

# Risk Management in a Logistic Enterprise

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This article deals with the conceptual approach to the management of enterprises which create conditions for rationalisation and improvement of the business activities, not only in logistic enterprises. In addition to marketing, logistics, quality management and information, many companies are increasingly implementing the concept of risk management. The importance of risk management lies in its ability to influence the creative process resulting in detecting the risks and a purposeful reduction of the probability of crises.

The first part of the article shows the structure of the companies whose business activities are focused on the area of logistics. In the second part relationships between risk management and other business processes that form together an integrated system of the enterprise management are characterised.

**Keywords:** risk management, logistics, enterprise.

## 1. INTRODUCTION

**Logistics** is a process of the systematic planning and harmonising the company processes, their organisation and provision, realising and checking the external and internal material flow, as well as the information flow which is connected with them, from the point of manufacturing to the place of consumption in an effort to satisfy the customers' requirements as effectively as possible. It is an economic attitude, managerial and creative conception, the basic company philosophy in the area of planning, providing materials and realising their flow, the flow of information and staff in the systems. It includes all activities in the interest of which the logistic systems are investigated, designed, planned and realised in the framework of the whole logistic chain. [1, 2]

The logistic chain includes all activities from purchasing of the necessary raw materials given by the demand, own production through their delivery, storing before distributing the goods to customers, or supplying to the distribution network through dispatch and distribution. Its task is to create a logistic integrated system consisting of three basic performance areas – the purchase, production and distribution.

Logistic chains represent a sequence of technologies mutually harmonised in the place of the meeting point which are connected through the material and information with the transport, handling and warehousing processes. The goal of arranging the processes into a logistic chain is to achieve higher total effectiveness of the manufacturing and consumption process. The modern transportation and handling technique is utilised for this purpose, together with the high-efficient information and communication technologies. The logistic chain enables fast, flexible and effective material flows and in this way it creates assumptions for ensuring the flexible conception of the market-oriented production, as well as high-quality services. [2]

Logistic enterprises also participate in fulfilling the tasks in the framework of the logistic chain. A **logistic enterprise** realises the dominant part of the logistic chain outside its organisation and realises also the interconnection between the seller and buyer, i.e. it provides the logistic services. [2] Logistic enterprises neither manufacture nor sell; their task is to receive the shipments, their storage, issuing the deliveries and their transportation to the distributor or to the final customer.

The processes performing in the logistic chain participate in creating the value, and the value adding process culminates in the direction of the material flow towards the final consumer. The logistic system which is created just by the set of the logistic chains is a superior element of the logistic chain. The utilisation of the information and communication technologies enables an advance of information before the material flows and in this way it creates a free space for the transport, transfer, warehousing and production processes whose substantial part is realised by the logistic enterprises. They significantly participate in managing the supplying chains whose task is to ensure a continual flow of the raw materials, semi-products, energies, finance and information in the pre-production phase of the circulation processes, i.e. their supply to the producer. The effective management of the supplying chains requires harmonising the planning processes in real time, simplifying communication between the partners in the chain, forming new and effective links along the whole chain, and identifying and excluding the non-effective segments of the chain or realising their positive alteration.

However, logistic enterprises cannot be perceived only as logistic systems but we have to take into account a whole range of external influences. They affect the internal environment of a logistic enterprise and the decision-making processes inside, and in this way interactive links between the own logistic system and the external environment are created. The external influences that are to be taken into account are as follows [3]:

- the social and economic environment,
- the competitive environment,
- the geographical layout of the market,

- the prognosis of the technologies' development,
- the availability of the material and energy.

All these influences impact the structure of the logistic enterprises which is presented in the following part of the paper.

## 2. THE STRUCTURE OF LOGISTIC ENTERPRISES IN SLOVAKIA

In the EU we utilise the Statistical Classification of Economic Activities NACE Rev. 2 to classify enterprises according to their economic activities. It classifies companies into 21 sections, according to their homogeneous elements which then are divided to divisions, groups and classes. Slovakia utilises the SK NACE Rev. 2 which sorts the classes to sub-classes based on the national needs. [4, 5]

However, this classification does not include any independent category for logistic enterprises, and they are involved in several divisions – mostly in the division H Transportation and Storage, or in the division N Administrative and Support Service Activities.

We decided to find all companies that have in their name the word “logistician” to be able to investigate the structure only of this selected group of enterprises. Thanks to this specified criterion we identified 725 companies. [6] We analysed these enterprises from the point of view of the number of employees, legal form of doing business and the geographical location.

Table 1. Structure of logistic enterprises in Slovakia [6].

Criterion: number of employees	Number of enterprises	Criterion: legal form of business	Number of enterprises	Criterion: seat	Number of enterprises
0 – 9	199	company of an individual (proprietorship)	29	Banská Bystrica Region	56
10 – 49	78	general partnership	2	Bratislava Region	262
50 – 249	19	limited liability company	6	Košice Region	73
250 and more	3	limited liability company	645	Nitra Region	119
undetected number	426	join-stock company	17	Prešov Region	34
		association	10	Trenčín Region	34
		foreign legal entity	16	Trnava Region	93
				Žilina Region	54

In the next step we carried out an analysis of the financial statements of these companies to compare more thoroughly the quantitative criteria for stating the company size. For selecting the criteria and defining SMEs we used the Manual for Users [4].

Due to the fact that majority of enterprises have not published the financial statements for 2016 the analysis was carried out only for the year 2015. Based on the information availability we narrowed the number of enterprises to 420.

The first criterion was the “number of employees”. Here we faced a problem because 41 % of the enterprises do not publish the number of their employees. The micro-companies create the second largest group. The share of the logistic enterprises which employ 50 and more employees, the so called middle and large companies, is only 50 % and only two companies employing 250 – 499 people belong to the group of large companies.

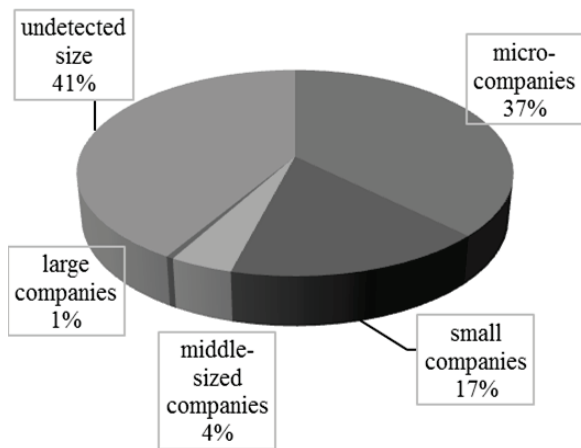


Fig. 1. Structure of logistic enterprises from the point of view of employee number [6].

Due to the large number of companies with undetected size we enlarged our investigation and determined average values of other criteria for each category of the companies, see the table 2.

Table 2. Structure of enterprises according to the number of employees according to [6].

Number of employees	Types of companies	Number of enterprises	Average turnover	Average property
0 – 9	micro-companies	157	805,855.24	529,666.18
10 – 49	small enterprises	70	6,047,436.40	2,326,235.80
50 – 249	medium-sized enterprises	17	17,263,393.76	7,815,646.24
250 and over	large enterprises	2	10,554,800.50	4,710,254.50
undetected	undetected size	174	874,735.54	718,234.16

Based on the detected average values of the annual turnover and property, it is possible to say that the companies with the undetected size belong to the category of the micro-companies. This fact

would confirm the dominant position of the micro-companies and small enterprises in the structure not only of the national economy but also of the logistic enterprises.

The second quantitative criterion we used is the annual turnover of the companies. This information could be obtained for all 420 companies.

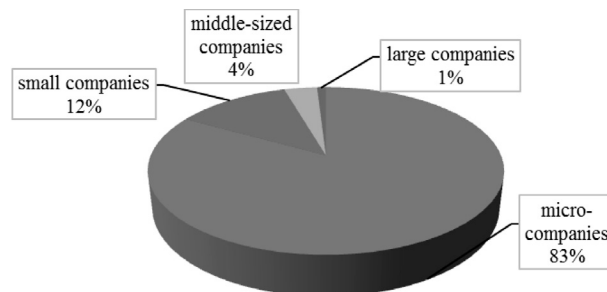


Fig. 2. Structure of the logistic enterprises from the point of view of the annual turnover [6].

The annual turnover of the enterprises is affected by the amount of the value added and therefore its size differs in dependence on the final result of the entrepreneurial activity. [7] As the logistic enterprises are the companies of services, the amount of the annual turnover is relatively low. Also this was the reason why we expected the majority of the companies would belong to the category of the small enterprises. The figure 2 confirms this assumption – it shows the micro-companies and small enterprises create 95 % of all logistic enterprises.

We were also interested in the fact if the company’s turnover is affected by the geographical location of the logistic enterprise. The figure 3 depicts the number of the companies performing in individual regions and we used the criterion of the annual turnover for determining their size.

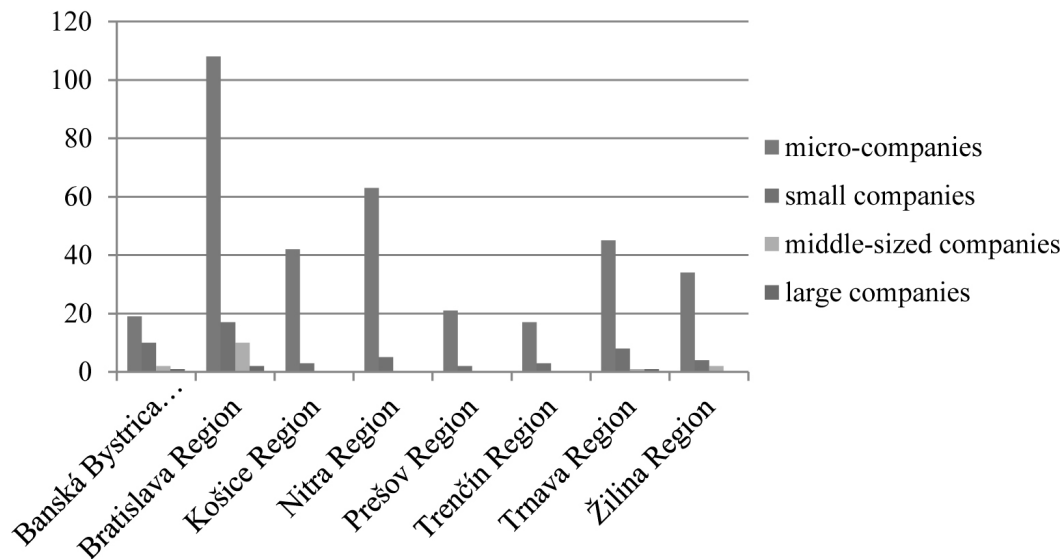


Fig. 3. Geographic structure of the logistic enterprises from the point of view of the annual turnover [6].

A complete portfolio of enterprises performs only in three regions (the regions of Banská Bystrica, Bratislava and Trnava). Only micro-companies and small logistic enterprises perform in four regions.

The value of property at the end of 2015 is the last quantitative criterion used for assessing the structure of the logistic enterprises.

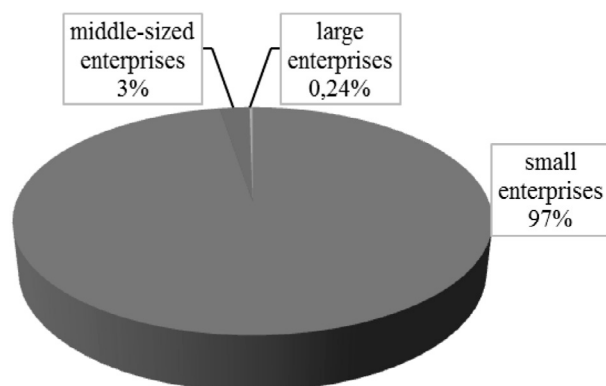


Fig. 4. Structure of the logistic enterprises from the point of view of their property value [6].

In this case the lower property level of the logistic enterprises is even more visible. Only one company out of the group of 420 companies had the property value higher than 42 million EUR and it has its seat in the Bratislava region.

### 3. RISK MANAGEMENT IN A LOGISTIC ENTERPRISE

The activities of logistic enterprises (similarly as the activities of any other entrepreneurial subjects) are burdened by a whole range of both

internal and external (entrepreneurial), but also clean risks. The external risks of the supplying chain can bring more extensive consequences for the partners and their surroundings than the company itself which is the source of these risks. The rise of the network linkage of the partners strengthens the mutual dependence of the individual companies and increases the inclination of the whole chain towards failures and fluctuations in each individual chain segment. As the supplying chains are created in the economic environment they face all the risks of this group. The list of the entrepreneurial risks itself is very extensive and it contains most frequently the technical (technical and technological maturity, updating the technical equipment), manufacturing (providing logistic services including their utilisation by customers), business (the uncertainty for implementing logistic services on the market, the site of demand and prices), financial (volume, resources, structure, administration of the financial resources), information (threatening the functionality of the information systems, flooding by information), political (foreign, social, macro-economic policy of the country), social (history and culture of the enterprise, the level of knowledge, relation to the employer) risks as well as other ones. Clean risks can be natural risks (particular phenomena of the natural forces, weather conditions, fires), risks resulting from the criminal activities (thefts, damaging the property, economic criminality) and the risk from the environment (the synergic effect resulting from preventing risks in logistic enterprises).

These risks can have a negative influence on the basic activities of logistic processes which are performed inside supply chains. Here belong especially the risks of supplying and delivery, the intra-company risks of the logistic enterprise, as well as the distribution risks resulting from the demand fluctuation due to the economic recession, political uncertainty or the loss of image. Therefore, the basic task for the risk management is to define the risk potential for the logistic enterprise, and to prepare proposals of measures for their management. The realisation of the risk management system is determined by creating a suitable organisation structure, determining the procedures for utilising adequate methods and tools. The implementation of the risk management in the supply chains of the logistic enterprise requires stating a competent subject for the risk assessment, taking a set of measures for reduction and monitoring the risks and linking the risk management processes with the existing management processes.

Therefore, it is inevitable to improve the management system of the logistic enterprises which should bring rationalisation and improvement of the entrepreneurial activities. The risk management should be part of the management system which should enable assessing the risks comprehensively and subsequently reducing the probability of a company crisis. Only the mutual link of the individual company functions – marketing, logistics, controlling, diagnostics, and risk management – enables to achieve a synergic effect which will make it possible to reach the company goals.

The link of logistics and marketing has a goal to create an optimal structure of the company activities whose result is to ensure the customers' satisfaction in the largest possible extent. Marketing stimulates demand and the logistics satisfies it through the physical distribution. [8]

The logistics under continuous controlling coordinates and harmonises all functions from the point of view of the material, information and financial flows. The diagnostics as part of the risk management arrives in the cases when the symptoms of the crisis phenomena appear. It detects the causes, assesses them and designs therapy for making the company healthy. From the point of view of the crisis management it is therefore important to investigate the dependence between diagnostics and marketing better.

**Diagnostics** represents a science dealing with recognising and assessing the state and work of the

company system, its values, weaknesses and strengths but first of all detecting the problems and crisis phenomena in the company, lost opportunities and potential.

The diagnostics of the logistic system is a part of its management, and its main goal is to reveal the state of the logistic system from the point of view of fulfilling logistic goals. The diagnostics of the logistic system (based on symptoms, i.e. the signs of its behaviour) helps us detect and identify the discrepancies which arise from the point of view of the continuity of the material, information and financial flows. The focus of diagnostic activities should be monitoring and detecting the logistic potential, signalling discrepancies, detecting their bearers and causes and suggesting the interventions to the logistic system. It is preliminary measurement and monitoring the logistic performance and costs, assessing the state and identifying the problems from the point of view of the strategic goals of logistics. The therapy – searching for the method and solutions for the corporate recovery – directly continues the diagnostics.

**Controlling** represents a specific form of work and its task is not to manage the real processes but the whole company through information about real processes. Controlling emphasises new opportunities which bring an economic effect, calculates and assesses the effects of the new entrepreneurial activities and decisions or therapies and draws attention to the potential but also real deviations from the desirable development. The figure 5 characterises its importance for the risk management.

For the logistic enterprises it is important to realise that both these functions are part of the company management and their goal is to reveal the risk and to achieve the company prosperity. Based on the information by several authors [10, 11, 12, 13] it is possible to compare their common signs and differences.

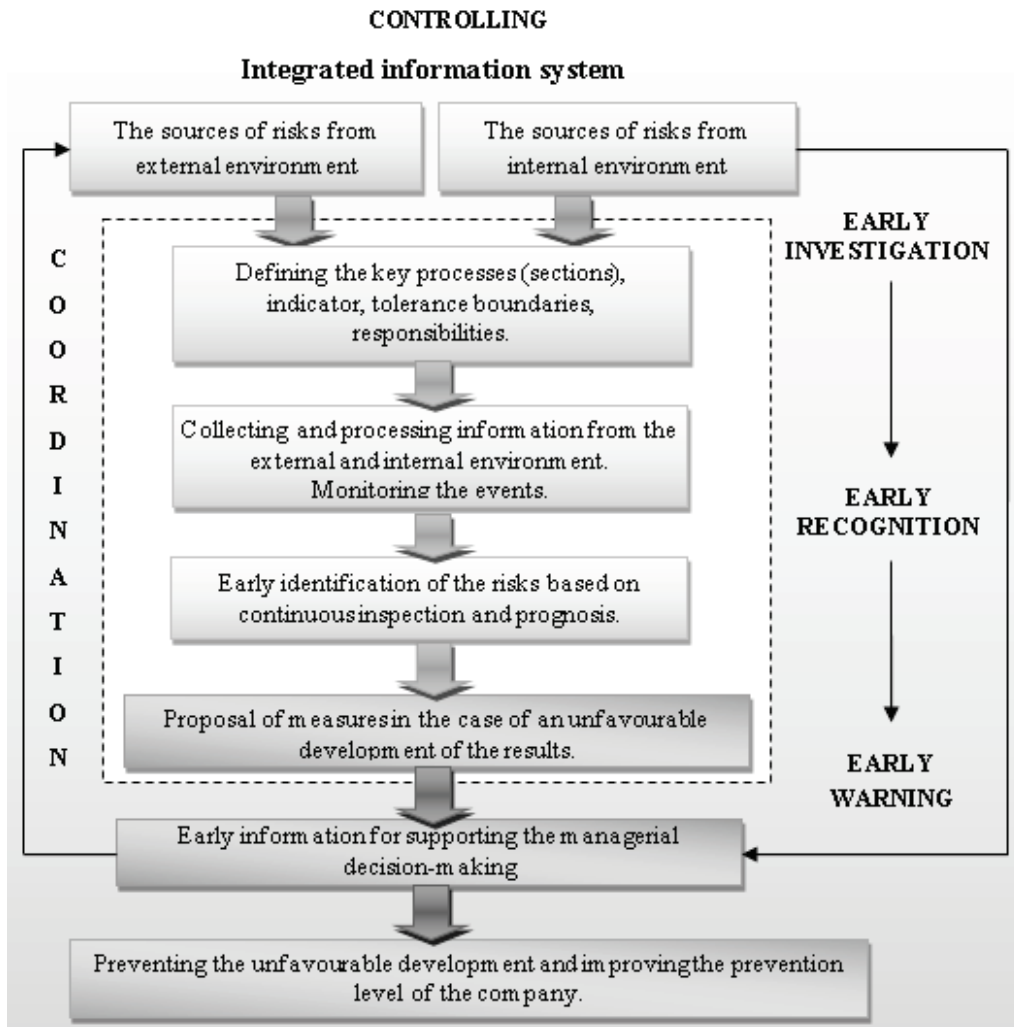


Fig. 5. Position of controlling in the process of the risk management [9].

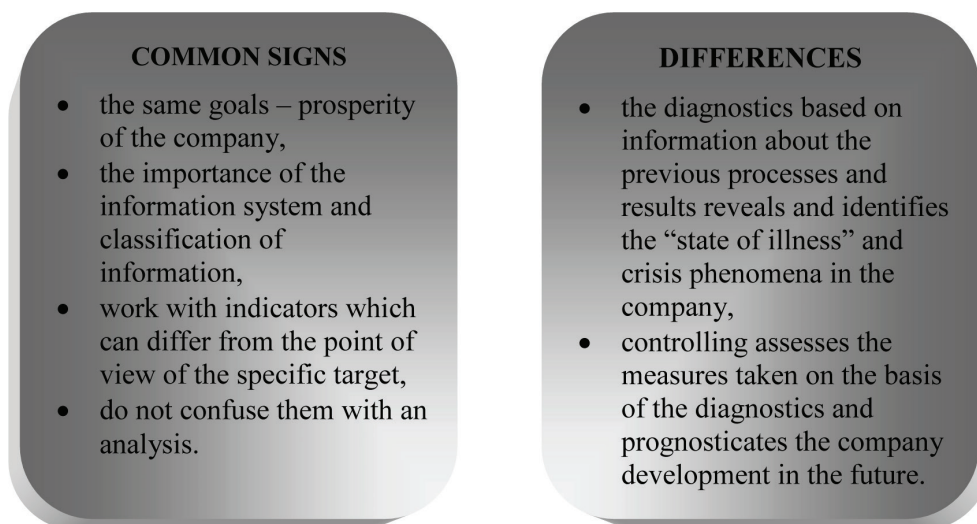


Fig. 6. Comparison of diagnostics and controlling.

Based on this comparison we can say:

- the diagnosis and controlling are mutually linked and it is necessary to use them in coactions; a diagnosis without any effective controlling cannot fulfil its goal, and vice versa - controlling for assessing the future state has to utilise diagnostic methods and indicators,
- in the future we can assume that on the basis of a common information system both scientific disciplines will partially merge.

#### 4. CONCLUSION

Logistic enterprises in Slovakia work in a complicated and demanding entrepreneurial environment. They are affected by lots of factors of the entrepreneurial environment, e.g. legal regulations, economic tools of the government, ecological criteria, political aspects and first of all the market.

The strategic goal of every company is in a broader sense to ensure its survival and further development. To fulfil this objective, the managements of the company sphere have to look for the way and means through which they will achieve it. The most effective way is to make the management and decisions making processes using marketing, quality management, diagnostics, controlling and risk management better. These tools have to be implemented as mutually linked and dependent.

#### REFERENCES

- [1] Lambert, D. M., Stock, J. R., Ellram, L. M.: *Logistika*, 1. vydanie. Computer Press, Praha 2000
- [2] Šimák, L., Seidl, M.: *Manažment rizik v dodávateľských reťazcoch*. In: *vedecký časopis Logistika i transport* č.2, ročník 7, 2008, Medzinárodná vysoká škola logistiky a dopravy vo Wroclawi, str. 75-84, ISSN 1734-2015
- [3] Európska únia. 2015. *Príručka pre používateľov k definícii MSP* [https://www.google.sk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwj\\_5bPdql3TAhWBO5oKHYYvIAtwQFggYMAA&url=http%3A%2F%2Fec.europa.eu%2FDocsRoom%2Fdocuments%2F15582%2Fattachments%2F1%2Ftranslations%2Fsk%2Frenditions%2Fnative&usq=AFQjCNEuWMdhOzsGxqzc2J8uZVP0\\_ZuKCw&bvm=bv.151426398,d.bGs&cad=rja](https://www.google.sk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwj_5bPdql3TAhWBO5oKHYYvIAtwQFggYMAA&url=http%3A%2F%2Fec.europa.eu%2FDocsRoom%2Fdocuments%2F15582%2Fattachments%2F1%2Ftranslations%2Fsk%2Frenditions%2Fnative&usq=AFQjCNEuWMdhOzsGxqzc2J8uZVP0_ZuKCw&bvm=bv.151426398,d.bGs&cad=rja)
- [4] European Communities, 2008. *NACE Rev. 2 Statistical classification of economic activities in the European Community*. [on line] Available at: <http://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>
- [5] Štatistický úrad Slovenskej republiky, 2007. *Štatistická klasifikácia ekonomických činností SK NACE Rev. 2*. [on line] Available at: [https://www.financnasprava.sk/\\_img/pfsedit/Dokumenty\\_PFS/Podnikatelia/Clo\\_obchodny\\_tovar/EORI/StatistickaKlasifikaciaEkonomickychCinnosti.pdf](https://www.financnasprava.sk/_img/pfsedit/Dokumenty_PFS/Podnikatelia/Clo_obchodny_tovar/EORI/StatistickaKlasifikaciaEkonomickychCinnosti.pdf)
- [6] Ministerstvo financií Slovenskej republiky. *Register účtovných závierok*. [on line] Available at: <http://www.registeruz.sk/cruz-public/domain/accountingentity/listsearch>
- [7] Kupkovič, M. a kol. 2003. *Podnikové hospodárstvo. Komplexný pohľad na podnik*. Bratislava: Spring vfra. 452 s. ISBN 80-88848-71-7.
- [8] Mičieta, B. a Barcik, R. 2005. *Distribučná logistika*. Žilina: Žilinská univerzita v Žiline. 152 s, ISBN 80-8070-432-5.
- [9] Hudáková, M. a M. Lusková. 2016. *Risk management through controlling in industrial enterprises operating in Slovakia*. In: *International journal of social, behavioural, educational, economic, business and industrial engineering*. Vol. 10, no. 12 (2016), pp. 3830-3834. ISSN 1307-6892.
- [10] Kráľovský, J., Strelcová, S. *Vzájomná vzťah medzi logistikou a marketingom, diagnózou a controllingom*. In: *Diagnostika podniku, controlling a logistika: 1. medzinárodná vedecká konferencia*. Žilina: Žilinská univerzita, ISBN 80-7100-951-2. - pp. 167-172.
- [11] Bramsemann, R.: *Handbuch Controlling*. Münche, 1993
- [12] Kašík, J., Michalko, M. a kol.: *Podniková diagnostika, TANDEM*, Ostrava 1998
- [13] Kauerová, L., Svobodová, H.: *Marketing a diagnostika firmy. Sborník Medzinárodní vědecké konference "Management a ekonomika firmy"*, Praha 1993

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