analysis is a technique for grouping variables, which reduces a set of data keeping as much of the original information (Field, 2009). The weight of each factor in this analysis should be greater than 0.4 (Hair et al., 2009). The Bartlett test and Kaiser-Meyer-Olkin (KMO) test help factorial analysis (Field, 2009). For a good factorial analysis, the KMO test should be above 50% and Bartlett test to be statistically significant ( $p < 0.05$ ) (Field, 2009). While analysis of reliability through Cronbach alpha coefficient, implemented to observe the data reliability (Hair et al., 2009). (Hair et al., 2009). It should be above 0.7, but can be accepted up to 0.6 in exploratory research. Multicollinearity was conducted in the second phase of the analysis. Afterwards, the third phase consisted of testing the hypothesis through multiple regression.

## RESULTS and DISCUSSION

The data obtained in this study were collected at retail companies. This is largely because of purpose of the study and availability of information in possession.

Five variables were used in this research, out of which four are independent variables. Three of the variables measured more than two questions. So, it is necessary to make a factorial and reliability analysis for these variables, which are: effective logistics management, communication / information sharing and inventory management.

*The independent variable "inventory management"* was measured with 2 indicators and their factorial weights resulted greater than 0.4. The both factors resulted with factorial weights 0.827. The KMO test for this variable was 50.5 % (over 50 %) and the Bartlett test resulted statistically significant ( $0.01 < 0.05$ ). For this variable both tests are positive. And *independent variable for "communication / information sharing"* were subjected to factorial analysis, as it measured with 3 questions. All the questions had their factorial weights greater than 0.4. The highest weighted question was the question "our company consistently builds communication lines with customers that enables the satisfaction of their successive" with 0.918 and and the lowest weighted question was the question "the company is willing to save and build good relations with its partners by sharing information" with 0.760. The KMO test for this variable was 61.1 % (over 50 %) and the Bartlett test resulted statistically significant ( $0.00 < 0.05$ ). *The dependent variable "effective logistic management"* was measured with two indicators and their weight was greater than 0.4. Both factors resulted with factorial weights 0.873. The

KMO test for this variable was 50.5 % (over 50 %) and the Bartlett test resulted statistically significant ( $0.00 < 0.05$ ). Two independent variables “transporting and packaging” are measured only with a question. At this point, it is not necessary to have a factorial analysis.

To check the reliability of data for these variables, the reliability analysis through Cronbach alpha coefficient should be conducted. Table 1 shows the results of this analysis. By reliability analysis, three variables have a higher weight than the allowed weight of 0.7. Also, these variables are centered around weight 0.7. The greater weight of variable contains the communication / information sharing. Based on these results, it proceeded with further analysis.

Table 1. Reliability analysis

Variable	Cronbach alpha
Inventory management	0.701
Communication / information sharing	0.792
Effective logistic management	0.711

Now, we will continue with the most important part of the study; verification and testing the hypothesis. In fact, we will previously evaluate multicollinearity between independent variables. The presence of correlation between the independent variables in the interval -0.7 to 0.7 is acceptable (Hair et al., 2009). By testing it appeared to be within permissible limits. Then, laying hypothesis for testing is as follows:

Ho: the effective logistics management will not come through communications, inventory management, packaging and transportation.

Ha: the effective logistics management will come through communications, inventory management, packaging and transportation.

And regression,  $Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$ , where:

Y= the dependent variable “effective logistics management”,

$x_1$ = the independent variable “communications”,

$x_2$ = the independent variable “inventory management”,

$x_3$ = the independent variable “packaging”,  $x_4$ = the independent variable “transportation”.

The hypothesis of this study, was tested through multiple regression analysis . The following table presents the results of the study. The hypothesis testing showed that logistical factors have a positive impact on logistics management. Value  $F(4,100) = 4.889$  was statistically highly significant ( $p \leq 0.01$ ), confirming the viability of the model. As we observe in Table 2,  $R^2$  is 33.4%, while  $R^2$  (adjusted) is 26.6%. This means that the dependent variable, the effective logistics management, with 26.6% is explained by four independent variables, such as communication / information sharing, inventory management, packaging and transportation.

Table 2. Details of testing

	Beta coefficient	Sig.	$R^2$	$R^2$ (adjusted)
(Constant)		0.147	0.334	0.266
Communications	0.497	0.001		
Inventory management	-0.249	0.152		
Packaging	0.284	0.046		
Transportation	0.141	0.420		

Explanation and effectiveness in logistics management is not at a high level. More specifically, we will see the beta coefficients. As we see in Table 2, not all coefficients are statistically significant. The inventory management is statistically insignificant ( $p > 0.152$ ) and a negative impact on the effectiveness of logistic management. The transportation is statistically insignificant ( $p > 0.420$ ) but with a positive contribution to the logistical management. The communication or information sharing is the only variable statistically highly significant ( $p \leq 0.01$ ) with the largest contribution and positive impact on the effectiveness of logistic management. This means improvement and higher effectiveness in logistics management of information sharing and communication between each other members of the supply chain. An investment unit in terms of communication will bring a higher effectiveness with 0.497 times in the logistical management. The packaging variable has positive contribution but less important than communication. Finally, we can emphasize that even through the beta coefficients and their statistical significance observed effectiveness and efficiency of logistic management.

## CONCLUSIONS

Through this research, we offered empirical data on the effectiveness of logistic management. In fact, the overall goal of this research was the role and influence of factors affecting the logistical management. The study revealed that the effectiveness in logistical management was not at a high level. Among the main reasons that influenced the effectiveness were inventory management and transportation of products. The slow inventory turnover of the companies in the supply chain brings obstacles, delays, products obtained not by expectations of consumers, etc. At the same time, problems in transportation of products bring deterioration effectively managing logistics operations. The packaging shows positive correlation in this study. The highest positive impact brings improvement in sharing and communication between each member in the supply chain.

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