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E-GOVERNMENT AS A SMART SOLUTION FOR PUBLIC ADMINISTRATION: A CASE OF VISEGRAD GROUP

Ingrid Majerova¹ 

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Abstract: *More than fifteen years ago, through the benchmarking method, the United Nations began to carry out a survey of the electronisation level of public administration - e-government. Three areas of its level – online services, telecommunication infrastructure and human capital - have been summarized into a single index called E-government Development Index (EGDI). The main objective of this research was to provide an overview of the current status of the Visegrad Group (Czech Republic, Hungary, Poland and Slovakia) in EGDI development and compare the level of this index. The results show firstly that the monitored group of countries are placed at the end of EU ranking and secondly that while Poland has improved its level, the Czech Republic is lagging behind.*

Keywords: *E-government Development Index, Min-max Method, Czech Republic, Hungary, Poland, Slovakia*

JEL Classification I38 · O38 · R59

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INTRODUCTION

The digital environment is a standard phenomenon of the twenty-first century. One of its part is electronisation of public administration, known as e-government. The electronic public sphere should be able to improve and simplify public administration activities through information and communication technologies, which can make a significant contribution to the lives of millions of people. Simply said, this should be smart solution for all economic subject. As claimed Gupta and Jana, already in 2003, electronic government is no longer just an option but a necessity for countries aiming for better governance (Gupta and Jana, 2003).

The question of how to evaluate e-government at various levels (local and national) is still actual and debate are very critical (for more see Whitmore, 2012) till nowadays. However, the most prominent and used ranking of e-government level remains the measurement of United Nations Public Administration Network (UNPAN), which includes 193 member countries. E-government development index (EGDI) is composite measurement of three sub-indices i.e. online services, telecommunication and human capital. These three sub-indices are also calculated from four indicators in online services group, five in telecommunication group and two in human capital group which can be analyzed independently.

The objective of this research is to provide an overview of the current status of the Visegrad Group countries (the Czech Republic, Hungary, Poland and Slovakia) in e-government development using United Nation e-government survey reports as the main source of documents. The main motivation for writing this paper is based on the OECD (2009) opinion that rich countries tend to be technology savvy and show high intensity of ICT usage. Likewise, Fernández-i-Marín (2011) claims that empirical studies show that GDP per capita correlates highly with use of e-government. ICT have come to represent the factors that determine successful development of e-government. The E-government Development Index, therefore, measures the capacity and willingness of the public sector to deploy ICT for improving knowledge and information in the service of the citizen (United Nations, 2012). This should mean that in the Visegrad Group countries, there is a high level of government and that level is constantly improving. Another reason of motivation was the absence of any study comparing this historically and politically very close group of countries in this area of research.

This paper is structured as follows: Second section describes the approaches to the issue of e-government. Third section discusses the research methodology with used methods and dataset. Fourth section summarizes results with the obtained data of comparison of monitored countries and discusses the results of analysis. In the fifth section will be concluded the obtained facts of this paper.

LITERATURE REVIEW

According to Halchin (2004), there is no universally agreed upon definition of the e-government concept. Donna and Yen (2006) claimed that e-government means the government and public communicate with each other through computers which increases efficiency and effectiveness and reduce the cost. Budiš et al. (2008) define e-government as the use of information technology by public institutions to ensure the exchange of information with citizens, private organizations and other public institutions in order to increase the efficiency of internal functioning and provide fast, accessible and quality information services. Belanger and Carter (2008) are of the opinion that the concept of e-government is defined in more detail, as the utilization of information technology

(especially telecommunication) to enable and improve the efficiency with the government services and information provided to different stakeholders of the e-government.

Alshomrani (2012) claims that e-government is multidimensional and complicated concept in nature, therefore different views about the concept reflects various focuses on interest by governments, organizations and researchers. According to Alzahrani (2011), e-government has a significant impact on the performance of public sector as a result continuous growth has been seen in the e-governments development around the world since last two decades. The term e-government indicates the possibility to communicate with state and public institutions in electronic form (Cria-do, 2012). Governments use e-government as a vehicle to drive national digital economy, which promises better human and sustainable development, and building of more democratic societies WEF(2013). As Šperka (2014) claimed, the main goal of e-government is principally to make the public contact with offices easier (mainly from the time point of view) which goes for the citizens as well as for the companies.

According to the new EU e-government Action Plan 2016-2020 public administrations and public institutions in the European Union should be open, efficient and inclusive, providing borderless, personalised, user-friendly, end-to-end digital public services to all citizens and businesses in the EU. Innovative approaches are used to design and deliver better services in line with the needs and demands of citizens and businesses. Public administrations use the opportunities offered by the new digital environment to facilitate their interactions with stakeholders and with each other EC (2016).

To sum up, e-government is a permanent public administration obligation to improve the relationship between citizens and the public sector by providing cheap and efficient services, information and knowledge independent of time constraint and geographical location. It is practical implementation of the best that the public administration can offer.

METHODOLOGY

Almost twenty years ago, the United Nations began to conduct e-government research through benchmarking. The UN survey includes a brief description and evaluation of e-government developments, and it is the only global report that evaluates it in all 193 UN member countries. The main aim of the survey is to identify strong points, problems and the choice of e-government policy strategy. The consistency of the e-government survey method is more evident from the evaluation published in UN Global e-government Survey 2003. The United Nations issued in the last decade of the biennial report, whose aim is to show an example of a successful e-government strategies, innovative practices with regard to administrative reform and sustainable development.

The EGDI index itself is composed of three subindexes: Online Service Index (OSI), Telecommunications Infrastructure Index (TII) and Human Capital Index (HCI).

For Online Service Index (OSI) data collected from an independent questionnaire from 89 countries (not all countries provide the online services). There are the questions about submitting the taxes, applying for various certificates – birth, marriage, death, driving license, personal ID etc. The exact methodology is a secret, but UN published some information about this process from 2018.

Telecommunications Infrastructure Index (TII) collects data from the International Telecommunications Union (ITU) with the same weight:

- Estimated internet users per 100 inhabitants (who have used the internet from any location in the last 3 months) - 1/5 of TII,
- Number of fixed telephone subscriptions per 100 inhabitants - 1/5 of TII,
- Number of mobile cellular telephone subscriptions per 100 inhabitants - 1/5 of TII,
- Number of fixed (wired) broadband subscriptions per 100 inhabitants - 1/5 of TII,
- Active mobile-broadband subscriptions per 100 inhabitants - 1/5 of TII.

Data from UNESCO are served for calculation of Human Capital Index (HCI), which consists from:

- Adult literacy rate (has the biggest weight 1/3 of HCI),
- Gross enrolment ratio for primary, secondary and tertiary education, as a percentage of the population of school age for that level,
- Expected years of schooling; the total number of years a child of a certain age is expected to receive,
- Mean years of schooling.

Average number of years of education is completed by a country's adult population.

Each subindex is calculated by the min-max normalization method, see equation (1). Before that it is necessary to standardize the data for each EGDI component, according to equation (2), where after the standardization with z-score each component index shows a comparable deviation. The aim is to get values between 0-1. If the z-score method were not used, EGDI would depend on the index of the most deviated component. After z-score standardization, the arithmetic mean becomes a suitable statistical indicator.

$$SI_c = \frac{V_c - V_{min}}{V_{max} - V_{min}} \quad (1)$$

where V_c is common value of subindex of country, V_{min} is the minimum value of subindex and V_{max} is the maximum of value of subindex.

$$z = \frac{(x - \mu)}{\sigma} \quad (2)$$

where x is a raw state that is intended for standardization, z represents interspecies and mean deviations, μ is average of population (standard deviation of dataset) and σ is the population standard deviation (standard deviation of dataset).

After these steps, the EGDI index can be calculated as the average of all subindexes, as shown in the equation (3).

$$EGDI = \frac{OSI + TII + HCI}{3} \quad (3)$$

The EGDI index is then subdivided into four groups by result:

- very high EGDI, where the value of index is > 0.75 ,
- high EGDI, where the value is between 0.5 and 0.75,
- middle EGDI, where the value is between 0.25 and 0.50,
- low EGDI, where the value is between 0 and 0.25.

The development of EGDI index in the world is shown in Figure 1 – the more green the higher level of e-government. There are compared the countries in the years 2005 (left side) and 2018 (right side) in the figure and is shown improvement, mostly in developing countries.



Figure 1. Development of EGDI in the world between 2005 and 2018

Source: *United Nation, 2018*

RESULTS AND DISCUSSION

When evaluating almost all the economies in the world, it is necessary to distinguish their achieved level of income – it is not possible to compare in the same way e.g. the USA and Namibia. Therefore, the UN lists the values of EGDI values for economies according to their income, based on the methodology of the World Bank. The average values for each income group are expressed in Figure 1. For illustrative purposes, the index development and its sub-indices in 2014 and 2018 are shown.

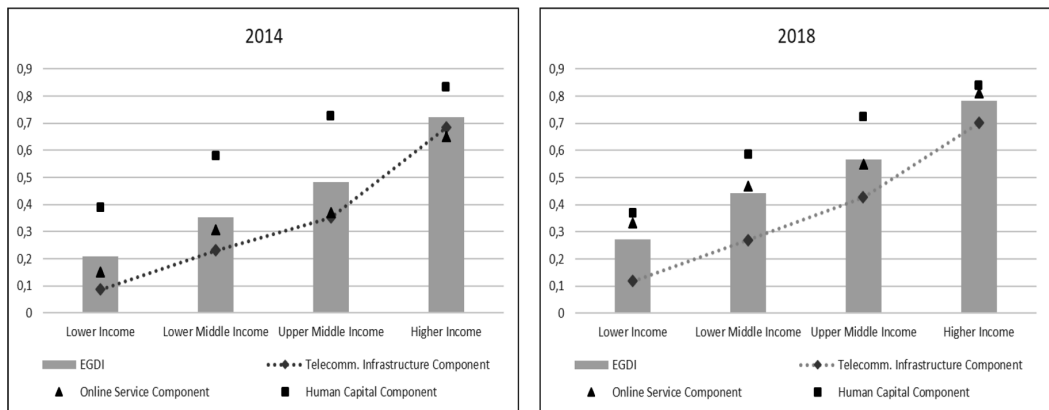


Figure 2. EGDI and its component indices for 2014 and 2018

Source: *United Nation, 2018*

It can be seen from the figure above that the overall index value for countries in various income groups differs significantly and improves in all cases between 2014 and 2018. A similar trend also occurs with the components of EGDI itself, when the highest improvement showed the area of online services. However, if EGDI is compared to high- and low-income countries, the value is still more than three times different.

Another comparison and criterion can be geographic location, as shown in the Table 1. However, this comparison is quite problematic – while Europe is to some extent homogeneous, it cannot be

said about other continents. For example, the US is rated very high (0.8769), while Haiti (0.193) is located low. Similarly, in Asia – on one site is South Korea (0.8915) and on another Afghanistan (0.2585) or Africa with Mauritius (0.623) and Somalia (0.027).

Table 1. EDGI according to regions in 2018

Source: *United Nations, 2018*

	EGDI	OSI	TII	HCI
Africa	0.2882	0.2567	0.1724	0.4355
America	0.5245	0.4959	0.3844	0.6933
Asia	0.5132	0.5120	0.3730	0.6545
Europe	0.7241	0.6926	0.6438	0.8360
Pacific	0.4154	0.2966	0.2599	0.6897
WORLD	0.4922	0.4623	0.3711	0.6433

What concerns the Visegrad group members, these are ranked to high income countries (with exception of Slovakia which is upper middle), but with lower values of EGDI, as it can be seen in Appendix. When we compare these countries among themselves, including the values of subindexes, we obtain the results shown in Figure 3. The best position has Poland (thanks a higher value of OSI), than Hungary, Slovakia and at the last place is the Czech Republic.

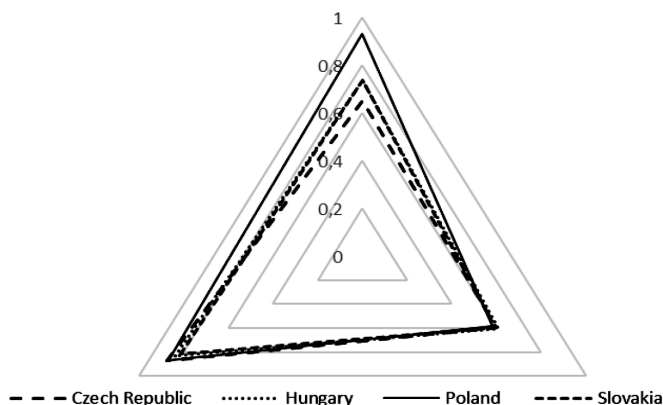


Figure 3. EDGI in Visegrad Group in 2018

Source: *United Nation, 2018*

From the Figure 3 is clear that all Visegrad Group countries are almost at the same level, the differences are not so high. Nevertheless, one exception exists and so the values of subindex OSI, where the lowest value (the Czech Republic with 0.6528) differs mostly 20% from the highest one, Poland (0.9306).

FUTURE RESEARCH DIRECTIONS

As claims the EU Action Plan 2016-2020 (Accelerating the digital transformation of government), in the future, public administrations and public institutions should be open, efficient and inclusive, providing borderless, personalised, user-friendly, end-to-end digital public services to all citizens and businesses. Innovative approaches are used to design and deliver better services in line with

the needs and demands of citizens and businesses. Public administrations use the opportunities offered by the new digital environment to facilitate their interactions with stakeholders and with each other (EC, 2016). An example of good practice is Estonia, which is probably the one country in the world where 99% of the public services are available online every hour and every day.

By 2050, the UN projects 66% of the world's population will live in urban environments. This raises many questions, in relation to public administration: How will governments give the estimated 6.3 billion people efficient access to public services? Answer could be interactive Smart e-Government, which provides its citizens with an especially responsive and efficient channel of service from public authorities and world-class infrastructure, services, and leisure resources, creating a rich environment in which they can enjoy well-rounded and fulfilling lives. Moreover, Smart e-Government is the one strategy to preserve and even enhance services at a lower cost.

In the future, smart e-government needs to tackle such challenges as facilitate smart services, protect citizens from cyber crime, strengthen democracy, develop a modern society with financial and social inclusion and reduce waste, fraud and abuse.

CONCLUSION

New research findings point to new trends and innovative methods, as well as the challenges and opportunities for e-government development. The public administration is facing more and more challenges, not only about effective e-government, but also about how to provide information and services to those, who do not have internet access or not own a bank account in an ever-growing world.

The objective of this research was to provide an overview of the current status of the Visegrad Group countries (the Czech Republic, Hungary, Poland and Slovakia) in e-government development from the point of view of E-government Development Index (EGDI) implemented into the world comparison by United Nations. EGDI measures the effectiveness of e-government in providing basic economic and social services in sectors such as education, health, work, employment, social welfare, finance and the environment.

It was found that the EDGI index values differ not only in terms of income and regional groups but also within the European Union. The monitored economies of the Visegrad Group are placed at the end of the EU ranking and disparities are not so big, but exist (between 18. place of Poland and 26. place of Czechia). Great progress has been made by Poland; on the other hand, the position of the Czech Republic has deteriorated from 2003 to 2018.

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Appendix

Table 2. EDGI of EU Member countries (plus Switzerland) in 2018
Source: United Nations, 2018

	Level of income	EGDI	2018 Rank	Change in rank (2016)
Denmark	High income	0.9150	1	+8
United Kingdom	High income	0.8999	4	-3
Sweden	High income	0.8882	5	+1
Finland	High income	0.8815	6	-1
France	High income	0.8790	9	+1
Germany	High income	0.8765	12	+3
Netherlands	High income	0.8757	13	-6
Switzerland	High income	0.8520	15	+13
Estonia	High income	0.8486	16	-3
Spain	High income	0.8415	17	0
Luxembourg	High income	0.8334	18	+7
Austria	High income	0.8301	20	-4
Ireland	High income	0.8287	22	+4
Italy	High income	0.8209	24	-2
Belgium	High income	0.8080	27	-8
Portugal	High income	0.8031	29	+9
Malta	High income	0.8011	30	0
Poland	High income	0.7926	33	+3
Greece	High income	0.7833	35	+8
Slovenia	High income	0.7714	37	-16
Lithuania	High income	0.7534	40	-17
Hungary	High income	0.7265	45	+1
Bulgaria	Upper middle income	0.7177	47	+5
Slovakia	Upper middle income	0.7155	49	+18
Czech Republic	High income	0.7084	54	-4
Croatia	Upper middle income	0.7018	55	-18
Latvia	High income	0.6996	57	-12
Romania	Upper middle income	0.6671	67	+8

INTRODUCTION OF ENVIRONMENT MANAGEMENT KNOWLEDGE AREA IN PMBOK (PROJECT MANAGEMENT BODY OF KNOWLEDGE): A PRELIMINARY STUDY

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Abstract: *The objective of this study is to know the perception of varied experienced project management professionals of India to measurement-based and valuation-based methods for inclusion in the imaginary environment management knowledge area of PMBOK. Results attained through SPSS using chi-square test of association conclude that there is a significant relationship between experience and choosing the right method. The current study suggests that lifecycle analysis and ecosystem service valuation should be included in the environment management knowledge area of PMBOK.*

Keywords: *Project Management Body of Knowledge, Environment Management, Work Experience*

JEL Classifications M19 · Q51 · Q01

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1. INTRODUCTION

After defining ten knowledge areas, namely cost management, scope management, integration management, time management, quality management, resource management, communications management, risk management, procurement management and stakeholder management by Project Management Body of Knowledge (PMBOK), the work of project managers and other stakeholders became more organized and visible. Many projects were implemented by dividing work structures according to these knowledge areas, but there was not much consideration given to sustainability effects of the project. There is no knowledge area that takes care of environmental effects of a project. It was, thus, identified as a visible gap in research to introduce a framework of environment management as an 11th knowledge area in PMBOK.

Sustainability actually has three pillars – environment, economic and social. We shall be focusing mainly on inter-relationship of project management with environment management. Various measurement-based methods and valuation-based methods exist for environment management. Four methods in measurement-based approach, namely carbon footprint, balanced scorecard, ecological footprint and life cycle analysis and four methods in valuation-based approach, namely cost benefit analysis, ecosystem service valuation, sustainability value added and triple bottom line have been chosen for this study. The criteria for choosing these four in each approach were popularity on online search engines.

Each project manager with different experience level, which was identified through number of projects completed by them, and through different age groups, have varied perception about different methods to be given priority for inclusion in new knowledge area of project management. The understanding of the perception of project managers for inclusion of environmental factors in PMBOK is the crux of the issue.

Over a couple of decades, there have been lot of word about keeping environment safe for future generations. This has resulted into introduction of sustainable techniques in project management. Also, sustainable operations have been the talk of many researchers. But to my surprise, there has been no knowledge area in Project Management Body of Knowledge (PMBOK) guide that talks about sustainability, specifically environmental aspects of sustainability. The research gap was, therefore, found to introduce a framework of environment management knowledge area in PMBOK. The perception of various project managers was studied in this regard to identify methods that can be given priority in this new knowledge area of environment management. Some of the existing literature that throws light on some aspects of similar research in their studies are mentioned below:

Labuschagne and Brent (2004), introduced a procedure to improve the consideration of environmental aspects in project life cycle management in the process industry of South Africa. Furthermore, a qualitative procedure to evaluate the environmental factors of a project was demonstrated in order to provide the decision-makers at the phase-end reviews with the relevant information.

It has been established by *Labuschagne and Brent (2005)*, that the asset life cycle resulting from the project, and the subsequent product life cycle resulting from the asset have economic, social and environmental consequences, which are in turn associated with an implemented project. This research developed a framework to assess the sustainability of operational activities.

Brent and Peterick (2007), have suggested that EIA (Environmental Impact assessment) may commence in any of the project lifecycle phases, from pre-feasibility to detailed design. This research proposed a model for the process industry in the energy sector to align the new South African EIA process with the project lifecycles and to provide EIA stage-gate criteria.

A study by *Mathur, Price and Austin (2008)*, shows that sustainability assessment process, if appropriately designed could be the ideal process through which the benefits of stakeholder engagement within a project can be maximized and the sustainability agenda be pursued.

In construction industry as per *Fernández-Sánchez and Rodríguez-López (2010)*, energy consumption, waste management and ecological footprint are found to be the most important indicators of sustainability.

Robichaud and Anantatmula (2011) showed that greening project management practices can provide a significant value to a sustainable construction project while delivering it within acceptable cost constraints.

A framework has been proposed by *Talbot and Ray Venkataraman (2011)* that produced a more manageable set of 27 high level indicators, not all of which will be applicable to all projects. The utility of the proposed framework and indicator set has been back checked against a recently completed engineer, procure, and construction (EPC) managed mining project undertaken by a large engineering and project management services organization.

Brones, Marly and Zancul (2014) have discussed the issues related to environmental product development and environmental sustainability and explored the points of intersection between eco-design and project management.

Sanchez (2014) has proposed that there is a good potential for integrating sustainability and project management in operational terms.

Martens and Carvalho (2016) have suggested that though firms have concern about sustainability in project management, there is a gap between the perception of importance and the actual use in practice.

2. METHODOLOGY

2.1. Research Questions and Hypotheses Formulation

As mentioned above, the goal of the current research is to investigate the significant differences in the perception of project managers towards environmental sustainability in project management. The knowledge areas in project management body of knowledge (PMBOK) were considered as a standard reference for this research. The independent variables were number of projects completed by the project manager in his lifetime so far, which was categorized as less than or equal to 15 projects completed and greater than 15 projects completed. The age group of project manager was another independent variable categorized as less than 34 years, between 34 & 44 and more than 44 years of age. The researchers sought to answer the following research questions through this study:

Research Question One: Which is the most widely accepted valuation-based method for inclusion in framework of environment management knowledge area?

Research Question Two: Which is the most widely accepted measurement-based method for inclusion in framework of environment management knowledge area?

Research Question Three: What is the effect of different experience levels of project managers on choosing the appropriate methods for framework of new knowledge area in project management?

To validate the results of study, the following hypothesis have been formulated:

Null Hypothesis One: The varied experience level has no effect on choosing the right valuation-based method for developing framework of environment management knowledge area in PMBOK.

Alternate Hypothesis One: The varied experience level has effect on choosing the right valuation-based method for developing framework of environment management knowledge area in PMBOK.

Null Hypothesis Two: The varied experience level has no effect on choosing the right measurement-based method for developing framework of environment management knowledge area in PMBOK.

Alternate Hypothesis Two: The varied experience level has effect on choosing the right measurement-based method for developing framework of environment management knowledge area in PMBOK.

2.2. Data Collection

The present study is based on both primary and secondary data. The primary data have been collected from project managers selected by judgement sampling with the help of pre-structured questionnaire. After the examination of 500 complete questionnaire, further analysis was carried out. Secondary data has been extracted from research studies and articles published in journals. The PMBOK guide was also used as a source of secondary data.

3. DATA AND ANALYSIS

The collected data were analysed through chi-square test of association and multinomial regression using SPSS version 26. Additionally, correspondence analysis was also done. The analysis is in conformity with the objectives of study and the hypotheses formulated.

Bar chart in Chart 1 shows that ecosystem service valuation method is the most preferred method by project management professionals for introduction in environment management knowledge area, which answers Research Question One. The cross tabulation and results with p-value less than 0.05 are shown in table 1 and table 2 respectively. The test was significant and so we reject NULL hypothesis (NULL Hypothesis One) and accept the alternate hypothesis (Alternate Hypothesis One)

Correspondence analysis as shown in figure 1 does not give a clear clustering information about which age groups prefer which type of valuation method.

Further in table 3, multicollinearity is tested, which gives all VIF (Variance Inflation Factor) as less than 5 and so our assumption for multinomial regression is satisfied. Also, there were no outliers detected in the given valuation method data, which were tested by means of running binary logistic regression after creating dummy variables. The likelihood ratio test gives p-value less than 0.05 as shown in table 4. The running of multinomial logistic regression in SPSS gives a multinomial model for valuation methods as shown in table 5 with intercept as 75.627 and coefficients of age-group as 85.473 and of experience as 85.155.

Table 1. Cross tabulation for valuation-based measurements

		valuation_method				Total
		cost benefit analysis	ecosystem service valuation	sustainability value added	triple bottom line	
less than or equal to 15 projects	Count	117	129	69	15	330
	Expected Count	107.6	141.2	61.4	19.8	330.0
greater than 15 projects	Count	46	85	24	15	170
	Expected Count	55.4	72.8	31.6	10.2	170.0
Total	Count	163	214	93	30	500
	Expected Count	163.0	214.0	93.0	30.0	500.0

Table 2. Chi square test results for valuation-based methods

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.751 ^a	3	.008
Likelihood Ratio	11.702	3	.008
Linear-by-Linear Association	1.538	1	.215
N of Valid Cases	500		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.20.			

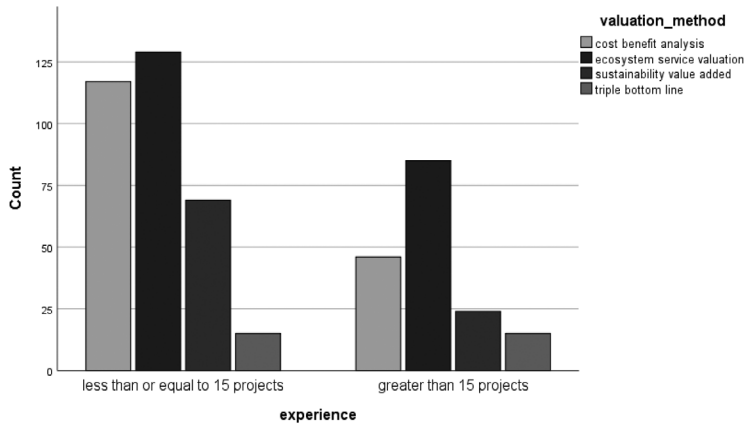


Chart 1. Bar chart for valuation-based method showing preference for ecosystem service valuation approach

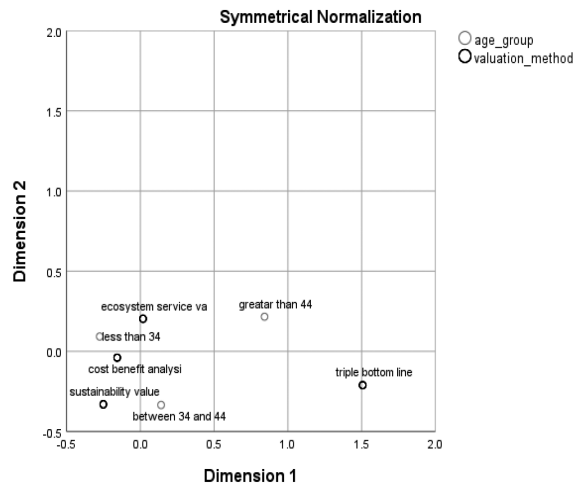


Figure 1. Correspondence analysis biplot for age groups and valuation methods

Table 3. Multicollinearity test for valuation-based methods

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	less 34	.483	2.072
	between 34 and 44	.480	2.084
	less than equal 15	.968	1.033

a. Dependent Variable: valuation_method

Table 4. Likelihood ratio tests showing model fitting information for valuation methods

Model Fitting Information				
Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	97.175			
Final	75.627	21.548	9	.010

Table 5. Model from multinomial regression with valuation methods as dependent variable

Likelihood Ratio Tests				
Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	75.627 ^a	.000	0	.
age_group	85.473	9.846	6	.131
experience	85.155	9.527	3	.023
The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.				
a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.				

A similar series of tests on measurement-based methods were performed with results as shown in tables 6 to table 10. The final model for measurement methods as shown in table 10 has intercept as 94.223 and coefficients of age-group as 109.530 and coefficient of experience as 121.286. The bar chart in Chart 2 shows preference for life cycle analysis approach.

As shown in figure 2, there is additional result in the form of clusters through correspondence analysis run on measurement-based method and age groups.

Table 6. Chi Square test between measurement-based method and number of projects completed as two categorical variables

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.659 ^a	3	.002
Likelihood Ratio	14.866	3	.002
Linear-by-Linear Association	12.666	1	.000
N of Valid Cases	500		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.56.			

Table 7. Cross tabulation for measurement-based methods**experience * measurement_method Crosstabulation**

			measurement_method				Total
			carbon footprint	ecological footprint	life cycle analysis	balanced scorecard	
experience	less than	Count	73	92	118	47	330
	or equal	Expected Count	64.0	81.2	129.4	55.4	330.0
	to 15						
	projects						
	greater	Count	24	31	78	37	170
	than 15	Expected Count	33.0	41.8	66.6	28.6	170.0
	projects						
Total		Count	97	123	196	84	500
		Expected Count	97.0	123.0	196.0	84.0	500.0

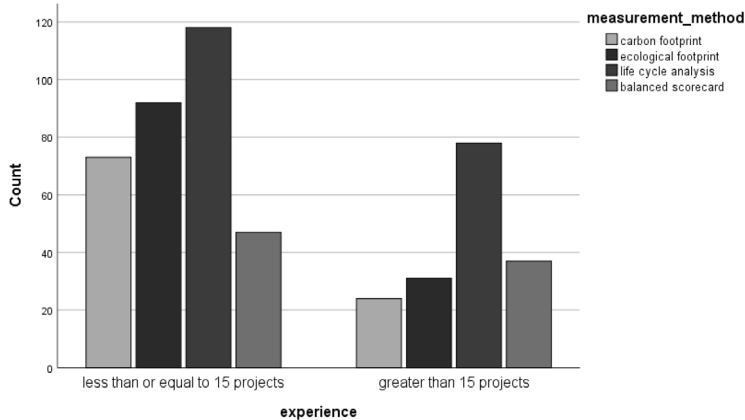
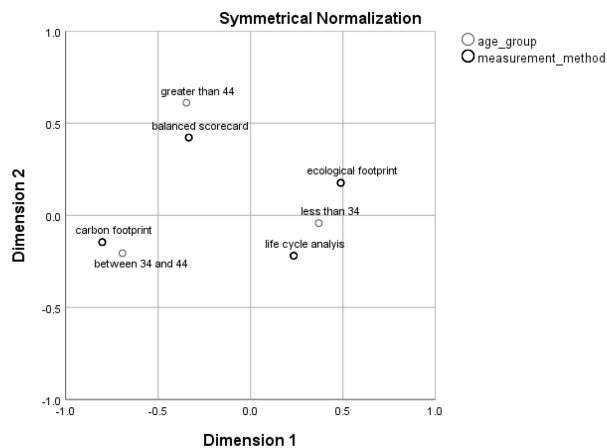
**Chart 2.** Bar chart for measurement-based method showing preference for life cycle analysis approach**Figure 2.** Correspondence analysis biplot for age groups and measurement-based methods

Table 8. Multicollinearity test results for measurement-based methods

Coefficients ^a				
Model		Collinearity Statistics		
		Tolerance	VIF	
1	Less34	.441	2.268	
	between 34 and 44	.438	2.284	
	less than 15 projects	.971	1.030	
a. Dependent Variable: measurement method				

Table 9. Likelihood ratio tests showing model fitting information for measurement methods

Model Fitting Information				
Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	136.151			
Final	94.223	41.929	9	.000

Table 10. Model from multinomial regression with measurement methods as dependent variable

Likelihood Ratio Tests				
Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	94.223 ^a	.000	0	.
experience	109.530	15.307	3	.002
age_group	121.286	27.063	6	.000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

4. FUTURE RESEARCH DIRECTIONS

Similar further studies can be carried for impact on internal stakeholders by introduction of social impact factors in the project management body of knowledge.

5. CONCLUSION

The chi square test of association between categorical variables of valuation method (four categories) and experience in form of number of projects completed (two categories) was run in SPSS version 26 i.e. the varied experience level has effect on choosing the right valuation-based method for developing framework of environment management knowledge area in PMBOK. A similar series of tests on measurement-based methods were performed in which we conclude that varied experience level has effect on choosing the right measurement-based method.

There is an interesting conclusion in the form of biplot that greater than 44 age project managers prefer to include balanced scorecard approach, those between 34 and 44 prefer carbon footprint and less than 34 age project managers prefer ecological footprint and lifecycle analysis approaches for inclusion in environment management knowledge area. However, no such clusters were ob-

served in case of biplot in valuation-based method resulting in no preference by project managers of different age groups towards specific valuation-based method.

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ENVIRONMENTAL KUZNETS CURVE HYPOTHESIS IN SELECTED EU COUNTRIES: KYOTO EFFECT

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Abstract: *The purposes of this study is to investigate the relationship between per capita CO₂ emissions, per capita energy consumption, per capita real GDP, the squares of per capita real GDP, trade openness and Kyoto dummies in selected 20 EU countries over the periods from 1991 to 2013 in order to analyze the connection between environmental pollution and Kyoto Protocol using Environmental Kuznets Curve (EKC) framework. According to EKC hypothesis, there is an inverted-U shape relation between environmental pollution and economic growth. Generally, the relationship between environmental pollution, per capita GDP and energy consumption has been analyzed for testing EKC hypothesis. In this study, it is used dummy variable to analyze the effects of Kyoto protocol on environmental degradation in the context of EKC hypothesis model. The dummy variable indicates Kyoto Protocol agreement year 2005. The results show that there is long run cointegration relationship between CO₂, energy consumption, GDP growth, and the squares of GDP growth, trade openness and Kyoto dummy variable. Energy consumption and GDP growth increase the level of CO₂ emissions. On the contrary, Kyoto dummy variable decreases CO₂ emissions in EU countries. In addition, the results reveal that the squares of per capita real GDP and trade openness rate are statistically insignificant. As a result of analysis, the inverted-U shape EKC hypothesis is invalid in these EU countries over the periods from 1991 to 2013.*

Keywords: *Environmental Kuznets Curve, Kyoto Protocol, EU countries*

JEL Classification Q01 · Q56

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1. INTRODUCTION

In recent years, one of the most frequently discussed global issues has been environmental degradation in the context of global warming and climate change. It is the main cause of global warming and climate change that rapid rise in gases that causes greenhouse effect in the atmosphere. The main gas causing greenhouse effect is carbon dioxide emissions (CO₂) that emitted into atmosphere by using fossil fuels such as petroleum, coal and natural gas. With the advents of Industrial Revolution, economic development is first target for many countries. This aim has increased energy demand and this need has been met greatly from the fossil fuels. Because of climate change and global warming, the search for relationship between environmental pollution, economic growth and energy use has been investigated in the framework with EKC hypothesis (Bozkurt et al, 2016:59).

Kyoto Protocol as a global policy in order to reduce CO₂ emissions. The targets for the first commitment period of the Kyoto Protocol cover emissions of the six main greenhouse gases. One of them and the most important is CO₂. The 15 States who were EU members in 1997 when the Kyoto Protocol was adopted, took on that 8% target that will be redistributed among themselves, taking advantage of a scheme under the Protocol known as a “bubble”, whereby countries have different individual targets, but which combined make an overall target for that group of countries. The EU has already reached agreement on how its targets will be redistributed (Kyoto Protocol, 1997).

In this study, the relationship between per capita CO₂ emissions, per capita energy consumption, per capita real GDP, the squares of per capita real GDP, trade openness and Kyoto dummies over the periods from 1991 to 2013 in order to analyze the connection between environmental pollution and Kyoto Protocol using Environmental Kuznets Curve (EKC) hypothesis for selected 20 EU countries.

The rest of the paper is as following; Second section involves the literature review, Third section describes the data, model, methodology and empirical findings, Fourth section presents the conclusion and policy implications of the study.

2. LITERATURE REVIEW

Kuznets (1955) predicted that the changing relationship between per capita income and income inequality is an inverted-U shaped curve. Kuznets Curve says that as per capita income increases, income inequality also increases at first and then starts declining after a turning point. In the 1990s, Kuznets Curve hypothesis is started to apply the relationship between environmental quality and per capita income. In recent years, Environmental Kuznets curve hypothesis is analyzed intensively due to increasing environmental incidents and economic crisis. The hypothesis was firstly tested by Grossman and Kruger (1991). The inverted-U put forward by Grossman and Krueger (1991) in 1991 regarding the relationship on economic growth and environmental quality was named as the Environmental Kuznets Curve (EKC) by Panayotou (1993) and has been continued from then on (Chen, 2007:02). According to EKC, after economic growth reaches a certain level, it will remedy the environmental effects of the initial stages of economic development and compensate for it (Sun, 1999:692).

Coondoo and Dinda (2002), Dinda (2004), Luzzati and Orsini (2009), Halicioglu (2009), Acaravci and Ozturk (2010) studies provide an extensive literature on EKC hypothesis. In these studies, the

relationship between environmental pollution and economic growth was tested. In addition, the relationship between environmental degradation, economic growth and energy consumption was analyzed by Richmond and Kaufman (2006), Soytaş et al. (2007), Zhang and Cheng (2009), Halicioglu (2009), Apergis and Payne (2009, 2010), Ozturk and Acaravci (2010), Acaravci and Ozturk (2010), Pao and Tsai (2011), Ozturk and Uddin (2012) (Bozkurt et al., 2016:60).

Lapinskiene et al. (2014) explored the relationship between economic growth and greenhouse gas emissions by applying time series analysis for EU-27, Norway and Switzerland for 1995-2010 periods. The results supported inverted U-shaped EKC is valid for EU countries. Bölük and Mert (2014) used panel data analysis to investigate the relationship between economic growth, energy consumption and CO₂ emissions in 16 EU countries for 1990-2008 periods. The result of the study showed that the inverted U-shaped EKC hypothesis is valid for EU countries. Sterpu et al. (2018) looked at the relationship between economic growth, energy consumption, greenhouse gas emissions, energy consumption and renewable energy consumption with an aim to test the validity of the EKC hypothesis for 28 countries of EU for 1990-2016 periods. The results validate inverted U-shaped EKC hypothesis.

3. DATA AND MODEL

This study aims to investigate the relationship between carbon emissions, real GDP, the square of the real GDP, energy consumption and Kyoto Protocol in selected 20 EU countries (Austria, Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Romania, Spain, Sweden and the UK) for the period of 1991-2013. Following EKC models, CO₂ defined as a function of energy consumption, real GDP, the squares of the real GDP, trade openness and Kyoto dummy variable. Based on the studies in the literature, the panel version of model can be shown as follows:

$$\ln CO_{2it} = \beta_{0i} + \beta_{1i} \ln GDP_t + \beta_{2i} \ln GDP_t^2 + \beta_{3i} \ln E_t + \beta_{4i} \ln TR_t + \beta_{5i} \ln DUM_t + \varepsilon_{it} \quad (1)$$

where $\ln CO$, $\ln GDP$, $\ln GDP^2$, $\ln E$, $\ln TR$, $\ln DUM$ indicate the natural logarithms of carbon emissions measured in metric tons per capita, the GDP per capita measured in millions of constant 2005 US dollars, square of the GDP per capita measured in millions of constant 2005 US dollars, energy use (kt of oil equivalent), trade openness rate peroxided by the ratio of exports plus imports to GDP and Kyoto dummy variable for Kyoto Protocol agreement year 2005, respectively.

3. METHODOLOGY AND EMPIRICAL RESULTS

The empirical analysis consists of three steps. In the first step, stationarity properties of the variables were analyzed using with panel unit root tests such as LLC unit root test developed by Levin et al. (2002) and IPS unit root test developed by Im et al. (2003). The null hypothesis of both test indicate unit root process. The results of LLC and IPS unit root tests are shown in Table 1. At a first glance, the null of unit root can't be rejected clearly at 1% percent level. When the difference operator is used, the null of unit root can rejected strongly and all variables become stationary. The variables are integrated of order one therefore it seems there is possible long-run relationship between variables.

Table 1. LLC and IPS unit root tests results

	LLC		IPS	
Variable	Constant	Constant&Trend	Constant	Constant&Trend
lnCO₂	2.5307 [0.9943]	2.0970 [0.9820]	2.2096 [0.9864]	2.6664 [0.9962]
lnGDP	-4.4864 [0.0000]	4.5650 [0.9999]	0.2203 [0.5872]	6.6408 [0.9999]
lnGDP²	-4.0768 [0.0000]	5.3220 [0.9999]	5.6301 [0.9999]	1.0261 [0.8476]
lnE	-0.8956 [0.1852]	2.5520 [0.9946]	-0.6509 [0.2575]	4.2856 [0.9999]
lnTR	-2.5465 [0.1568]	-3.7858 [0.0087]	0.4644 [0.6778]	-3.1498 [0.0031]
ΔlnCO₂	-14.8124 [0.0000]	-15.9850 [0.0000]	-14.1041 [0.0000]	-15.0935 [0.0000]
ΔlnGDP	-6.8675 [0.0000]	-9.1967 [0.0000]	-6.2628 [0.0000]	-7.0342 [0.0000]
ΔlnGDP²	-6.9317 [0.0000]	-9.2195 [0.0000]	-6.3270 [0.0000]	-6.9727 [0.0004]
ΔlnE	-15.1086 [0.0000]	-15.7210 [0.0000]	-13.3288 [0.0000]	-15.5852 [0.0000]
ΔlnTR	-18.5964 [0.0000]	-15.8828 [0.0000]	-15.6835 [0.0000]	-13.8604 [0.0000]

Δ is the first difference operator. The maximum lag lengths were selected automatically using with Schwarz Information Criteria. Numbers in brackets are *p*-values. Newey-West bandwidth selection with Bartlett kernel is used for LLC test. Numbers in brackets are *p*-values.

In order to examine the long-run relationship between variables, the panel cointegration test developed by Pedroni (1999) is utilized. Pedroni (1999) developed seven statistics to analyze the possible long-run relation and the test which is based on estimation of Eq 1. with estimation of $\delta_i \varepsilon_{it-1} + \sum_{k=1}^{K_i} \delta_{ik} \Delta \varepsilon_{it-k} + v_{it}$ regression model. The null hypothesis of test indicates that there is no cointegration between variables.

The panel cointegration test results are presented in Table 2. The results reveal that the null of no cointegration can be rejected for the model. Therefore, it can be said that the carbon emissions (CO₂), real GDP, the squares of real GDP, energy consumption, trade openness and Kyoto dummy variable are cointegrated.

Table 2. Pedroni cointegration test results.

Test	Constant	Constant and trend
Panel <i>v</i>-statistic	-0.1222	1.6247*
Panel ρ-statistic	0.3500	0.2097
Panel <i>PP</i>-statistic	-3.2851***	-7.8104***
Panel <i>ADF</i>-statistic	-3.6341***	-8.4791***
Group ρ-statistic	1.9272	2.0494
Group <i>PP</i>-statistic (non-parametric)	-3.5891***	-8.6075***
Group <i>ADF</i>-statistic (non-parametric)	-4.2727***	-8.2637***

*, ** and *** indicates statistical significance at 10, 5 and 1 percent level, respectively.

The next step is to examine the long-run coefficients of cointegrated variables. The long-run coefficients of variables are estimated with fully modified ordinary least squares (FMOLS) developed by Pedroni (2000).

The estimation of FMOLS can be constructed as $\hat{\beta}_{FMOLS} = N^{-1} \sum_{i=1}^N \beta_{FMOLS}$ where β_{FMOLS} is acquired from individual FMOLS estimation of Eq 1.

Table 3. Panel FMOLS estimation results

Variables	Coefficients	t-istatistic
lnE	1.2126***	31.7020
lnGDP	0.7708***	19.5742
lnGDP²	0.0233	0.7691
lnTR	-0.0398	-0.9069
DUM	-0.1186**	-2.3195

*, ** and *** indicates statistically significance at 10, 5 and 1 percent level, respectively.

The results of panel group FMOLS estimation are reported in Table 3. The panel group FMOLS estimation results indicate that the increase in energy consumption by 1% will increase CO₂ emissions by 1.2126%. The increase in economic growth by 1% will increase carbon dioxide emissions by 0.7708%. The results also showed that Kyoto dummy variable has a negative effect on CO₂ emissions. On the other hand, the coefficients of the square of real GDP and trade openness are statistically insignificant. According to these results, the EKC hypothesis is invalid for the selected EU countries spanning the period from 1991 to 2013.

4. CONCLUSION

The aim of this study is test the impact of the economic growth, energy consumption, trade openness and Kyoto Protocol on CO₂ emissions in selected 20 EU countries for the period of 1991-2013 with the context of the EKC hypothesis. It is utilized LLC and IPS panel unit root tests, Pedroni cointegration test and panel FMOLS estimation test.

The test results indicate that there is a long-term relationship between carbon emissions, economic growth, energy consumption, trade openness and Kyoto dummy variable. According to panel FMOLS estimation results, the coefficients of the real GDP is positive and statistically significant, but the coefficients of the square of the real GDP is statistically insignificant. That is, the inverted-U shaped relationship between economic growth and environmental pollution is invalid for selected EU countries over the period of 1991-2013. In addition, Kyoto Protocol has a negative impact on CO₂ emissions for these countries. That is, Kyoto Protocol commitments for EU countries reduce carbon emissions. On the other hand, the coefficient of trade openness is insignificant.

These empirical findings provide some policy implications. Policy makers in EU countries should focus on growth models consistent with sustainable development goals. It is important to conduct projects that help to increase energy efficiency and energy saving and also increase the role of renewable energy from total energy use. In addition, it is essential to comply with the target of Kyoto Protocol reducing greenhouse gases to achieve sustainable development goals. It should be encouraged to use clean energy resources.

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THE INFLUENCE OF EMPLOYER BRAND ON EMPLOYEES LOYALTY – THE MODERATOR EFFECT OF EMPLOYEES SATISFACTION

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Abstract: *The successful operation of the organization is not based exclusively on customer satisfaction, but it is necessary to ensure the satisfaction of all relevant stakeholders. For an organization, it is first of all important to provide value for its employees, as it will result in a greater degree of their satisfaction, loyalty and productivity, which further leads to value creation for consumers. Companies are making significant efforts to build a unique image in order to present it as a unique and desirable place to work, which can also be defined as an employer brand. The main goal of the paper is to determine whether the employer brand has a positive impact on employee satisfaction and loyalty. The results showed that the employer brand has a significant impact on employee satisfaction and loyalty, and that satisfaction has a positive moderator role.*

Keywords: *Employer Brand, Employee Satisfaction, Employee Loyalty, Human Resources*

JEL Classification M12 · M51

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1. INTRODUCTION

Modern business conditions are characterized by the fact that consumers are in the epicenter of all marketing activities. The goal of each company is to deliver to the consumer a product that will fully meet its wishes and needs. In this way, the consumer achieves a certain degree of satisfaction and over time becomes loyal. In addition to consumers, it is important for every company that its employees are satisfied with their work and, over time, they become loyal to the company. In today's business environment, which can be characterized as a knowledge-based era, human resources are key factor to achieving competitive advantage, and therefore companies are trying to attract the best talents from the labor market. As a result, the integration of marketing disciplines and human resource management has become necessary. By the synthesis of these two disciplines, the employer brand arises, which can be understood as the entirety of the company's effort to identify, attract and motivate employees at the workplace (Ambler and Barrow, 1996; Berthon, Ewing and Hah, 2005). Human capital created in this way can be viewed as a valuable resource that is unique and difficult to imitate and substitute, which enables the creation of a sustainable competitive advantage. In order to build the employer brand, it is necessary to follow the principles of branding and internal marketing, which implies such working conditions in which there are good interpersonal relations, a creative and challenging task, the possibility of promotion, acquisition of additional knowledge, competitive earnings, flexible working hours, etc. Bearing in mind the above, the main goal of this paper is to point out the influence of the employer brand on employee satisfaction and loyalty. Accordingly, the subject of the work is represented by employees in companies operating in the territory of the Republic of Serbia.

2. LITERATURE REVIEW

Employer brand arises by applying marketing philosophy in HRM, that is, applying the principles of internal marketing and branding in the HRM discipline (Ambler and Barrow, 1996). Companies that are oriented towards their employees apply the concept of internal marketing, which includes programs designed for employees and their development. It is focused on finding, motivating and retaining employees oriented towards the consumer (Domazet, 2011). The main goals of internal marketing are: 1) successful fulfillment of all the business obligations by the employees in the function of achieving the goals of the company, 2) motivation of employees to perform the tasks as experts who are oriented towards the consumer and focused on the quality of the product or service, and 3) attraction and retention of competent personnel.

Employer brand can be defined as the "package of functional, economic and psychological benefits provided by employment and identified with the employing company" (Ambler and Barrow, 1996). It is about the overall effort of the company to create such working conditions that will attract and retain the best employees (Alniaçik et al., 2014; Ewing et al., 2002). In other words, the employer brand represents the company's aspiration to present itself as a unique and desirable place to work (Sokro, 2012). Functional, economic and psychological benefits provided by employment authors Berthon et al (2005) modify and expand, thus creating a set of five large groups of benefits, which they name the employer brand dimensions. These dimensions are interest value (interesting working environment, application of innovative work methods, respect for ideas and creativity of employees), social value (satisfied employees, good interpersonal relations, etc), economic value (high salaries, bonuses, material incentives), development value (training, career advancement, gaining additional experience, etc) and applied value (application of acquired knowledge, teaching others, good treatment by management, etc). These dimensions served to the development of the so-called EmpAt scale, which is often used in researching the employer brand

in practice. As a result of the application of the employer brand numerous benefits arise, such as a good working environment, a positive image in the public, increase in profitability, and the employees themselves receive competitive wages, learning opportunities, work in a stimulating environment, etc (Pavlović and Slavković, 2018). Two factors that the employer brand can influence are especially important, and these factors consequently affect many other factors of the company, primarily its performance. Those are employee's satisfaction and loyalty

Satisfaction is defined as the individual state of mind resulting from the comparison of the observed results of a product or service with the expectation of that person (Castillo-Canalejo and Rio-Jimber, 2018). Satisfaction with the job represents the employee's positive attitudes towards the job he/she performs, which arises as a result of satisfied needs, desires and fulfilled expectations of the employee at the workplace (Aziri, 2011). In other words, it is a total employee satisfaction for the employers (Davies, Mete and Whelan, 2018). Factors that lead to satisfaction with the job can be numerous, with the most often being in mind the compensation system, the characteristics of the job, working conditions, the leadership style, interpersonal relations, the possibility of promotion, etc (Janićijević, Kovačević and Petrović, 2015). The employer brand can provide these factors and thus ensure the enthusiasm, positive attitudes and emotions of employees, increase their motivation and productivity (Davies, Mete and Whelan, 2018; Khanolkar, 2014; Aziri, 2011). Khanolkar (2014) has found that there is a significant direct positive relationship between the employer brand and employee satisfaction, and accordingly, the following hypothesis can be defined:

H₁: *The employer brand has a statistically significant positive impact on employees satisfaction.*

As one of the key benefits of employee satisfaction is the creation of psychological attachment, that is, loyalty to the company. The concept of loyalty to the company has three forms: affective, continuous and normative loyalty. In practice, most attention is paid to affective loyalty, which can be understood as a strong emotional association of the employee with the company due to significant identification and feeling of belonging to it (Tanwar, 2017). According to affective loyalty, the employees identify their own goals and value system with the company's goals, value system and culture, feel a high level of affiliation in the company, which leads to reduced fluctuation, absenteeism, growth of motivation and increased business performance. This corresponds with some of the dimensions of the employer brand that can significantly impact on employee loyalty, such as high salaries, opportunities for promotion, learning, good interpersonal relationships, working conditions etc (Vaijayanthi, Shreenivasan and Roy, 2011). Authors Allan and Meyer (1990), Alshathry, Clarke and Goodman (2017), Yalim and Mizrak (2017) and Vaijayanthi, Shreenivasan and Roy (2011) have found that there is a significant direct positive relationship between the employer brand and employee loyalty, and accordingly, the following hypothesis can be defined:

H₂: *The employer brand has a statistically significant positive impact on employees loyalty.*

If the employees are satisfied with their work, they will become loyal to the company over time. Loyalty in the context of an employee can be defined as the strength of an individual's identification and involvement in a particular organization (Roelen, Koopmans and Groothoff, 2008). Authors (Yalim and Mizrak, 2017) have found that satisfaction moderates the influence of the employer brand on loyalty, and accordingly, the following hypothesis can be set:

H₃: *Employee satisfaction has a significant moderator role in relation to the employer brand and employees loyalty.*

3. METHODOLOGY

The research was conducted in the period from May 10 to June 10, 2019. The sample comprised 59 respondents, who were segmented according to certain demographic characteristics. The survey was carried out personally and electronically by survey method. The main condition that respondents could participate in the research was to be employed. Regarding the demographic characteristics of the respondents, there are 24 women and 35 men in the total sample of 59 examinees. The largest number of respondents is aged 21 to 30 (66.1%). When it comes to education, the majority of respondents have higher education (57.6%). Structural information analysis showed that most respondents worked in companies with up to 50 employees (33.9%) and in companies with 51 to 150 employees (35.6%). When it comes to the form of company ownership, the majority of respondents work in domestic private companies - 22 (37.3%), then in state enterprises - 20 (33.9%) and finally in foreign private companies - 17 (28.8%).

In order to examine the influence of the employer brand on the satisfaction and loyalty of employees, an empirical research was conducted. A questionnaire was used to collect data, which was segmented into two parts. The first part of the questionnaire was designed with the goal of respondents to express their views on the employer brand, as well as to assess their degree of satisfaction and loyalty to the company. For this purpose, the adopted findings were taken from the relevant papers in this field: (Berthon, Ewing and Hah, 2005; Tanwar, 2017; Allan and Meyer, 1990). The findings are taken from the above papers because they have a high degree of reliability. Respondents gave answers via Likert scale and expressed the degree of agreement with a certain statement from grades 1 to 7 (1 - absolutely disagree; 7 - absolutely agree). The second part of the questionnaire is designed to determine the demographic characteristics of the respondents, as well as structural information about the companies in which respondents work. Data processing was performed using the statistical software "SPSS v.20".

4. RESEARCH RESULTS

At the beginning of the statistical analysis, values of arithmetic means and standard deviations were calculated. Table 1 shows the results of arithmetic means and standard deviations for the statements related to the employer brand variable.

The respondents expressed the most favorable and the most homogeneous attitudes on the basis of the statement "*The organization produces high-quality products and services*" (arithmetic mean = 5.59 and standard deviation = 1.06). On the other hand, respondents expressed the most unfavorable and least homogeneous attitudes on the basis of the statement "*Humanitarian organization - gives back to society*" (arithmetic mean = 4.20 and standard deviation = 2.02). It can be concluded that the companies in which the respondents work mainly produce products and services of a high quality level, and that there is a considerable deviation when it comes to the participation of companies in humanitarian actions, where only a small number of companies take part. Table 2 shows the results of arithmetic mean and standard deviations for the findings related to the employee satisfaction variable.

Table 1. Results of descriptive statistics for employer brand
Source: Authors

Statements	AM	SD
Recognition / appreciation from management	5,23	1,37
A fun working environment	4,89	1,59
A springboard for future employment	4,96	1,58
Feeling good about yourself as a result of working for a particular organization	5,16	1,38
Feeling more self-confident as a result of working for a particular organization	5,30	1,18
Gaining career-enhancing experience	5,49	1,31
Having a good relationship with your superiors	5,05	1,35
Having a good relationship with your colleagues	5,13	1,50
Supportive and encouraging colleagues	5,08	1,22
Working in an exciting environment	5,01	1,49
Innovative employer - novel work practices/forward-thinking	4,61	1,38
The organization both values and makes use of your creativity	4,86	1,43
The organization produces high-quality products and services	5,59	1,06
The organization produces innovative products and services	4,87	1,30
Good promotion opportunities within the organization	5,06	1,55
Humanitarian organization - gives back to society	4,20	2,02
Opportunity to apply what was learned at a tertiary institution	5,18	1,37
Opportunity to teach others what you have learned	5,19	1,31
Acceptance and belonging	5,06	1,20
The organization is customer-orientated	5,28	1,17
Job security within the organization	5,15	1,67
Hands-on inter-departmental experience	5,00	1,51
Happy work environment	5,40	1,10
An above average basic salary	4,74	1,52
An attractive overall compensation package	4,71	1,64

Table 2. Results of descriptive statistics for employee satisfaction
Source: Authors

Statements	AM	SD
Generally speaking, I am satisfied with my work.	5,25	1,33
I am satisfied with the time limits within which I have to finish my work.	5,30	1,57
I am satisfied with the amount of work I have to do.	4,94	1,55
I am satisfied with the variation of my work tasks.	4,79	1,44
I am satisfied with the working conditions.	5,01	1,66
I am satisfied with working hours.	5,00	1,69
I am satisfied with the salary.	4,74	1,52
I am satisfied with the relationship with my superiors.	5,32	1,12
I am satisfied with the relationship with my colleagues.	4,98	1,34
I am satisfied with the instructions given for carrying out my work tasks.	5,27	1,27
My job is physically demanding.	3,42	1,75
My job is mentally challenging.	5,27	1,43
I have the freedom to carry out my work tasks.	5,22	1,28
I am involved in making decisions at work.	5,11	1,39
Training and education at work positively influence my perspective in a further career.	5,40	1,41

The lowest value of the arithmetic mean based on the statement “*My job is physically demanding*” (3.42) shows that the respondents do not invest too much physical effort in doing business activities. But on the basis of the stated conclusion, there are also major differences in the responses of the respondents, since the value of the standard deviation is the highest (1.75). The respondents showed the highest level of satisfaction on the basis of the statement “*Training and education at work positively influence my perspective in a further career*” (the highest value of the arithmetic mean = 5.40), which means that companies invest in human capital or development of employees, because in that way they acquire a competitive advantage in a business environment that can be characterized as a knowledge-based era. Respondents expressed the most homogeneous attitudes on the basis of the statement “*I am satisfied with the relationship with my superiors*” (the lowest value of standard deviation = 1.12). Table 3 shows the results of arithmetic means and standard deviations for the findings related to the loyalty of employees variable.

Table 3. Results of descriptive statistics for employee loyalty
Source: Authors

Statements	AM	SD
I would be very happy to spend the rest of my career with this organization.	4,88	1,90
I enjoy discussing my organization with people outside it	5,08	1,63
I really feel as if this organization's problems are my own	4,22	1,81
I think I cannot easily tie up to another company,like this one I'm currently working on.	4,52	1,72
I feel like a “part of the family” in this company.	4,47	1,68
I feel the emotional attachment with this company.	4,48	1,70
This organization has a great deal of personal meaning for me.	4,72	1,67
I feel highly affiliated with this company.	4,81	1,68

The respondents expressed the most favorable and the most homogeneous attitudes on the basis of the statement “*I enjoy discussing my organization with people outside it*” (arithmetic mean = 5,08 and standard deviation = 1,63). Respondents expressed the most unfavorable attitudes on the basis of the statement “*I really feel as if this organization's problems are my own*” (the lowest value of the arithmetic mean is 4.22). Respondents answers mostly deviate from the statement “*I would be very happy if I spent the rest of my career in this company*” (the highest value of standard deviation is 1.90), which means that a some of respondents would spend the rest of their career in certain company, and the rest would not.

Few authors often point out that it is appropriate to use *partial least squares* to examine psychological variables and models, especially in the case of an insufficiently developed theoretical understanding of the impact of an independent variable on a dependent variable, like in this paper (Aparicio, 2011). Bearing in mind the above, for examining the hypothesis *SmartPLS v.3* statistical package was used. Research model is shown on Figure 1.

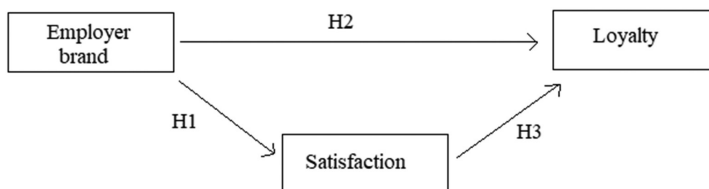


Figure 1. Research model
Source: Authors

Prior to implementing SEM, through reliability and confirmatory factor analysis the suitability of the overall model fit was determined. In order for the model to be considered reliable, it is necessary that its value of the *Cronbach Alpha* coefficient has minimum value 0,7 (Nunnally, 1978), while *Composite Reliability* (CR) must be minimum 0,7 (according to some authors 0,9) (Hair et al., 2014). Results are shown in Table 4.

Table 4. Reliability analysis

Source: Authors

Variable	Cronbachs alpha	Composite Reliability
Employer brand	0,914	0,925
Loyalty	0,923	0,937
Satisfaction	0,866	0,897

Since all values are greater than the minimum prescribed values, it can be concluded that there is good reliability of the statements used to measure the model variables. When we talk about confirmatory factor loading, *Average Variance Extracted* (AVE) is in some cases less than 0,5, which is defined as the threshold. However, as the authors Fornell and Larcker (1981) stated, this is not a problem if the previous value of the *Composite Reliability* was in all cases above 0,6. In the research model there is no problem of multicollinearity, since the variables have the value of the VIF factor (*Variance Inflation Factor*) less than 5 (Field, 2000) (Employer brand = 3,6, Loyalty = 3,6 and Satisfaction = 3,8). Finally, the value of χ^2/df test has to be less than 3 (Byrne, 1998). The value obtained in the model is 2,8, so it can be stated that the research model is achieving the good adequacy.

Using the SEM analysis, the statistical significance of the tested effects was calculated. The results of the analysis are shown in Table 5.

Table 5. Reliability analysis

Source: Authors

Hypothesis	Standardized beta coefficient	p value
Employer brand → Satisfaction	0,898	0,000
Employer brand → Loyalty	0,123	0,056*
Employer brand → Satisfaction → Loyalty	0,759	0,000

Results of the SEM analysis has shown the employer brand has a statistically significant positive impact on employee satisfaction ($\beta = 0,989$, $p = 0,000$), which confirms the H_1 hypothesis. With a risk of error of 0.1 it can be stated that the employer brand has a statistically significant positive impact on employees' loyalty ($\beta = 0,123$, $p = 0,056$). The specificity of the results when examining the second hypothesis is reflected in the fact that after the test of the moderator variation there was a change in the value of the test. Namely, the result of the test of the influence of the employer brand on the loyalty of employees before the inclusion of a moderator verified at the level of 0,000, with a beta coefficient of 0,782. However, after including on the moderator variable, there is a decrease in the beta coefficient value and p value, where the beta coefficient in the new iteration is significantly lower, and the test value is at the level of less than 0.1. But this is not a problem, first of all because it can still be argued that the employer brand has a statistically significant positive impact on employees' loyalty, which has confirmed the H_2 hypothesis. But these results

also confirm the last hypothesis. Namely, when examining the influence of the employer brand on the loyalty of employees with satisfaction as a moderator variable, it has been shown that there is a significant increase in the value of the beta coefficient and p value, and consequently it can be argued that the employee satisfaction has a significant moderator role in the relationship of the employer brand and loyalty of the employees ($\beta = 0.759$, $p = 0.000$), which confirms the H_3 hypothesis. In addition, it should be emphasized that the predictor variables describe a total of 80.6% of the variability of the dependent variable, ie employee loyalty ($R^2 = 0,806$).

5. DISCUSSION AND CONCLUSION

Within the basic research model, the influence of the employer brand on the satisfaction and loyalty of the employees was analyzed. The results of the SEM analysis show that the employer brand has a positive statistically significant impact on employee satisfaction, which confirms H_1 hypothesis. The results are similar to those of previous research that proved that there is a positive impact of the employer brand on employee satisfaction (Yalim and Mizrak, 2017; Khanolkar, 2014). Also, the results of the SEM analysis show that the employer brand has a positive statistically significant influence on employees loyalty, thus confirming H_2 hypothesis. The results obtained are similar to the results of previous research, which have established a positive link between the employer brand and employees loyalty (Vaijayanthi, Shreenivasan and Roy, 2011; Tanwar, 2017). Satisfaction is included in the research model as a moderator variable. The results show that satisfaction has a positive significant moderator role in relation to the employer brand and employees loyalty, which confirms H_3 hypothesis. The obtained results confirmed the claim of the previous research that satisfaction moderated the influence of the employer brand on loyalty. We can conclude that the strengthening of the satisfaction strengthens the attitude of the employer brand and loyalty.

Theoretical implications can be derived from the analysis of the relationship of the variables of the observed model. Confirmed hypotheses also represent the theoretical implications of work, as they expand the scientific knowledge about the influence of the employer brand on the satisfaction and loyalty of the employees. *The managerial implications* of the work are reflected in the help of the owners of companies in the examination of factors that influence the satisfaction and loyalty of the employees. The employer brand and internal marketing considerably influence the satisfaction and loyalty of employees, who are then more motivated and create superior value for consumers, which also affects the satisfaction and loyalty of consumers, and ultimately allows the company to make profitable long-term business. *The limitation of work* is primarily related to the sample, i.e. its size and structure. In future work, apart from increasing sample size, research should be carried out to ensure the individual participation of different groups in the sample. In addition, research should be carried out more often.

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MEASURING THE PROSPECTIVE FOR CAREER DEVELOPMENT IN THE HOSPITALITY INDUSTRY IN NORTH MACEDONIA

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Abstract: *This research contains eclectic analyses of the theory of human resources development along with the findings from the empirical research with the main goal to determine the prospects for career development in the hospitality industry in North Macedonia. By using a sample of employees from different gender, age and education, the differences in perception have been evaluated and analyzed. Based on the findings, the researchers identified the current competencies, the future training needs as well as the career status of the employees in the hospitality industry in North Macedonia. Additionally, the research investigated the differences in the evaluated competencies among different groups of employees (gender, age, education, career status). The measured competencies were divided into six groups: Leadership/Assertiveness, Ethics/Professionalism, Teamwork/Communication, Orientation towards success, Self-management (stress, emotions) and Learning and development. By conducting the set of questionnaires, the quantitative analyses were conducted on the different variables that have been analyzed by computing different statistical methods like descriptive analyses, t-test ANOVA and correlation analyses. The paper also explores the necessity for developing the human resources departments into the organizations from hospitality industry where the educated and experienced professionals will be involved in providing services for competences and career development of each employee based on the organizational and individual needs. This practical approach should increase the awareness of the leaders in the hospitality industry in North Macedonia to invest in the knowledge and development of human resources as the main resource for organizational success and development.*

Keywords: *Hospitality Industry, Career Development, Human Resources Development.*

JEL classification O15 · Z32

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1. INTRODUCTION

The big changes present in everyday life contribute to all segments of human life. In relation to the changes, many different approaches and philosophies are present in the process of managing people and leading business. In today's managerial and business philosophy, the term "capital" is rarely related to money and material tools, on the contrary - it is more related to people, their competences, creativity and development potential (Baum, 1995). In today's business world, only the new knowledge (human capital) and technology can move the bridges of the production capabilities above, and there are the main factors that can increase the production by using the same resources. People, their knowledge, their capabilities, their motivation, and their satisfaction are the main factor for achieving success on both the domestic and the global market (Baum, 1997). The intellectual war for experts, leaders and young talents is a more and more present form of concurrency and, in the same time, leading them is the basic topic in the business literature of the 21st century.

The human resources management (HRM) is constantly changing and developing together with the changes and challenges of modern organizations. The managers of the companies become aware that people with their competences, with their ideas and possibilities, are the most important potential for the organization, the potential that should be led in a rational and human way (International Labour Organization, 2001). The manager-employee relations based on power can be changed with cooperation, teamwork and creative dealing with the set goals by increasing the importance of integrity, initiative and personality of the employees. It is clear that in such conditions, the employees (at any level or function) are not accepting to be employed just to finish their working task and to receive their salary; they want to share their opinions, to present their qualities and to improve themselves as persons by developing their own careers (Kelliher & Johnson, 1997). As far as the employees recognize the potential for developing their own careers in the organization (no matter the type or size), they work for achieving the organizational goals. The employee that is evaluated, respected and compensated is satisfied with the working status and the work position, and at the same time, he/she is motivated for satisfying their higher needs for career development.

2. COMPETENCY AND CAREER DEVELOPMENT

Career development is a natural phenomenon in the professional life of all employees. The most common misconception is that career development automatically means moving up the hierarchical scale in the company. However, career development is a much more complex process, which is mostly conditioned by the following factors: human resources development policy; the company's culture; the experience and performance of each individual and the ability and demonstrated development potential (Millar et al., 2013). In the most companies, employees consider that those who have been employed since the very beginning of the company's work or the longest-serving employees are those who are the most loyal and should be rewarded by giving them the opportunity to further develop their careers. Of course, the career development of these people is not excluded as an option, but what needs to be emphasized is that development is not an exclusive right of "indigenous people" in the company, and development must never be used as a long-term reward in the company (Baum, 1990).

Competence development is a standardized requirement from an individual to perform a particular work activity appropriately. It is a combination of knowledge, rituals, and behavior in favor of better performance. In other words, competence is a condition of an adequate qualification, i.e. having the ability to perform a certain work role (Millar et al., 2013). Competencies

are usually divided into subgroups, such as analytical thinking, organizational communication, problem-solving, creativity, etc. For example, management competence includes aspects of the thinking system and emotional intelligence as well as negotiation skills and the ability to impose the influence of others (Baum, 1990). A well-developed competency model is a useful tool in the process of strengthening talent management, employment and retention of talents, career planning for employees and managing their performance. The company can also benefit from a good model of competence. The purpose of the model is to outline the required competencies that will guide the behavior towards the most efficient performance of each working category. Knowledge of competencies will also mean helping to identify the most appropriate employee for a particular work role. In the same way, the excellent performance will be differentiated from the average, which will determine the criterion of success (Kelliher & Johnson, 1997).

Many research studies are trying to identify the crucial competencies in the hospitality industry. Tas (1983), identified the managing guest problems, professionalism and ethics, communication skills and positive attitude towards the other employees and customers as the most important competencies in the hospitality industry (Tesone & Ricci, 2005). According to Hersey and Blanchard (1988), there are groups of competencies that represent technical, human and conceptual skills as well as demonstration of organization skills, people skills, and leadership. Additionally, Sandwith (1993) presented the five elements competency model that represents the following groups of competences: conceptual-creative, leadership, interpersonal-relational; administrative, regarding personnel and financial management of the business; and technical, concerning the knowledge and skills essential to producing the product or service. Human relation skill (teamwork and relations with others) according to Doyle (1992) are ranked most highly along with elective communication when recruiters make selection decisions for the employees in the hospitality sector.

3. RESEARCH METHODOLOGY

In line with the current needs for Human Resources development in the hospitality industry, the researchers developed the practical pilot research for measuring the development of the employee's competencies of 31 participants employed in three restaurants in Tetovo, North Macedonia. By using a sample of employees from different gender (2 groups), age (3 groups) and education (3 groups) the differences in perception for their current career status and their further competence development have been evaluated and analyzed.

The measured competencies were divided in six groups of questions: Leadership/Assertiveness (5 questions), Ethics/Professionalism (3 questions), Teamwork/Communication (12 questions), Orientation towards success (3 questions), Self-management (3 questions) and Learning and development (3 questions). The data for this research has been collected by using the two questionnaires for self-assessment (the competence questionnaire created by the authors and Career status assessment (20 questions and three levels: low, middle and high level of career development³). The questionnaires have been translated and adopted on Macedonian and Albanian language.

4. RESULTS

According to the results from the descriptive analyses in general, the participants have a tendency to give high marks on the evaluated groups of competences. As it can be seen on the Table 1 and Chart 1, the mean for all evaluated competences is higher than 4 and it is above the expected mean. However, the crucial needs for competence training according to the employees in the

³ 2006 Career Transitions Unlimited; Dilip Saraf

restaurant business in North Macedonia are self- management (control of the stress, emotional intelligence), team/communication (dealing with others) and learning and development (constant development of the professional and business knowledge).

Regarding the career development status, the general mean is 3,97, which represents the middle level of career development in general.

Table 1: Competence and career assessment* General

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Leadership/Assertiveness	32	13	34	686	21,44	4,332
Ethics/Professionalism	32	9	15	404	12,63	1,680
Team/Communication	32	33	59	1581	49,41	7,242
Orientation towards success	32	7	15	398	12,44	2,154
Self Management (Stress, emotions)	32	4	15	392	12,25	2,540
Learning and development	32	12	25	657	20,53	3,473
Career development	32	45	98	2541	79,41	14,114

Chart 1: Self-assessment of the competence development



Figure 1. Descriptive statistics-results from the competence and career status assessment

Based on the descriptive statistics and compare means conducted among males and females it can be concluded that females evaluate the level of competences and career development higher than males in all of the measured aspects. However, as it can be seen on the table in figure 3 the difference among males and females is statistically significant for Team/ communication and Career development. This means that the competencies for Teamwork and Communication are significantly higher in the female population compared to the male population. Finally, females average for career development is 94,75 which represents a high level of career development compared with the average of the males (77,21) that represents the middle level.

Table 2: Competence and career assessment * Gender

	N	Mean	Std. Deviation	Std. Error Mean
Leadership/Assertiveness	Female	4	24,50	1,000
	Male	28	21,00	4,456
Ethics/Professionalism	Female	4	14,25	,500
	Male	28	12,39	1,663
Team/Communication	Female	4	57,25	1,708
	Male	28	48,29	7,034
Orientation towards success	Female	4	13,75	,957
	Male	28	12,25	2,222
Self Management (Stress, emotions)	Female	4	14,25	,957
	Male	28	11,96	2,575
Learning and development	Female	4	24,00	2,000
	Male	28	20,04	3,372
Career development	Female	4	94,75	1,893
	Male	28	77,21	13,728

Chart 2: Descriptive statistics for competences among males and females

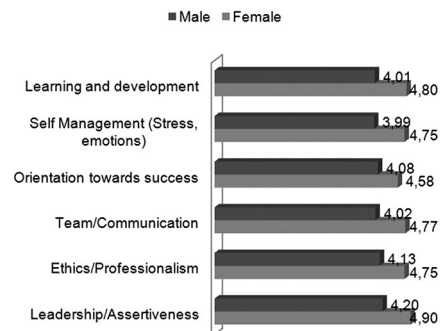


Figure 2. Descriptive statistics-results from the competence and career status assessment for males and females

Table 3: T-test for competence and career assessment *Gender		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
Leadership/Assertiveness	Equal variances assumed	3,227	,083	1,545	30	,133	3,500	2,266		-1,127	8,127
	Equal variances not assumed			3,574	23,312	,002	3,500	,979		1,476	5,524
Ethics/Professionalism	Equal variances assumed	3,359	,077	2,191	30	,036	1,857	,848		,126	3,588
	Equal variances not assumed			4,624	15,637	,000	1,857	,402		1,004	2,710
Team/Communication	Equal variances assumed	5,673	,024	2,505	30	,018	8,964	3,578		1,656	16,272
	Equal variances not assumed			5,674	21,274	,000	8,964	1,580		5,681	12,247
Orientation towards success	Equal variances assumed	1,174	,287	1,318	30	,197	1,500	1,138		-,824	3,824
	Equal variances not assumed			2,356	8,810	,043	1,500	,637		,055	2,945
Self Management (Stress, emotions)	Equal variances assumed	1,174	,287	1,737	30	,093	2,286	1,316		-,401	4,972
	Equal variances not assumed			3,349	11,085	,006	2,286	,683		,785	3,787
Learning and development	Equal variances assumed	,698	,410	2,275	30	,030	3,964	1,743		,405	7,524
	Equal variances not assumed			3,343	5,824	,016	3,964	1,186		1,041	6,887
Career development	Equal variances assumed	7,672	,010	2,516	30	,017	17,536	6,969		3,303	31,768
	Equal variances not assumed			6,350	29,899	,000	17,536	2,762		11,895	23,177

Figure 3. Results for the t-test for competences and career development among males and females

Table 4: Competences assessment *Age		L/A	E/P	T/C	OTS	SM	L&D
19-29	Mean	21,48	12,48	49,72	12,24	12,20	20,40
	N	25	25	25	25	25	25
	Std. Deviation	4,727	1,782	7,569	2,223	2,466	3,524
30-49	Mean	21,17	13,33	49,17	13,33	13,33	21,50
	N	6	6	6	6	6	6
	Std. Deviation	2,994	1,211	6,432	1,966	1,966	3,564
50-	Mean	22,00	12,00	43,00	12,00	7,00	18,00
	N	1	1	1	1	1	1
	Std. Deviation						
Total	Mean	21,44	12,63	49,41	12,44	12,25	20,53
	N	32	32	32	32	32	32
	Std. Deviation	4,332	1,680	7,242	2,154	2,540	3,473

Chart 3: Descriptive statistics for competences among different age groups

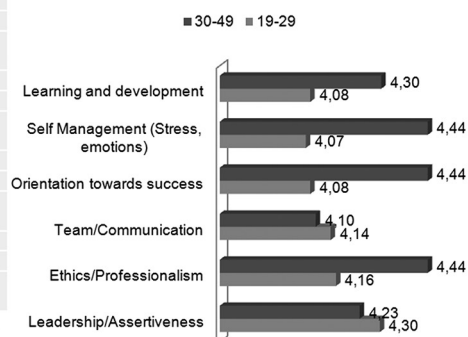


Table 5: Career status assessment *Age			
Age	Mean	N	Std. Deviation
19-29	79,08	25	14,611
30-49	80,17	6	14,372
50-	83,00	1	
Total	79,41	32	14,114

Figure 4. Descriptive statistics-results from the competence and career status assessment for different age groups

Based on the analyses for competence and career assessment among three different age groups it can be concluded that the age group (30-49) has the highest results in competences compared to the others for the most of the evaluated aspects. However, the age group (19-29) has a higher level of competences for Leadership/Assertiveness and Team/Communication. The only statistically significant difference is for Career status assessment/Career development, where the means of the 30-49 group are significantly higher than the means of the group 19-29. The group above 50 years has been excluded from further analyses because of the small number of participants.

Table 6: ANOVA test for competence and career assessment *Age		Sum of Squares	df	Mean Square	F	Sig.
Leadership/Assertiveness	Between Groups	88,925	2	44,463	2,616	,090
	Within Groups	492,950	29	16,998		
	Total	581,875	31			
Ethics/Professionalism	Between Groups	,405	2	,202	,067	,935
	Within Groups	87,095	29	3,003		
	Total	87,500	31			
Team/Communication	Between Groups	24,041	2	12,021	,218	,806
	Within Groups	1601,677	29	55,230		
	Total	1625,719	31			
Orientation towards success	Between Groups	7,039	2	3,519	,746	,483
	Within Groups	136,836	29	4,718		
	Total	143,875	31			
Self Management (Stress, emotions)	Between Groups	13,705	2	6,852	1,067	,357
	Within Groups	186,295	29	6,424		
	Total	200,000	31			
Learning and development	Between Groups	61,532	2	30,766	2,856	,074
	Within Groups	312,436	29	10,774		
	Total	373,969	31			
Career development	Between Groups	5043,241	2	2521,621	64,573	,000
	Within Groups	1132,477	29	39,051		
	Total	6175,719	31			

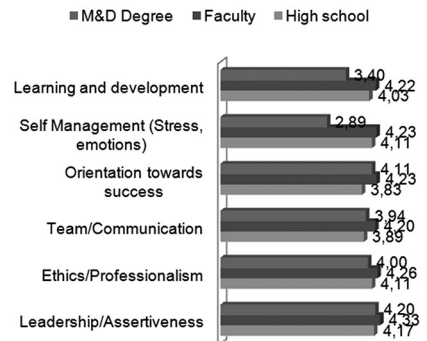
Figure 5. ANOVA test for competences and career development among different age groups

Table 7: Competence assessment* Education		L/A	E/P	T/C	OTS	SM	L&D
High school	Mean	20,83	12,33	46,67	11,50	12,33	20,17
	N	6	6	6	6	6	6
	Std. Deviation	2,483	2,160	9,266	2,345	1,506	,983
Faculty	Mean	21,65	12,78	50,39	12,70	12,70	21,09
	N	23	23	23	23	23	23
	Std. Deviation	4,867	1,650	6,423	2,098	2,530	3,825
Master and Doctorate degree	Mean	21,00	12,00	47,33	12,33	8,67	17,00
	N	3	3	3	3	3	3
	Std. Deviation	3,606	1,000	10,214	2,517	1,528	1,000
Total	Mean	21,44	12,63	49,41	12,44	12,25	20,53
	N	32	32	32	32	32	32
	Std. Deviation	4,332	1,680	7,242	2,154	2,540	3,473

Table 8: Career status assessment * Education			
Education	Mean	N	Std. Deviation
High school	77,50	6	9,182
Faculty	79,91	23	15,500
Master and Doctorate degree	79,33	3	14,844
Total	79,41	32	14,114

Figure 6. Descriptive statistics-results from the competence and career status assessment for different educational groups

Chart 4: Descriptive statistic for competence among different education group



According to the results of competence and career status assessment among three groups of participants based on their level of education, as presented in Figure 7, it can be concluded that the education group of employees that have finished faculty has the highest scores in all of the measured competencies as well as the level of career development. Additionally, the difference between the three educational groups is significant only for the competencies for Self- management (stress-emotions).

Table 9: Anova test for competences and career development*Education		Sum of Squares	df	Mean Square	F	Sig.
Leadership/Assertiveness	Between Groups	3,824	2	1,912	,096	,909
	Within Groups	578,051	29	19,933		
	Total	581,875	31			
Ethics/Professionalism	Between Groups	2,254	2	1,127	,383	,685
	Within Groups	85,246	29	2,940		
	Total	87,500	31			
Team/Communication	Between Groups	80,240	2	40,120	,753	,480
	Within Groups	1545,478	29	53,292		
	Total	1625,719	31			
Orientation towards success	Between Groups	6,839	2	3,419	,724	,494
	Within Groups	137,036	29	4,725		
	Total	143,875	31			
Self Management (Stress, emotions)	Between Groups	43,130	2	21,565	3,987	,030
	Within Groups	156,870	29	5,409		
	Total	200,000	31			
Learning and development	Between Groups	45,309	2	22,655	1,999	,154
	Within Groups	328,659	29	11,333		
	Total	373,969	31			
Career development	Between Groups	27,726	2	13,863	,065	,937
	Within Groups	6147,993	29	212,000		
	Total	6175,719	31			

Figure 7. Anova test for competences and career development among different education groups

Table 10: Correlation analyses of the competence and career development

	L/A	E/P	T/C	OTS	SM	L&D	Career development
Leadership/Assertiveness	1	,289	,557**	,387*	,236	,383*	,529**
		,108	,001	,029	,194	,031	,002
	32	32	32	32	32	32	32
Ethics/Professionalism	,289	1	,530**	,368*	,280	,411*	,224
	,108		,002	,038	,121	,019	,217
	32	32	32	32	32	32	32
Team/Communication	,557**	,530**	1	,615**	,320	,387*	,345
	,001	,002		,000	,074	,028	,053
	32	32	32	32	32	32	32
Orientation towards success	,387*	,368*	,615**	1	,545**	,623**	,358*
	,029	,038	,000		,001	,000	,044
	32	32	32	32	32	32	32
Self Management (Stress, emotions)	,236	,280	,320	,545**	1	,829**	,345
	,194	,121	,074	,001		,000	,053
	32	32	32	32	32	32	32
Learning and development	,383*	,411*	,387*	,623**	,829**	1	,569**
	,031	,019	,028	,000	,000		,001
	32	32	32	32	32	32	32
Career development	,529**	,224	,345	,358*	,345	,569**	1
	,002	,217	,053	,044	,053	,001	
	32	32	32	32	32	32	32

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Figure 8. Correlation analyses of the competence and career development (Pearson Sig.2-N)

Finally, based on the founding's from the correlation analyses, the relation between the different groups of competencies and career development is significant for the Leadership/Assertiveness, Orientation towards success and Learning and development. This means that the level of development of the leadership/assertiveness skills, orientation towards successes and willingness for continuous development will develop is in line with the career development.

5. CONCLUSION

All resources of production are important, like machines, capital, money, land, etc. in order to ensure the achievement of production of a running factory. Overall supremacy has to be given to the element of human resources. Man, itself, ensures the economical use of resources by applying wisdom. Hence, any amount of efforts spent on training of human resources will yield its appropriate result and higher productivity for the organization. The prospects and growth, productivity and profitability of an organization depend on effective utilization of such resources, employed in the effort of achieving company objectives. The achievement of an organization can be seen as a result of cooperation and hard work at all the levels of functioning of an organization. Any huge capital investment in developing the infrastructure of a training institute and its running will show results in achieving higher productivity and profitability in the years that come.

The paper gives a clearer picture for the most important competencies for career development in the restaurant businesses in North Macedonia. It represents that there is a need of integrated use of training and development, career development, and organization development in order to improve employee's individual effectiveness.

The professionals for human resources management as well as the managers of the organization in the hospitality industry in North Macedonia should create the set of systematic and planned activities designed to provide its members with the opportunities to learn necessary skills to meet current and future job demands. This process should begin when an employee joins an organization and continue throughout his or her career, regardless of whether that employee is an executive or a worker on an assembly line. The human resources development programs must respond to job changes and integrate the long-term plans and strategies of the organization to ensure the efficient and effective use of resources.

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IMPACT OF EXTERNAL SHOCKS ON BULGARIA'S GROWTH AND CYCLE

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Abstract: *The objective of this paper is to study the influence of the international economic conjuncture on Bulgaria's economic growth and business cycle. A vector autoregression (VAR) is employed to identify the main factors, which affect the growth and cyclicity of Bulgaria, the size and the direction of their impact. The cause-and-effect links between external economic conditions, the growth of real gross domestic product (GDP) and the output gap of Bulgaria have been investigated. The external opportunities and threats facing the Bulgarian economy under a currency board arrangement and a membership in the European Union have been outlined. Recommendations have been made on appropriate policies for using external opportunities and overcoming external threats. The study results indicate that the main international determinants of Bulgaria's economic growth and business cycle are macroeconomic policies in the Euro Area.*

Keywords: *Bulgaria; External shocks; Economic growth; Business cycle; Currency board arrangement; Vector autoregression*

JEL Classification O47 · E32 · F41 · F43 · F44

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1. INTRODUCTION

The economic growth and the business cycle of Bulgaria under a currency board arrangement (CBA) have been studied by many authors - Ganev (2005), Minassian (2008), Pirimova (2001 and 2014), Raleva (2013), Statev (2009), Todorov and Durova (2016), Todorov et al. (2018a) etc.

In a small open economy like the Bulgarian one, international factors play a decisive role in the internal economic situation. Under a currency board arrangement, macroeconomic strategy makers' ability to neutralize and mitigate the impact of adverse external shocks on the national economy is limited. The lack of an independent exchange-rate policy does not allow the absorption of external shocks by changing the nominal exchange rate, and the inability to pursue a discretionary monetary policy leads to a loss of control over money supply and interest rates. Fiscal policy is the only effective macroeconomic instrument, but its implementation should avoid the so-called "twin deficits" (simultaneous fiscal deficit and current account deficit). The objective of adopting the euro further complicates the task of Bulgarian macroeconomic governance as it necessitates compliance with the Maastricht convergence criteria. This objective may get in conflict with the goal of catch-up economic development and narrowing the gap in living standards with developed economies. Nominal convergence (fulfillment of the Maastricht criteria) does not always mean real convergence (catch-up economic development).

The purpose of this article is to study the impact of the international economic environment on the growth and the cyclicity of the Bulgarian economy under the conditions of a currency board arrangement and a European Union (EU) membership. The aim of the study has been achieved through the fulfillment of the following tasks:

- Identification of the international factors of the economic growth in Bulgaria (section one);
- Identification of the external determinants of the cyclicity of the Bulgarian economy (section two);
- Outlining the external opportunities and threats for the Bulgarian economy under a CBA and EU membership and formulating policies for their use and overcoming (conclusions section).

This research employs a VAR methodology and quarterly seasonally adjusted Eurostat data for the period from the second quarter of 2007 to the last quarter of 2017. All variables have been calculated as growth rates or a percentage of real GDP with the exception of the output gap, which has been presented as a percentage of potential GDP. Potential output has been estimated via the Hodrick-Prescott filter.

All variables have been tested for stationarity. If they have been found to be integrated of the first order, tests have been made for the optimal number of lags and co-integration of Johansen. The optimal number of lags has been used in the Johansen test and in the construction of the vector autoregression. If the Johansen test has demonstrated a cointegration link between variables, a restricted VAR, also known as a Vector Error Correction (VEC), has been applied. Otherwise, an unrestricted VAR has been employed.

The short-term cause-and-effect relationships between the variables have been analyzed through Pairwise Granger Causality Tests, while long-term via the Granger Causality/Block Exogeneity Wald Tests. Impulse Response charts have been produced to illustrate how the target variables (the real GDP growth rate and the output gap) respond to external shocks.

2. INTERNATIONAL FACTORS OF BULGARIA'S ECONOMIC GROWTH

The international factors of economic growth in Bulgaria have been identified by a vector autoregression with the following variables: *GDPGR_BG* – rate of growth of the real GDP of Bulgaria on the previous quarter; *GDPGR_EA* – rate of growth of the real GDP in the Euro area (EA) on the previous quarter; *GOV_DEBT_EA* – government debt in the EA (percentage of GDP); *GOV_EXP_EA* – government expenditures in the EA (percentage of GDP); *GOV_REV_EA* – government revenues in the EA (percentage of GDP); *IMPGR* – rate of growth of Bulgaria's imports on the previous quarter; *INT_RATE_EA* – interest rate on the main refinancing operations of the European Central Bank (ECB); *OILGR* – rate of growth of the oil price on the previous quarter; *FISC_BAL_EA* – fiscal balance in the EA (percentage of GDP); *FDIGR* – rate of growth of the foreign direct investments (FDI) in Bulgaria on the previous quarter; *EXPGR* – rate of growth of Bulgaria's exports on the previous quarter; *DAXGR* – rate of growth of the German Stock Index DAX on the previous quarter. The target variable is ***GDPGR_BG***.

The group unit root tests (see Table 1) show that the variables are stationary (integrated of order zero), which requires the application of unlimited VAR.

Table 1. Tests for stationarity of the variables in the vector autoregression

Source: Prepared by the authors

Method	Statistic	Probability	Cross-sections	Observations
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t^*	-3.20039	0.0007	12	464
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	6.87073	0.0000	12	464
ADF - Fisher Chi-square	111.351	0.0000	12	464
PP - Fisher Chi-square	183.002	0.0000	12	504

The test for the optimal number of lags in the vector autoregression shows that according to all criteria this number is two (see Table 2). The vector autoregression has been estimated with two lags.

Table 2. Optimal lag length in the VAR model

Source: Prepared by the authors

Number of lags	FPE	AIC	SC	HQ
0	9.03e+10	59.28040	59.78193	59.46303
1	1111839.	47.70445	54.22439	50.07865
2	13118.92*	41.16569*	53.70402*	45.73146*

* Shows the optimal number of lags according to the respective criterion

The equation for the target variable in the VAR model ***GDPGR_BG*** after the step-by-step removal of statistically insignificant variables is

$$\begin{aligned}
 GDPGR_BG = & -0.70 \times GDPGR_BG(-1) - 0.34 \times GDPGR_BG(-2) \\
 & + 0.87 \times GDPGR_EA(-1) - 0.46 \times GOV_DEBT_EA(-1) \\
 & + 0.40 \times GOV_DEBT_EA(-2) + 5.32 \times GOV_EXP_EA(-2) \\
 & - 5.64 \times GOV_REV_EA(-2) + 1.19 \times INT_RATE_EA(-1) \\
 & - 1.53 \times INT_RATE_EA(-2) + 5.58 \times FISC_BAL_EA(-2) \\
 & - 0.02 \times EXPGR(-2) + 22.06
 \end{aligned} \tag{1}$$

The economic growth in Bulgaria is influenced by its own past values and the lagged values of the EA's growth, government debt in the EA, government expenditures in the EA, government revenues in the EA, the ECB interest rate, fiscal balance in the EA and the growth rate of the Bulgarian exports. The regression coefficient in front of the seconds lags of the government expenditures and the government revenues in the EA are a few times higher than the other regression coefficients. The coefficient before the government expenditures in the EA is positive whereas the coefficient before the government revenues in the EA is negative. Fiscal expansion in the EA has a substantial positive influence on Bulgaria's economic growth, while fiscal contraction in the EA has a significant negative effect on the rate of growth of Bulgaria's real GDP.

The value of the coefficient of determination ($R\text{-squared} = 0.68$) indicates that 68% of the variation of Bulgaria's real GDP growth can be explained by changes in the independent variables in (1). The probability of the F-statistic (0,00) shows that the alternative hypothesis of adequacy of the model used is confirmed. It should be made clear that this does not mean that the model is the best possible but simply adequately reflects the relationship between the dependent and the independent variables.

The CUSUM test results imply that (1) is dynamically stable (see Figure 1), as the actual CUSUM values are within the confidence interval at the 5% significance level.

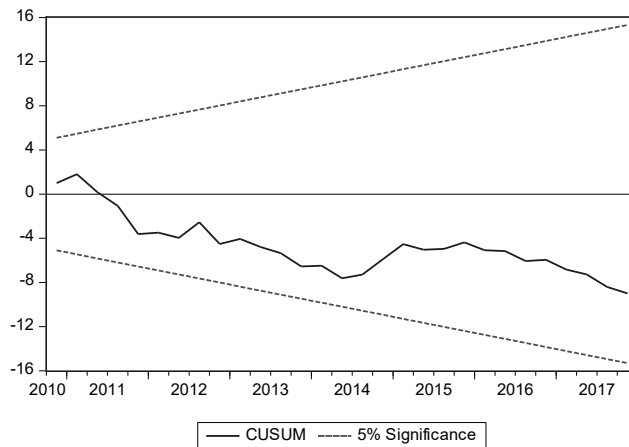


Figure 1. CUSUM test for dynamic stability of Equation (1)

Source: Prepared by the authors

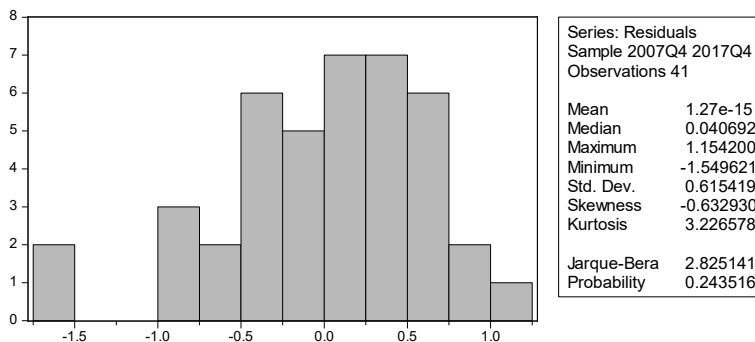


Figure 2. Test for normal distribution of residual in Equation (1)

Source: Prepared by the authors

The probability of Jarque-Bera statistics is 0.24 (see Figure 2), which justifies the acceptance of the null hypothesis of normal distribution of the residuals in (1).

Table 3. Results from the serial correlation test of residuals in Equation (1)

Source: Prepared by the authors

F-statistic	0.14	Probability F (2,27)	0.87
Observations R ²	0.41	Probability Chi-square (2)	0.81

Table 4. Results from the heteroscedasticity test of residuals in Equation (1)

Source: Prepared by the authors

F-statistic	0.33	Probability F (2,36)	0.72
Observations R ²	0.70	Probability Chi-square (2)	0.71

The null hypothesis for the absence of serial correlation of residuals in (1) is in effect (see Table 3). The results of the heteroscedasticity test of the residuals in (1) listed in Table 4 give reason to accept the null hypothesis for lack of heteroscedasticity.

Table 5. Results from short-term causality tests

Source: Prepared by the authors

Independent variables	Probability
GDPGR_EA	0.00
GOV_DEBT_EA	0.01
GOV_EXP_EA	0.11
GOV_REV_EA	0.63
IMPGR	0.65
INT_RATE_EA	0.04
OILGR	0.01
FISC_BAL_EA	0.12
FDIGR	0.93
EXPGR	0.67
DAXGR	0.84

Table 6. Results from long-term causality tests

Source: Prepared by the authors

Independent variables	Probability
GDPGR_EA	0.1820
GOV_DEBT_EA	0.5259
GOV_EXP_EA	0.3053
GOV_REV_EA	0.2721
IMPGR	0.8096
INT_RATE_EA	0.7895
OILGR	0.8801
FISC_BAL_EA	0.2764
FDIGR	0.5604
EXPGR	0.7139
DAXGR	0.5583

The results from the Pairwise Granger Causality Tests show that in the short-term Bulgaria's economic growth is Granger-caused by the economic growth in the EA, the government debt in the EA, the ECB interest rate and rate of growth of oil price (see Table 5).

The results from the Granger Causality / Block Exogeneity Wald Tests show that in the long run no explanatory variable Granger-causes Bulgaria's real GDP growth rate (see Table 6).

The response of Bulgaria's economic growth to external shocks is shown in Figure 3.

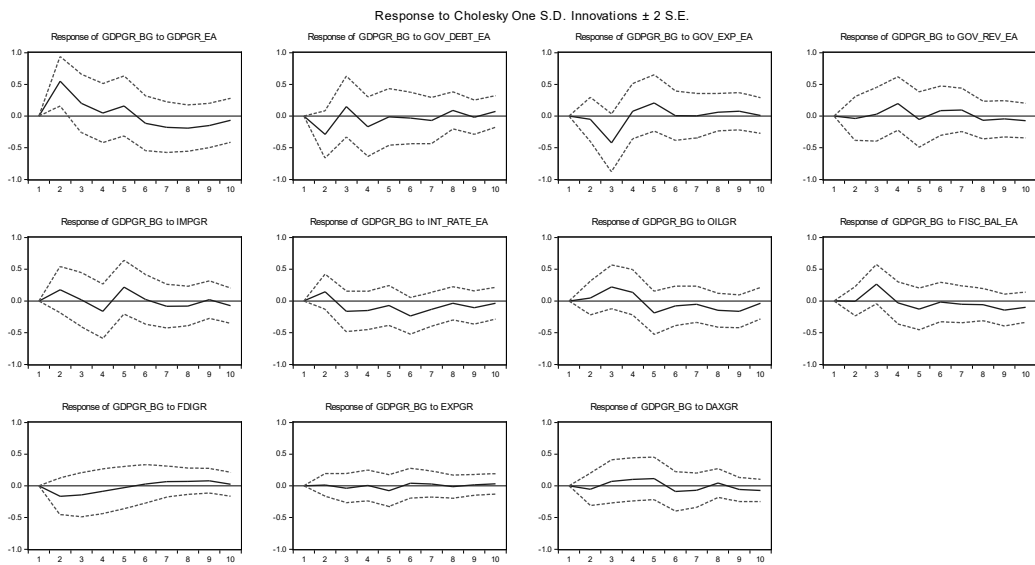


Figure 3. Response of Bulgaria's economic growth to external shocks
Source: Prepared by the authors

3. EXTERNAL DETERMINANTS OF BULGARIA'S BUSINESS CYCLE

The external determinants of Bulgaria's business cycle have been identified by a VAR model including the following variables: *GAP_BG* – Bulgaria's output gap (percentage of potential GDP); *GDPGR_EA* – rate of growth of the real GDP in the Euro area (EA) on the previous quarter; *GOV_DEBT_EA* – government debt in the EA (percentage of GDP); *GOV_EXP_EA* – government expenditures in the EA (percentage of GDP); *GOV_REV_EA* – government revenues in the EA (percentage of GDP); *IMPGR* – rate of growth of Bulgaria's imports on the previous quarter; *INT_RATE_EA* – interest rate on the main refinancing operations of the European Central Bank (ECB); *OILGR* – rate of growth of the oil price on the previous quarter; *FISC_BAL_EA* – fiscal balance in the EA (percentage of GDP); *FDIGR* – rate of growth of the foreign direct investments (FDI) in Bulgaria on the previous quarter; *EXPGR* – rate of growth of Bulgaria's exports on the previous quarter; *DAXGR* – rate of growth of the German Stock Index DAX on the previous quarter. The target variable is *GAP_BG*.

The group unit root tests (see Table 7) show that the variables are stationary (integrated of order zero), which requires the application of unlimited VAR.

Table 7. Tests for stationarity of the variables in the vector autoregression

Source: Prepared by the authors

Method	Statistic	Probability	Cross-sections	Observations
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.66767	0.0038	12	466
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.60787	0.0000	12	466
ADF - Fisher Chi-square	110.877	0.0000	12	466
PP - Fisher Chi-square	166.081	0.0000	12	504

The test for the optimal number of lags in the vector autoregression shows that according to all criteria this number is two (see Table 8). The vector autoregression has been estimated with two lags.

Table 8. Optimal lag length in the VAR model

Source: Prepared by the authors

Number of lags	FPE	AIC	SC	HQ
0	5.48e+10	58.78051	59.28204	58.96314
1	482634.0	46.86994	53.38987	49.24414
2	5305.744*	40.26042*	52.79876*	44.82619*

* Shows the optimal number of lags according to the respective criterion

The equation for the target variable in the VAR model GAP_BG after the step-by-step removal of statistically insignificant variables is

$$\begin{aligned}
 GAP_BG = & -0.02 \times DAXGR(-2) - 0.02 \times EXPGR(-2) + 0.83 \times FISC_BAL_EA(-2) \\
 & - 1.39 \times GOV_REV_EA(-2) + 0.03 \times IMPGR(-2) + 1.66 \times INT_RATE_EA(-1) \\
 & - 1.52 \times INT_RATE_EA(-2) + 0.01 \times OILGR(-1) + 66.1024577911
 \end{aligned} \quad (2)$$

The output gap of Bulgaria is affected by lagged values of the DAX index, Bulgaria's exports, the fiscal balance in the EA, the government revenue in the EA, Bulgaria's imports, the ECB interest rate and the oil price. The regression coefficients in front of the EA variables are much higher than the other regression coefficients, which implies that the main external determinants of Bulgaria's business cycle are fiscal and monetary policies in the EA.

The value of the coefficient of determination (R-squared = 0.91) indicates that 91% of the variation of Bulgaria's output gap can be explained by changes in the independent variables in (2). The probability of the F-statistic (0,00) shows that the alternative hypothesis of adequacy of the model used is confirmed. It should be made clear that this does not mean that the model is the best possible but simply adequately reflects the relationship between the dependent and the independent variables.

The CUSUM test results imply that (2) is dynamically stable (see Figure 4), as the actual CUSUM values are within the confidence interval at the 5% significance level. The probability of Jarque-Bera statistics is 0.96 (see Figure 5), which justifies the acceptance of the null hypothesis of normal distribution of the residuals in (2).

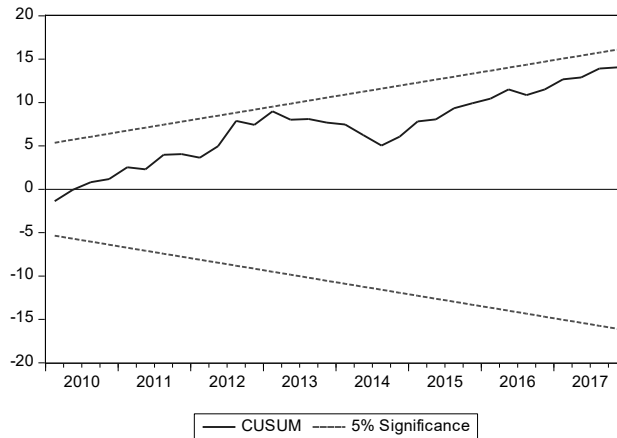


Figure 4. CUSUM test for dynamic stability of Equation (2)
Source: Prepared by the authors

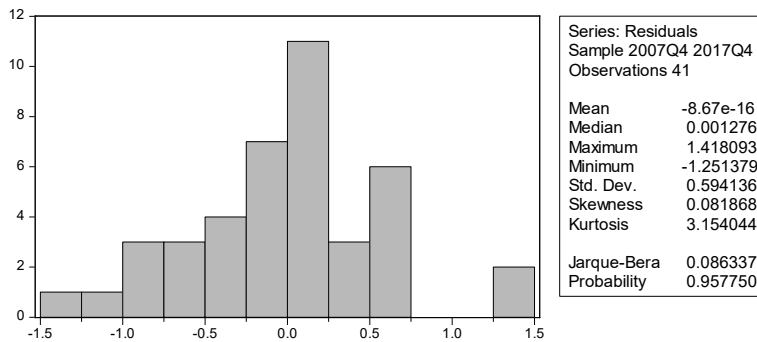


Figure 5. Test for normal distribution of residual in Equation (2)
Source: Prepared by the authors

Table 9. Results from the serial correlation test of residuals in Equation (2)
Source: Prepared by the authors

F-statistic	0.22	Probability F (2,51)	0.80
Observations R ²	0.59	Probability Chi-square (2)	0.74

Table 10. Results from the heteroscedasticity test of residuals in Equation (2)
Source: Prepared by the authors

F-statistic	0.44	Probability F (12,53)	0.65
Observations R ²	0.92	Probability Chi-square (12)	0.63

The null hypothesis for the absence of serial correlation of residuals in (2) is in effect (see Table 9). The results of the heteroscedasticity test of the residuals in (2) listed in Table 10 give reason to accept the null hypothesis for lack of heteroscedasticity.

The results from the Pairwise Granger Causality Tests show that in the short-term Bulgaria's output gap is Granger-caused by the economic growth in the EA, the government debt in the EA, the government expenditure in the EA, the ECB interest rate and rate of growth of oil price (see Table 11).

The results from the Granger Causality / Block Exogeneity Wald Tests show that in the long run no explanatory variable Granger-causes Bulgaria's output gap (see Table 12).

Table 11. Results from short-term causality tests
Source: Prepared by the authors

Independent variables	Probability
GDPGR_EA	0.00
GOV_DEBT_EA	0.00
GOV_EXP_EA	0.01
GOV_REV_EA	0.91
IMPGR	0.31
INT_RATE_EA	0.01
OILGR	0.01
FISC_BAL_EA	0.17
FDIGR	0.93
EXPGR	0.70
DAXGR	0.95

Table 12. Results from long-term causality tests
Source: Prepared by the authors

Independent variables	Probability
GDPGR_EA	0.80
GOV_DEBT_EA	0.77
GOV_EXP_EA	0.56
GOV_REV_EA	0.50
IMPGR	0.47
INT_RATE_EA	0.19
OILGR	0.40
FISC_BAL_EA	0.51
FDIGR	0.88
EXPGR	0.19
DAXGR	0.26

The responses of Bulgaria's output gap to changes in the external economic environment are shown in Figure 6.

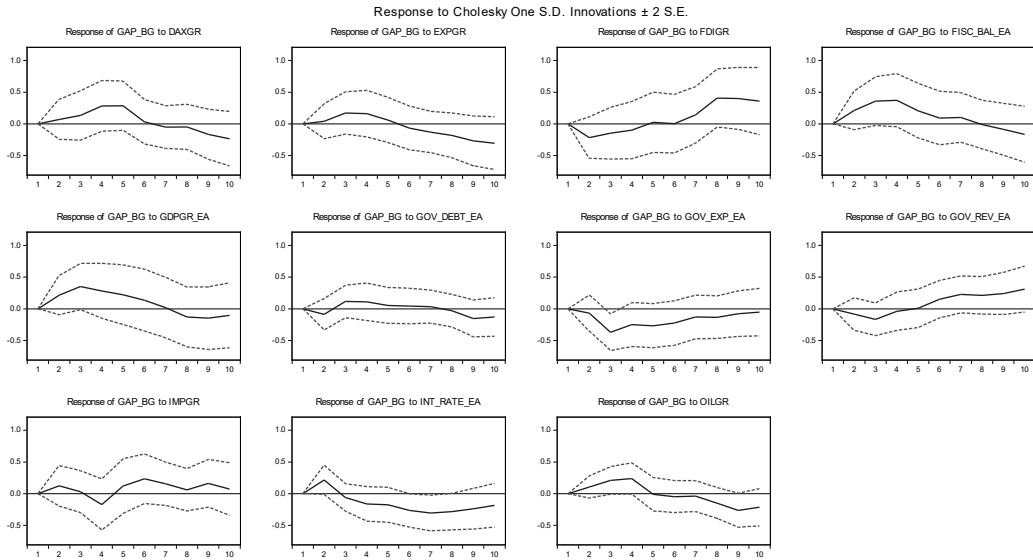


Figure 6. Response of the output gap to external shocks
Source: Prepared by the authors

4. CONCLUSION

The study results indicate that the main international determinants of Bulgaria's economic growth and business cycle are macroeconomic policies in the EA. It may be inferred that the most serious external opportunities and threats to the Bulgarian economy arise from fiscal and monetary changes in the EA. The impact of all other factors is negligible in size compared to the influence of macroeconomic policies in the EA on the growth and the cyclical position of Bulgaria. The DAX index, the oil price and the imports of Bulgaria have a small effect on Bulgaria's cyclical position and no significant effect on Bulgaria's economic growth. The exports of Bulgaria have a slight impact on the output gap and the rate of growth of real GDP.

Empirical results show that international factors cause the growth and the cyclicity of the Bulgarian economy in the short-run only. In the long-term external shocks are neutral to Bulgaria's growth and cycle, which implies that the Bulgarian economy adjusts to return to equilibrium.

It is recommended that Bulgaria adopt the euro as soon as possible in order to take full advantage of the benefits a common currency and a common monetary policy can offer to a member state whose national business cycle is highly synchronized with the EA aggregate business cycle. Many studies (Todorov et al., 2018b; Durova, 2019; Damyanov and Stefanov, 2010 etc.) have shown that the economic cycle of Bulgaria is very similar to the aggregate cycle of the Economic and Monetary Union. The high degree of convergence of Bulgaria's business cycle to the EA aggregate cycle suggests that the common monetary policy of the European Central Bank will smooth the cyclical fluctuations of the Bulgarian economy and the probability of asymmetric shocks is small.

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STRESS EFFECT FACTORS AND SOCIO-PATHOLOGICAL PHENOMENA IN TEACHING AND LEARNING ENVIRONMENT

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Abstract: *Stress represents an inner human state in a positive or negative sense that can be considered a threat. From the researchers conducted in the Czech and Slovak Republic, it can be shown that adequate stress has a significant effect on brain activity. Stress in teaching and learning environment leads to the emergence and development of socio-pathological phenomena. Contributors focus on social, emotional and behaviour stress factors in pupils/students with an impact on the occurrence of socio-pathological phenomena and risk behaviours in the educational process. The main methods of realization of the empirical research were the questionnaire survey, the own structure of the contribution authors, the experiment method, the statistical method of the F-test of equivalence and the t-test with uneven dispersion. The authors of the paper further analysed the statements of teachers who reported the most frequent preferences of stress factors in students.*

Keywords: *Stress factors, social-pathological phenomena, educational process, stressors of high school student, student's soft-skills.*

JEL Classification I25

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1. INTRODUCTION

The aim of this contribution is to identify and classify stress effect factors and stress situations of high school that are involved in formation of socio-pathological phenomena. Within the framework of experimental group have eliminated stress factors and evaluated to reduce the impact and dangerous consequences in behaviour, value orientation and adolescent attitudes.

In the theoretical-methodological part of the contribution are defined stress factors, stress situations, socio-pathological phenomena and teaching and learning environment.

In the analytic part of the contribution is focused on finding a statistical dependence on the presence of stress in teaching and learning environment, the behaviour of pupils the presence and stress effect factors in the educational process.

2. LITERATURE REVIEW

Scientific research of stress in various environments and connections dates back to the end of 1950's. Research of the stress was done by (Berg and Cornell, 2016), who were focusing on the job stress; manager's stress of teacher's profession and of teachers; strategies of coping with stress. Authors (Blašková, Blaško, Figurská and Sokol, 2015) concentrated on coping oriented on problem emotions and strategies. Next authors such as (Braun and Carlotto, 2014) dealt with the perception of stress situation by university students in Slovakia at the secondary school students. According to (Cefai and Camilleri, 2015) the research concentrated on diagnosis of factors of stress of adolescents at the age of 15 - 16. In the sample of 1648 students, he found out that adolescents are mostly threatened by psychical stress that was most commonly associated with examining, testing during classes or passing final examinations (Cordella and Pojani, 2014).

Cognitive strategies of success and stress factors (from disadvantaged family environment) were subjects of more important studies and researches and also programs in the USA in 1990's (see GED program PERRY intervention to school success of children from low-stimulating environment already in an early age). Many similar studies were dedicated to factors of coping and success (da Silva, Bolsoni, Rodriguess, Capellini et al., 2015) while they secondarily indicated stress as the factor of failure. The significant sample (75 students), how to say (Davies, Olson, Meyer, Renner et al., 2016) was monitored in the context of stress demonstrations in the sphere of transition of students to higher grade of education. The research of stress of students at the age of 10 - 11 who are making transition to higher grade of education was done in London by team of experts from Karagiannopoulou. Students from families that were categorically classified as coherent and adaptable have experienced stress resulting from transition to higher degree only exceptionally (Denscombe, 2000). On the contrary students from families characterized as unbalanced (chaotic, rigid) were experiencing stress more often even in the second period of school year (Eldor, 2018). Murberg's research took place in Norway, 535 high school students at the age of 13 - 16 went through the research. On the basis of his extensive study he grouped the stress in areas to discover everyday stress present in the common activity in the class (Eva and Thayer, 2017) and (Fisher, 2011). By means of questionnaire and consecutive interview with 50 elementary school students at the age of 8 - 9 in England and Greece they gathered information that students link the everyday stress to teacher's rebuke of undisciplined student, teacher's feedback on student's work with many errors and too student's inability to answer teacher's questions. The participants were 384 Greek primary schoolteachers, aged 25 to 59 years old (mean age = 41 years and 4 months), 146 males (38 %) and 238 females (62 %). They completed the Questionnaire on Teacher Stress and

the Maslach Burnout Inventory - Educators Survey - MBI-ES. It was found that Greek primary schoolteachers report low levels of stress and that their stress is predicted by burnout and teaching students with special educational needs mention (Folkman and Lazarus, 1980) and (Gabrhelová, 2017). Reviewing a selection of the literature published after (Gaillior and Baumeister, 2007) seminal review on the impact to stress on close relationships this review conceptualizes to associations between different types of stressors – particularly those that originate outside (external) and inside (internal) relationship but relationship satisfaction within romantic too. The stressor is the situation to which the individual is being exposed and in order to face it, he has to adapt by (Ganzel, Morris and Wethington, 2010).

Mention division of stressors in those primaries, i.e. those that affect organism directly and those secondary that bring obstacles during the activity. The influence of stress on the person does not need to have only negative character. Universities form the intellectual level and motivation of all individuals and groups in the country; speak authors (Gouda, Luong, Schmidt and Bauer, 2016). Consequences of student's stress are reflected in every component of student's personality; inform (Grise-Owens, Miller, Escobar Ratliff and George, 2018). It is reflected mostly on human's health, comments (Gustems, Carnicer, Calderón and Calderón Garrido, 2019). The most common symptoms of student's stress that can be perceived by teacher are fatigue, exhaustion, headache, problems with stomach, signs of depression, change of dietary habits and weight loss (Havelka, Kropáč, Serafin, Chráska et al., 2015). Behavioural symptoms are represented by addictions, smoking, abnormal workout, and irrationality losing nerves“, inabilities to concentrate, inability to complete a task, mention (Hong, 2012).

Stress is closely related to the way of life that student leads, expresses (Hutkemri Ahmad and Jelas, 2017). When student experiences long-term inadequate big stress and he is not able to copy with it, it can be associated with smoking, excessive consumption of alcohol, lack of exercise etc. Research done by Mederi and coll. proves that 61 % of secondary school students consider school environment as an environment that stresses them, what is a high occurrence compared to other types of environment (20.36 % none, 11.13 % family, 7.23 % outside of family and school, 1 % not indicated), say (Inmaculada and Glòria, 2016). On 10 283 addressed respondents the authors have investigated determinants that have negative influence on well-being of high school students, adds (Kalyva, 2013). It resulted from the realized research that students with a bad well-being smoke regularly, they drink coffee and beer almost daily, they take medicine for stimulation and calming down, they have already took drugs, or they take drugs regularly, they miss confidential person when solving problems and relationships, think (Kandlhofer and Steinbauer, 2016) and (Kopp, Kuhlmann and Goppelwar, 2016), they have suicidal tendencies or they have already tried to commit a suicide, they have already had sexual intercourse and they now have a sexual life. For this period indicate the following possible stress factors: continuing with education (Lai and Kwan, 2017), leaving parents' house, intimate relationships with the opposite sex, conclusion of the marriage, planning of the family, birth of children, professional growth, and unemployment. Significant factors that are stressing for students are presented in didactical-methodical work of the teacher (form of communication, methods, and way of evaluation, problem solving and educational climate), say (Lawner and Bradbury, 2017).

The relation between school climate and resilience of students is confirmed by the research authors (Leach, Nygaard, Chipman, Brunsvold et al., 2019) and (Lin and Huang, 2014). The authors found out that there is a relation between the level of resilience of students and their perception of school climate.

3. MATERIAL AND METHODS

We have differentiated investigation of stress and socio-pathological phenomena into three fields: within the first part we were investigating and making diagnose of high school student's stress factors and determinants, in the second part we made a long-term experimental research in selected research universe and third part in intentions of recommendations for pedagogical practice we have focused on programs of elimination of stress from the point of view of teacher's support of student when dealing with social-emotional symptoms. Main methods for realization of empirical investigation were the questionnaire of the own construction, method of experiment, statistical method F-test for equality of variances and t-test with unequal variance. By the F-test, we decide whether the experimental intervention has an influence on the variability (scattering s_2^2) of the random variable under investigation. We test the zero hypotheses in the F-test: $H_0: s_1^2 = s_2^2$ and compare with the critical value:

If $F > F_{krit}$. \Rightarrow reject the zero hypotheses $H_0: s_1^2 = s_2^2$. The scattering of both files differs statistically significantly, i.e. the selections come from two different basic sets with different variations of s_1^2 and s_2^2 , ($p < 0.05$ (or $p < 0.01$ according to the chosen significance level α)).

If $F < F_{krit}$. \Rightarrow We cannot reject the hypothesis H_0 . The scattering of both sets is not statistically significantly different, i.e. the selections come from the same basic set with a common scattering s_2^2 , ($p > 0.05$). The objective of the F-test on the Equivalence of Two Scatters is to verify whether the sample sets originate from the distribution with the same scatter, i.e. whether the files show approximately the same dispersion of the observed random variable.

The objective of the contribution was to identify and classify stressors, stress situations of high school that are involved in formation of socio-pathological phenomena. Within the framework of experimental group have eliminated stress factors and evaluated to reduce the impact and dangerous consequences in behaviour, value orientation and adolescent attitudes.

4. RESULTS AND DISCUSSION

4.1. Stressors of High School Students

We were finding out stressors and starters of stress at high school students through questionnaire method with open items. By analysing statements of respondents ($N = 298$) we have processed proportional overview of most frequently mentioned stressors oral and written testing (26.47 %), bullying (17.05 %), teacher (16.60 %), bad grades (8.83 %), inability to integrate (7.47 %), expectations of parents (5.48 %), weak family social background (4.87 %), student's failure (4.41 %), not managing schoolwork (4.57 %), disinterest in study (4.26 %). When making qualitative analysis of all gathered data it is possible to segment stated items of respondents into more fields of stressors of student, e.g. examining of students (20.67 %), results of learning of students (19.6 %), personality of teacher (17.81 %), social-pathological phenomenon's (16.15 %), social relationships in class (13.18 %), personality of student (12.59 %).

We have processed framework groups on the basis of number of their occurrence. A most source of stress is considered examining and testing of knowledge of students. Manner in which teacher verifies knowledge and teacher's skills are evaluated as stressful. A significant number of teachers stated that students are stressed by oral testing, performing in front of all group of students, project presentation. The important factor of education is teacher and his methodical-didactical

approach. Teacher's influencing of student is a broad scale activity, etc. motivation manner, quality of pedagogical communication, say (Meriläinen, 2014), level of interactions, form and manner of mediation of housework, possibility of knowledge testing, evaluation manner, approach to student, respecting principles etc. In our work we indicate evaluation of teacher as a potential source of stress for student are for examples ridiculing and humiliating (19.17 %), strict behaviour (13.15 %), high demands on student (12.33 %), non objective evaluation (10.68 %), behaviour - stressed, moody, not calm (9.32 %), picking on a student (8.77 %), cries, insults, vulgarisms (8.22 %), teacher's dominance (6.85 %), disregard (6.30 %), excessive testing (5.21 %).

In the view of stress experienced in school conditions we have to make appeal to the fact that in many cases it can develop into socio-pathological phenomena and improper manifestation of behaviour, inform (Özberk, Dağlı, Altınay and Altınay, 2017). Secondary school students most frequently experience bullying, aggressive behaviour, alcohol, smoking, drugs, contemporary phenomenon of bullying and cyber-bullying, add (Prilleltensky, Neff and Bessell, 2016). Important part of quality of student's life at school is positive experiencing of interactions in class on the level teacher-student, student-student and student-group. Student's social competences must be appreciated in every activity within the framework of education as well as during events organised by school, agree (Randall and Bodenmann, 2017). The most stressful for high school students is their inability to become integrated in group. From the point of view of student's personality stressors are failure, disinterest in studies, schoolwork and weak social family environment, think (Reichl, Wach, Spinath Brünken and Karbach, 2014).

4.2. Stress Effect Factors and Social-Pathological Phenomena in Teaching and Learning Environment

The second part of the research was focused on finding a statistical dependence on the presence of stress in teaching and learning environment and the occurrence of socio-pathological phenomena, and whether the behaviour of pupils with socio-pathological manifestations has been reinforced by the presence and stress effect factors in the educational process.

The analysis was performed by standard statistic methods, expressing the significance of the difference between the obtained numerical data representing the variables entering the relations. To a successful and relevant course of the experiment, two almost identical groups of pupils from secondary schools from the Slovak Republic were chosen and monitored throughout the school year. It is difficult to create a purely random sample. For that reason, we worked with completed classes of boys of the same age and similar level. Sample selection was focused on comparability of relevant features relevant to the research, i.e. the same conditions for both groups in terms of material security and also in terms of the skills and expertise of teachers who were of the same age and gender, and who worked by different methods during the experiment. Pupils of the sample attended the same secondary school, the same year and completed the same curriculum with the same hour duration. Verification of specified hypotheses was performed by a special experimental plan.

The processing, evaluation and analysis of the data obtained was processed using standard methods of mathematical statistics to determine the impact of school stress and the incidence of socio-pathological phenomena in teaching and learning environment. To verify the level of stress factors on the sample of pupils involved in the experiment, we used a questionnaire to determine the extent of stress factors on pupils. According to (Roslan, Sharifach and Thirumalai, 2012) the rate of representation of pathological phenomena was determined by a pedagogical experiment in

which the control group provided educational conditions without the influence of stress factors; they were exposed to a minimal extent. The experimental group was subjected to stress factors during contact education.

H1 hypothesis stated: Pupils exposed to stress factors in teaching and learning environment do not achieve a lower incidence of socio-pathological phenomena compared to pupils in teaching and learning environment of contact education without stress activity. To verify the assumed hypothesis, assuming that the distribution of the samples is approximately normal, we used statistical methods: F-test for equality of variances that would assess the difference between the variances. Variable $F = \sigma_1^2 / \sigma_2^2$ was the test criterion. Its comparison with the critical value at the significance level of $\alpha = 0.05$ would define and assess the results. Further, a sample t-test was used with inequality of variance at the significance levels of $\alpha = 0.05$ and $\alpha = 0.01$. To verify the values, non-parametric Wilcoxon test (Mann – Whitney U-test) was used.

Table 1. Results of empirical research
Source: Authors.

Pupil's number	Group without stress factors	Group with stress factors
1	49	48
2	36	49
3	39	38
4	49	32
5	43	35
6	37	36
7	39	39
8	5	41
9	28	29
10	48	48
11	35	47
12	45	36
13	29	29
14	41	39
15	34	45
16	3	46
17	33	47
18	42	39
19	12	50
20	34	35
21	29	26
22	31	39
23	33	40
24	24	36
25	42	43
26	41	44
27	43	32
28	47	46

Pupil's number	Group without stress factors	Group with stress factors
29	34	45
30	35	47
31	26	35
32	36	36
33	50	8
34	41	37
35	38	32
36	40	45
37	24	48
38	29	49
39	34	46
40	42	38
41	29	39
42	31	36
43	32	32
44	26	35
45	29	34
46	34	49
47	27	40
48	41	21
49	35	35
50	36	38
51	40	37
52	42	39
53	24	42
54	18	46
55	43	45
56	37	37
57	34	36
58	32	39
59	29	46
60	40	44
61	36	43
62	35	50
63	27	47
64	42	48
65	38	41
66	36	39
67	39	40
68	25	38
69	32	34
70	21	35
71	41	32

Table 1 shows the results obtained from the research survey for both groups of pupils, one group of pupils being exposed to a stress factors in teaching and learning environment, while the other group was not, or the effects of stressors were minimized. F-test for equality of variances found a difference between the parameter variations. Tested value was $F = \sigma_1^2 / \sigma_2^2$, compared to the critical value at the significance level of $\alpha = 0.05$, entered into MS Excel, reported the statistics as described in table 2. Value of tested criterion was calculated $F = 1.557437553$, while the critical value $F_{crit} = 1.485688974$, meaning. $F > F_{crit}$, as predicted. Since the calculated F value is greater than the critical value, the difference between variances is considered to be statistically significant and therefore, for the comparison of the mean values, we have chosen a two-sample t-test with variance inequality.

Table 2. Statistics of the two-sample F-test at the level of significance $\alpha = 0.05$.

Source: Authors.

Two-sample F-test of the variance	Sample 1	Sample 2
Mean value	34.23943662	39.3943662
Variance	82.69899396	53.09939638
Observation	71	71
Difference	70	70
F	1.557437553	
P(F<=f) (1)	0.032933546	
F crit (1)	1.485688974	

Sample t-test with inequality of variance at two significance level $\alpha = 0.05$ and $\alpha = 0.01$; Basic characteristics of the sample were calculated using MS Excel at the significance level of $\alpha = 0.05$ – see Table 3.

Table 3. Statistics of the two-sample t-test with inequality of variance by Excel at the significance level of $\alpha = 0.05$. Source: Authors.

Two-sample t-test with inequality of variance	Sample 1	Sample 2
Mean value	34.23943662	39.3943662
Variance	82.69899396	53.09939638
Observation	71	71
Difference of mean values	0	
Difference	134	
t stat	-3.727387976	
P(T<=t) (1)	0.000142192	
t crit (1)	1.656304542	
P(T<=t) (2)	0.000284383	
t crit (2)	1.97782573	

Test value was calculated as $t = -3.727387976$ by comparing this value with the critical values of the two-sample t-test $t_{crit1} = 1.656304542$ and $t_{crit2} = 1.97782573$ revealed that $|t| > t_{crit}$, meaning that the mean number of points of both samples are not equal at the level of significance of $\alpha = 0.05$.

Table 4. Statistics of the two-sample t-test with inequality of variance at the level of significance of $\alpha = 0.01$. Source: Authors.

Two-sample t-test with inequality of variance	Sample 1	Sample 2
Mean value	34.23943662	39.3943662
Variance	82.69899396	53.09939638
Observation	71	71
Difference of mean values	0	
Difference	134	
t stat	-3.727387976	
P(T<=t) (1)	0.000142192	
t crit (1)	2.354498123	
P(T<=t) (2)	0.000284383	
t crit (2)	2.613017054	

Test value was calculated as $t = -3.727387976$. By comparing this value with the critical values of the two-sample $t_{crit1} = 2.354498123$ and $t_{crit2} = 2.613017054$ revealed that $|t| > t_{krit}$, meaning that the mean number of points of both samples are not equal at the level of significance of $\alpha = 0.01$. To verify the hypothesis at the level of significance of $\alpha = 0.05$ and $\alpha = 0.01$ Wilcoxon test (Mann – Whitney U-test) was used, see Table 5.

Table 5. Statistics of Wilcoxon test (Mann – Whitney U-test). Source: Authors.

Experiment	Obtained points	Order for calculation	Auxiliary field	Experiment	Obtained points	Order for calculation	Auxiliary field
aa	3	1	1	A	38	74.5	73
aa	5	2	2	B	38	74.5	74
bb	8	3	3	B	38	74.5	75
aa	12	4	4	B	38	74.5	76
aa	18	5	5	B	38	74.5	77
aa	21	6.5	6	a	39	85	78
bb	21	6.5	7	a	39	85	79
aa	24	9	8	a	39	85	80
aa	24	9	9	b	39	85	81
aa	24	9	10	b	39	85	82
aa	25	11	11	b	39	85	83
aa	26	13	12	b	39	85	84
aa	26	13	13	b	39	85	85
bb	26	13	14	b	39	85	86
aa	27	15.5	15	b	39	85	87
aa	27	15.5	16	b	39	85	88
aa	28	17	17	a	40	91.5	89
aa	29	21.5	18	a	40	91.5	90
aa	29	21.5	19	a	40	91.5	91
aa	29	21.5	20	b	40	91.5	92
aa	29	21.5	21	b	40	91.5	93
aa	29	21.5	22	b	40	91.5	94
aa	29	21.5	23	a	41	98	95

Experiment	Obtained points	Order for calculation	Auxiliary field	Experiment	Obtained points	Order for calculation	Auxiliary field
bb	29	21.5	24	a	41	98	96
bb	29	21.5	25	a	41	98	97
aa	31	26.5	26	a	41	98	98
aa	31	26.5	27	a	41	98	99
aa	32	31.5	28	b	41	98	100
aa	32	31.5	29	b	41	98	101
aa	32	31.5	30	a	42	104.5	102
bb	32	31.5	31	a	42	104.5	103
bb	32	31.5	32	a	42	104.5	104
bb	32	31.5	33	a	42	104.5	105
bb	32	31.5	34	a	42	104.5	106
bb	32	31.5	35	b	42	104.5	107
aa	33	36.5	36	a	43	110	108
aa	33	36.5	37	a	43	110	109
aa	34	41.5	38	a	43	110	110
aa	34	41.5	39	b	43	110	111
aa	34	41.5	40	b	43	110	112
aa	34	41.5	41	b	44	113.5	113
aa	34	41.5	42	b	44	113.5	114
aa	34	41.5	43	a	45	117	115
bb	34	41.5	44	b	45	117	116
bb	34	41.5	45	b	45	117	117
aa	35	50.5	46	b	45	117	118
aa	35	50.5	47	b	45	117	119
aa	35	50.5	48	b	46	122	120
aa	35	50.5	49	b	46	122	121
b	35	50.5	50	b	46	122	122
bb	35	50.5	51	b	46	122	123
bb	35	50.5	52	b	46	122	124
bb	35	50.5	53	a	47	127	125
bb	35	50.5	54	b	47	127	126
bb	35	50.5	55	b	47	127	127
ba	36	61	56	b	47	127	128
aa	36	61	57	b	47	127	129
aa	36	61	58	a	48	132	130
aa	36	61	59	b	48	132	131
aa	36	61	60	b	48	132	132
ab	36	61	61	b	48	132	133
bb	36	61	62	b	48	132	134
bb	36	61	63	a	49	137	135
bb	36	61	64	a	49	137	136
bb	36	61	65	b	49	137	137
bb	36	61	66	b	49	137	138
aa	37	69	67	b	49	137	139
aa	37	69	68	a	50	141	140
bb	37	69	69	b	50	141	141
bb	37	69	70	b	50	141	142

Based on table 5 of the values of Wilcoxon test (Mann – Whitney U-test), $U_0 = -3,7230351$ critical values u_α : for $p < 0.05 = 1.96$, for $p < 0, 01 = 2, 58$ at the significance level was calculated.

Using statistical methods and the values, we confirmed H1 hypothesis $|U_0| > U_\alpha$

4.3. Student's Soft-Skills a Stress at School

Analysing and detecting stressful situations and stress triggering in pupils in school conditions requires the elaboration of possible proposals to eliminate stress factors that negatively affect pupils' performance in achieving success as well as educational behaviours (Sadeghi and Sa'adat-pourvahid, 2016). In the current pedagogical discourse, the concept of soft skills, which needs to be developed and promoted in school, comes to the attention. The teacher's job is to recognize and work with pupils' stressors (Schmidt, Klusmann, Lüdtke, Möller et al., 2017).

Dealing with stress is in literature on psychology described called coping. This term means both intra-psyche and intentional effort to manage, tolerate, and reduce internal and external human requirements, comment (Shankar and Park, 2016). These are extremely demanding requirements, which burden and exceed the resources available to a person. There are several classifications and categorizations of coping behaviour and coping strategies (Shatkin, Diamond, Zhao, Chodaczech et al., 2017). Based on multiple classification types of coping strategies and their orientation, they have agreed on problem solving, emotion management, and escape responses, escape, eviction, use of soothing substances, denial of the situation, and similar. This type of reaction, compared to the previous two, which are very effective, is rarely adaptable. Coping strategies include religion, mental disconnection, acceptance, searching for instrumental, social or emotional support, behavioural shutdown, humour, alcohol and drug use, problem solving planning, active coping, coping suppression, attention, backsliding, self-confrontation, confrontational dealing with stress, blaming others, finding positive aspects of the process, taking personal responsibility for dealing with the situation, self-control, trying to avoid and escaping stress, resignation, monitoring (tendency to search for threats) and others. Coping strategies represent certain behaviours in various stressful situations. Stress reduction resources are addictive, transitive, relatively consistent patterns of management at the behavioural, cognitive or experience levels that individual uses when dealing with internal or external stressors. The repertoire of ways to eliminate stress effectively includes time management, social support, appropriate eating habits, relaxation (e.g. yoga, Macháček's relaxation-activation method, Schultz's autogenous training, Jacobson's progressive relaxation, meditation, biofeedback, massage, wellness, lightning relaxation techniques), say (Singh, 2016), art and music therapy, dance and motion therapy, breathing exercises, positive thoughts and others.

In the context of dealing with stressful situations and stress, we emphasize the ability of the learner to self-regulate, which is understood as the roof concept of self-control representing the ability of an individual to modify the behaviour and adapt it to certain requirements. Self-control can be explained as the effort the pupil spends in controlling their thinking, behaviour, feeling and doing so in accordance with social norms, cultures, ideals, or personal goals. A person who wants to cope with a stressful situation has to master the control of ideas, emotions and block the excitement. It is the regulation of emotions, impulses and behaviour that are the main areas of self-control. The suppression or complete blocking of an experienced tendency to behave with aggressive individuals corresponds to understanding the concept of self-control which is defined in the present psychology as the ability of an individual to overcome or abolish inappropriate behavioural tendencies and withdraw from their realization. It is activated in situations where there is an internal conflict between behavioural tendencies originating from the inside or caused by actual stimulation

and distant goals, environmental requirements (Slavich, 2016). According to (Sonntag, 2009) of aggression the self-control should be suppressing the tendency to hurt another person. Support, development and change of soft skills, such as empathy, ability to communicate and teamwork, self-discipline and ability to enroll in school conditions require a planned and long-term activity (Sotardi, 2016). Ability to self-identify, self-control in the interaction of relationships and the environment represents a lifelong journey of personality development. The source of acquiring the first skills to self-recovering one's identity is family. A continuing institution in this direction is school. As we cannot provide "perfect" conditions for socio-emotional development to all parents and families, teachers are also different in socio-emotional competence. Since the school is a professional institution for teachers, a great number of programs, training for the development and maintenance of the pupil's social competencies are being prepared, inform (Sticke and Scott, 2016) and (Tumer and Muholland, 2017). Based on research, stress is a part of the life of individuals (teachers and pupils) in teaching and the learning environment add (Wilkes, Kydd, Sagar and Broadbent, 2017). Authors (Yusofov, Nicoloro, Grey, Moyer et al., 2019) believe that developing soft skills of pupils is a natural prevention to tackle stressful situations. In order to strengthen the soft skills of pupils, it is necessary to support and focus the attention of the teachers themselves.

5. FUTURE RESEARCH DIRECTIONS

Another potential future research could be to identify the causes of stress or burnout in teachers. The aim would be to identify these negative factors and try to eliminate them. This could outline possible solutions to suppress or completely prevent the causes of stress in educational institutions. Changes in social life such as aggression, violence, bullying, etc. are very common today. So who is responsible for the causes of excessive stress and negative behaviour in children or adolescents? This may also outline further possible research. However, culture and morality play an important role in suppressing congenital aggression. Researchers on which this research would be carried out should be not only from the Czech and Slovak Republics, but also from other European countries.

6. CONCLUSION

The given study presents theoretical analysis of stress, stressors of high school students and the consequent empirical investigation. The objective was to analyse the most frequent reasons or starters of high school student's stress from the point of view of teachers. By comparing statements of teachers, we have processed sequence of most frequently mentioned stressors of students. We have focused on searching for mutual dependence on stress and socio-pathological phenomena and verification of stated hypothesis. Making diagnose and evaluation of stress of student requires application of teacher's competences in multispectral influence. After diagnosis and consequent evaluation, the pedagogical reality requires teacher to work with students in order to eliminate and manage student's potential and real stress.

Ability of self-knowledge, self-control in interaction of relationships and environment represents lifelong journey of personality development. As well as physical, human and social capital can significantly contribute to increased productivity of individuals, groups and organizations. Family is the source where we acquire first skills in order to form the own identity. The school continues in this influence. As well as we cannot ensure „perfect“ conditions for social-emotional development for all parents and families, also teachers have different level of social-emotional competences. Since school is the professional institution, in last year's there were prepared many programmes, trainings for development and keeping of social competences of student for teachers. The GED study (Generalized Educational Development) made by Hackman in the 1990's in the USA con-

firmed that graduates of GED program missed psychical dispositions gained by high school students in the process of regular education. The GED program served as a test in order to get certificate on maturity exam also to easing and undisciplined students on the basis of their success in test. According to the program they were to the large extent „speculators missing ability to think systematically, to bear tasks, to adapt on the environment and to cope with stress.

Time management is an integral part of prevention of stress and stress situations, emotional control, aggressive motives or temperament. An important role in the prevention of academic stressors is the open, cultivated communication between pupils and pupils and teachers involved in creating a social climate and a favourable atmosphere. With respect to trends and developments in the area of information and communication technologies, mobile applications focusing on relaxation, sporting activities, planning and organizing time and communicating with friends support the management of stressful situations. Mobile Applications Pacific offers cognitive behavioural therapies, meditation, relaxation exercises and breathing to relieve anxiety and stress. It contains more than 25 sound exercises including breathing, relaxing muscles or tuning for positive thinking. The Calmit application, with the subtitle Meditate, offers users primarily meditation exercises, such as sleeping stories, the most common fairy tales for adults to reassure Google Calendar, Trello or Any. Do are application-oriented programming and time management dedicated to managing, performing tasks and responsibilities. Endomondo, Runtastic, Diet applications motivate users to use GPS to create route maps, track distance, speed, average and maximum pace and speed including calories burned. Communication applications with friends as like Messenger, Viber and Skype support day-to-day interpersonal communication.

Building upon above mentioned researches the stress is part of life of individuals (teachers and students) in school environment. The necessary social but also professional condition is to teach students to work with stress factors and to develop their competences and skills in order to deal with difficult situations. Contributors believe that the development of stressful situations, misunderstandings and conflicts often found in non-homogeneous groups and social communities can be avoided in particular by developing soft skills for pupils and students through open communication, regular planning and timing with support for movement, relaxation and meditation activities. In order to strengthen soft skills for pupils and students, it is necessary to pay attention to all participants of the academic environment, to harmonize interpersonal relationships, to sophisticate culture, trust, coordination and motivation in a functional educational process.

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SPECIAL REQUIREMENTS FOR CORPORATE COMMUNICATIONS IN GEOGRAPHICALLY DEFINED MARKETS USING THE EXAMPLE OF THE SALE OF CONSTRUCTION FINANCING IN RURAL AREAS

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Abstract: *Private mortgage lending business is an important business segment for retail banks. There are two main reasons for this. Firstly, the comparatively low risk. On the one hand, because many years of experience in this segment enable optimal risk management. On the other hand, the financed properties also provide optimum security. Due to the small size of this business segment, private construction financing was unattractive for major banks for a long time. On the other hand, this division was a core business for regional banks and savings banks. However, as a result of the banking crisis in 2007 and 2008 and the ECB's ongoing low-interest policy, the private mortgage lending sector is now attractive to all market participants. This is reflected in fiercer competition. The importance of customer communication has therefore also increased in the advertising for new business. Since financial and personnel resources are limited, corporate communications are faced with the challenge of addressing potential customers as efficiently as possible. Communication science has already developed a number of concepts for optimal, integrated communication. These are based on average consumers. Against the background of possible regional deviations in media usage and consumer behaviour, this work explains that banks and savings banks with a regionally defined business area should set different priorities within the communications mix than supraregional providers. To this end, a field study was conducted in rural areas of the Nuremberg metropolitan region and analysed using a chi-square test. The study revealed the continuing importance of branches and personal advice, despite increasing digitalisation. At the same time, the necessity of closely networking stationary sales and online offers in rural areas becomes clear.*

Keywords: *SME, Integrated Communication, Communication Mix, Retail, Bank, Savings Bank, Construction Financing, Sales, Competition, Regional Economic Areas.*

JEL Classification M310 · M370 · R110

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1. INTRODUCTION

In the meantime, major banks are turning to the small-scale lending business, which had previously been handled predominantly by regional banks and savings banks. (Kübler & Weiss, 2012) At the same time, FinTechs or online comparison portals are creating new market participants. (Durst & Durst, 2016) In addition, the continuing low interest rate policy is having a strongly limiting effect on the earnings side of financial institutions. (Dombret, 2017) Regional banks are increasingly under competitive pressure. A development that can also be observed in other sectors. (Škodová Parmová, Líšková & Kain, 2018) The reason for this is the economic and social environment in which companies operate today. This is increasingly characterised by complexity, dynamism (Škodová Parmová, Líšková, Sdrolas & Kain, 2017) and finally competition. Small and medium-sized enterprises in particular run the risk of being forced out of the market by large companies. (North, 2007) They face the challenge of optimising their processes and increasing their own competitiveness (Eßer, Messner & Meyer-Stamer, 1990; (Škodová Parmová, Líšková & Kain, 2018).

Particular importance is attached to marketing communication in view of the increasing intensity of competition. Because only if the right approach to demanders is successful can necessary sales targets can be achieved. A variety of approaches already exists. (Balmer & Greyser, 2003; Bruhn & Strauss, 2000; Valackiene, 2010) These are aimed at addressing the average statistical customer. The question is whether the success of a communication mix developed for supraregional markets can be transferred without loss of effectiveness to providers with a regionally limited business area. The aim of this research paper is to clarify this question using the example of regional banks and savings banks.

2. THEORETICAL BACKGROUND

The aim of this research project is to enable regional providers, especially SME, to assess the necessity of adapting communication models. It can be assumed that there is a need for adaptation, since according to Buchner (Buchner, 1998) established approaches for an efficient communication mix are oriented towards a statistical average consumer. Although people are unique in their behavior. (Wölki, 2007)

2.1. Communication mix

The task of communication policy is influencing the decisions of target group members in the interests of the company. (Klewes, 2005; Bruh, 2010; Ternés, Jerusel & Schmidtbleicher, 2017) This goal can be achieved through the use of various instruments. This is why the model of the communication mix has evolved. (Melzer, 2015)

2.2. Average customer

The average customer is a central component of market segmentation. A large number of segmentation approaches already exist for this purpose. (Meffert, Burmann & Kirchgeorg, 2012) These take into account demographic characteristics such as age or income (Feigl, 2015) as well as geographical, sociological or psychographic criteria. (Freter, 2008)

2.3. Media impact

Consumption presupposes the previous establishment of contact between supplier and consumer. Thus, a purchase is always preceded by an interaction. (Bruhn & Strauss, 2000) Media effectiveness is given when an action is intended by addressing via a certain channel. According to Sander,

the quantitative survey of consumers is the ideal instrument for gaining insights into their behaviour and the effectiveness of previous communication. (Sander, 2017) Others (Lindner, 2015) confirms this, especially with regard to the evaluation of behaviour patterns. The research project presented here is based on the following hypotheses to be verified:

Hypothesis 1: The effect of a communication channel is not dependent on the regional affiliation of a recipient.

Hypothesis 2: The regional dependence of the effect of a communication channel has not changed significantly due to technical progress.

3. DATA AND METHODS

This paper examines whether the impact of certain communication channels in rural areas differs from that at national level. In addition, it is tested whether a possible deviation changes significantly over time.

3.1. Large number investigation

In order for the results to serve the management of small and medium-sized enterprises later as a basis for decision-making, a precise description is necessary. It must be possible to clearly identify the type of region to which the findings apply by means of comprehensible factors (Foran & Lebel, 2012; Škodová Parmová, Líšková & Kain, 2018). Due to limited resources, it is not possible to interview all residents. A sample was carried out to obtain primary data. The media impact on inhabitants of municipalities with less than 16,000 inhabitants who have acquired their own homes within the last ten years was investigated. In order to reach this group of people, a targeted distribution of questionnaires was carried out in corresponding building areas.

3.2. Survey

A questionnaire was developed to survey the media impact. In order to ensure the best possible participation, the questionnaire was limited to the two questions necessary to answer the hypotheses. Both questions could only be answered with a single selection.

Question 1: Where did you conclude your construction financing? The answer to this question was available: Principal bank (here a salary account was already kept before the construction financing), Branch bank, Internet bank, property developer and Real estate sales associate.

Question 2: How did you first become aware of the provider of your mortgage? Here were the possible answers: Already a customer there, Internet, TV, Radio, Newspaper, active approach of the provider, recommendation by friends/acquaintances.

3.3. Analysis

Since only nominal-scaled data are used, contingency analysis can be used to check correlations. (Leibinger & Sander, 2017) Statistically, a dependency exists if the distribution of one observed variable does not match for all characteristics of the other observed variable. (Kähler, 2011) The χ^2 test according to Pearson can be used for this purpose. (Hladik, Kubecka, Mrkvicka et. Al,

2008; Leibinger & Sander, 2017) If the expected frequency in more than 20 percent of the cells is less than 5, the analysis is carried out with the exact Fisher test. The same happens if the expected frequency is less than 1. (Universität Zürich, 2017)

4. RESULTS

The first step is to check whether there is any dependency at all between the communication channel and the selected provider. For this purpose, the values from the 2013 survey are recorded in a table. Then the values from the year 2018, followed by an analysis using an exact Fisher test. Both calculations lead to a p-value smaller than the significance level $\alpha=0.05$. The null hypothesis „There is no dependency” must therefore be rejected. It has thus been demonstrated that in 2013 and 2018 there will be dependencies between the choice of provider and the communication channel used for buyers of a construction loan.

This research work is based on a repeated survey. The sample from 2013 contains 71 completed questionnaires (2013: $n=71$). The repeat question in the same geographical area was answered by 94 persons (2018: $n=94$). To survey the sample, 2,000 questionnaires were distributed in the target area.

The importance of the individual communication channels is of interest for this research project. These will be compared with their supra-regional importance.

Table 1. Communication channel/purchase decision

	Principal bank	Branch bank	Internet bank	Property developers	Real estate sales associate
Already customer	-8,81%	5,56%	0,00%	0,00%	0,00%
Internet	6,56%	16,67%	16,67%	0,00%	0,00%
TV	3,28%	-11,11%	20,83%	0,00%	0,00%
Radio	0,76%	0,00%	-25,00%	0,00%	20,00%
Newspaper	0,00%	-5,55%	0,00%	0,00%	0,00%
Active address	0,00%	5,56%	0,00%	-75,00%	-30,00%
Referral	-1,77%	-11,11%	-12,50%	75,00%	10,00%

These measured changes are offset by a behavior in marketing communication that is shown in Table 2. It shows the market shares of the media in advertising in Germany. In other words, the reference value for the sample carried out in one region of Germany. In the period under review, this was characterised by an increase in activities in the Internet (+6%), TV (+6%) and a sharp reduction in activities in the newspaper sector (-5%).

Table 2. Market shares of the media in advertising until 2017
(ZAW Zentralverband der deutschen Werbewirtschaft e.V., 2018)

	Internet	TV	Radio	Newspaper
2013	8%	27%	5%	42%
2014	9%	28%	5%	40%
2015	9%	29%	5%	38%
2016	10%	30%	5%	37%
2017	11%	30%	5%	36%

The communication channels „Already customer” and „Active approach” cannot be represented in media view. The operation of a branch network is regarded as representative of this type of communication in the sense of this research work. This is based on the assumption that the number of bank branches has an effect on direct customer contact. In Germany, the number of banking outlets fell from 38,225 in 2015 to 31,949 (Deutsche Bundesbank, 2018) in 2017. Direct contact can also be made within the framework of dialogue marketing campaigns. Against this background, the development of expenditure on dialogue marketing in Germany must also be taken into account here. In the period under review, these increased by EUR 1 billion from EUR 17.8 billion (2013) to EUR 18.8 billion in 2017. (Deutsche Post AG, 2018)

5. DISCUSSION

The analysis of the response behaviour of the target group provides an initial insight. In the 2018 repeat survey, only 32.98% of respondents used the postal service. The far larger proportion (67.02%) chose the Internet to answer the questions. This shows that technical progress and the associated global trend towards more e-business (Kulyk & Škodová Parmová, 2017) has now also made considerable progress in rural regions of Germany.

Nevertheless, the majority of the 2018 respondents (90.43%) decided to take out a mortgage with a branch bank. This figure is even 10% higher than the rate of 80.28% determined in the first survey in 2013. This means that the importance of the branch as a sales channel for mortgage lending in the target region in question has risen against the trend.

However, technological developments are changing the way business is conducted (Kulyk & Škodová Parmová, 2017). Thus, the importance of the branch as a communication channel intending to act decreased. In this way, the repeat survey identified 3.25% fewer deals than five years ago.

In the five-year period under consideration, the communication channel Internet gained the most importance. In the repeat survey, it initiated 39.90% more deals than in 2013. At 16.67%, the increase in the Internet banking category was just as significant as for branch banks. Customers who took out mortgages with their principal bank were also increasingly motivated via the Internet. A plus of 6.56% can be identified here. The importance of this communication channel is therefore growing faster than advertising budgets at this point. For the period under review, these only show a plus of 3%.

Advertising commitment on TV was also increased by 3% in the period under review. This, in turn, is clearly below the measurable significance. In 2018, an increase of 13.00% was recorded across all types of contracts.

The present research project thus shows that there are differences between the regionally measured initial effect of a communication channel and its supraregional significance.

In order to clarify Hypothesis 1, it is necessary to examine the significance of these deviations. For this purpose, the regionally determined frequencies are compared with a supraregionally determined expected value. As part of a secondary data analysis, the values from a survey conducted by Deloitte in 2010 are used for this purpose. Since the calculated p-value is smaller than the significance level $\alpha=0.05$, the null hypothesis H_0 must be rejected. The alternative hypothesis H_a must be accepted. This hypothesis states that the effect of a communication channel in 2013 depends on the regional affiliation of a recipient. The same evaluation then takes place with the data from 2018 - and comes to the same result.

Hypothesis 2 states that the regional dependence of the effect of a communication channel has not changed as a result of technological progress. This statement is now also verified in a final step. For this purpose, the results of the samples from 2013 and 2018 are tested for significance in a chi-square test. The basis is the average observed values per communication channel. Since the calculated p-value of 0.046 is lower than the significance level $\alpha=0.05$, the null hypothesis H_0 must be rejected and the alternative hypothesis H_a accepted. It follows from this that technical progress has an impact on the opinion-forming power of the individual communication channels.

6. CONCLUSION

The management fields of marketing and communication are characterised by progressive professionalisation (Niebergall & Röttger, 2018; Röttger, Kobusch & Preusse, 2018). This is due to major changes in the opinion-forming and information procurement processes of target groups over the past ten years. This requires a faster and more accurate approach. It is also no longer enough simply to send out messages. To control the flow of information, bilateral communication between companies and recipients is necessary (Sdrolas, Kakkos, Škodová Parmová, et. al, 2016). In addition to traditional instruments, PR, marketing and sales also use new communication channels to gain attention or relevance for their communicative messages (Lommatzsch, 2018). These have remained the main concerns of institutional communication. (Sdrolas, Kakkos, Škodová Parmová, et. al, 2016)

Efficiency has a high priority in the choice of instruments and the distribution of budgets. Companies worldwide therefore invest an average of 6.7 percent of their marketing budgets in modern analysis methods. It seems that the demonstrably better performance as the main reason for this (Perrey, 2018).

However, data-driven marketing planning requires a valid database (Staudacher, 2018). In practice, however, there is often a lack of valid data. Others complain that 45% of companies have only incomplete customer data, which is why secondary data is used (Kreutzer & Land, 2017). Planning on the basis of secondary data may have proved successful for supraregional providers. The present research work, however, proves that geographically defined regions can deviate significantly from national or international average behaviour in terms of media use. Against this background, communication concepts oriented towards the average customer must be critically questioned.

The present research work shows that in rural areas the traditional communication channels of branch offices, newspapers and personal contact by the consultant still have a significant influence on the probability of a mortgage being concluded.

It also becomes clear that the Internet is becoming increasingly important in the process of forming opinions and building customer loyalty. At the same time, people are looking for a personal contact person and physical proximity at the end of the day, at least in the case of transactions that require explanation, such as the conclusion of a construction loan. Against this background, the steady reduction of bank branches with reference to increasingly used online banking services must be critically questioned. Banks and savings banks are following numerous other sectors with their strategy of using the ongoing digitalisation to reduce costs. Staudacher (2018) deplores this development as it does not lead to improved customer orientation. At the same time, however, it has a negative impact on existing customer relationships (Hinterberger, 2018).

The present research work also makes it clear that the importance of different communication channels in the process of forming opinions varies from region to region. This confirms the tendency to meet the growing global challenges with their own regional strategies (Škodová Parmová, Lišková & Kain, 2018).

On the other hand, it does not provide a reliable statement on which communication channels are particularly important in rural areas. The random samples in the number of cases were too small for this. Also not investigated was the question of whether only the rural area in West-Middle Franconia analysed in the research project deviates from the average customer - or whether deviations are to be expected in all rural areas. Also not considered is the question of whether there are deviations only in rural areas or also in metropolises. Thus, the present research work is at the same time an impetus for further research in these directions.

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INSTRUMENTS SPECIFIC TO THE PROCESS OF SUBSTANTIATING MANAGERIAL DECISIONS AT THE ORGANIZATION'S LEVEL

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Abstract: *The main objective of this paper is first to analyze those instruments that have proven to be useful in time and have the merit of being able to be used in the decision-making processes of all types of organizations such as the tree decision-making or decision table and on the other hand, another important aspect is the presentation of the organization's integrated piloting tools such as scoreboard and balanced scorecard, tools that allow managers to dispose, in real time, of a synthetic view of the main indicators of the organization and the business environment for taking decisions under their competence.*

Keywords: *Scoreboard, Balanced scorecard, Tree Decision-Making, Decision Table, Experiment and Decision-Making Simulation*

JEL Classification L66 · M11 · M49

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1. INTRODUCTION

The importance of using specific tools in the process of substantiating decisions within organizations stems from the necessity to adopt superior, clear and precise decisions, based complex, sometimes of great significance for organizations. Among the ways and instruments used to rationalize the entire decision-making process, specialized methods and techniques play a special role, being specially designed to increase the efficiency of decisions of great importance.

Organizational decision-making is the product of the managerial act, its purpose being dependent on the functionality, viability and performance of these organizations, with decision-making processes taking a major role in organizational activity (Berheci, 2008). The basis for the decision appears as a process of elaboration, in which the collection and processing of information, the study and selection of several alternatives and the formulation of the option for one of them occupy a central place in the activity of the organizations, the possibility of improving the decision making process depending primarily on its knowledge.

It is known that the decision-making process involves a great deal of time during which information is gathered and analyzed, people are consulted in order to shape the decisional situation, this process essentially consisting of a set of stages through which it prepares, adopts, applies and evaluates managerial decision, and its quality influences cost reduction, efficiency of fund utilization, profit growth, etc.

In top management practice, due to their simplicity, linear programming models used in the decision-optimization process allow for quick evaluation of the action lines and the identification of the optimal solution. Thus, in the approach of the applicative part, the authors considered a study conducted at a meat product organization called Alfa, which in 2018 decided to investigate the possibility of increasing the production capacities, and in order to solve this managerial complex problem with major financial implications will resort the use of the decision tree, a stochastic type instrument used to make decisions under risk and uncertainty. After applying this instrument, it can be seen from the examples of decisions taken by Alfa's management that the use of decision-making methods and techniques is all the more important as it provides an opportunity to adopt complex and substantiated decisions of high quality, resulting in an increase the degree of rigor and, implicitly, their effectiveness, differentiated according to the typology of the decisional situations involved. This advantage is doubled by the effort economy of the managers involved, due to pre-emptive decisional alternatives.

2. IMPROVING THE DECISION PROCESS IN ORGANIZATIONS

In the work of decision-makers from organizations, at this stage a relatively large number of decisions are based on the empirical or raw interpretation of the information that is circulating when drafting the decisional variants. The activity of optimizing of the relationships between the objectives pursued by the decision-maker and the existing resources needs to be approached sequentially, starting with the establishment of the production branches, the structure of the production processes and the obtained products and ending with their sale. The activity of improving the decision-making process is mainly carried out on three levels: organizational, informational and methodological. Managers develop and take many different decisions during their work, making managerial decisions synonymous with the entire management process (Popa, 2009, pp. 25-36).

The decision in general is the conclusion of the process by which we make a choice, an option between two or more alternative actions available to achieve an objective or more, and the process of obtaining this conclusion or options, being known as the „decision-making process” (Ionescu, Cazan & Negruța, 1999)

Decision-making system consists of all decisions adopted and applied by managers within an organization. The decision can be defined as a deliberate choice from multiple possibilities in order to solve a problem (Trifu, 2009). Many organizations have market-oriented organizational structures, but few have specific decision-making systems for such organizations and, in particular, such guidelines (Baker, 2005).

Specialized literature, (Negescu, 2004, p. 54), faithfully reflecting on current practices in organizations, rather operates with a broad vision of decision-making, including in its post-election activities, such as: implementing and controlling the application of the decision.

Managerial process is understood, first of all, as a process of using information, (Paterson, 1996, p.12) the act of leadership being realized within the information-decision-action circuit, as can be seen in figure 1.

The complexity of the Simon’s phases model, (Simon. 1977, p. 23) as well as some considerations about the importance of information in each of these phases - the decision being essentially a process of converting information into action - determines us to consider the development of this model, as it can be seen in Figure 2.

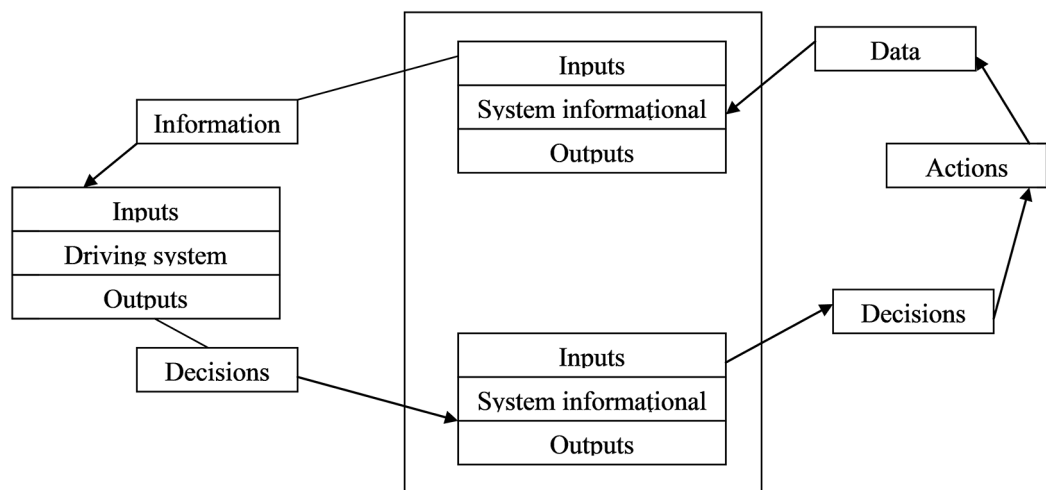


Figure 1. The link between the information system and the decision-making process

Source: Paterson, 1996

The Sources of information origin used in decision-making are of two categories: formal and informal. Formal information is given to managers through the organization’s official information systems, such as the types of computerized information systems developed - including database query facilities, decision support systems, information systems for senior management (Executive Information Systems), office applications and other facilities - can greatly satisfy these qualitative requirements. Managers prefer „informal” information and use them to make decisions, especially when dealing with poorly structured, unscheduled problems (Mintzberg, 2008).

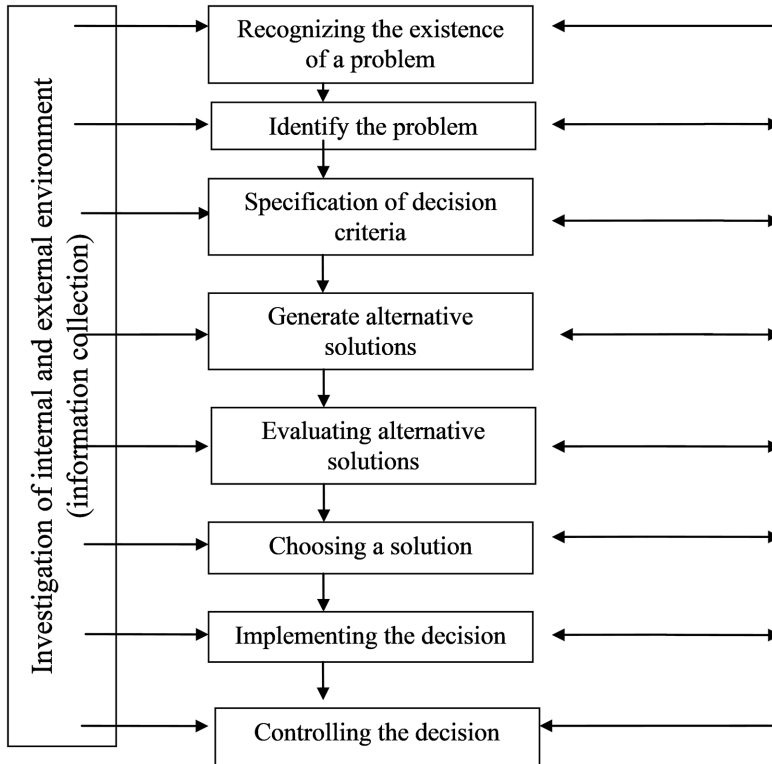


Figure 2. The structure of the effective decision-making process

Source: Simon, 1977

3. THE IMPORTANCE OF USING SPECIFIC TOOLS IN THE PROCESS OF SUBSTANTIATING DECISIONS WITHIN ORGANIZATIONS

The tools used to rationalize the entire decision-making process of all types of organizations are specifically designed to increase the efficiency of decisions of great importance, such tools being proven in time, such as decision tree, decision table, experiment and decision simulation, and as the organization's integrated piloting tools; the scoreboard and the balanced scorecard can be outlined.

In top management practice, due to their simplicity, linear programming models used in the decision-optimization process allow for quick evaluation of the action lines and the identification of the optimal solution. In linear decision-making models it is intended to optimize a problem by maximizing/minimizing the objective function (Ionescu, Cazan & Negruța, 1999), respecting a number of restrictions on the availability of resources or achieving binding targets.

The decision tree has as its main objective rationalizing the decision-making process, the "tree" being able to "attach" to any problem for which a decision is needed. The decision tree describes chronologically the various modes of action of the decision-maker, symbolized by squares and the "nature's reactions", random events, mostly symbolized by circles. Each pair of "action of the decision-maker - reaction of nature" determines an "r" result, the unique consequence of the said pair, symbolized by triangles (Filip, 2002).

An alternative decision-making (decision-maker action) determines a result, expected or not, that depends on a random event (of a nature reaction) whose probability of occurrence can be anticipated, known in the probabilistic sense, following preliminary investigations. It follows that, to a great extent, the correctness of decisions made with the help of the “decision tree” is strictly dependent on (Bouquin, 2004, pp. 32-34):

1. the ability of the decision maker to identify the possible reactions of nature to its own action solutions, including through research tools. It is obvious that only the action-reaction pairs set by the manager will be studied.
2. the accuracy of the investigations necessary to anticipate the probabilities of occurrence of the various „nature reactions” set by the decision maker, the methodology used for this purpose.

The decision table is a complex variant of the calculation nomograms and it is recommended to develop and use it in all cases where the manager is in a position to choose with a high frequency a decision from the same predefined alternatives in the „table”. It usually presents four quadrants, in which are passed:

1. the objectives of the decision or the requirements to be taken into account when developing it;
2. the set of actions or operations required to achieve the possible objectives;
3. combinations of objectives and requirements as well as all the actions and operations required to achieve each combination of objectives or requirements (Radu, & Vlădeanu, 2007).

Experimentation and simulation are two methods of research into economic phenomena that contribute significantly to increasing the quality of economic decisions, i.e. experimentation and decision simulation. The use of these two instruments enables decision makers to have a realistic and integral representation of the complexity of the interdependencies between the different factors of influence of the results (consequences) of the decisions to be made (Bărbulescu, 2000).

Nomograms are graphical representations in the plane using the gradient lines of the relationship of dependence between two or more variable sizes; serve to quickly determine, without calculations, the values of a size function of other sizes when given the values of the latter (Băileşteanu, 2002).

Decisional simulation ensures not only the rationalization of the decision-making process, but also, in this case, the possibility of anticipating all the consequences of the various decisions, in fact of the final decision (Mihalciuc, 2018). From this point of view, simulation is a unique tool, the use of decisional simulation for this purpose, offering the possibility of realizing a „non-destructive” control of the effects of the decisions to be taken without the potential disastrous consequences of some major decisional errors (Radu & Vlădeanu, 2007). Decisional simulation ensures not only rationalization, simulation of decision-making involves the prior construction of models that „simulate” the development of economic processes in the conditions that have been taken into account in the elaboration of the possible decisional variants to be applied. The most common types of simulations in the field of economic phenomena are based mainly on Monte Carlo and heuristic programming.

In recent years, tools are increasingly being used to allow managers to have a real-time vision of the main indicators of the organization and the business environment in order to make decisions within their competence, such as the picture board and balanced scorecard. The Scoreboard is a set of indicators that provide a readable and interpretable presentation with a regular frequency adapted to the needs of the pilot (Popa, 2005, pp. 32-46).

The notion of a dashboard „tableau de bord” appeared in France during the interwar period. A dashboard is a tool that has the ability to select, arrange, and present the indicators so that, at first glance, they can highlight a synthesis of the activity being carried out. As a pilot tool for managers’ actions, the dashboard has the following features: it is intended for each operational manager; contains a relatively small number of indicators (10 to 25 maximum indicators); the information is not only of a financial nature, it also presents non-financial, qualitative indicators; is obtained quickly, being able to identify the origin of the information; is easy to understand and easy to interpret, and the indicators are presented in a visible manner, using graphs, tables, in absolute values and rates (Topor & Marc, 2017, pp. 84-87).

The non-financial nature of some indicators is a specific feature for the scoreboard, which allows management to have data other than financial-accounting data. Non-financial information (for example, the quality level of the raw material, the percentage / degree of customer loyalty, the number of new clients, etc.) allows the decision-maker to react quickly when unexpected changes occur in the business environment is due to the fact that the operational officers are reporting qualitative rather than monetary data (Chirița & Bradea, 2012).

Balanced Scorecard - the balanced development projection, a strategy-based model is a way of measuring and evaluating company performance, an Anglo-Saxon version of the dashboard. This tool is, as is already known, a management system (strategic) developed by Kaplan and Norton in the 1990s. If at first, the BS model was used to assess the (future) performance of companies (Kaplan & Norton, 2001, pp. 87-104), then its application expanded beyond the business environment, being considered as a strategic planning tool for both public institutions and non-profit organizations. The Balanced Scorecard method was presented by Kaplan and Norton in the article “The Balanced Scorecard: Measures That Drive Performance” (BSC initially originated as a result of a KPMG-sponsored research project), being developed to ease managers’ work through explaining the mission of the firm to which they belong, its purpose and strategy in a comprehensive set of performance measures that aim to achieve success on the competitive market (Mihăilă, Badicu, 2016)

The Balanced Scorecard is an approach that incorporates both traditional financial indicators or measures and non-financial indicators or measures. In essence, the BSC is primarily a mechanism for implementing the strategy and expressing the vision of the company. The BSC defines the most important success factors and the measures are designed in such a way as to support the completion of the enterprise objective and measure performance in vital areas from a strategic point of view (Bostan & Grosu, 2011, p. 179). The essence of the model is that each field of analysis is assigned strategic objectives for which are set up measurement indicators and optimal levels, and then identify ways to implement the strategy.

In general, the process of implementing a strategy is a top-down process, and a well-designed BSC must reflect the strategy as a foundation for designing an efficient and effective management system. At the level of profit-making entities, financial perspective (shareholders /financiers), followed by customers (users), internal processes (activities), staff and innovation (adaptability and performance improvement) are the first. All this can be added to the perspective of creating value (De Geuser, Mooraj & Oyon, 2009, pp. 93-122), (Aureli, Cardoni, Del Baldo & Lombardi, 2018, pp. 191-215). Another point (Ștefănescu, Silivestru, 2012, pp. 6-23) is to place users first, second to second, staff and innovation to third, and fourth to the financial perspective. To all this, we can add value creation, an integrative perspective of the previous four (Aureli, Cardoni, Del Baldo & Lombardi, 2018, pp. 191-215).

Over time, the BSC method has expanded, applying the BSC Analytical Method (A-BSC) for various analyzes, such as: strategic performance analysis within an outsourced supply chain (De Felice, Petrillo & Autorino, 2015). The BSC has been applied in various ways, with the Sustainability Balanced Scorecard (SBSC) approach being developed for SMEs (Falle, Rauter, Engert & Baumgartner, 2016).

It is known that since its appearance in the early 1990s, many companies have adopted the Balanced Scorecard (BSC). In connection with this, some researchers have asked themselves: if BSC adds value to companies and if so, how does it contribute to organizational performance? The results indicated that Balanced Scorecard has a positive impact on organizational performance, improving the integration of management processes (De Geuser, Mooraj & Oyon, 2009, pp. 93-122).

In the BSC, as a tool for implementing the strategy in an organization, attention is directed mainly to non-financial indicators that track the satisfaction of the individual, whether client or employee, the duration of the processes, the quality of the results, but also other aspects (Mihalcu, Costas & Barnea, (2017). Although researchers have been analyzing the impact of BSC implementation on managerial and organizational performance over the years, however, at the level of 2010, there was little empirical evidence available to justify the BSC's large-scale efficiency (Burkert, Davila & Oyon, 2010, pp. 345-363)

Regarding the use of BSC in areas other than those of companies, it is noted that in 2010, 65% of Swedish emergency hospitals used the BSC method to implement their strategies. However, it is recommended to develop the BSC in order to be relevant in monitoring performance in the medical field (Aidemark, Baraldi, Funck & Jansson, 2010, pp. 363 – 385).

There are also studies showing that among the factors that influence the school dropout rate are the limited financial resources of the students, the top and the size of the universities, as well as the qualitative characteristics of a university. It has been historically and statistically proven that there is a very positive correlation between higher quality education and economic growth (Kim & Kim, 2018, pp. 954-972).

The implementation of BSC in an organization is in fact identifying itself with the definition, management, and control of that organization's strategy. The strategy targets long-term goals, and their achievement requires decision-making. In this context, the BSC model cell is a system of indicators (predictive, not static) that underpin decision-making (Albu & Albu, 2003)

4. APPLICATION OF THE DECISION-MAKING INSTRUMENTS TO SC ALFA

SC ALFA is a meat processing company, Romanian legal person, the company's status is limited, the company owning an ecological type IE incinerator designed to destroy a category of hazardous wastes (waste from the meat processing industry, waste resulting from the practice human and veterinary medical, as well as some pharmaceutical waste), with no emission potential in the emission and, implicitly, noxious metals in the ashes. During its existence, S.C. ALFA, as any organization, has faced numerous disturbing factors, generated by the increasing business complexity and the environment of their deployment, which has resulted in a permanent concern for the expansion of activity and alignment with market standards. Thus, in 2018, the company decides to investigate the possibility of increasing production capacities, making it possible to take into account three options: a large factory can be built, a small factory can be constructed or not built. The market may be favorable or unfavorable with a probability that the manager can determine.

To solve this complex management problem, with major financial implications, the decision tree is used, a stochastic type instrument used for risk and uncertainty decision making.

As a scientific decision-making technique, the decision-making process will go through a set of steps (Popa, 2009, pp. 25-36), (Ionescu, Cazan & Negruta, 1999), (Radu & Vlădeanu, 2007) through which the decision-making process is prepared, adopted, applied and evaluated, especially since the quality of the decision-making process influence the efficiency of fund usage, reduce costs, increase profit, etc.

Step 1: In the first stage, the objective of the company was established and the possible alternatives were determined, namely: increasing the production capacity, taking into account the alternatives: a - construction of a large factory; b - construction of a small factory; c - it is not being built.

Step 2: The decision tree of the stated problem (figure 3) is constructed in such a way that all the decisional alternatives and all the states of nature are represented, in a stepwise, logical order.

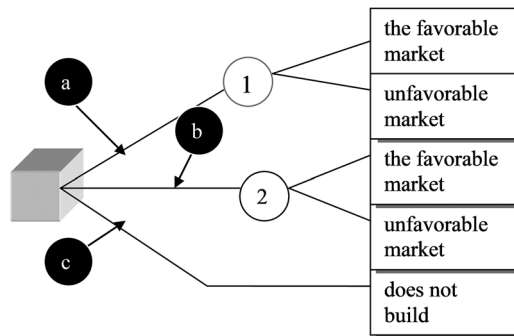


Figure 3. The decision tree for possibilities of SC ALFA

Step 3. Determine the level of consequences associated with each alternative.

Determining the values of the consequences for each alternative can be a synthetic and suggestive decision table (Table 1).

Table 1. Decisional table

ALTERNATIVES	Consequences of alternatives	
	STATES OF NATURE	
	FAVORABLE	UNFAVORABLE
Very large construction	400.000 u.m.	- 360.000 u.m.
Very small construction	200.000 u.m.	- 40.000 u.m.
No construction	0	0

Were, u.m. represents monetary units

Step 4. Determining event probabilities

If we do not know the probability that characterizes the states of nature, we have a decision-making problem in case of uncertainty, which can be solved on the basis of specific game theory criteria: maximax, maximin and the probability average (equal probability for both alternatives). So:

1. if we choose the maximax criterion, which means maximizing winnings - a large factory is being built, which in case of success will bring a gain of 400,000 u.m.;
2. if we choose the maximin criterion, which means minimizing the losses - it is not built, the loss in this case being 0;
3. if we choose the probability average criterion, which implies the determination of the average of the consequences for each alternative:
 - 1.1. for large factory construction, the gain is $(400.000 - 360.000) : 2 = 20.000$;
 - 1.2. for the small factory construction, the gain is $(200.000 - 40.000) : 2 = 80.000$;
 - 1.3. for the variant that: not build, the gain is 0.

As you can see, it will be decided to build a small factory that corresponds to a higher average gain. The risk decision is a probabilistic decision, the states of nature being appreciated by certain probabilities. Under these conditions, the conditional values in the decision table are weighted with the likelihood of each state of nature occurring and *the expected monetary value (EMV)* for each alternative is determined. For the situation of the company, the market can be manifested in two ways based on the following determined probabilities: favorable market - 0,6 and unfavorable market - 0,4.

Step 5: Calculation of the mathematical expectation for each decisional alternative, stage in which the expected values are estimated for each possible combination of alternatives and the states of nature. According to the above presented for each alternative we have:

$$EMV_1 = 400.000 \times 0,6 - 360.000 \times 0,4 = 240.000 - 152.000 = 88.000 \text{ u.m.} \quad (1)$$

$$EMV_2 = 200.000 \times 0,6 + (-40.000) \times 0,4 = 120.000 - 16.000 = 104.000 \text{ u.m.} \quad (2)$$

$$EMV_3 = 0 \times 0,6 + 0 \times 0,4 = 0 \quad (3)$$

Step 6: Choosing the decision variant based on the maximum value obtained.

So, based on the results obtained, the second alternative will be chosen, which will ensure a higher monetary value.

4.1. The decision tree under total information

However, society does not agree with the situations generated by the acceptance of probabilities and aims to carry out research, so that the uncertainties will be completely eliminated, and the decision will be accurate and scientifically substantiated. Under such circumstances, knowing the value of the final result with certainty, the decision-maker must be able to properly assess the states of nature on the basis of information that will remove the problem from the risk conditions and turn it into a determined problem. So, we will have to determine the cost to get complete information.

Noting with: *EMI - the expected monetary value for full information*

EMC - the monetary value expected in certainty conditions

We have:

$$EMI = EMC - \text{MAX}(EMV) \quad (4)$$

In which: EMC is the value of the most favorable alternative x the probability of that alternative + the most unfavorable alternative x the probability of that alternative.

In our case:

$$EMC = 400.000 \times 0,6 + 0 \times 0,6 = 240.000 \text{ u.m.} \quad (5)$$

It results:

$$EMI = 240.000 - 104.000 = 136.000 \text{ u.m.} \quad (6)$$

So, to transfer the managerial problem from the risk category into a certainty, information that will cost 136,000 u.m should be collected. Prior to building the factory, the manager decided to develop a marketing study costing 10,000 u.m. The study shows that there is a 45% probability of the development outcome being favorable and 55% unfavorable. In the case of favorable research, the chances of the market being favorable rise to 78%, and only 27% of the market would be favorable for the unfavorable study. If it is not built, the likelihood of the market behaving favorably or unfavorably is considered to be 50%.

The decision tree shown in Figure 4 changes radically, but the three options remain

1. a - we build a large factory;
2. b - we are building a small factory;
3. c - we do not build.

Applying the abbreviated formulas, we determine the expected monetary values for each decision node.

$$EMV(2) = 390.000 \times 0,78 + 0,22 \times (-370.000) = 222.800 \text{ u.m.} \quad (7)$$

$$EMV(3) = 190.000 \times 0,78 + 0,22 \times (-50.000) = 137.200 \text{ u.m.} \quad (8)$$

For decision node B, the maximum EMV is 222,800 u.m., a large factory is being built.

$$EMV(4) = 390.000 \times 0,27 + 0,73 \times (-190.000) = -164.800 \text{ u.m.} \quad (9)$$

$$EMV(5) = 190.000 \times 0,27 + 0,73 \times (-30.000) = 14.800 \text{ u.m.} \quad (10)$$

For decision node C, the maximum EMV is 14,800 u.m., a small factory is built.

$$EMV(6) = 400.000 \times 0,50 + 0,50 \times (-360.000) = 20.000 \text{ u.m.} \quad (11)$$

$$EMV(7) = 200.000 \times 0,50 + 0,50 \times (-40.000) = 80.000 \text{ u.m.} \quad (12)$$

For decision node D, the maximum EMV is 80,000 u.m., a small factory is built. If the study is favorable or not, there is an EMV according to the calculations:

$$EMV(1) = 222.800 \times 0,45 + 0,55 \times 14.800 = 108.400 \text{ u.m.} \quad (13)$$

For decision node A, the maximum EMV is 108.400 u.m., so the study is being developed.

The decisional stages in the managerial problem are:

1. the study is being developed;
2. if the study is favorable, a large factory is built;
3. if the study is not favorable, a small factory is being built.

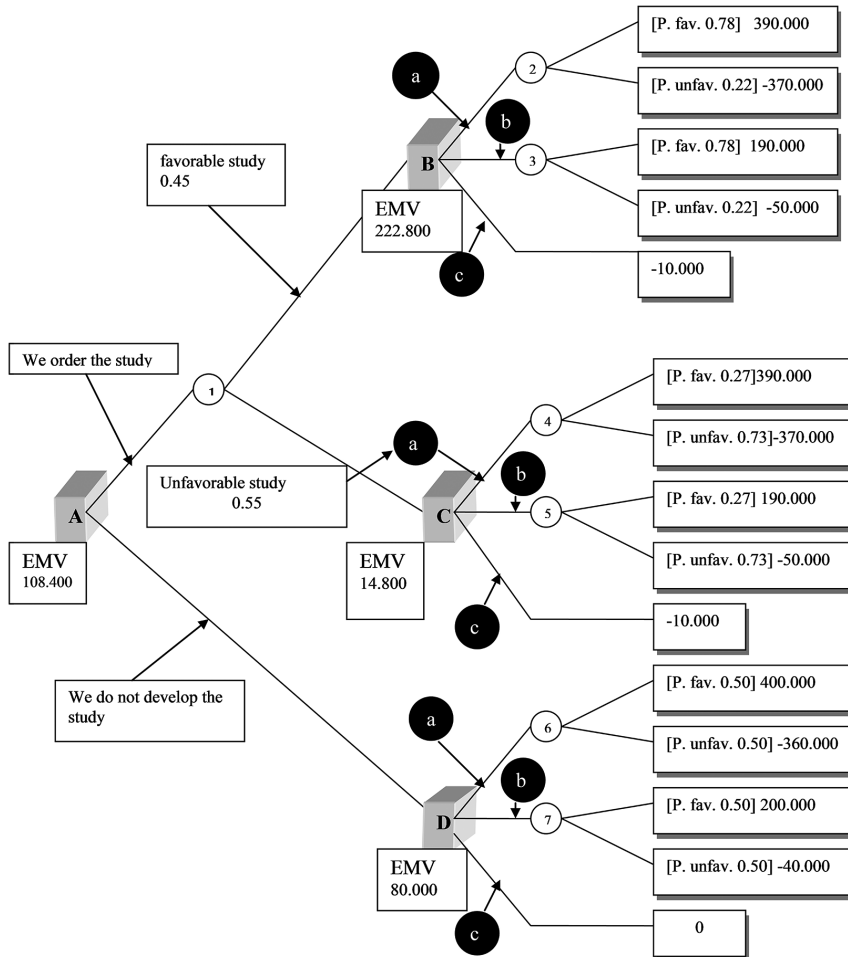


Figure 4. The decision tree for the issue of development SC ALFA

Another decision by S.C. ALFA was taken over the purchase of a new production line that will have to be installed in its factory. For equipment endowment, the company had to choose one of the following three alternatives as it can be seen in Figure 5:

1. To buy a machine that can perform several operations, so it can be used for general purposes, which in case of success will lead to a gain of 37,000 u.m., and in case of failure to a loss of 19,000 u.m.
2. Buy a strictly specialized equipment that will lead to a 43,000 u.m gain. in case of success and at 30,000 u.m. loss in case of failure.
3. If no machine is purchased from S.C. ALFA will have a loss of 13,000 u.m. due to the lack of space and customer dissatisfaction with non-assimilated products.

SC ALFA has calculated a 70% success rate for each purchased equipment.

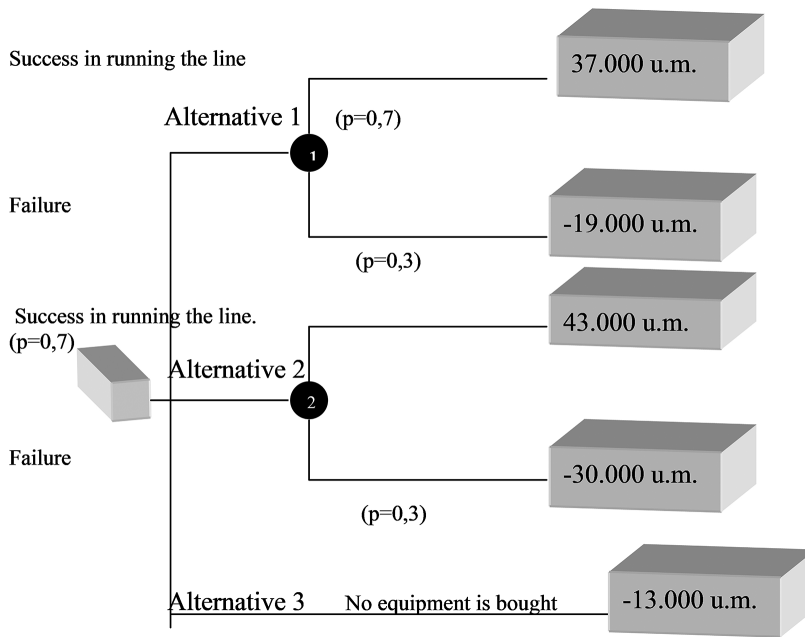


Figure 5. Decision tree for the problem of purchasing equipment at S.C ALFA

The expected monetary value of EMV for alternative 1, i.e. the purchase of a multi-purpose machine, can be calculated as follows:

$$EMV(1) = 0,7 \times 37.000 + 0,3 \times (-19.000) = 20.200 \text{ u.m.} \quad (14)$$

For alternative 2, the expected money is:

$$EMV(2) = 0,7 \times 43.000 + 0,3 \times (-30.000) = 21.100 \text{ u.m.} \quad (15)$$

Not buying any equipment results with certainty (probability = 1), a loss of 13,000 u.m.

In conclusion, with no additional information (relating to the use of the universal machine for other purposes), the company will choose the variant 2, namely the purchase of a specialized equipment, because according to decision making using the decision tree, this alternative has the highest expected monetary value ($EMV = 21.100 \mu\text{m}$). Another situation where it is necessary to make a well-thought-out and considered decision before it is put into practice, as it influences the costs, the efficiency of using the funds, the profit, would be the following: In order to manufacture an assortment for a defined period, a single device with a unit purchase cost (CA) of 30 u.m. is mounted on the three existing machines. m, whose reliability is low. The company has two options: it can be supplied early with one or more devices (action lines V; where j - 1,2, 3) or can purchase them at the time of failure (Vo). In this latter situation, costs due to stagnation of production up to the arrival of a device (CS) are 40 u.m.

On the basis of reliability studies, probability distribution P (k), where p (k) is the probability of simultaneously defecting „k” devices, was estimated.

$$P(K) = (0,10 \ 0,35 \ 0,40 \ 0,15) \quad (16)$$

The company has action lines V , with each variant being able to take the state of nature N_k . Following the choice of the line of action that involves a minimal hoped cost, the decision tree represented in Figure 6 can be elaborated.

Total costs (CT), related to each incidence of “action line - status of nature”, were determined by summing up the acquisition costs (CA) and those due to production stagnation (CS), according to the relationship:

$$CT_{ij} = CA \cdot j + \begin{cases} (CA+CS) \cdot (i-j), & \text{if } i > j \\ 0, & \text{for } i \leq j \end{cases} \quad (17)$$

where:

- i - the number of defective devices in the considered period;
- j - number of devices in stock.

We calculate the expected cost of total costs:

- for action line V_0 :

$$CT = 0,10 \times 0 + 0,35 \times 70 + 0,40 \times 140 + 0,15 \times 210 = 112 \quad (18)$$

- for action line $V1$:

$$CT = 30 \times 0,10 + 30 \times 0,35 + 100 \times 0,40 + 170 \times 0,15 = 79 \quad (19)$$

- for action line $V2$:

$$CT = 60 \times 0,10 + 60 \times 0,35 + 60 \times 0,40 + 130 \times 0,15 = 70,5 \quad (20)$$

- for action line $V3$:

$$CT = 90 \times 0,10 + 90 \times 0,35 + 90 \times 0,40 + 90 \times 0,15 = 90 \quad (21)$$

In conclusion, following the calculations, it results that the optimal action line is $V2$, namely the constitution of a stock of two devices.

SC ALFA was confronted in September 2018 with the following one-time decision: three maintenance engineers (X, Y, Z) must be assigned to repair three equipment (A, B and C) so that the repair time is minimum (Table 2).

Table 2. The time of equipment repair

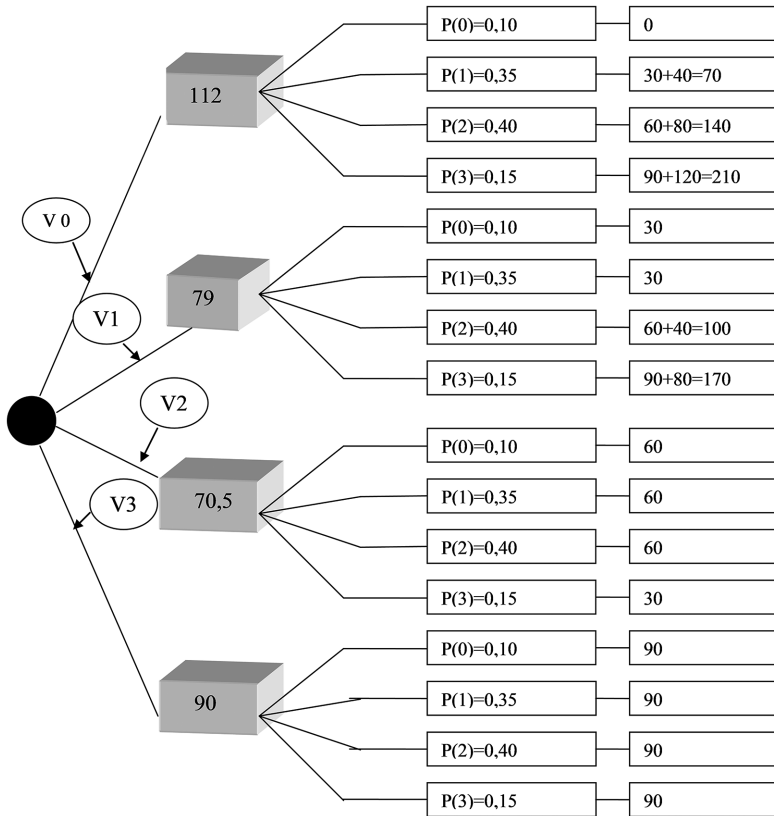
Equipment Mechanic	A	B	C
X	6	14	8
Y	8	14	12
Z	8	16	12

Based on the table, you can build a table of results corresponding to all possible alternatives (Table 3).

Table 3. The table of results

Alternatives	The table of results (total repair time)
A1 – X – A, Y – B, Z – C	$6 + 14 + 12 = 32$
A2 – X – A, Y – C, Z – B	$6 + 12 + 16 = 34$
A3 – X – B, Y – A, Z – C	$14 + 8 + 12 = 34$
A4 – X – B, Y – C, Z – A	$14 + 12 + 8 = 34$
A5 – X – C, Y – B, Z – A	$8 + 14 + 8 = 30$
A6 – X – C, Y – A, Z – B	$8 + 8 + 16 = 32$

By comparing the total repair time for all possibilities, it is concluded that the best alternative is A5 because the repair time is minimal (the objective function is to reach the minimum). As can be seen from the examples of decisions adopted by the management of SC ALFA, the use of decision-making methods and techniques is all the more important as it provides an opportunity to adopt complex and substantiated decisions of high quality, leading to an increase in the degree of rigor and, implicitly, their effectiveness, differentiated according to the typology of the decision situations involved. This advantage is doubled by the effort economy of the managers involved, thanks to the pre-decision-making alternatives.

**Figure 6.** Decisional tree for the problem of acquiring devices at S.C. ALFA

5. CONCLUSION

Decision-making techniques have generally developed as a result of the need for good decisions, with each manager having a set of tools (techniques / methods) that assist him / her in the decision-making process, dynamic character, with a complex problem, whose solution requires a great deal of discretion, clear delineation of the objectives and conditions, the courage to give up what is overcome and the use of the opportunities offered by information technology, which has become a highly competitive weapon in achieving the organization's goals.

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ENTREPRENEURSHIP EDUCATION IN THE HIGHER EDUCATION SYSTEM IN REPUBLIC OF NORTH MACEDONIA

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Abstract: *This paper examines the entrepreneurship education programs present at the universities in Republic of North Macedonia. The analysis covers the overall higher education system, including both state and private universities. The authors use qualitative content analysis in order to explore and compare different aspects of the programs, including: objectives and expected outputs of the entrepreneurial program, its content, learning and grading methods, quality assurance and literature list. The findings of this work are expected to raise awareness about the importance of entrepreneurship education in the country and to serve as evidence for the relevant stakeholders to deliver more competitive, innovative and business supporting educational system.*

Keywords: *Entrepreneurship; Business friendly environment; Entrepreneurial education; Higher education; Content analysis.*

JEL Classification A23 · I21 · L26

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1. INTRODUCTION

One of the most important policies of the European Union (EU) is Enterprise policy. Its aim is to create business friendly environment by strengthening competitiveness, facilitating structural change and stimulating small and medium-sized enterprises (SMEs). Ultimately, this is a joint and organized effort in order to stimulate innovations and job creation.

In the 2018 Report on the Former Yugoslav Republic of Macedonia (European Commission, 2018) is noted that the country is moderately prepared in the area of Enterprises and industrial policy. Moreover, the country has not made any progress in the reporting period. Key priorities of the country should be to adopt a new industrial policy and strategies for SMEs; (2) introduce initiatives to increase the skills in companies, notably SMEs, to adopt new methods and technologies; and (3) develop measures to link foreign direct investment with local companies.

However, creating business-friendly environment is closely related to creating business-friendly formal and non-formal institutions. Educational system, understood as a system for organized dissemination of knowledge and skills, is one of the crucial institutions for fulfilling this task. Higher education is expected to provide students with valuable specialized knowledge and skills and to stimulate innovative thinking, risk taking and competitiveness. In this paper, we emphasize the importance of entrepreneurial education in delivering these results.

Entrepreneurship is relatively new and modern concept. Although, there are many definitions on what entrepreneurship is, and what it is not, there is no universal definition about what this concept represents. However, there is a general consent that entrepreneurship is related to innovations, creativity, leadership, that ultimately lead to progress. Entrepreneurship is more than just starting and running up a business. Entrepreneurship creates perspectives for individuals to seek opportunities, take risks and develop new ideas. The contributions entrepreneurs and entrepreneurial firms provide to the economy are immense and include stimulating innovations, promoting technical change, increasing productivity and decreasing unemployment. Entrepreneurship plays the crucial and indispensable role of providing the “social glue” that binds together both high-tech and “Main Street” activities (Small Business Administration [SBA], 1998).

Entrepreneurship has appeared in the late XX century, but has quickly evolved into powerful economic factor stimulating economic growth and innovations. The raise of the entrepreneurship kindled expansion of entrepreneurship education, as well, especially at university level. Consequently, rapid development of entrepreneurship courses and programs has emerged.

This paper examines the entrepreneurship education in the higher education (hereinafter: HE) institutions at the universities in North Macedonia. The analysis covers the overall education system, including both state and private universities. We use qualitative content analysis in order to explore and compare different aspects of the programs, including: objectives and expected outputs of the entrepreneurship course, its content, learning and grading methods, quality assurance and reading list.

The findings of our work are expected to raise awareness about the importance of entrepreneurship education in the country and to serve as evidence for the relevant policy –makers to deliver more competitive, innovative and business supportive educational system.

2. LITERATURE REVIEW

It is becoming clear that entrepreneurship can be taught. Business educators and professionals have evolved beyond the myth that entrepreneurs are born, not made (Kuratko, 2005). As one of the pioneers of entrepreneurship education explains it, entrepreneurship is not magic nor mystery, it is a discipline and can be learned (Drucker, 1985). Moreover, "... most of the empirical studies surveyed indicated that entrepreneurship can be taught, or at least encouraged, by entrepreneurship education" (Gorman, Hanlon, & King, 1997, p. 63). According Plaschka and Welsch (1990), the question of whether entrepreneurship can be taught is obsolete, because it is widely accepted that entrepreneurs are the key to innovation, productivity and competition. As a result, entrepreneurship education is moving towards integrative, comprehensive, and holistic programs.

One of the first studies analyzing entrepreneurship education was published in 1988 (Hills, 1988). Here, the author concludes that the university entrepreneurship education is in the embryonic stage and although the number of university offerings is increasing, many faculty and administrators regard this field with doubt.

Beginning of entrepreneurship education dates back to 1947, when Myles Mace held the first entrepreneurship course in the United States at the MBA department of Harvard's Business School (Katz, 2003). However, the rise of the entrepreneurship courses at university level begun in 1970s. Data show that in 1970 there were 16 universities and colleges offering entrepreneurship courses, compared to over 400 schools offering entrepreneurship courses in 1995. Vesper and Gartner (1997) identified several possible reasons that led to increased number of schools that offered entrepreneurship courses in 1970s, such as number of corporations per capita stopped falling around 1969 and began to rise, new magazines celebrating entrepreneurship began to emerge, negative connotations of the term "entrepreneur" began to shift, certain industry sectors, such as electronics, had cultivated a population of individuals who could create new products etc.

The rise of entrepreneurship education has been a global trend. In 1990s certain schools began to offer more than one course in entrepreneurship and started developing entrepreneurship programs (Vesper and Gartner, 1997). In 2003, entrepreneurship education in U.S. has expanded to more than 2,200 courses at over 1,600 schools; 277 endowed positions; 44 refereed academic journals, mainstream management journals devoting more issues (some special issues) to entrepreneurship; and over 100 centers (Kuratko, 2005; Katz, 2003). The number of search results at Amazon.com website containing phrases "small business" and "entrepreneurship" in 1998 was 2,723 active titles, while in 2019 is over 50,000 titles. Also, as of May 2001, there were 44 entrepreneurship journals accepting papers, with a new one starting approximately every 4 months (Katz, 2003, p. 292).

The focus of entrepreneurship education is set on the "process of providing individuals with the ability to recognize commercial opportunities and the insight, self-esteem, knowledge and skills to act on them. It includes instruction in opportunity recognition, commercializing a concept, marshalling resources in the face of risk, and initiating a business venture" (Jones and English, 2004, p. 416). Similarly, Kourilsky (1995) understands entrepreneurship education as opportunity recognition, marshalling of resources in the presence of risk, and building a business venture. Other scholars (Bechard and Toulouse, 1998) assess entrepreneurship education as a compilation of formalized teachings with purpose to inform, train, and educate individuals interested in business creation, or small business development. Alternatively, this concept can be defined in terms of creativity and innovation applied to social, governmental, and business arenas (Gottlieb and Ross, 1997).

Compared to business management, entrepreneurship should be defined more broadly because it includes creativity, risk taking, and innovation (Brown, 2000). Moreover, “entrepreneurial education emphasizes imagination, creativity, and risk taking in business whereas traditional business schools tend to over-emphasize quantitative and corporate techniques at the expense of more creative skills” (Porter, 1994).

There is a diversity of academic views and positions on what compose entrepreneurship as a field of study and as a program. Furthermore, there is an open debate among scholars about the content of the entrepreneurship programs (Vesper and Gartner, 1997). From one point of view, “entrepreneurship education can also be considered as a process of development of skills of the individuals to develop business plans. It focuses on the expertise that is used to conceive of and commercialize a business opportunity” (Jones and English, 2004, p.416). Roach (1999) suggested the following topics to be considered at an entrepreneurship course at university level: knowledge of the characteristics of an entrepreneur; understanding ability to recognize business opportunities; development of skills and knowledge to create feasibility plans for a business venture; ability to evaluate different business strategies; and develop skills and means regarding collection of market information for project evaluation. Most important features of an entrepreneurship course were development of a business plan project, and the role of an entrepreneur as a speaker and a role models, analysis of case studies, lectures and assigned readings (Hill, 1998).

Relevant literature identifies three separate sources of entrepreneurial understanding and knowledge (Kuratko, 2005). The first source incorporates publications from research projects and popular publications, such as academic journals, textbooks and books on entrepreneurship, (auto)biographies of entrepreneurs, compendiums about entrepreneurs, periodicals, newsletters, conference proceedings, government publications and reports etc. Second source is data collected by direct observation of entrepreneurs’ behavior by using different tops, such as interviews, surveys, case studies etc. And the third source of entrepreneurial understanding covers oral presentations by practicing entrepreneurs, such as speeches and presentations.

Also, the growing literature on entrepreneurship education tends to argue that a different learning environment is required to support the study of entrepreneurship within a university setting (Gibb, 2002). The content of the entrepreneurship courses can also determine the teaching method. On one hand, innovative entrepreneurship education should be instructed by experimental learning, analysis of case studies, development of problem-solving skills, creativity, product design etc. On the other hand, because entrepreneurship education often covers business disciplines, such as finance, marketing and management, teacher-centered and ex-cathedra lectures are characteristic for the course curriculums.

Vesper and Gartner (1997) conducted a mail survey in 1994, sent to deans at 941 business schools in United States, Canada and other countries. Based on the results of the survey, these authors formulated seven criteria for ranking entrepreneurship programs, including courses offered, faculty publications, impact on community, alumni exploits, innovations, alumni start-ups, and outreach to scholars. The content of the most frequently offered entrepreneurship courses at both the undergraduate and graduate levels consisted entrepreneurship or starting new firms, small business management, field projects/venture consulting, starting and running a firm, venture plan writing, and venture finance.

Effects of entrepreneurship education in HE will change the nature and improve the quality of business starts of graduates in the long run. Entrepreneurship education is likely to be a signifi-

cant contributor to graduates start-ups, and societal and intellectual attitudes towards entrepreneurship in the long run (Galloway and Brown, 2002). The study suggests that aspirations on the part of the students of entrepreneurship towards business ownership are ambitious, relative to responses from graduate alumni and that there was much concentration in the business service sector by those who owned or were in process of starting a business.

Also, one recent study aims to identify the relationship between entrepreneurship education, prior entrepreneurial exposure, perceived desirability and feasibility, and entrepreneurial intentions for university students, by using Ajzen's theory of planned behavior and Shapero's entrepreneurial event model (Zhang, Duysters and Cloudt, 2013). The authors came to conclusion that there is a significant negative impact on entrepreneurial intentions from exposure to entrepreneurial activity and a significant positive impact from entrepreneurship education. Other variables, such as, gender, university type, and study major also have significant effects on the relationship between entrepreneurship intentions and entrepreneurship education.

However, entrepreneurship education might face some challenges due to the arbitrariness in concept definition and understanding. Pittaway and Cope (2007), by using Systematic Literature Review (SLR) methodology, came to conclusion that although there are significant funds flowing into entrepreneurship education, there are concerns about what entrepreneurship education actually is and what outputs are expected to be created by investing in this type of education. The authors appeal for further research in entrepreneurship education, in order to develop objective criteria for impact evaluation of the public policies promoting this concept.

At the end of this section, we can conclude that entrepreneurship education is very important concept that will certainly evolve, develop and grow as an academic discipline in future. The remarkable growth of this area has marked the end of the 20th and the beginning of the 21st century. One future uncertainty is the form or forms of entrepreneurship education that dominate in the new century (Katz, 2003, p. 298).

3. ENTREPRENEURSHIP EDUCATION IN NORTH MACEDONIA

The aim of this paper is to explore the entrepreneurship education at HE institutions in Republic of North Macedonia. The higher education system, or the tertiary education in the country, is organized by both public and private organizations. Public tertiary education includes higher vocational schools, faculties and religious schools, while private tertiary education is offered by private vocational schools and faculties. Total number of tertiary education institutions in the country in the academic 2017/2018 year was 135 institutions, of which 74 schools were public (55 percent) and 60 private (45 percent). Huge majority of the higher education institutions are faculties (97 percent) and rest of the institutions are higher vocational schools and religious schools (3 percent).

Another important aspect with regard to the higher education infrastructure in the country is student enrollment. In the academic 2017/2018 year, there were total 56,941 students, by whom 85.7% were enrolled in public tertiary education, and 13.9% in private tertiary education in the country (State Statistical Office, 2019, p.12). The number of students has diminished by 2% in 2017/2018 year, compared to the previous academic year. Female students outnumber male students. The number of female students enrolled in academic 2017/2018 is 31,669 (55.6% of total). Total 15,094 students (26.5% of total) are enrolled in first year undergraduate studies.

Data about presence of entrepreneurship education in the curriculums of the undergraduate and graduate programs of the tertiary education institutions in the country were collected through analysis of course syllabuses attached at the web sites of the HE institutions. Data collection process was organized from 10th to 20th March 2019. In the research process, academic programs of all 135 HE institutions were analyzed. The results about integration of entrepreneurship education in curriculums of the institutions are presented in Table 2.

Table 1. Structure of tertiary education in North Macedonia in academic 2017/2018

Source: State statistical office, 2018.

Tertiary institutions	Number of institutions
<i>Public tertiary institutions</i>	
Higher vocational schools	1
Faculties	72
Religious faculties	2
<i>Private tertiary institutions</i>	
Higher vocational schools	1
Faculties	59

Table 2. Entrepreneurship education at HE institutions in North Macedonia, 2018

Source: Author's calculations.

Status of HE institution	Yes	Yes, but syllabus is not available	No	No information available	Total
Public higher vocational schools			1		1
Public faculties	9	29	26	8	72
Religious schools			2		2
Public higher vocational schools		1			1
Private faculties	5	12	42		59
Total	14	42	71	8	135

Only 14 out of 135 HE institutions (10% of total) offer entrepreneurship education in their programs and have published the course syllabus at the web page of the institution. Considerable number of HE institutions (42 HE institutions or 31% of total) offer entrepreneurship course, but the curriculum is not available at the institutions' official web site. However, more than a half of HE institutions in the country do not offer entrepreneurship education (53% of total). We can conclude that entrepreneurial education is not fully integrated in the academic curriculum of HE institutions in the country.

Furthermore, we noticed that there was a difference between academic programs of public and private HE institutions with regard to entrepreneurship education. Generally, greater proportion of public HE institutions offer entrepreneurship course compared to the private HE institutions. Thus, approximately half of the public HE institutions offer some form of entrepreneurship education to their students. On the other hand, only 29% of the private HE institutions have included entrepreneurship education in their curriculums.

Also, it was interesting to examine inclusion of entrepreneurship education in different academic fields. Educational process in HE in the country covers standard academic fields organized in the following categories: Biotechnical sciences (11 programs), Medical sciences (7 programs), Natural sciences and mathematics (7 programs), Technical and technological sciences (44 programs), Social sciences (67 programs), Humanities (25 programs) and Religious sciences (2 programs). Total number of different academic programs offered by the HE institutions in the country is 163. Total number of HE institutions differs from the number of academic programs, due to the fact that some of the faculties and schools in the country offer programs in more than one field. For example, Faculty for agriculture from University Goce Delchev – Shtip offers programs in 3 fields (Biotechnical sciences, Social sciences, Technical and technological sciences), or Faculty of Natural Sciences and Mathematics from University Ss Cyril and Methodius – Skopje offer programs in Biotechnical sciences, Social sciences and Natural sciences and mathematics.

Table 3 summarizes the results about integration of entrepreneurship education in HE institutions' curriculums presented by academic field. We can conclude that entrepreneurship education is more frequently included in HE institutions that offer programs in the field of social sciences and technical and technological sciences. This should not be a surprise, having in mind the specifics of each academic field and nature and purpose of entrepreneurship education. However, although entrepreneurship education is quite popular in the abovementioned two fields, still there is room for stimulation of HE institutions working in other fields to develop entrepreneurship education and courses.

Table 3. Entrepreneurship education, by field, 2018

Source: Authors' calculations.

Academic field / program	Yes	Yes, but syllabus is not available	No	No information available	Total
Biotechnical sciences	/	5	6	/	11
Religious sciences	/	/	2	/	2
Medical sciences	/	/	7	/	7
Social sciences	7	21	37	2	67
Natural sciences and mathematics	2	1	1	3	7
Technical and technological sciences	4	21	18	1	44
Humanities	1	5	17	2	25
Total	14	53	88	8	163

4. CONTENT ANALYSIS

Qualitative content analysis covered the syllabuses that were available at the web sites of the HE institutions in the country. Total 14 entrepreneurship education course syllabuses were analyzed, 9 from public HE institutions, and 5 from private institutions. The tertiary education institutions that offer entrepreneurship course(s), but the course syllabuses are not published at HE institution's web site were omitted from the analysis.

The content analysis covered several aspects of the entrepreneurial education, including: course title, academic calendar, reading list, course goals, content of the course and methods.

4.4. Course title

The analysis of syllabuses showed that entrepreneurship education in HE is present in a form of undergraduate or graduate courses. In 50% of the analyzed cases, the course is titled solely “Entrepreneurship”, while in 43% of the cases the title of the course is “Entrepreneurship and small business”. Only in 7% of the cases the course is titled differently (e.g. Social entrepreneurship). The title of the course might be correlated with the goals and content of the program, and with entrepreneurial intentions of the students, as well. We can conclude that entrepreneurship education in North Macedonia is understood in a traditional sense, only covering broad topics, such as entrepreneurship or small business management.

4.2. Academic calendar

Content analysis of the course syllabuses showed that entrepreneurship education in majority of cases (71% of total) is an elective course. Only in one case, that is the case of the private Faculty of entrepreneurial business at the University for Tourism and management in Skopje, there is an obligatory course titled “Entrepreneurship and small business” offered at undergraduate level. The rest of the available syllabuses do not contain information about the status of the course (obligatory or elective).

Besides status of the course, we were interested in the weight of the course measured in ECTS² credits. ECTS credits express the volume of learning based on the defined learning outcomes and their associated workload (ECTS Users’ Guide, 2015, p.10). According this system, 60 ECTS credits are allocated in one full-time academic year. Our analysis has showed that the number of credits for entrepreneurship courses at the universities vary from 3 to 8 ECTS credits. The average number of ECTS credits is 5.4 per course, while the median number of credits is 5 ECTS credits per course.

4.3. Reading list

Regarding analysis of literature list of the entrepreneurship courses, two aspects were taken into consideration. First, we were interested in origin of authors, more specifically if the instructors teaching entrepreneurship courses use literature written by domestic authors or materials that are written by respected international authors. Second, since entrepreneurship discipline is dynamic and rapidly growing, we were examining if the literature follows this trend by analyzing the year of publication of the text books and other materials used for the entrepreneurship courses.

For the purposes of the first research question, we developed a coding system with the following alternatives: 1) all sources included in reading list are written by domestic authors, 2) all sources included in reading list are written by foreign authors, 3) sources in reading list are written by both domestic and foreign authors, and 4) the course syllabus does not contain information about the authors of the reading materials. The analysis of the available syllabuses showed that in 10 cases (71% of total) the reading list is consisted of materials written by both domestic and foreign authors. Usually, domestic literature, in a form of a textbook or a reader, is written by the course instructor. International textbook that is most often used is “Entrepreneurship: Starting and Operating A Small Business” by Steve Mariotti and Caroline Glackin, translated into Macedonian language. Only in 2 cases (14% of total) reading list for the entrepreneurship course is consisted from work of domestic authors.

² Abbreviation for: European Credit Transfer and Accumulation System.

Second aspect, with regard to the literature for the course (reading list), is the year of publication. Since majority of courses use more than one source in the reading list, we were analyzing separately the year of publication of the first, second and third source given in the reading list. We selected three periods: most recent (2015 – today), recent (2010-2014) and remote (before 2010). The results of the analysis are given in Table 4.

Table 4. Year of publication of the sources in the reading list on entrepreneurship courses
Source: Author's calculation.

Reading list	Year of publication		
	2015- today	2010-2014	Before 2010
First source	3	7	2
Second source	0	7	4
Third source	0	4	3

In the case of the first source, only 3 courses use literature published later then 2015. In the majority of courses (7 cases) instructors use literature that is published between 2010-2014. We recorded two courses where the first source is material published before 2010 as a primary source for the entrepreneurship course. Years of publication for the second and the third source that are used in the entrepreneurship education in HE institutions date back to 2010 or before.

4.4. Course content

As it was discussed earlier, there is not a consensus on how university level entrepreneurship course should be tailored and what topics should it cover. Content analysis of the entrepreneurship courses at HE institutions in the country showed that most popular topics covered in course syllabus are 1) introduction to entrepreneurship and 2) running a business (7 cases). Next, five courses cover topics such as marketing and legal aspects, followed by management (including human resources management) and finance topics. Some of the courses include lectures on communication skills and computer skills, but those are exception (each topic is covered only in one case).

4.5. Methodology

Course content is narrowly related to the teaching methodology used in the course by the teacher / instructor. The analysis showed that most of the entrepreneurship courses use rather traditional methodology, such as teacher – centered lectures (7 cases, or 50% of total observations). Other techniques that are used are presentations from guest lecturers (2 cases), analysis of case studies (2 cases), student projects (3 cases) and other (3 cases). These results should not be a surprise, since entrepreneurship courses in HE institutions in the country cover conventional topics, such as management of small business, marketing and finance.

5. CONCLUSION

Entrepreneurship is fast growing global phenomena, which brings multiple benefits to the economies and societies worldwide. Entrepreneurship is closely related to innovations, technological progress and economic prosperity. Entrepreneurship education is a powerful tool for teaching entrepreneurship and encouraging entrepreneurial intentions.

Entrepreneurship education at HE institutions in North Macedonia is in its early beginnings. Although entrepreneurship courses are present in the curriculums of many HE institutions in the

country, still there is noteworthy number of schools that do not offer some form of entrepreneurship education to their students. Another occurrence that was detected is that HE institutions are relatively inert and do not publish information about course syllabuses at the official web pages of the institutions.

With regard to the content of the courses, entrepreneurship is broadly defined and covers traditional business matter. Our recommendation to HE institutions is to modernize the entrepreneurship courses by upgrading and updating the course subject, to include topics such as digital skills or innovation policy in the course agenda, to renew the reading list with up-to-date and relevant literature and to develop other teaching methods beside teacher – centered lectures.

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