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**LOGISTICS MARKET STATISTICS AND OPINIONS
ABOUT THE SUPPLY CHAIN MANAGEMENT IN ROMANIA****Ramona Iulia Țarțavulea^{1*} and Radu Ioan Petrariu²**^{1) 2)} *The Bucharest University of Economic Studies, Romania***Abstract**

This paper proposes a research on the development of supply chain management processes in Romania. The main objective of the paper is to present an overview of the development level for logistics services market in Romania, by analyzing representative statistical data in the supply chain management domain. The research methodology focuses on collection of statistical data about Romanian logistics sector, especially from official data published by the INS, identifying key profile companies operating in Romania and analyze their development over the past five years, using indicators such as quantity of logistic spaces put into operation annual, occupancy rate, sale price / rental, logistics services for customers and other related services. This information are taken from the websites of the companies and from studies made public by consulting companies. The quality of the logistics services offered to customers by companies in Romania is being compared to the European average on various specific categories. In this respect, we used the logistic performance index that summarizes the statistical aspects of the supply chain management at national and international level, using a set of predefined criteria. The results of the research concern the positioning Romania in terms of logistics in relation to other European countries and propose solutions applicable to improving their quality. The preoccupation for identifying opportunities to improve the efficiency of supply chain management leads to analysis of information systems for supply chain management, which are designed to facilitate communication both between company departments and between it and its partners in the extended supply chain. Final remarks present the advantages of using such a system, and provide information regarding the supply and demand on the market in Romania.

Keywords: supply chain management (SCM), logistics services for the customer, Romanian logistics market, logistics performance index, logistic infrastructure, Third Party Logistics (3PLs), Information Systems for Supply Chain Management.

JEL Classification: F23, M11, M15

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Introduction

This paper is divided in four parts: a theoretical one, which includes defining the concept of supply chain management and 3PL, the second presents statistics on the evolution of logistics market in Romania, the third is an analysis at country and regional level based on logistics performance index and fourth presents some views on supply chain management in Romania and an overview of SCM information systems, with the advantages they can bring economic entity.

The concept of SCM is defined as the process of planning, implementing and controlling the operations of the supply chain in an efficient way. SCM spans all movements and storage of raw materials, work-in-process inventory, and finished goods from the point-of-origin to the Point-of-consumption (Simcha-Levi *et. al.*, 2004).

The planning stage consists of developing a logistics strategy, as part of the general strategy of the company and closely related to marketing strategy. Thus, the selection of product sales markets will influence the design of the supply chain, which is equated by some authors with strategic planning of the supply chain (Chopra and Meindl, 2007). Among the criteria for selection of sales markets we find the attractiveness of a market in terms of logistics infrastructure and logistics competence of 3PLs. Information on the attractiveness of a market in terms of logistics can be found on the website of the World Bank, which has developed an extensive study on the relevant criteria in the management of the supply chain. Analyzing the results of this study on Romania and comparing them with those of other neighboring countries, is one of the objectives for our research and is developed in the third section of the article.

In the last decade, competition has shifted from firm-to-firm to supply chain against supply chain (Christopher and Towill, 2001). Changes in the international economic environment led to the need to rethink the supply chain and logistics management strategy for most companies, in order to reduce operational costs and increase competitiveness. Strategic cooperation between companies leads to the creation of extended logistics chains, along which a group of companies collaborate to increase their competitiveness.

Such groups, networks and clusters are the latest form of modern international corporation inter-organizational structure. (Săvoiu *et al.*, 2011). The small and medium enterprises can be characterized by exceptional levels of external networking and inter-firm linkages (Bryson *et al.*, 1993 cited by Săvoiu *et al.*, 2011, p 23).

Extended logistics chains require close collaboration between the company and its partners upstream and downstream, which provide various services: supply, distribution, storage, transportation, related logistics services such as packing, sorting, labeling. Companies have started to decentralize their operations, in order to take advantage of the resources available on the market (Gunasekaran and Ngai, 2005). In this respect, companies have turned to outsourcing logistics activities, partially or totally, by one or more providers of 3PL type (Third Party Logistics).

A Third Party Logistics provider is defined as a foreign partner which executes all or part of logistics activities on behalf of the contracting company, more specifically it provides transportation services, warehousing, inventory (ALPHA Research Consortium, 2004). The collaboration of the company with a firm specializing in logistics can lead to objectives such as: turning fixed costs into variable costs for more flexibility, expansion into new

markets or offering new products for diversification and rethinking supply chain for better financial performance.

1. Statistics on the logistics market in Romania

1.1 Evolution of the demand and supply for logistics spaces in the last five years, Romania

The logistics market in Romania started to grow particularly after our accession to the European Union, because as foreign investors entered in various fields of activity (attractive due to lower costs of production factors) the real demand for logistics facilities increased, so developers did not hesitate to appear.

In 2007 and 2008, the demand for logistics spaces was growing and the volume of transactions on the logistics market reached 250,000 m², of which 200,000 m² in area of the capital and over 50,000 m² close to other cities, such as Timișoara, Arad, Ploiești and Pitești. In 2007, the occupying rate for logistics spaces was 98%. According to a study by Jones Lang LaSalle, in 2008, the Romanian logistics market continued to grow due to demand from companies who have relocated part of their supply chain, with the aim of reducing costs in order to survive through the economic crisis.

The great developers in the Romanian logistics market like Cefin Real Estate (Italy), ProLogis (United States) and Portland Trust (Belgium) continued to invest around Bucharest, and new investors as Eyemaxx (Austria), CTP Invest (Czech), Warehouse de Pauw (WDP - Belgium) and the European Future Group (UK), have shown interest in other areas of the country especially the west (Belu and Țarțavulea, 2009).

The geographical distribution of the logistics parks in Romania, in 2011, is outlined in table no. 1. The volume of transactions on the logistics market began to decline in 2009, the quantity of logistics premises delivered being only 50,000 m² (opposed to 320000 m² in 2008). The logistics spaces employment rate has also fallen, from 96% in 2008 to 88% in 2009. The year 2010 was characterized by stagnation in terms of the development of logistics premises as well as prices of construction/renting. The average cost of construction of a square meter for logistic spaces was estimated at 550 euro in 2010, and has yet decreased, reaching 330 euro in 2012 (PointPark Properties, 2012).

With regard to rental of logistics premises, the average cost of renting a square meter of logistic space was in 2007 between 4.75 to 5 euros and in 2010 approximately 4.5 euros, plus a fee of 0.8 euro for maintenance services. The explanation for this decline is that prices have fallen because of the economic crisis, and are still decreasing, the average cost of renting a logistic space being estimated at 3-4 euro/sq. at the moment, and the most requested premises are the ones smaller than 1,000 square meters (Regatta, 2012).

The Austrian company UBM Development has invested in building a logistics park located in the north-west of Bucharest belt (Chitila Logistic Park). The project is worth approximately EUR 30 million and has an area of 45,000 m² of industrial space and offices. Location has access to both DN1A and the Bucharest-Pitești highway. This is the

first industrial and logistics centre build in Romania by UBM Company, which is present mainly in Central and Eastern Europe.

Table no. 1: The geographical distribution of the logistics parks in Romania, in 2011

Area	Logistics park	Developer	Total surface
BUCURESTI	ProLogis Park Bucharest A1	ProLogis Romania	295.000,00 m ²
BUCURESTI – West area	A1 Business Park	Valad Romania	260.000,00 m ²
BUCURESTI – South area (Bragadiru)	Bragadiru - Industrial Park	Regatta	36.000,00 m ²
BUCURESTI –Ilfov county	Domnești Business Park	Valad	17.027,00 m ²
BUCURESTI-PITESTI, A1, km 49	WDP Park Corbii Mari	Warehouses de Pauw (WDP)	116.750,00 m ²
BUCURESTI-CONSTANTA, A2	WDP Park Fundulea	Warehouses de Pauw (WDP)	69.300,00 m ²
BUCURESTI – West area, Ilfov county, Chiajna	Europolis Park Bucharest	Europolis	360.000,00 m ²
BUCURESTI – West area, Ilfov county, Chiajna	Olympian Parks Bucharest - Chiajna	Helios Phoenix, GE Real Estate	12.100,00 m ²
BUCURESTI – ring road	Chitila Logistics Park	UBM	93.000,00 m ²
PLOIESTI - Ariceștii Rahtivani	WDP Park A3 Storage Ploiești	Warehouses de Pauw (WDP)	110.000,00 m ²
PLOIESTI	Ploiești west park	Alinso Group	220 hectares
BRASOV	Parc Industrial Brasov	ICCO	290.000,00 m ²
BRASOV	A3 Storage Brasov	Warehouses de Pauw (WDP)	100.000,00 m ²
CAMPULUNG	Câmpulung Industrial Park	Regatta	100.000,00 m ²
CONSTANTA	A2 Storage Agigea	Warehouses de Pauw (WDP)	51.500,00 m ²
CONSTANTA	E60 Storage Mihail Kogălniceanu	Warehouses de Pauw (WDP)	24.000,00 m ²

Source: adapted from data available on <http://realestate.doingbusiness.ro/>

For 2013, plans exist for building new logistics spaces by companies like Graells & Llonch and PointPark Properties. The development of new logistics facilities depends mainly on the possibilities of financing, either through bank loans or direct investment made by companies with considerable financial power. Skepticism regarding the future demand from occupiers is still manifested among experts.

1.2 Evolution of transport services offer in Romania

Another component of the logistics market is the transport service. The European Union accession and foreign investment have led to a boom in the vehicle fleet, especially for

companies owned by local entrepreneurs. The largest increases in revenue were recorded by companies offering logistics services too. They have made investments in the transport fleet, but also in logistics centers, and related services. For example, Edy Spedition company increased its fleet 4 times in 2004, obtained a distribution agreement with Coca-Cola, and in 2008 began to invest in logistics facilities; the same approach was taken by the carriers Dumagas, Lazar International and Dunca Expedition.

Transport of goods by road has seen, especially in the European Union, an appreciable upward dynamics, their share reaching 30% in the total transport of goods (Dinu and Belt, 2008).

An analysis of statistical data on road in Romania, show that over 63% of international shipments are transported by vehicles in their fleet, so only a percentage of about 37% of all international deliveries are outsourced to specialized companies (figure no. 1).

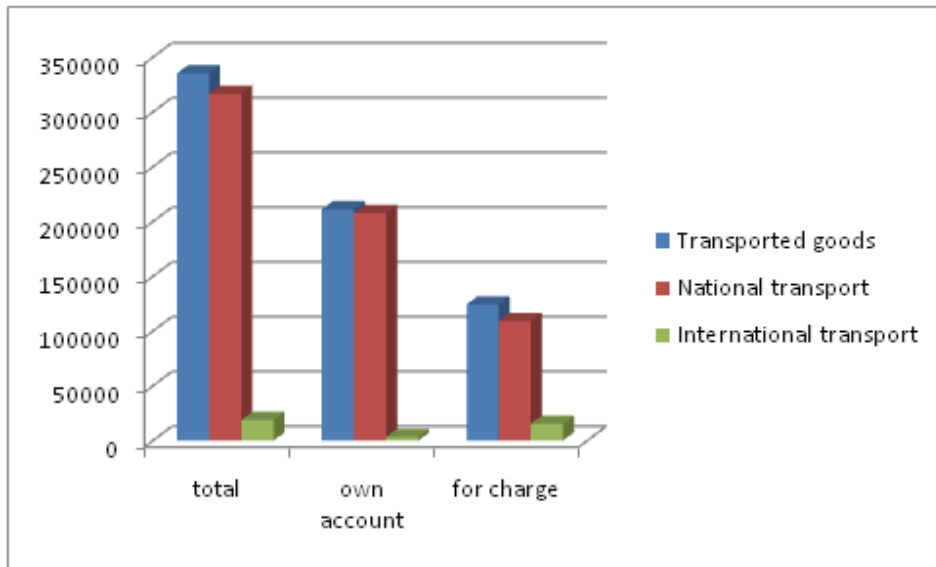


Figure no 1: Freight classified by destination (national or international) and type of ownership of vehicles

Source: Chart made by the authors, based on data of the National Statistics Institute of Romania, available on <http://www.insse.ro>

On the Romanian market there are also present foreign companies that offer transportation and logistics services, as Waberers, a Hungarian company active in the entire region of Central and Eastern Europe, and DB Schenker Romtrans, a provider of integrated logistics services of Austrian origin, which merged with Romanian company Romtrans. Also SDV-SCAC Romania, which is part of the multinational transport and logistics SDV Logistique International, is present on the market with a complete range of services, including air, road and sea transport, distribution, warehousing, inventory management and delivery preparation.

Also, there are expedition houses offering integrated services for all types of transport, from door-to-door deliveries to grouping. An example of this is the Top Expert DCE, which aims to become a leading logistics provider by creating a global logistics network (is present in Romania since 2005).

2. Logistics service providers (3PLs): logistics services to the client

In the past five years, a major challenge that must be faced by logistics specialists after the appearance of the economic crisis is the reconfiguration of the company's supply chain in order to ensure the optimal delivery capacity in a market characterized by variable demand. Here intervenes the role of third-party logistics providers that offer logistic solutions to meet the cost restraints of an environment in a (post-) recession phase.

According to a study conducted at the level of logistics service users, 60% consider that changes in the international market since 2008-2009 have led to the rethinking of their logistics strategy, in order to improve service quality and reduce costs (Hannon, 2009). To achieve these goals, some companies focused on their core business, which brings the highest value added to products and outsourced their logistics activities to specialized companies, namely, third-party logistics providers. They maintain relationships with several carriers and have the ability to select the best solution for transport and also to provide alternatives if one of the carriers faces bankruptcy. Therefore they can offer client-companies a competitive advantage through correct use of the information in the market, that companies with other type of business don't have the necessary time or human resources to observe and exploit.

Through the services of a 3PL provider, a company can improve its flexibility and adaptability to the changing economic environment.

Capgemini consulting firm together with Oracle, Georgia Institute of Technology and logistics provider Panalpina conducted a market survey addressed to the logistic services users (Shippers) and also to third party logistics providers (3PLs) in Europe, North America, Asia-Pacific and Latin America. "The Fourteenth Annual Third-Party Logistics (3PL) Study" analyzes the global market for logistics services, highlighting the role of logistics service providers (3PLs) in helping companies adapt to economic challenges. This study found that the economic downturn has been a challenge for both categories, 82% of companies that use logistics service have applied cost reduction tactics and 60% have redesigned their supply chain and the relationships with logistics suppliers; 88 % of companies consider that software systems are important in logistics activity, but only 42% are satisfied with the services offered for this purpose by their logistics providers. This means that there is a logistics business segment that is not well enough developed, as user companies complain of poor visibility on the supply chain and 3PL providers report difficulty in obtaining data. With regard to this problem, "the use of an adequate methodology plays an important role in developing software, to assure that it is delivered within schedule, within cost and meets users' requirements". (Geambaşu et al, 2011).

In terms of customer satisfaction, 59% of companies believe that logistics service providers have a positive impact on the customer relationship, while 88% of 3PLs have such an opinion.

From the study findings, U.S. companies outsource on average 47% of the logistics activities and European companies about 66%, these percentages being likely to increase over the next 5 years. In order to satisfy customers, logistics service providers should offer:

- More efficient information system services that can help increasing the supply chain's flexibility;
- Solutions to convert fixed costs into variable costs;
- Ideas for restructuring the logistics network aiming to improve the financial performance;
- Logistics solutions for entering new markets or launching new products on the market (diversification);

Another study revealed that most companies prefer to outsource repetitive activities at operational level and not the strategic ones that involve a direct relationship with customers (Capgemini, 2008). However, a closer relationship with the logistic service provider, and an understanding on his part of the entire business of the company-customer, could lead to finding the optimal configuration of the supply chain.

In Romania, OTZ Logistics Group is one of the companies that offer integrated logistics solutions. It operates in Timisoara, where he leased 5000 m² of logistics space in Log Center, which is a supplier of industrial space owned by Eyemaxx Real Estate.

Another company that offers integrated logistics solutions to shippers of goods is DB Schenker SA, with a very interesting history, for which we will make a parenthesis. In 2008 Romtrans S.A. (first international freight forwarder in Romania, founded in 1952) was acquired for \$ 80 million, by the international logistics provider DB Schenker, founded in 1872 in Vienna as the Schenker & CO. The company has made a series of mergers and acquisitions over time (it acquired company Behala and moved its headquarters to Berlin, opened branches in the U.S. and Hong Kong, merged with BTL, made a strategic alliance with BAX global and bought the Spain-TIR company). Nowadays, DB Schenker has an annual turnover of more than 8 billion euros, owns a logistic center in Rotterdam port, has 91,000 employees at 2,000 locations in 130 countries and ranks number 1 in Europe for rail and road transport; it occupied the 5th position in the world for the total number of logistics contracts according to the 2009 annual report. DB Schenker SA has 7 branches and over 70 working points in Romania and offers international road groupage and full loads, door-to-door deliveries, international air, maritime, rail and combined transport, with related services including handling, storage, distribution, customs clearance and transport electronic traceability. In addition to transport services, DB Schenker also offer warehousing services, simultaneous supply for production points; the company acts as a 4PL provider, offering solutions such as inventory management, logistics consulting for delivery and logistics solutions for optimizing the supply chain, all through modern computer technology.

GEFCO Romania is a subsidiary of the international group GEFCO, present in Romania since 2005, providing road, sea and air transportation, together with the necessary customs formalities, warehousing and logistics services (the company owns two warehouses, one in Bucharest - 4000 sq. and one in Arad - 1100 sq. and three platforms for automotive

logistics in Curtici, Mioveni and Bucharest). As a 4PL provider, Gefco provides services as design, coordination and execution of logistics strategies for the whole supply chain.

A particular typology of shipping services is represented by the express delivery (couriers); in Romania there are several companies that offer such services, some international as: DHL International Express TNT, FedEx, UPS Global Express Mail and other national as: Fan Courier Express Ltd, Cargus, Sprint Courier, Pegasus (taken over by DPD-Dynamic Parcel Distribution), Urgent Courier, Courier Mailman, Business Courier. The courier services market has experienced a recession during and after the crisis emerging in 2007, but since 2010 the market restarted its upward trend.

If in 2006 the domestic courier market in Romania was estimated at 130 million euros, in 2008 it reached 220 million euros, in 2009 decreased by 25-30%, reaching 200 million euros, and in 2010 returned to its ascending trend as the market turnover reached around 220 million euros (data released by Association of Courier Operators in Romania, AOOCR).

3. The Logistics Performance Index - analysis at national and regional level

As part of the selection of markets activity, companies use logistics attractiveness and criteria when they need to take a decision on which markets they want to expand their business. Therefore we propose to realize an analysis of the logistics attractiveness of Romania.

The overall logistics performance of our country relative to European countries and other neighboring countries can be evaluated using the logistic performance index, calculated by the World Bank, based on a questionnaire answered by approximately 800-900 international shippers and carriers. Scores for each response were awarded based on criteria such as customs, infrastructure, and transport across borders, logistics competence, tracking deliveries, internal costs and competitive advantages. The average of these scores was associated to the logistics performance index. "The index which evaluates the general logistics performance and the criteria for determining it, provide a primary analysis of the differences between countries and regions in this sector of the economy," states the report, the authors explaining that the scores shows not only the expected differences between developed and developing countries but, more importantly, shows significant differences between developing countries at the same economic level.

The project on "Logistics Performance Index" calculation has received financial support from the governments of Finland, Norway, Sweden and the UK through the Multi-donor Fund for Trade and Development.

Also, some international professional organizations such as GFP (Global Facilitation Partnership for Transportation and Trade), FIATA (International Federation for Freight Forwarders Associations) and GEA (Global Express Association) offered their support for collecting the necessary information to calculate the index, consisting of applying questionnaires (translated from English into French, Spanish, Russian and Chinese) to over 900 individual respondents from 100 countries.

The methodology for calculating the logistics performance index is based on dividing the logistic performance into 6 criteria, assigning each a score from 1 to 5 (by every respondent), followed by calculating the average for each criterion, resulting in 6

indicators; principal components analysis is used to obtain final index showing each country's logistics performance.

Countries are themselves divided into 5 groups according to the level of GDP (low income, medium or large) and geographical location (the coastal or landlocked). The main criteria for choice of countries for which the respondent is competent to assign scores in terms of logistics performance are neighboring and key partners for import-export of the country of origin of the respondent.

The 6 criteria underlying the calculation of the logistics performance index are:

- Efficiency of passing through customs (simplicity and predictability of formalities);
- Quality of commercial and transport infrastructure (ports, highways, information technology);
- Ease of contracting transport services at competitive prices;
- Competence and quality of logistics services;
- Ability to locate shipments (tracking systems);
- The frequency with which shipments reach their destination without delay;

In 2007, when the IPL was calculated for the first time by experts from the World Bank, the top ranked Romania on the 51 place, behind countries from Central and South-Eastern Europe as Hungary (35), Slovenia (37), Czech Republic (38), Poland (40) and Slovakia (50).

According to the World Bank, countries occupying the top spots are generally major economic players on the market, while countries at the end of the ranking obtained low scores due to over-regulation, poor quality services and low level of investments.

With regard to Romania, based on the scores granted for each criterion, the positions on which our country is placed are very different: 35th for across borders transport performance, but only position 123 in terms of internal costs. Infrastructure received a surprisingly high score, placing our country at number 50 in the world, relatively good appreciation for logistics competence (place 52), customs and delivery tracking (56th place for both criteria). Besides cost, the score for competitive advantage (66th) pulled down the final score. The low ranking for costs criterion is interpreted by some authors as an alarm signal on too high fees for logistical services. "However, it noted a clear warning: "States where costs are high are likely to miss the chance to exploit the opportunities of globalization" (Vartolomei, 2007).

With an overall score of 2.91 points, Romania wasn't within the first third of the ranking. In the regional context, the score placed Romania on the penultimate position among the Eastern European States members of the EU, only Bulgaria was less marked (2.87 points - 55th in the world rankings, with four positions behind Romania).

First place in the Central and Eastern Europe went to Austria (4.06 points, 5th in world rankings), only disadvantaged by high costs (2.24 points, score weaker than Romania). Hungary was ranked second, followed by the Czech Republic with a good score in terms of costs - 3.4 points (best in the region). Poland and Slovakia were noted ahead of Romania,

although weaker in chapters like infrastructure and international transport, they were considered better at logistics competence, tracking deliveries, customs clearance procedures and obviously, costs.

An important chapter of the World Bank report analyzes countries with similar values of GDP per capita, and in this respect, Romania is ranked among countries that do not reach their full potential. Between countries with GNP / capita of over \$ 4,000, Romania has a more advanced logistical sector in comparison to Russia, but less competitive than other European countries. In the top 10 income group which includes Romania are found Turkey, Hungary, Czech Republic, Poland, Latvia and, last, Estonia.

In 2010, the World Bank issued a second edition of Logistic Performance Index report, based on 5000 national assessments made by nearly 1,000 international transport companies.

The World Bank experts consider that the concept of business logistics includes transportation activities, storage, cargo, cross border trade, distribution of goods and payment systems at national level. "Raising the level of logistics performance has a major impact on business development. At the same level of income per capita, countries with more efficient logistics systems get an additional 1% of GDP and two percent in the volume of commercial activity" (Canuto, 2010).

Table no. 2 presents the scores calculated for Romania in 2010, and the position of our country for each criterion and for total LPI.

Table no. 2: The scores obtained by Romania according to 6 criteria and position in the rankings

Overall LPI	score	2.84
	rank	59
Customs	score	2.36
	rank	85
Infrastructure	score	2.25
	rank	99
International shipments	score	3.24
	rank	34
Logistics competence	score	2.68
	rank	66
Tracking & tracing	score	2.90
	rank	66
Timeliness	score	3.45
	rank	73

Source: World Bank, Logistic Performance Index, <http://info.worldbank.org>

In 2010, Romania cumulates 2.84 points and ranks 59 out of a 155 countries hierarchy, the top being Germany (4.11 points), Singapore (4.09), Sweden (4.08) and Netherlands (4.07). U.S. ranks 15 (3.86 LPI). Romania is surpassed by other Eastern European, members of the E.U. countries. Thus, Poland is ranked 34 (3.34 LPI), Estonia, ranked 43 (3.16 LPI), Lithuania - 45th (3.13 LPI), Hungary - 52nd place (2.99 LPI) and Slovenia, 57th (2.87 LPI).

Tied with Romania (2.84 LPI), is Oman and Tunisia. Bulgaria ranks 63, with the 2.83 LPI. The last three places in the global ranking are occupied by Sierra Leone (1.97), Eritrea (1.70) and Somalia (1.34).

In countries with low IPL, making imports and exports lasts longer. Countries with low logistics performance index imply higher costs for exporters and importers because of unpredictable and uncertain supply system. The causes of such supply system may include excessive controls, lack of confidence in the discretion of inspectors, the absence or lack of quality commercial logistics infrastructure. Carriers are also complaining about border management in countries with low IPL score.

The following table compares the scores achieved by Romania and the European average on each criterion. Also, we compared the scores of our country in relation to Poland, the highest ranked country in Central and Eastern Europe, both countries belonging to the same category of income / capita (table no. 3).

Table no. 3: Comparison of the Romanian scores obtained to the IPL criteria

Criterion	Romania		Europe		Poland	
			score	difference	score	difference
Overall LPI	score	2.84	2.74	0.10	3.44	-0.59
	rank	59				
Customs	score	2.36	2.35	0.00	3.12	-0.77
	rank	85				
Infrastructure	score	2.25	2.41	-0.16	2.98	-0.74
	rank	99				
International shipments	score	3.24	2.92	0.31	3.22	0.01
	rank	34				
Logistics competence	score	2.68	2.60	0.09	3.26	-0.58
	rank	66				
Tracking & tracing	score	2.90	2.75	0.15	3.45	-0.55
	rank	66				
Timeliness	score	3.45	3.33	0.12	4.52	-1.07
	rank	73				

Source: World Bank, Logistic Performance Index, <http://info.worldbank.org>

According to the analysis of scores obtained by Romania to the criteria included in the calculation of logistics performance index of the World Bank (2010), the country has recorded insignificant differences (up to 0.3) compared to the EU average on the same criteria, which shows a normal development of the logistics services market compared to the other member countries.

In countries with low LPI, the import and export operations last longer. Countries with low logistics performance index imply higher costs for exporters and importers because of unpredictable and uncertain supply system. The causes of such poor supply system may include excessive controls, lack of confidence in the discretion of inspectors, the absence or lack of quality commercial logistics infrastructure. Carriers also complain about border management in countries with low LPI score.

Key segments of the global logistics industry are dominated by 25 large corporations, particularly in the areas of shipping, port services and air transport.

National income does not fully explain the performance differences in commercial logistics. World Bank placed Russia, Croatia, Slovenia, and Greece among countries with substandard performance, while services that exceed the standard LPI of the group are

found in China, India, South Africa, Thailand, and Congo, Vietnam and Uganda (Ernst & Young, 2008).

It is our believe that the level of logistics attractiveness indicated by the calculated ILP for our country can be improved by simplifying customs procedures for imports from non-EU countries, which is the criterion that we position the weakest. Also an increase in seriousness of the intermediaries would lead to better predictability of the operations conducted in Romania and greater credibility of local firms.

4. Reviews on supply chain management in Romania. Supply chain management information systems

A study on the supply chain management in Romania reveals the degree of importance given by representatives of some companies in Romania for various specific activities of SCM (Paraschiv et al., 2010). The authors used the scaling method "semantic differential" to assess the importance given for supply chain management activities by the company's representatives. He used a 5-level scale (1 being least important and 5 - most important).

In the table 4, the median for each activity is calculated. The median importance given to each supply chain management activity can be found between 3 and 4.21.

Table no. 4: Evaluation of supply chain management activities

Supply chain management practices/Score	1	2	3	4	5	Average
(a) Determining consumers' future needs	1	1	8	8	10	3.89
(b) Increasing your companies' JIT response	1	3	2	5	17	4.21
(c) Improving the integration of activities across your supply chain	2	4	9	8	5	3.36
(d) Creating a compatible communication system with your clients and suppliers	1	2	4	14	7	3.86
(e) Participating in your clients' marketing efforts	3	9	5	7	4	3.00
(f) Locating closer to your customers	3	6	10	4	5	3.07
(g) Expanding your supply chain	4	3	9	6	6	3.25
(h) Use of a third party supply chain management specialist (3PL)	3	3	11	3	7	3.30
(i) Establishing more frequent contact with members of your supply chain	0	2	9	11	6	3.75

Source: Paraschiv et al., 2010

The concept of Supply chain has become a modern concern because of global competition and increasing customer demands in terms of value added. Information must be available in real time along the supply chain and this cannot be done today without an integrated software system for supply chain management (Mărincaș, 236).

ERP systems (Enterprise Resource Planning) were created to support the supply chain management activities, being able to process a large volume of data and aggregate information to optimize and streamline processes. To provide product / service that have

good quality and are competitive in the market, it is essential to have an informatics business management system that is adapted to the specific company.

An ERP is a software solution consisting of several modules that integrate economic activities of the company in order to increase their efficiency. Functions of ERP software includes activities such as:

- Production planning,
- Procurement management,
- Inventory management,
- Interaction with suppliers,
- Customer relationship management,
- order tracking,
- Financial management,
- Human resources management.

Based on the results presented in Table 4, the manager can select modules considered most useful by the client company.

The aim of ERP software is to integrate and synchronize company functions, facilitating information flows both in-house and with partners in the extended supply chain. The main objectives a company wants to achieve in the perspective of selection and implementation of ERP are: efficiency, standardization of business processes, elimination of information islands. To achieve these objectives it is necessary that the computer system is modular (each module consists of functions of the company) and have an open architecture that facilitates the adoption of future technologies (software improve as technology advances).

Advantages of one implementation of an ERP system are generally:

- Closer ties with customers and suppliers by creating an efficient supply chain;
- reducing production costs and inventories;
- Integrated planning enterprise resource;
- improve overall productivity;
- maximize profits through increased flexibility and responsiveness to market demands.

Supply chain members need to collaborate, share information to improve customer satisfaction. Web technologies enable enterprises to become more efficient, making exchanges with suppliers and customers online in real time. To do this, companies need to integrate their computer systems and applications with those of their suppliers and customers (Mărincaș, 2008).

Once they implemented an ERP solution, a number of companies participating in a market research (EBS, 2011), considered that tangible benefits are:

- reducing stocks - 18%;
- reducing material costs - 5%;
- Additional cost savings / wages - 8%;
- Increase sales and customer satisfaction - 12%;
- Improve financial control accounting - 16%.

ERP systems demand in Romanian market

Regarding the use of ERP solutions to companies in Romania, according to a study by Agora Media & Sensimark (2010) among companies with a turnover of over 1 million, 42% of them have already ERP system, 14.9% are under implementation of one and the remaining 43.1% did not use such integrated software. In the latter category, a percentage of 24.3% were not aware of the existence of such solutions, and 18.8% were aware of their existence, but did not considered relevant. The sectors in which ERP solutions have been mostly implemented are banking and pharmaceuticals, followed by production (approximately 64.8% of manufacturing companies have such a system) and distribution (57.6%).

Due to financial constraints, not all companies can afford buying a full ERP system therefore are obliged to select only those modules they deem essential to increase short-term performance.

The most commonly implemented modules of an ERP in Romania by the surveyed companies were ranked in Table 5 (Agora Media & Sensimark).

Table no. 5: Utilization (in percent) of ERP solutions by the companies participating in the study by Agora Media & Sensimark

MODULE TYPE	Utilization rate among companies in the sample
Accounting and finance module	77.2
Payment module	60.4
Reporting and analysis module	57.8
Module production	49.1
Marketing and sales	48.9
Fixed assets	42.6
Generation of budgets	34.4
Control Module	32.8
All modules	19.9
Purchasing module	15.2

Sursa: Rizescu, 2008.

It is noted that the financial and accounting departments are benefiting of an ERP solution in a proportion of 77.2% from the companies interviewed. Only 19.9% of companies have chosen to purchase all available modules, or an ERP system as a whole.

Among the companies that have not yet implemented an ERP system, a rate of 38.4% want to implement a module for financial and accounting department and 31.8% believe that they need a module for reports and analysis and that it would be useful in the decision-making process on the future of the company.

On the Romanian market there are both foreign companies providing ERP solutions and local companies. Among the foreign ones we can mention two of the most important in the international market, namely, SAP and Oracle. Romanian companies offering such solutions at a lower cost address especially small and medium enterprises. The most popular are Siveco, TotalSoft Wizrom, CRISOFT, Transart, BIT Software, EBS. The oldest local company in the Romanian market is Siveco, which appeared 15 years ago, holding a 19.3% market share. Some of its clients include: Petrom, Orange, Raiffeisen Bank, Citibank, Aerostar Bacau plants. Other local information, the most used are Siveco Applications, Charisma, B-Org, Socrates + Clarivision. Most of this software is built on Windows technology (.NET or SQL Server).

Conclusions

In order to face the competition it is necessary to pay particular attention to the supply chain management process, because modern technology provides us with tools to make the most of market opportunities. ERP systems provide a solution for increasing transparency, flexibility and gaining the ability to achieve cost and quality targets. If you want to create an extended supply chain, the essential values required for a good relationship with customers and partners are: openness, communication, real-time data transfer.

What is clear is that ERP software has gained popularity especially among large companies, and medium ones which have the financial possibility to acquire such items, together with related maintenance services. Small companies are limited to the immediate needs of financial and accounting records, purchasing a single module or outsourcing the function to a specialized company.

Statistical data analysis of logistics services market in Romania indicate its development in the last decade, if we take into consideration the construction of logistics parks that provide multiple facilities and the increase of quality in transport operations through proper equipping of the industry. Economic crisis have resulted in stagnation of logistics parks development projects, but also in reducing the demand for transport services. Profits of companies operating in this area have diminished since 2008, following an upward trend again just since the end of 2010.

In terms of the supply chain management, the companies in Romania, according to studies cited in the paper, managers give a medium importance to the SCM process. The logistics sector represents about 10% of Romania's GDP, and estimates by specialists suggest that this percentage could increase in the future, bringing significant revenue to the Romanian state budget (FedEx, 2011).

The Third Party Logistics providers began to diversify their offerings, with a wide range of customer service, helping them to increase customer satisfaction. In this context, partial or complete outsourcing of logistics activities is a reliable solution for companies in Romania.

Following the interpretation of scores obtained by Romania to the criteria included in the calculation of logistics performance index of the World Bank (2010), we observe insignificant differences compared to the EU average to the same criteria, showing normal development of logistics services market compared with other countries. However, according to comparing the scores of Romania in relation to Poland, the highest ranked country in Central and Eastern Europe, both countries being part of the same category of income / capita, the country ranks better on one criterion (international deliveries), with very little difference, while Poland has significantly higher scores on all other criteria used to calculate the logistics performance index proposed by the World Bank. Hence there is a potential in the logistics market in Romania that can be exploited further; estimates related to future development of this sector are positive. The main reason for assigning a low score on certain criteria is not necessarily related to high transport rates, access charges and port operation, intermediary agents asking high prices, taxes or other indirect costs, but might have something to do with the reliability, quality and predictability of services.

We consider that this study on the management of SCM and logistics services market in Romania can be useful to both profile companies operating in this market, and investors who are interested to expand operations there. Meanwhile, companies that want to rethink their logistics strategy have the opportunity to learn about options related to outsourcing part of their supply chain activities.

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