Advances in Economics, Business and Management Research, volume 56
3rd International Conference on Economic and Business Management (FEBM 2018)

The Perception of Selected Risks Focused on Human Resources as Results of Cluster Cooperation

The Comparison Between Reality and Expectations of Small and Medium Enterprises

Katarina Haviernikova, Marcel Kordos*
Faculty of Social and Economic Relations
Alexander Dubcek University of Trencin
Trencin, Slovakia
katarina.haviernikova@tnuni.sk
marcel.kordos@tnuni.sk*

***Abstract*—The main aim of this paper is to evaluate the perception of the Slovak small and medium sized entrepreneurs (SMEs) of risks related to human resources issues that are connected with potential participation of SMEs in the cluster cooperation. To do so, it compares the attitudes of entrepreneurs categorized by type of clusters that operate in Slovak republic: technological and tourism. A study about risk perception was conducted in 2017 -2018 on a sample of 515 tourism and 471 of technological small and medium sized enterprises (SMEs) that participate in cluster cooperation, or have experience/knowledge about it. Further we used descriptive statistics and our hypotheses have been evaluated by means of chi-square method. Following risks were evaluated: 1. Risk connected with human factor (individualism of human), 2. The qualification and skills of employees, 3. Personal risks connected with brain drain, 4. Partners' behavior. We have found out that perception of selected risks is different only in case of technological SMEs.**

Keywords—Risk; Cluster; Small and medium sized enterprises; Questionnaire survey; Perception

I. INTRODUCTION AND THEORETICAL BACKGROUND

According to Porter [1], cluster can be understood as the geographical focus of interconnected companies, specialized suppliers, service providers, related companies, and affiliated institutions such as universities, agencies and trade. At the same time, it is assumed that interconnected industries geographically concentrated in a defined territory are the driving forces behind national, regional and local development [2], [3]. Clusters are considered to be a major microeconomic factor that increases the prosperity of regions, increases the inflow of foreign direct investment, creates an environment conducive to innovation and knowledge creation; hence the regions with strong clusters are considered to be innovative leaders [4].

Small and medium-sized enterprises, unlike the large ones, are not able to use, for example, economies of scale, do not have insufficient capacities and resources for research, for training their employees, obtaining information, and so on [5]. In this context, cooperation as a joint venture of small and medium-sized enterprises, through clusters, is an opportunity to increase their competitiveness. Networking or co-operation can take the form of formal or informal exchange of information and knowledge through personal meetings of cluster members, a joint portal, news, information center, and so on [6]. Cluster management can handle the exchange of information among cluster members but also with other elements of the micro-environment such as suppliers, customers, educational and research institutions, etc [7], [8].

People are a key component of a successful business operation, and therefore the role of human resources management in each organization is to ensure the highest possible efficiency within the human potential usage. The quality of human resources is determined by the level of professional and qualification skills of employees [9], [10]. The people´s know-how, abilities and habits being used to produce goods and services are considered to be a special form of capital because their development is time-consuming and requires considerable material resources [11]. Currently, it is about competitive intelligence as a capital representing strategically important knowledge assets and information that is the source of competitive advantage of an enterprise [12]. Level of knowledge and information, respectively, the quality of intellectual capital directly affects the quality of strategic management of an organization, and the use of intellectual capital positively influences the quality of company's products and services, the quality of business relationships, the performance of an organization and its competitiveness [13]. Employees create an integral part of the company's management and business operations, and especially they are in charge of the new added value [14]. All organizations should be involved in achieving the highest performance of their employees, the productivity being measured by comparing the cost per employee with the result that the employee produces [15]. People are the core value of the organization, they are not only the key and valuable, but even the most expensive source of business. The penetration of companies into new markets and new regions is caused by this fact [16], [17].

The quality of human resources directly influences the competitive potential of an enterprise and represents one of the most important spheres of creating a competitive advantage. A successful organization strives to maximize the efficiency of its employees by creating the right conditions for the intensive development of their potential, and thus for the high productive

work [18]. Currently, the role of the person in organization changes: the enterprise is trying to meet the growing needs and demands of workers to ensure high labor productivity, that is to create incentives for creative, efficient work. Ignoring this fact means for companies not to be competitive on markets [19]. The guarantee of company´s prosperity is to increase the qualification of employees, to identify, collect, preserve and protect the knowledge that employees have and mainly to use and disseminate this knowledge. Investing into human potential is the most valuable for every company, and its limiting will save money only in the short run [20].

The stage of uncertainty in specific conditions is presented by a risk. Risk is an important element that affects the safety of systems [21]. A risk most often is considered as the uncertainty of environmental factors impact on the functioning of organization and meeting its objectives [22]. In terms of entrepreneurial activity, the following types of risk can be determined: basic types of risk: based on the substantive content: technical, manufacturing, economic, market, political risk; risk by binding to the businesses: systematic risks (e.g. increasing income tax rates, reduced purchasing power), non-systemic risks (e.g. non-conformity with technical progress, delays in product innovation); risk in terms of its suggestibility: modifiable, uncontrollable risks and other risks [23], [24]. Risk management involves a set of activities regarding the systematic and effective management of potential opportunities and possible undesirable consequences; it must be an integral part of any management practice [25].

II. Methodology and Data

The main aim of this research is focused on the evaluation of the risks' perception of the Slovak small and medium sized entrepreneurs that are connected with their participation in potential cluster cooperation. For this research, we analyzed four risks that are connected with the issues of human resources such as 1. Risk connected with human factor (individualism of human), 2. The qualification and skills of employees, 3. Personal risks connected with brain drain, 4. Partners' behavior. These risks we consider as the important for successful cluster cooperation due to the fact that human resources represent the priority source of effective activity with the prosperity of each entity. Human resources nowadays are crucial prerequisite also for building strengths and competitive advantages of clusters. The SMEs represent the largest group of regional clusters' stakeholders in Slovakia. Their participation in clusters brings them many positive benefits: access knowledge and information resources, enhance competence and create competitive advantages, lower production costs, regional and national economic development a pool of specialized labor and many other. Despite this fact, there is low information among SMEs about the importance about the cluster cooperation. There are 26 clusters in Slovak Republic (18 of them are technological and 8 tourism clusters) in which operate 180 SMEs (143 technological, 37 tourism). The typology of Slovak clusters is specific and it is given by Slovak Innovation and Energy Agency that has been established by the Ministry of Economy of the Slovak Republic as the agency that carries the information service for the Ministry of Economy of the Slovak Republic, with special focus on innovations and energy sector. Technological clusters carry out their activities in the following areas: ICT, creative industry, bio-economic focus, agriculture and food, engineering, energy, electrical engineering, construction, automotive, scientific research, and so on. This typology was used also in project and in this meaning; the analysis in this research was carried out. Within the project we are focused on two groups of SMEs and their perception of risks that cluster cooperation brings: SMEs participated in clusters and SMEs with experience/knowledge with it. Within the project, the questionnaire surveys were realized, which involved 471 of technological and 515 of tourism SMEs from eight Slovak regions: Bratislava - BA, Trnava - TT, Trenčín – TN, Nitra –NR, Žilina – ZA, Banská Bystrica – BB, Košice - KE, Prešov – PO. Table I. and Table II. present the structure of respondents broken down to the two observed groups.

In our research, 20 tourism SMEs (Table I.) that carry out their activities in Slovak clusters (54.05%) took part. The highest number of respondents was from Trenčín region (193) and from category of micro enterprises (268).

TABLE I. Structure of tourism SMEs' respondents

Region	Micro		Small		Medium		Total
	Total	*in C*[a]	*Total*	*in C*[a]	*Total*	*in C*[a]	
BA	14	0	15	0	14	0	43
TT	22	2	15	2	4	1	41
TN	104	0	78	0	11	0	193
NR	25	1	13	1	0	0	38
ZA	59	5	55	6	6	0	120
BB	13	0	6	0	1	0	20
KE	24	1	18	1	4	0	46
PO	7	0	7	0	0	0	14
Total	268	9	207	10	40	1	515

[a] Source: own research, in C – of which SMEs connected in clusters

In case of technological SMEs (Table II.), there were 71 SMEs from clusters (50.34%). the highest number of respondents belong to Trenčín region (168) and also to category of microenterprises (167).

TABLE II. Structure of technological SMEs' respondents

Region	Micro		Small		Medium		Total
	Total	*in C*[b]	*Total*	*in C*[b]	*Total*	*in C*[b]	
BA	15	9	23	10	13	5	51
TT	10	6	20	9	13	6	43
TN	64	1	54	1	50	0	168
NR	11	1	9	0	13	2	33
ZA	39	0	30	0	33	0	102
BB	11	0	6	0	8	0	25
KE	14	5	11	10	10	6	35
PO	3	0	7	0	4	0	14
Total	167	22	160	30	144	19	471

[b] Source: own research, in C – of which SMEs connected in clusters

Within the survey, the respondents evaluate their perception of selected risks by using the Likert scale that was applied with values from 0-not applicable, 1-very low risk to 5 very high level of risk. For the processing of questionnaires, the commonly used test for testing relationships between categorical variables - the Chi-Square test (χ^2) was used. This

test was used for verifying of null hypothesis (H0) about no association between two nominal variables against the alternative hypothesis which means the opposite. In this paper we stated null hypothesis in two ways with different variables:

1. Hypothesis for each type of SME separately: $H0_1$ between perception of risk and responsiveness of SME's to cluster (participation in cluster or not) is not association against $H1_1$ between perception of risk and responsiveness of SME's to cluster (participation in cluster or not) the association is present. (Table IV. and Table V.)
2. Hypothesis for comparison of respondents' risks perception between tourism and technological SMEs (together – Table VI): $H0_2$ between perception of risk and type of SMEs (technological vs tourism) is no association. $H1_2$ between perception of risk and type of SMEs (technological vs tourism) the association is present.

The stated hypothesis was tested on p-value 0.05. The low level of p value <0.05 means that the H0 is rejected and we accept the alternative hypothesis H1. The large probability (p-value>0.05) means that the H0 is not rejected. To measure the dependence of two nominal variables, the Cramér's V was used, which gives values from 0 to 1. Dependence less than 0.1 is trivial, 0.1-0.3 small, 0.3-0.5 medium and above 0.5 is great. [26].

III. Results

The analysis starts with the presentation of descriptive statistics (Table III.). The results of realized survey showed, that the perception of risk connected with the individualism of human was perceived as the riskiest in case of tourism SMEs it was 3.58±1.27. For technological SMEs it was the same risk (3.55 ±1.32). The statistical results of realized surveys showed, that this factor was assessed by value 5 by 26.51% of tourism respondents that are not participated in clusters and 0.78% of respondents participated in clusters. In case of technological SMEs this risk factor was assessed by value 5 by 24.58% of respondents that are not participated in clusters and 3.60% of respondents that take part in cluster cooperation.

The results of Chi square test in Table IV., realized in case of tourism SMEs showed (p value is higher than 0.05 for all categories of risks), that perception of four categories of risks doesn't depend on whether the business entity is in cluster or not. The hypothesis H0 was not rejected nor in one case.

The results of Chi square test for technological SMEs in Table V. showed, that null hypothesis was rejected only for risk 3. Personal risks connected with brain drain. It means, that the perception of this risk depends on whether the business is participating in cluster or not. The results of Cramér's V showed medium dependence.

If we compared the perception of selected risks from the point of view of type of SMEs (technological or tourism), we can see the difference between perception only in case of risk 1. Risk connected with human factor (individualism of human). The results in Table VI. showed, that $H0_2$ is rejected only for evaluation of this risk and results of Cramér's V showed only weak dependence. The perception of the rest of evaluated risks is not depending on belonging to the type of SMEs.

TABLE III. THE STATISTICAL CHARACTERISTICS OF THE SELECTED RISKS RESULTING FROM HUMAN ACITIVITES

Type of risk	The average of the evaluation of respondents		Standard Deviation	
	TO (515)	*TE (471)*	*TO (515)*	*TE (471)*
1.	3.58	3.55	1.27	1.32
2.	3.08	3.04	1.51	1.44
3.	3.13	3.02	1.52	1.43
4.	2.79	2.93	1.40	1.34

Source: own calculation

TABLE IV. THE RESULTS OF CHI-SQUARE TEST AND CRAMÉR'S V (TOURISM SMES) FOR $H0_1$

Risk	χ^2	Cramér's V
1.	p=0.45407	p=0.43287
2.	p=0.51268	p=0.55661
3.	p=0.77796	p=0.78356
4.	p=0.84693	p=0.8602

Source: own calculation

TABLE V. THE RESULTS OF CHI-SQUARE TEST AND CRAMÉR'S V (TECHNOLOGICAL SMES) FOR $H0_1$

Risks	χ^2	Cramér's V
1.	p=0.74287	p=0.72884
2.	p=0.17969	p=0.16459
3.	p=0.03748	p=0.04191
4.	p=0.34411	p=0.36270

Source: own calculation

TABLE VI. THE RESULTS OF CHI-SQUARE TESTS AND CRAMÉR'S V FOR $H0_2$

Risks	χ^2	Cramér's V
1.	p=0.00328	p=0.00307
2.	p=0.24293	p=0.24144
3.	p=0.18718	p=0.18604
4.	p=0.54252	p=0.53910

Source: own calculation

Conclusion

Collaboration with clusters is an important benefit for all regional stakeholders included SMEs, large companies, universities, research institutions and other entities, because through clusters, research innovation in various ways can be executed in practice. In human resources area, cooperation can take the form of increasing staff qualifications through the organization of joint seminars, conferences, training courses as well as joint training centers. There is several clusters in Slovak regions that include the largest group of regional stakeholders –

SMEs. SMEs could benefit from cluster cooperation, but the largest problem about the benefits is the lack of information. SMEs aware of cluster cooperation because this type of cooperation seems to be risky for them. In this paper, four risk categories from the area of human resources were assessed. The riskiest factor for Slovak SMEs is the individualism of human. According them, the individualism of human could have the highest impact on case of cluster cooperation. In case of assessing the perception of this risk factor, we didn't find the differences among respondents according type of SME and the fact, if the SME is in cluster or not. We observed differences in perception of this factor in case of assessment according type of SMEs. It means we can see the differences in case, whether the respondent belongs to a technological or tourism type of SMEs.

ACKNOWLEDGMENT

This paper was supported by the Slovak Ministry of Education´s scientific grant VEGA: "Risk management of SMEs in the context of clusters´ involvement activities in the Slovak Republic". Project registration number: [Reg. No.: 1/0918/16].

REFERENCES

[1] M.E. Porter, Competitive Advantage of Nations, New York: The Free Press, 1990.

[2] P. Balaz and A. Hamara, "Export dependency of Slovakia on German's economy," Politicka Ekonomie, vol. 64(5), 2016, pp. 573-590. DOI: 10.18267/j.polek.1088.

[3] T. De Castro and P. Hnat, "Czech FDI performance: between global value chains and domestic reforms" in Foreign Direct Investment in Central and Eastern Europe: Post-Crisis Perspectives, Book Series: Studies in Economic Transition, 2017, pp. 51-75. DOI: 10.1007/978-3-319-40496-7_3

[4] L. Fojtikova, "Trends in the revealed comparative advantages of the EU member states," Economic Annals-XXI, vol. 161(9-10), pp. 7-11, 2016. DOI: https://doi.org/10.21003/ea.V161-02

[5] P. Burda, J. Abrham, and Z. Horvathova, "Factors influencing online civic participation in mid-sized Czech towns," Transformations in Business & Economics, vol. 16(2B), pp. 607-618, 2017.

[6] E. Krajnakova, A. Navikaite, and V. Navickas, "Paradigm shift of small and medium-sized enterprises competitive advantage to management of customer satisfaction," Inzinerine Ekonomika-Engineering Economics, vol. 26(3), pp. 327-332, 2015. DOI: 10.5755/j01.ee.26.3.6608

[7] E. Smolková and J. Borovský, "Strategic partnerships for small and medium-sized enterprises," "Strategické partnerstvá pre malé a stredné podniky", Bratislava: Eurounion, 2005.

[8] H. Machkova and A. Sato, "Analysis of competitiveness of Belgian sugar industry," Listy Cukrovarnicke a Reparske, vol. 133(12), pp. 390-392, 2017.

[9] F. Dano and D. Lesakova, "The Role of Environmental Stimuli in Shopping Evaluation and Responses," Ekonomicky Casopis, vol. 66(5), pp. 465-478, 2018.

[10] J. Taušer and R. Čajka, "Hedging techniques in commodity risk management," Agricultural Economics (Czech Republic), vol. 60(4), pp. 174-182, 2014.

[11] M. Armstrong, "Human resources management: Latest trends and procedures," "Řízení lidských zdrojů : nejnovější trendy a postupy" 10. vyd. Praha : GRADA Publishing, 2007.

[12] S.M. Obadi and M. Korcek, "Competitive advantage of international trade of the EU-28 and USA," in Proceedings of 8th Annual International Scientific Conference: Competition, 2016, pp. 292-306.

[13] P. Drulák and R. Druláková, "The richness of the liberal tradition in international relations: Karl Deutsch on political community and the European integration," International Relations, vol. 28(3), pp. 333-349, 2014. DOI: 10.1177/0047117814545951

[14] L. Lipkova and D. Braga, "Measuring commercialization success of innovations in the EU," Marketing and Management of Innovations, vol.2016(4), pp. 15-30, 2016.

[15] L. Mura and M. Orlikova, "Social entrepreneurship and social enterprises: The case of Slovakia," in Innovation Management in Entrepreneurship and Corporate Sustainability (IMECS 2016), 2016, pp. 495-505.

[16] F. Varadzin, "Global public goods and integration," in Proceedings of the 3rd International Conference on European Integration (ICEI 2016), 2016, pp. 1052-1059.

[17] S. Vojtovic, V. Navickas, and V. Gruzauskas, "Sustainable business development process: The case of the food and beverage industry," in Advancing Research in Entrepreneurship in the Global Context, 2016, pp. 1077-1089.

[18] S. Vojtovic, "The impact of the structural funds on competitiveness of small and medium-sized enterprises," Journal of Competitiveness, vol. 8(4), pp. 30-45, 2016, DOI: 10.7441/joc.2016.04.02

[19] J. Mruskovicova and F. Dano, "Optimizing the number of stops within the logistic routes using the mathematical model," AD ALTA-Journal of Interdisciplinary Research, vol. 7(1), pp. 113-115, 2017.

[20] D. Zadrazilova, "Current trends in German sugar industry", Listy Cukrovarnicke a Reparske, vol. 132(12), pp. 390-393, 2016.

[21] F. Varadzin, "Global Public Goods and Integration", Proceedings of the 3rd International Conference on European Integration 2016 (ICEI 2016), 2016, pp. 1052-1059

[22] J.Tauser and R. Cajka, "Hedging techniques in commodity risk management," Agricultural economics-zemedelska ekonomika, vol. 60(4), pp. 174-182, 2014.

[23] P. Burda, J. Abrham, and Z. Horvathova, "Factors influencing online civic participation in mid-sized czech towns", Transformations In Business & Economics, vol. 16(2B), pp. 607-618, 2017.

[24] J. Sejkora and O. Sankot, "Comparative advantage, economic structure and growth: The case of Senegal", South African Journal of Economic and Management Sciences, 2017, vol. 20(1), Article Number: a1685, DOI: 10.4102/sajems.v20i1.1685.

[25] J. Sejkora, "Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty", Ekonomicky Casopis, vol. 62(4), pp. 431-435, 2014.

[26] M. Okręglicka, K. Havierniková, M. Mynarzová, and A. Lemańska-Majdzik, "Entrepreneurial intention creation of students in Poland, Slovakia and Czechia", Polish Journal of Management Studies, vol. 15(2), pp. 162–172, 2017.