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Notes from the Editor-in-Chief



The International Review appears to be growing in stature as the number of manuscripts submitted has been steadily increasing. We appreciate the efforts of all the authors who have sent us quality papers, which passed the peer reviews and were published in our journal. We also expect that in the future we will get original scientific papers of even higher quality and in a larger number. Besides the original papers we welcome the papers from other scientific categories – position papers, letters to editors, research papers and book reviews.

All publications in the International Review are in English language. Authors whose first language is not English should make sure their manuscript is written in idiomatic English before submission. At last, we want to remind you to follow the authors guide.

Best wishes and thank you in advance for your contribution!

Editor-in-Chief
Acad. Prof. Mirjana Radovic-Markovic, PhD

A handwritten signature in blue ink, which appears to read 'prof. dr. Mirjana Radovic-Markovic'.

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PART I

DIGITAL ECONOMY

DIGITAL ECONOMY FEATURES IN THE FIELD OF STATE ELECTRONIC SERVICES IN THE RUSSIAN FEDERATION

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Abstract

The sharp increase in information and communication technologies, and, above all, the Internet, is a characteristic feature of globalization; it determines the progress of the world community to a new type of economy, which is increasingly called the digital (information) economy. The common features of the digital economy include a shift in most of the social, including economic, interaction into electronic space; promotion of distance work statuses and information transfer types; replacing people with robots in labor-intensive and hazardous industries; using electronic money, etc.

In today's realities, information itself, undoubtedly, serves as a key strategic resource, the extent of which involvement can be compared with the use of traditional resources. As a result, access to information bases can be considered as an important factor in social, economic and even political development.

In the conditions of constant transformation and increasing competition, we have to constantly look for new ideas and forms of organization of the economy and society in order to ensure sustainable development and effective functioning with a radical change in communication forms. It should also be noted that in the last decade there has been a significant modernization of previous ideas, attitudes, stereotypes and models of interaction between government structures, business structures, and civil society.

Experts note the activation of the state in establishing economic relations and interaction between all interested participants by structuring the system of socio-economic relations and giving this system integrity and vitality. Among the priority areas of informatization processes there is the building of a system of electronic public services, through which the state provides a range of information services (for private applications, during state (municipal) procurements, etc.).

Another independent and no less important problem is the need to study various aspects of standardization in the field of the digital economy in the Russian Federation. This is due to the peculiarities of the development of economic and technological components in the digital economy in Russia. Indeed, as many experts note, the fruitful theoretical development and the rich practice of standardizing complex socio-ecological-economic systems should allow us to develop a flexible regulatory mechanism by which we can provide the necessary balance between imperative state regulation and many dispositive contractual relations of participants in the digital transformation of the economy. And today it must be noted that only 29 standards of the more than 5300 national standardization system documents (GOST, GOST R) meet the requirements of the digital economy.

The relevance of this paper is associated with the fact that the development of standardization of information and communication technologies (ICT) bears an enormous potential, which requires a scientific understanding of the prospects and consequences in socio-economic life.

Keywords: world economy, globalization, digital economy, state electronic services, information society

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Introduction

In the course of our study, we decided to focus on the problems of standardization of the digital economy, due to the inadequate development level of the Russian file of standards for digital transformation of the economy, as well as the urgent need for methodological provisions for analysis and diagnostics to ensure the effectiveness of the implementation of the national project “Digital Economy”.

To clarify the standards for selection of criteria related to the digital economy, on the whole array of the File of standards, we have chosen the determination of the “digital economy” concept given in the Presidential Decree dated 09.05.2017 “On the Strategy for Information Society Development in the Russian Federation for the period of 2017-2030”. In accordance with the definition given in it, we mean by the digital economy “the economic activity in which the key factor in production is digital data, the processing of large volumes and the use of analysis results of which in comparison with traditional forms of management can significantly increase the efficiency of various types of production, technologies, equipment, storage, sale, delivery of goods and services”.

This document also strictly states that there is the standardization system developed by various standardization technical committees, including FSUE Standartinform among the main areas of development of domestic information and communication technologies.

However, experts note that the majority of documents (97.5%) of national and interstate standardization do not correspond to the digital economy documents. However, this provision in October 2019 was also admitted by the Chairman of the Government of the Russian Federation.

In this regard, experts note the desire to develop their own standards in almost all areas of the digital economy.

Others propose to adapt actively promising foreign standards to Russian reality, as well as to emphasize the harmonization of GOST R standards with international ones. [3], [13]

We believe that it is also necessary to focus on the accelerated development of GOST R, the more that Russia already has a disruptive technology that will certainly require developing their own appropriate standards.

It is clear that all this is associated with significant material and human resources, as well as with time expenditures. It should also be noted that in accordance with Russian legislation, the state budget does not provide for full coverage of all standardization costs.

Concerning digital economy, one of the most important issues of improving Federal Law “On standardization in the Russian Federation” and other basic standards, is the need to establish an effective relation between standards and intellectual property of innovative companies that can increase the maximum positive effects of standardization on innovation, and to neutralize the negative effects.

Research Methodology

The main provisions of the institutional theory, developments of leading foreign and Russian scientists in the field of standardization of the digital economy, informatization and electronization of public services were the methodological basis of this study.

The study used systemic and multidisciplinary approaches to the processes under study.

Also, we used such general scientific methods as analysis and synthesis, deduction and induction, comparison, and generalization.

Research Results

It should be noted that, in general, there are 2 approaches in the world practice of supporting the development of information and communication technologies:

- The US and EU approaches;
- The approach inherent in the countries of the Far Eastern region.

Naturally, these different models of the formation and development of the information society have different political and economic results.

A characteristic feature of the Western model (USA, EU) is that they are open to innovation, but this is fraught with many risks, including the threat of loss of strength, finances and time.

The second model adopted in the Far East is characterized by the concentration of power, finance and invest time on selected investment projects. Such an approach (according to experts) seems more effective.

In our work, we proceed from the fact that the development of information society should be accompanied by an increase in the level and quality of life of the entire population. Indeed, global informatization is focused on the elimination of obstacles and inequalities in developing countries in the process of transforming humanity towards the global information community.

The main value of the information society in modern realities is information. Therefore, it can be argued that the prosperous development of the information society requires a clear institutional settlement related to the protection of a personal property, an intellectual property in the field of collection, processing and dissemination of digital information, the protection of technological information, patents, etc. [1], [5], [14].

In recent years, there has been a large increase in the knowledge resources accumulated in global information systems. It is no secret that the desire for a new public life is global in its nature.

Apparently for this reason, almost all countries of the world economy are taking part in the implementation of informatization processes.

At the turn of the 21st century, the basic principles of the idea of creating “electronic” Russia were formulated in the Russian Federation.

Undoubtedly, one of the effective levers to eliminate Russia’s serious economic lag from advanced countries is to intensify the development of the high-tech information and telecommunications sector.

It is no accident that the administrative reform in the Russian Federation and its informatization has been associated with the start of the special program “Electronic Russia” (2002-2010).

In February 2008, in accordance with the Presidential order No. 212, the Russian Federation began to implement the information society. For this, the “Strategy for the Information Society Development in the Russian Federation” was developed and implemented.

In this strategy, the goal, objectives, principles and main directions of state policy in the field of the development of information and communication technologies and their active application in science, education and culture were specified in detail to advance the Russian Federation along the path of building and sustainable development of the information society [6]. This strategy was aimed at improving the quality of life of the population, ensuring the national economy competitiveness for Russia, developing the socio-political, cultural, economic and spiritual spheres of society, improving the public administration system based on the active use of the capabilities of information and communication technologies.

It was planned that by 2015 a set of control values for the following indicators would be reached without fail:

- The Russian Federation should, in accordance with the UN international ratings for the development of the information society, enter the first “twenty” of the leading powers of the world;
- At the same time, the Russian Federation should enter the top ten according to the Russian infrastructure accessibility level of information and communication technologies for the subjects of the information sphere;
- To bring the degree of accessibility for the population of information and communication technology services to 100%;
- To reduce differences between regions of the Russian Federation with regard to the main indicators of information development up to 2 times;
- To bring the share of research and development in the field of information and communication technologies in research institutes and research-and-development activity to 30%;
- The share of library collections that will be converted into electronic form should be brought to 50%, and for library catalogs – to 100%, etc.

We need to state that up to 2015 even a third of the planned indicators has not been achieved.

It seems that Russia should be more widely represented in international cooperation concerning the problems of sustainability of the information society development.

In 2011, the new state program of the Russian Federation, “Information Society (2011-2020)”, has been launched. This strategy was, first of all, aimed at introducing information technologies into the activities of government agencies to provide state electronic services.

For these purposes, various state information systems have been created, including:

- The single portal for the provision of state electronic services;
- The portal of state (municipal) procurements;
- The state automated system “Management”;
- The Internet site to ensure the smooth operation of Internet resources under the President of the Russian Federation and the Government of the Russian Federation;
- The information system for supporting the activities of multifunctional centers for the provision of state and municipal services for constituent entities of the Russian Federation;
- The network of certification centers and a network of public access to public services, etc. [6]

The Russian Federation program Information Society of 2011-2020” being implemented now consists of 6 subprograms:

- The quality of life of citizens and the conditions for the development of business.
- E-government and the public administration effectiveness.
- Russian market of information and telecommunication technologies.
- Basic infrastructure of the information society.

- Security in the information society.
- Digital content and cultural heritage.

As the subprogram names shows, the priority areas of work on building a system of state electronic services in the Russian Federation include the need to switch to the provision of public services and the implementation of state functions in electronic form; transfer into electronic form of government accounting activities, involvement into activity of information technology and engineering components of the system of state electronic services, etc.

It is clear that all regions of the Russian Federation differ by their level of socio-economic development, as well as by the level of development in the field of information and communication technologies. Undoubtedly, this can also affect the low growth rates of the regional economic system and can be observed in the “digital inequality” in the use of information and communication technologies in certain territories.

There are many problems in organizing broadband Internet access for end users, as well as the high cost of information technology services. All this is aggravated by a high dependence on foreign products in the field of information and communication technologies and a low level of legal protection of intellectual property and personal data. [2, 9, 11]

The level of development of electronic public services for individuals in Russia with the exception of libraries (100% security here) ranges from 25% to 50% and on average in the Russian Federation its value is equal to 42%; for legal entities it is slightly higher – about 60%.

It should be noted that even within these development limits, the system of information and communication technologies has already changed the nature and characteristics of the interaction between the state, business and society. If the last two decades of the last century, the state structures in our country were characterized by increasing complexity of management and controlling forms (due to the growing up of parameters and diversification of state and political institutions structure), then the involvement of modern information and communication technologies has allowed the vector of development to redirect in the opposite one. [7, 15, 17]

It should also be noted that modern information and communication technologies not only strengthened the interconnectedness of all political and economic factors, raised their awareness, but allowed at the same time to create new opportunities and new forms of opportunism. [10, 12, 16]. Involvement of state electronic services in the republics of the North-Caucasian Federal District today has already reduced territorial inequality through the established opportunities for remote contact, increasing the speed of service delivery through access to the Internet and reducing the time for processing information, increased the transparency level for the activities of state and municipal authorities due to free access to information, and also improved feedback system, etc.

At the same time, along with new opportunities for the development, information and communication technologies also constitute some serious threats that we must learn to neutralize. This, in particular, is the risk of unauthorized access to personal data, privacy, commercial secrets of recipients of such services; the risk of misappropriation of other people’s property and personal non-property rights by entering a system of information and communication technologies under a false name; risk of electronic fraud; risk of destruction or distortion of information, etc.

Conclusions and Proposals

In the analysis of the awareness of representatives from various business sectors in the North Caucasus republics, it was found that more than 90% of respondents know little about

the program “Digital Economy in Russia” and almost no one uses standardization documents in the field of digital economy in their professional activity.

In connection with this situation, we propose to create departments (groups) on the promotion and practical implementation of digital standards in the depressed North Caucasus republics with regional Ministries of Industry. In our opinion, this will mobilize all the efforts of state agencies, business organizations and civil society on the qualitative transition to a digital format for the most important standards of the digital economy, as well as make the system standard available to consumers. The study also argued that the proper involvement of the state electronic services system in parallel with the reduction of generally accepted transaction costs creates new types of costs, which must be taken into account when planning this process. (They, in particular, are the costs of identifying users, interpreting information, etc.)

The stages are analyzed and the features of the development of the information society in the Russian Federation and the world are shown, the positive and negative aspects of the informatization process and its impact on the development of the information community are considered.

Increasing the depth of use of the state electronic services system transforms the rules of relations between government agencies, the population and organizations created by them.

These changes consist in the fact that citizens and institutions have access to information about government agencies and their specific representatives, that is certainly mitigates the problem of information asymmetry, and increases the possibility of direct public control over the activities at all levels.

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THE IMPACT OF E-GOVERNMENT ON ECONOMIC GROWTH IN GCC COUNTRIES

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Abstract

This study is the first to empirically examine the impact of e-government on economic growth in Gulf Cooperation Council countries. The dataset used in the study covers the period 2003-2018 and is obtained from the World Development Indicators and the United Nations E-Government knowledgebase. The conducted empirical analysis brings out many interesting findings. First, there is evidence that the e-government development stimulated economic growth in GCC during the last two decades. Second, when considering the different components of e-government, it has been shown that only the Online Service Index and the Telecommunication Infrastructure Index have positive effects on economic growth. Finally, it has been also revealed that out from six countries, the positive impact of e-government is proved in only four countries, namely Bahrain, Kuwait, Saudi Arabia and the United Arab Emirates. In Oman and Qatar, the effect is not statistically significant. Global and country-specific policy recommendations are accordingly presented.

Keywords: e-government, e-government development index, economic growth, gulf cooperation council

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Introduction and Background

During the last decades, significant achievements regarding technological progress have been reached. Although some disparities between developing and developed countries regarding the adoption of new technologies have been observed, a common trend toward increased use of these technologies has been recorded. It has been often advanced that the adoption of new technologies is of great importance since it facilitates the access to services for citizens, supports economic growth, and improves the well-being of nations. The adoption of new technologies has touched almost all economic sectors, such as industry, agriculture, and transportation.

One of the crucial features of the emergence of new technologies in modern societies is undoubtedly the adoption of electronic government (e-government). Indeed, the concept of e-government came out in the mid-nineties of the last century [1] and has been developed first in developed countries and then in developing ones. Since then, many definitions of e-government have been proposed. For example, the U.S. E-Government Act of 2002 defines e-government as “*the use by the Government of web-based Internet applications and other information technologies, combined with processes that implement these technologies*” [2].

The World Bank (2002) defines e-government as “*the use by government agencies of information technology tools, such as Wide Area Networks (WANs), the Internet, and mobile computing, that have the ability to transform relations with citizens, businesses, and other*

arms of government” [3] (World Bank, 2002, p. 2). Finally, the OECD [4] (defines e-government as “*the use of ICTs, and particularly the Internet, as a tool to achieve better government*” [4]. Although a significant number of definitions have emerged in the literature, there is no consensus on a precise definition of e-government [5].

Thanks to its advantages, e-government policies have been overgrowing during the last three decades. According to the United Nations E-Government Survey 2018, the average E-Government Development Index (EGDI) rises from 0.47 in 2014 to 0.55 in 2018. Moreover, 40 countries obtained a “very-high” EGDI score ranging between 0.75 and 1.00 in 2018, while there have been only 10 countries in 2003. The development of e-government and the availability of needed datasets have incited scholars to focus on many topics linked to e-government. Some of them studied the determinants of e-government implementation [6], [7], while others dealt with barriers and challenges to the expansion of e-government [8], [9] and finally the economic and societal effects of e-government [10], [11], [12].

This paper aims to study the effect of e-government on economic development in six Gulf Cooperation Council countries between 2003 and 2018. It is motivated by the fact that these countries have implemented e-government services since many years ago and also driven by the lack of empirical researches focusing on the response of economic growth to e-government development. For example, Saudi Arabia jumped from the 105th rank in 2003 to the 44th out of 193 nations included in the 2018 United Nations E-Government Survey.

During the same year, good results have also been achieved by the United Arab Emirates (21st) and Bahrain (26th). The study conducts an empirical exploration using data obtained from the World Development Indicators produced by the World Bank and the UN E-Government Knowledgebase produced by the United Nations Department of Economic and Social Affairs (Division for Public Institutions and Digital Government).

The remainder of this paper is organized as follows. In Section 2, we review the related literature. Section 3 is dedicated to the presentation of model and data, while in Section 4, we interpret empirical results. The conclusion is developed in Section 5.

Literature Survey

While the literature on the economic outcomes of e-government is relatively recent, the economic theory has attributed an essential role to the technological progress as a determinant of economic development. Indeed, e-government may affect economic development through many channels. First, the set up and development of e-government may reduce the time to generate and deliver services to citizens [13]. As a result, e-government may reduce the cost of public services and administrative burdens. According to Gustova [14], the cost reduction induced by the use of e-government is due to three main reasons, namely savings in labor costs, savings in service delivery, and savings in electronic invoicing. Second, Thanh and Kim [15] point out that the e-government strategy makes the efficiency and effectiveness of public services better. Regarding this point, Von Haldenwang [16] states that e-government allows more internal and production efficiency of the public sector. By doing so, e-government may lead to less bureaucracy in public services [17], [18]. Third, e-government may reduce corruption and improve transparency in the public sector and then encourage business [19], [20]. This is done through the possibility of accessing to the public information by citizens [14]. The reduction of corruption will exert a positive effect on the economic progress, as stated by many authors, such as Ahmad *et al.*, [21] and Hassan [22].

Srivastava and Panigrahi [12] conducted an empirical analysis on the outcomes of e-government and e-business on per capita gross domestic product in a sample composed of 145 countries. The authors show that e-business exerts a positive impact in developed countries, while e-government positively affects growth in developing countries. Majeed and Malik [11]

analyzed the linkages between financial development, growth and e-government in 147 economies and concluded that e-government significantly boosts economic growth.

Moreover, e-government is an essential prerequisite for the success of financial development in boosting economic progress. Chaushi *et al.*, [23] studied the reaction of economic growth to e-government in a large number of countries between 2003 and 2014.

The growth model has been estimated using the fixed effects model, Hausman-Taylor technique and the difference Generalized Method of Moments technique. Results show the presence of positive outcomes of e-government on economic development.

Gustova [14] studies the effects of e-government on GDP in 34 European countries. The author showed that e-government had been associated with higher economic growth between 2003 and 2014. Hassan [22] studied the linkage between corruption, e-government, the environment, and economic growth in 11 Asian economies between 2003 and 2013. The most important finding of the study is that e-government participated in boosting economic growth and fighting corruption in the studied countries. These results have been confirmed by those of Majeed and Shah [20] who explore the outcome of e-government on economic progress in 34 Asian countries. Using a wide range of estimation techniques, the authors confirm the importance of e-government in stimulating growth in the studied countries. Bahrini and Qaffas [24] examine the effects of Information and Communication Technology (ICT) on development growth in a sample composed of the Middle East and North Africa (MENA) countries and Sub-Saharan Africa (SSA) countries. Various indicators of ICT adoption have been used, such as broadband adoption, internet usage and mobile phones. Results show that all indicators, except fixed telephone, positively affect economic development. Besides, the effect is smaller in Sub-Saharan African countries than MENA countries.

Research Methodology and Data

Research Methodology

The paper aims to analyze the impact of e-government on economic growth in 6 Gulf Cooperation Council countries, namely the United Arab Emirates, Kuwait, Qatar, Saudi Arabia, Oman and Bahrain during the period 2003-2018. The following model will be estimated:

$$GDPPC = \omega + \alpha EGOV + \beta X + \varepsilon \quad (1)$$

GDPPC is the per capita gross domestic product, ω is a constant, *EGOV* is the e-government indicator, *X* represents control variables (labor '*L*' and capital '*K*'). The research methodology of the paper is summarized in Figure 1.

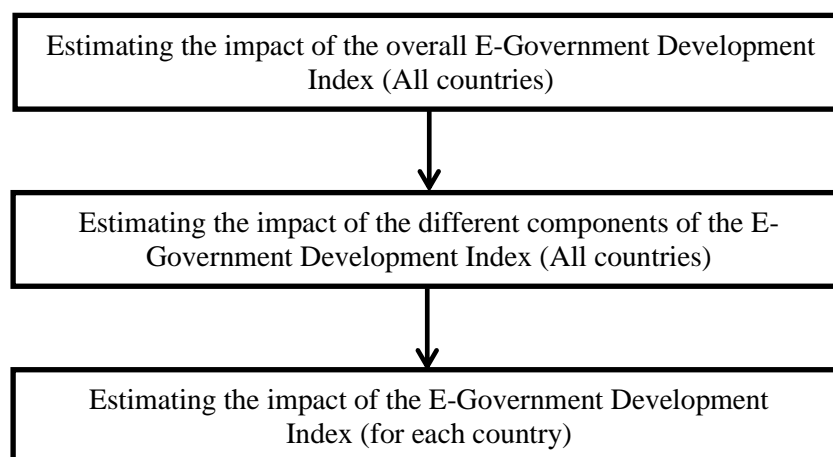


Fig. 1. The research methodology

Data

Two sources of data are employed. First, the e-government indicators are from the UN E-Government Knowledgebase produced by the Division for Public Institutions and Digital Government of the United Nations Department of Economic and Social Affairs.

Table 1. Definition of e-government indicators

Abbreviation	Indicator	Construction
EGDI	E-Government Development Index	EGDI = 1/3 (OSI+HCI+TTI)
TTI	Telecommunication Infrastructure Index	1. Internet users per 100 inhabitants
		2. Number of main fixed telephone lines per 100
		3. Number of mobile subscribers per 100 inhabitants
		4. Number of wireless broadband subscriptions per 100 inhabitants
		5. Number of fixed broadband subscriptions per 100 inhabitants
HCI	Human Capital Index	1. Adult literacy rate
		2. Tertiary, secondary and primary gross enrolment
		3. Expected years of schooling
		4. Average years of schooling
OSI	Online Service Index	Scope and quality of online services

Source: [26]

The dataset contains a global e-government indicator (E-Government Development Index, EGDI). It is the average of the three indices, namely the Telecommunication Infrastructure Index (TTI), the Online Service Index (OSI), and the Human Capital Index (HCI). Table 1 below gives an idea on the construction of the e-government indicators. The second source of data is the World Development Indicators of the World Bank. From this dataset, we obtained the per capita GDP, investment, and employment. A big progress in the implementation and development of e-government in almost all GCC countries has been recorded during the period 2003-2018. Scores obtained by all countries are very high since they ranged between 0.8 and 1 (the maximum) in 2018. The United Arab Emirates have the highest score for the global E-Government Development Index (0.829), the Telecommunication Infrastructure Index (0.856) and the Online Services Index (0.944) in 2018, while Saudi Arabia obtained the highest Human Capital Index (0.81) during the same year. In Table 2, some descriptive statistics of variables are presented. The average EGDI during the whole period is relatively low (0.58598) with a maximum of 0.82950. The EGDI was low in the 2000s and started to grow to reach high levels in 2018. The OSI has the highest score with 0.9444 recorded in the United Arab Emirates in 2018.

Table 2. Descriptive statistics

	Mean	Maximum	Minimum	Std. Dev.
<i>GDPPC</i>	10.3380	11.1516	9.65911	0.48989
<i>EGDI</i>	0.58598	0.82950	0.28841	0.12613
<i>OSI</i>	0.55729	0.94440	0.05019	0.22737
<i>TTI</i>	0.43279	0.85640	0.11928	0.18782
<i>HCI</i>	0.76859	0.89326	0.66240	0.06440
<i>K</i>	24.1692	26.0909	21.8228	1.15683
<i>L</i>	14.4330	16.3604	12.6645	1.01595

Note: GDPPC, K and L are taken in natural logarithm

Regression Results

The Impact of the E-Government Development Index (All Countries)

Table 3 reports the effects of the E-Government Development Index on gross domestic product. Results show that the coefficient is positive and significant at the 99 % likelihood, which means that the coefficient is highly significant.

Table 3. The effects of the E-Government Development Index (All countries)

	Coefficient	Std. Error	Sig.
Constant	11.50590***	0.775272	0.000
E-Government Development Index	0.457584***	0.164884	0.007
Investment	0.160081***	0.044351	0.001
Employment	-0.369167***	0.056965	0.000
R-squared	0.3870		

*Note: * significance with 90% likelihood; ** significance with 95% likelihood; *** significance with 99% likelihood*

Consequently, we conclude that there is a positive connection between e-government and economic growth in GCC countries as a whole between 2003 and 2018. These results are expected since GCC countries made significant efforts during the last two decades to develop their e-government infrastructure. This is materialized by the improvement of their rankings according to the United Nations E-Government Survey 2018. These findings are in line with those of Majeed and Malik [11], Chaushi *et al.*, [23], and Gustova [14] who report the importance of e-government in boosting economic growth.

Moreover, our results corroborate those of Hodrab [25] who concludes that economic growth in some Arab countries. Table 3 also indicates that investment has a positive effect economic development in GCC, while employment represents an obstacle to the improvement of growth. Coefficients are significant at 1% level. Finally, the R-squared is about 0.39, meaning that the selected variables explain 39% of economic growth in GCC countries, which is relatively acceptable.

The Impact of Components of the E-Government Development Index (All Countries)

While the overall impact of the E-Government Development Index on economic growth is positive, nothing can be said about the impact of the different components of the global index.

The purpose of this section is to estimate the impact of the three components of the E-Government Development Index, namely the Online Service Index, the Telecommunication Infrastructure Index, and the Human Capital Index. Results are summarized in Table 4.

Results show that coefficients of the Online Service Index and the Telecommunication Infrastructure Index are positive and statistically significant in the group of GCC. While the coefficient of the Online Service Index is highly significant (1%), the coefficient of the Telecommunication Infrastructure Index is less significant (10%). Besides, the coefficient of the Online Service Index (0.248103) is more significant than the coefficient of the Telecommunication Infrastructure Index (0.179525).

Table 4. The effect of components of the E-Government Development Index (All countries)

	Coefficient	Std. Error	Sig.
Constant	11.64791***	0.72076	0.000
Online Service Index	0.248103***	0.072861	0.001
Investment	0.160307***	0.042771	0.001
Employment	-0.370519***	0.05396	0.000
R-squared	0.4166		

	Coefficient	Std. Error	Sig.
Constant	10.68732***	0.683629	0.000
Telecommunication Infrastructure Index	0.179525*	0.098287	0.072
Investment	0.190120***	0.044005	0.000
Employment	-0.349536***	0.059566	0.000
R-squared	0.3500		
	Coefficient	Std. Error	Sig.
Constant	10.33433***	0.550132	0.000
Human Capital Index	-0.506271***	0.188657	0.009
Investment	0.22767***	0.044708	0.000
Employment	-0.355720***	0.055364	0.000
R-squared	0.3830		

Note: * significance with 90% likelihood; ** significance with 95% likelihood; *** significance with 99%

Consequently, we conclude that there is a positive connection between e-government and economic growth in GCC countries as a whole between 2003 and 2018. These results are expected since GCC countries made significant efforts during the last two decades to develop their e-government infrastructure. This is materialized by the improvement of their rankings according to the United Nations E-Government Survey 2018. These findings are in line with those of Majeed and Malik [11], Chaushi *et al.*, [23] and Gustova [14] who report the importance of e-government in boosting economic growth. Moreover, our results corroborate those of Hodrab (2016) who concludes that economic growth in some Arab countries. Table 3 also indicates that investment has a positive effect economic development in GCC, while employment represents an obstacle to the improvement of growth. Coefficients are significant at 1% level. Finally, the R-squared is about 0.39, meaning that the selected variables explain 39% of economic growth in GCC countries, which is relatively acceptable.

The Impact of the E-Government Development Index (For Each Country)

We now estimate the impact of the E-Government Development Index for each country.

Table 5 summarizes the regression results. As shown, the coefficient of the E-Government Development Index is positive and statistically significant in four countries: Bahrain, Kuwait, the United Arab Emirates and Saudi Arabia. Coefficients are significant at 1% in Bahrain, the United Arab Emirates and Saudi Arabia, while it is significant at 10% in Kuwait. These findings reveal that the adoption and development of e-government services in these 4 Gulf Cooperation Council countries positively affected economic growth starting from 2003. The highest coefficient is found in United Arab Emirates (0.97567) and Saudi Arabia (0.67860).

Table 5. The effects of the E-Government Development Index (Each country)

	Coefficient	Std. Error	Sig.
Bahrain			
Constant	11.49022***	0.54867	0.0000
E-Government Development Index	0.60402***	0.13830	0.0011
Investment	0.14899***	0.03789	0.0023
Employment	-0.39872***	0.08089	0.0005
R-squared	0.6184		
Kuwait			
Constant	24.05320***	1.98356	0.0003
E-Government Development Index	0.67728*	0.26230	0.0612
Investment	-0.57825***	0.06798	0.0010
Employment	-0.00848	0.08375	0.9242
R-squared	0.9749		

Oman			
Constant	10.94771***	1.16478	0.0000
E-Government Development Index	0.21947	0.29006	0.4652
Investment	0.07375**	0.03246	0.0442
Employment	-0.21426***	0.06705	0.0085
R-squared	0.6594		
Saudi Arabia			
Constant	12.17422***	1.62593	0.0000
E-Government Development Index	0.67860***	0.19709	0.0049
Investment	-0.00921	0.02505	0.7195
Employment	-0.15066	0.09246	0.1292
R-squared	0.8966		
Qatar			
Constant	10.02984***	0.50107	0.0000
E-Government Development Index	-0.32576	0.19406	0.1214
Investment	0.01876	0.03900	0.6399
Employment	0.05671	0.05445	0.3200
R-squared	0.3214		
United Arab Emirates			
Constant	17.01272***	1.69608	0.0000
E-Government Development Index	0.97567***	0.22036	0.0010
Investment	0.17968	0.10225	0.1066
Employment	-0.75149***	0.07939	0.0000
R-squared	0.9441		

Note: * significance with 90% likelihood; ** significance with 95 % likelihood; *** significance with 99%

These findings are expected since the four countries recorded good ranks in the United Nations E-Government Survey 2018: 21 for United Arab Emirates, 26 for Bahrain, 41 for Kuwait and 52 for Saudi Arabia. R-squared are also relatively high (ranging from 0.6184 in Bahrain to 0.9749 in Kuwait) and show that the independent variables well explain economic growth in GCC. Regarding Oman and Qatar, the regression results show that the coefficients are not statistically significant since p-values are higher than 10% (0.4652 for Oman and 0.1214 for Qatar). These results suggest the adoption of e-government policies did not exert effects on economic development in these two countries during the last two decades. Indeed, Oman and Qatar recorded the lowest E-Government Development Index during previous decades. It seems that more efforts should be made in these two countries in terms of e-government implementation and development so that it will enhance economic growth in the future. R-squared is relatively low in these two countries (compared to other countries), especially in Qatar (0.3214), meaning that there are other variables that explain better economic growth.

Conclusions

During the last decades, GCC countries have adopted many structural reforms to support economic development and enhance well-being. One of the reforms that have been paid considerable attention since the 1990s is the implementation of e-government services. This study aims to examine the outcomes of e-government on economic development in six GCC countries. To the best of our knowledge, it is the first and only research that conducts an empirical examination of the economic effects of e-government in GCC countries. The study is based on data covering the period 2003-2018 and extracted from the World Development Indicators (World Bank) and the UN E-Government Knowledgebase (United Nations). Our empirical strategy consists of estimating: i) the impact of the global E-Government

Development Index on economic growth in the overall sample; ii) the impact of the E-Government Development Index components (Online Service Index, Telecommunication Infrastructure Index, and Human Capital Index) on economic growth, and iii) the impact of the global E-Government Development Index on economic development in each country.

The empirical study shows interesting results. First, it has been found that the E-Government Development Index positively affects economic growth in the overall sample. In other words, efforts made to implement e-government services in GCC countries have stimulated economic progress in those nations during the last two decades. Second, when considering the three sub-indices of the E-Government Development Index in the full sample of countries, results show that the Telecommunication Infrastructure Index and Online Service Index have positive effects on economic growth, while the effect of the Human Capital Index is negative and significant. It has also been shown that the effect of the Online Service Index is higher than the one associated with the Telecommunication Infrastructure Index. Third, when conducting a country-by-country analysis, we conclude that the E-Government Development Index stimulates economic growth only in four countries out from six. Countries in which economic growth responds positively to e-government are Saudi Arabia, Kuwait, the United Arab Emirates and Bahrain. Among these four countries, the highest impact is found in United Arab Emirates. These results are as expected since United Arab Emirates are the best performer in terms of e-government development among the six GCC countries, as discussed earlier. In Oman and Qatar, the outcomes of e-government are not significant.

As policy recommendations, additional efforts should be made to develop more the human capital in GCC countries, since our estimations show the presence of a negative impact on economic growth. Actions may be particularly related to the adoption of information and telecommunication technologies. Furthermore, Qatar and Oman should improve more their infrastructure and online services because e-government as it nowadays seems to not stimulate economic development in these two countries. Finally, it is also vital to implement suitable laws and regulations to encourage the development e-government by policymakers and the use of e-government by citizens.

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E-LEARNING FOR ENTREPRENEURIAL SKILLS IN A DIGITAL BUSINESS ENVIRONMENT

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Abstract

Digital skills are becoming an important prerequisite for employment worldwide, but a significant portion of the population still lacks the skills needed to function in a digital business environment. Although young people are often considered “digital connoisseurs”, most of them do not actually have enough of these competencies relevant to starting their own entrepreneurial businesses or filling jobs where there is a need for advanced digital skills.

Those with the lowest levels of digital skills would be most affected, as well as those who are least willing to upgrade their skills. Accordingly, it is necessary to promote digital entrepreneurial skills and introduce them into education programs through different forms and levels of education. The main objective of this paper is to explore the possibilities of improving entrepreneurs’ competencies through e-learning. In line with this, the authors stressed the need for policymakers to develop a comprehensive and coherent approach to fostering learning and activating digital entrepreneurial skills among young people, while measuring progress towards the goals set, is emphasized. In addition to these, there are many other reasons why digital knowledge must be considered a priority in modern education processes. Accordingly, long-term, and short-term goals and their impact at the level of the individual and organization, as well as at the level of economy and society, have been determined.

Keywords: digital entrepreneurial skills, e-learning, e-teaching, employment

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Introduction

The environment for learning has changed rapidly through the applying of new technologies as well as expectations towards professional knowledge in the information age.

Application of various technologies improves learning environment and provides preconditions to transform teaching into learning. The online learning environment is quite different from a traditional classroom, in which one had limited interaction and almost unlimited access to learning resources. E-learning is recognized in many countries as a catalyst for national development. In line with this, the rapid development of e-learning and its modalities geared towards practical skills in business enterprises and leadership competencies is necessary for national self-reliance and development. Delivering learning content anytime, anywhere is a goal that underpins the e-learning paradigm. In addition, based on new technologies, e-learning can support creativity and assist students in developing their

individual potentials. For this reason, emphasis should be focused on the individual needs of students and personalized training programs. Computer-based educational techniques have been considered as our best hope for individualization [3]. The different levels of interaction and collaboration characteristic of new technologies facilitate the personalization of learning paths. The development and implementation of student-centric technology will bring shift to student-centered pedagogy and the ownership of learning by learners, a quality that is indispensable for fostering creativity. In addition, the goal of a business simulation is of importance for the development of competencies for existing or potential entrepreneurs and leaders. The creative power of the leaders is in the knowledge-intellectual potential, which have become a key factor of productivity, competitiveness and economic success [29]. There is currently a great necessity of a standardized curriculum to be developed and applied with training and certification of current and future leader [30]. Namely, development of their competencies can increase the ability to apply certain knowledge, skills, and personal, social and methodological skills.

Theoretical Background

In literature, online learning has been compared to face-to-face learning from different points of view. Thus, Hoben [9] explored the effectiveness of online tools such as discussion boards and chat rooms, while Spatariu [24] addressed evaluating effective online instruction.

Graham [4] assessed the value of online courses in specific fields of study. In particular, the use of virtual worlds to reach remote online learners is creating new opportunities for face-to face engagement and motivation with difficult-to-reach groups. Draves provides a list of reasons why he believes the Internet enhances learning, [5] including such advantages as being able to learn at a peak time of the day, learning at your own speed, accessibility to much information, an ability to track personal progress, and the capability of testing personal learning efforts. In addition, e-learning students are ideally in an environment where professors respond to their needs on demand [19].

However, most learning environments neglect the learning services and pedagogical aspects of e-teaching. Hence, its development has lagged behind the massive investment in hardware and teacher training in using ICT [13]. According to some researchers, e-learning pedagogy should incorporate the learning pedagogy but go beyond it to include a deeper study into the incorporation of instructional strategies that take into account of real-time personalized learning content-to-learner adaptability [26].

In line with this, there is research in the areas of intelligent tutoring systems, virtual mentors, and adaptive hypermedia the techniques and tools that can provide improved learning outcomes [2], [7]. They target and deliver just-in-time learning materials required by the individual learners [6]. According Gregg, software agents can be used to support instructors and domain experts with course design and delivery, as well as individual learners by personalizing course materials based on learning objectives. Pedagogical agents have positive effects on learning and have the following characteristics [18].

- Adaptation: understand the student's needs and adapt the lesson plan.
- Motivation: offer encouragement to the students and give them feedback.
- Evolution: keep students current in a rapidly changing culture.

Developing Digital Skills Through E-Learning

Research shows that there is a strong relationship between education level and leadership [14]. Leaders have the greatest impact on organizational performance. The success of an organization depends on their skills and abilities [31]. It means many different things to

educators from primary schools to the university. At each level of education, it is reasonable to expect different outcomes, but the overall purpose remains to develop expertise as an entrepreneur. Higher education is of especially key importance for entrepreneurs. Education, on one hand, encourages entrepreneurship and sets the substructure of entrepreneurship culture; on the other hand, it develops competencies of entrepreneur will need when he sets up a company.

Researchers define leaders and entrepreneurial competency as the ability to interact with the business environment effectively [22], [20]. Competencies consist of knowledge, skills, attitudes, behaviors, and abilities necessary to do a job successfully. They are easily identified and measured. Competencies can be improved through experience, education, and training.

That is to say, while they often learn and gain experience through practice and from their role models in business, without education they will not be able to test their ideas, and education will help them turn those ideas into reality more easily. Besides, education develops the creativity and skills that are important for rapid decision-making in a business environment that is constantly changing. Hence, the education programs for leaders and entrepreneurs can be of relevance to develop their competencies.

Methodology

The questionnaire was designed to investigate the concepts of “e-learning” / “distance learning” and “entrepreneurship”, from the standpoint of view of students in this field. This questionnaire was given to Belgrade Business School, Serbia in 2017. The sample of students who participated in the survey were around 200.

The gender ratio of the respondents was 72:20 (female and men respectively). The highest percentage of women consists of those between 19 to 22 years old.

Research Findings

About 90% of the respondents were ready to launch their own businesses as soon as they graduate. The explanation lies in the fact that the respondents attend a business school.

Certainly, the results would be different if the same question were asked to students attending a technical university or college.

For the second question, it was of key importance for respondents to earn more if they work for themselves (45%). Also, it can be concluded that the most responders did not have a role model among that country's many successful entrepreneurs. The reason that young people in Serbia do not have role models can be explained by the fact that here is a much smaller number of true role models.

The majority of women did not believe that distance learning would be a good solution for future young entrepreneurs. Namely, almost all respondents said “Yes” Probably, the reason for such a large number of respondents who gave a positive answer can be found in the fact that the students would like to see how e-learning works in practice because it is still not very much applied in Serbia before COVID-19 crisis in 2020.

Regarding question seven, 25% respondents said that “Acquisition of knowledge” was the most important thing to consider when selecting an e-learning program. The second option, “The faster and easier way to graduate,” was chosen by 29%. The third option, “Flexibility in studying,” was chosen by 48% students (Fig. 1). There are no significant differences between respondents divided by gender for this question for both countries. It should be noted that the top priority for respondents from Serbia in selecting an e-learning program was “flexibility in studying,” while for those from Turkey, “acquisition of knowledge” was chosen as most important [14].

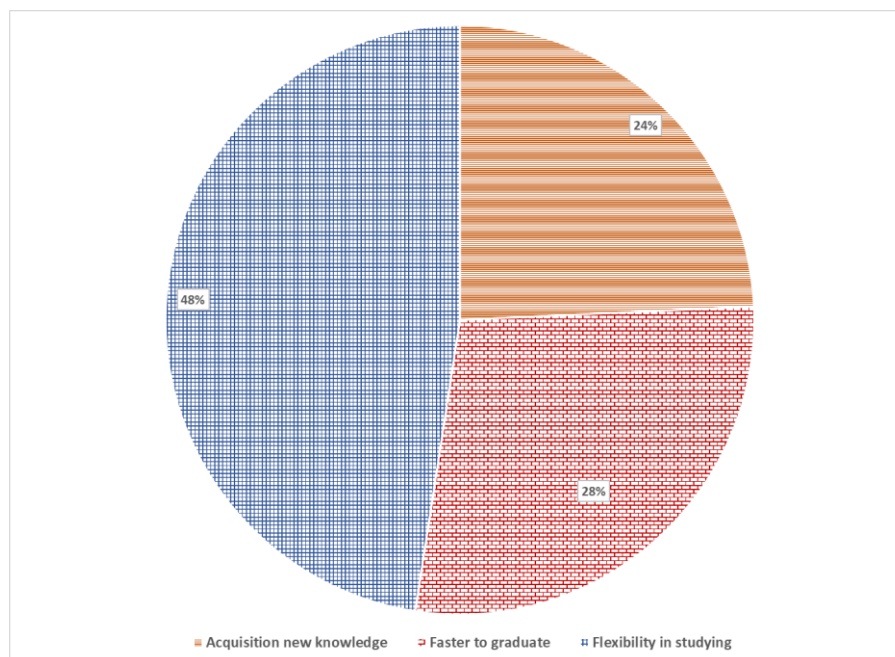


Fig. 1. What would be the most important in selecting such a program, and ways of learning?

For question “What do you think is crucial to be successful in the entrepreneurial career?” the first option “Have the ability to innovate and original business ideas” was selected by 22% students. The second option, “Having good business contacts,” was selected by 70%. The third option, “To be highly motivated to succeed,” was selected by 6% (Fig. 2).

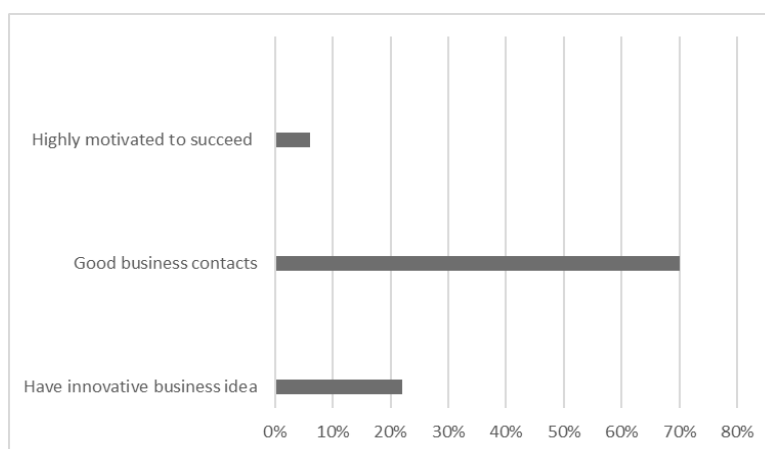


Fig. 2. What do you think is crucial to be successful in an entrepreneurial career?

As many as 90% of respondents believed that the distance learning would be a good solution for future young entrepreneurs.

Our research shows that education based on freedom in both learning and teaching helps to foster creativity. Accordingly, the existing education system should be redefined as well as educational programs for entrepreneurship [14]. Education represents the “central nervous system” of every society – the pedagogic, educational, cultural chain that constantly vibrates [28].

If Serbians or citizens of other nations become more familiar with the techniques, potential learners as well as educators may be able to effectively discern the pros and cons of how e-learning would enhance and improve education [17]. One hopeful sign is that recently a number of studies have been done in Serbia in order to investigate the different aspects of e-learning, especially in the field of business and entrepreneurship [18], [17]. Building a more

inclusive distance learning environment in Serbia involves making technological choices built on flexibility and an ability to respond quickly to changes in constantly evolving technology and informational resources. Collaboration, involving teachers, mentors, and instructional designers who truly represent the hard-to-reach learners, and a willingness to invest monies in developing a cyber-infrastructure that reaches all learners regardless of where they live will be crucial. [16]

Conclusion

E-learning is now an essential component of education in many countries. It has changed the face of education, training, and vocational learning forever. The online learning environment is quite different from a traditional classroom, in which one had limited interaction and almost unlimited access to learning resources. In other words, online courses require participants to take on new and different teaching and learning behaviors, which are quite different from the old ones. New technologies also can improve communication between students and teachers. They allow each student greater diversity for learning, enhance interactivity between individual students and individual teachers, provide a space for personalized, flexible learning beyond the classroom walls, and allow students to live locally whilst learning globally through the use of external resources accessed via the world wide web. In addition, the use of different learning materials and resources allows students with various principle learning styles to understand information in the most effective way. Also, the use of intelligent agents as a support to online studies intended for entrepreneurs would provide significant resource savings. On one hand, it would allow students an easier access to information and literature, as well as testing their knowledge and ideas. On the other hand, it would reduce teachers' administrative duties, which would be performed by intelligent agents, thus giving them more time to devote to each student individually and develop their potential entrepreneurial ideas, talents, and skills.

In addition, the Internet enhances learning, including such advantages as being able to learn at a peak time of the day, learning at one's own speed, accessibility to much information, the ability to track personal progress, and the capability to test personal learning efforts. The online education also fosters self-motivated education, giving precedence to the autonomy of the learner. This improves access by increasing the number of available courses and thus number of students served.

Finally, with new technologies in hand, the process of learning in the classroom can become significantly richer as students have access to new and different types of information and can combine face-to-face learning with e-learning opportunities. This combination provides them many opportunities to learn more new things in a quite different environment.

According to new terms of learning because COVID-19, these opportunities will be more exploited in Serbia soon.

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DIGITAL STORAGE AND ONLINE MEDIATED MEMORY

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Abstract

This paper addresses the research of digital media users' attitudes towards digital storage and online mediated memory. Digital storage leads to the replacement of analog information by computer numerical coding and dematerializes media text and photos by converting data from analogue to digital. Main foci are on the examination of the digital media users' behavior in relation to the sharing of their own memories and culture, as well as their relation to the possibility of creating joint memories, common identity and collective culture. The paper also points to a culture of forgetting that accompanies the process of memory mediating.

Keywords: collective culture, common identity, computer numerical coding, digital media, digital storage, memory mediating, users' attitudes

JEL: A30, O33, O35

UDC: 316.77:004.004.738.5:316

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Introduction

Digital storage, which is not durability-oriented, is associated with a completely new dimension of memory erasure, which leads to the replacement of analog information by computer numerical coding.

“In the process of mediating of human memory to external media (HDD, flash, cloud, social network), we are simultaneously delegating a part of our humanity, because virtual reality in anthropological and sociological terms represents a technical means for indirect production of reality, which establishes full control over man and his actions” [1]. Digital storage is associated with an entirely new dimension of memory erasure, which leads to the replacement of analog information by computer numerical coding.

Digitality is the most prominent feature of new media that dematerializes media text by converting data from analogue to digital, allowing all kinds of mathematical operations.

Digital media, as “a digital content that can be broadcasted on the Internet or computer network” [2], allow downloading and handling of large amounts of information, as well as its storage in a very limited space.

The power of convergence of digital media can be easily demonstrated through the emergence of the Internet in the context of its powerful function contained in computer-information technologies and broadband communications networks.

The interactive function of digital media, realized between users and systems regarding the use of information resources, gives users great freedom in the production and reproduction of content and form of information during interaction.

The hypertextuality of digital media enables a global networking center where information is free to move and interconnect spontaneously. It has begun to build a new life experience for human beings, which in turn leads to the transformation of economic activities, cultural patterns, interactive styles and other aspects of human society [3].

However, the formation of a virtual community that transcends all boundaries of human society will definitely conflict with the way we experience reality and traditionally defined identity [4]. Historically, since the mediation of culture between humanity and nature, we have come to its mediation between humanity and the machine. The development of Web 2.0 technology has led to an explosive growth in the number of community-focused applications in the areas of social navigation, collaborative content editing, bookmarking, and tagging.

“Memory is a collective function” [5], which also has the function of social order parameters. In order for memory to survive, communication’s skills are necessary. When a person communicates, he or she participates in the construction and preservation of collective memory.

Cultural memory is manifested through media and platforms that contain and transmit memory and represent the field of cultural negotiation through which different stories compete for their place in history. However, new digital platforms are raising the question: “Could digital file formation and ‘automatic knowledge processing’ be a generalization of amnesia, which will be the final achievement of the oblivion industry, when all analog information (audiovisual and other) will be replaced with numeric computer coding of speech and pictures?” [6].

As much as modern society may or may not be ready for a new form of memory storage, it is a fact that Internet users are increasingly opting for ‘Mediated memory’, as the activities and objects produced and appropriated through the means of media technologies, for creating and re-creating a sense of the past, present, and future of ourselves in relation to the media [7]. As technology platforms quickly become obsolete, there is a tendency for digital documents to be transmitted across multiple platforms, for fear of losing digital content.

The first part of the paper gives an overview of the relevant literature and previous considerations on the basis of which the research hypotheses are set. In the second part, the researchers introduce the methodology and the results of the tested hypotheses. In the conclusion, the researchers discuss and analyze the experimental results.

Theoretical Background

The Technological Storage of Personal Memory

As modern life is technologized and mediated [8], memory formation is increasingly structured on digital networks, which is why memory has characteristics both technological and human [9], [10], with differences between distributive digital network logic and physical memory storage logic.

Conceptualizations of memories rely on understanding of the cultural forms as practices of memorization and can be traced back to earlier metaphors that assume a connection between space and mental categories [11], which included the mental arrangement of images and places as a means of accommodating knowledge so that it would not be forgotten [12]. “These mediated memory artifacts recorded by individuals provide a place to consider the nature of collective history and memory” [13].

Forgetting is significant, because it removes parts of memory that, if remembered, can be harmful or useless, both to individuals and society; we can define forgetting as a function of providing internal memory coherence and canceling unnecessary memory sequences, leading to openness to change and to the future.

Digital Memory

Digital memory cannot be equated with the storage space alone. It's a flexible memory – we can store what we want, in the ways we want to, the quantity we want and the quality we want. Digital archives collect stories that may not be historically significant but are significant to those who want to remember them [14]. “While collective memory endures and draws strength from its base in a coherent body of people, it is individuals as group members who remember” [15].

This understanding relies on the ‘mediated memory’, as the activities and objects we produce and appropriate through the means of media technologies, for creating and re-creating a sense of past, present, and future of self in relation to media [16] as ‘without the capability to form autobiographical memory, we are unable to create a sense of continuity in our personhood’ [17]. Digital media enables the convergence of typically different memory characteristics and actors, which in turn leads to the formation of a new form of memory, referred to as joint memory, which unites two different types of memory ‘common memory’ and ‘shared memory’ [18]. Thus, thanks to digital social spaces, ‘the archive becomes an eminently social practice, a veritable living memory’ [19].

“The culture of remembering is, in the digitalization process, facing its opposite which is directly the consequence of the digitization process – the culture of forgetting. Digital storage as temporary storage of memory is associated with a whole new dimension of memory erasure since analog information is transformed into computer-mediated numerical coding” [20].

On the basis of previous theoretical review, the following hypothesis has been set:

H1: Exchange of individual memories of digital media users leads to the formation of “joint memory”.

Digital Amnesia

Digital media consumers often are transferring their information to digital devices.

“Kaspersky Lab has named this phenomenon Digital Amnesia: the experience of forgetting information that you trust a digital device to store and remember for you” [21]. With the spread of digital media and their spread into almost every area of our lives, data is collected everywhere and is permanently stored. “The act of forgetting is of core importance for every individual, but also for social and cultural interactions as we know them today” [22].

Data is thus deposited on the networks, regardless of whether they are important or not, because the network “stores any published information” [23]. “The fact that this form of memory is autobiographical and collective, private and public, user and platform generated leads to new problems of control over one’s own archives” [24], indicates that “forgetting is constitutive in the formation of a new identity” because the network participant deliberately erases aspects of his past in order to construct a new identity and to adapt to a common identity [25].

There is a difference between individual memory, which has a neurological basis, and collective memory that is “based on the structures and processes through which human collectivities (social communities) establish culture” [26]. Maurice Halbwachs was the first to define the memory of a society as a collective memory that combines social and historical memory and individual memory as “personal” and “autobiographical” memory [27].

At the time of digitalization, identity becomes constantly changing, continually forming and transforming in relation to the ways in which we present ourselves or to which we are addressed in the cultural systems that surround us [28]. Identification with other users of digital social networks is constructed on the basis of recognition of a common origin or common characteristics with a certain ‘other’ person or group, or ideal, within the natural context of solidarity and belonging established on these bases.

On the basis of previous theoretical review, the following hypothesis has been set:

H2. Digital media users often remove previously deposited content, which they consider to be irrelevant, leading to adjusting to a common identity.

Digital Photo Album

“In cyberspace, we often have the opportunity to meet the complete lives of others” [29], because network users post not only various textual content but also photographs that expose their privacy to other cyberspace visitors. Digital photo uploading, initially conceived as a memory deposit, has evolved into a “more comprehensive tool for building online identity, connecting and communication” [30]. Depositing digital photos and sharing them gives the possibility to people to “shape their memories and identities” [31]. Social networks are becoming an ever-growing platform for displaying and sharing photos with the intention of introducing users to virtual friends, but they are also building their online identity [32]. The social network is identified with its own “digital album” because many of the users believe that the network has the role of a platform as a performance, exhibition, and personal archive [33].

Digital Media as a Place for Storage of Cultural Memory

“Digitizing intrapersonal communication brings about the simultaneous digitization of culture and society” [34]. Memories stored on various digital media, especially on a social web site that can be accessed by Internet, users include features of an autobiographical and collective past. “Culture in transition to the digital age is transformed into a culture of forgetting, preserving the existing traditional cultural values” [35].

The pluralisation and fragmentation of the processes of individual and collective memory that have found a place for expression and promotion in social media is the result of collaborative work among users. “The social web has shown itself to be a place for grassroots cultural memory when its forms of writing take on legitimacy analogous to that of official sources of collective remembering – or at least a competing, competitive legitimacy” [36].

The openness of digital media to the creation of content by users, using modern information and communication technologies, creates a platform for the exchange of culture.

Individual cultural memories face cultural differences that may include different languages, national traditions and cultural values [37] they considered human-related factors such as trust [38] and interpersonal relationships [39].

The fact is that the global population is rapidly entering the Internet. Data shows that there are 4.39 billion Internet users and 3.48 billion social media users in 2019 [40]. They all bring their personal culture and cultural memories online. “Delegation of remembering to external databases is a simultaneous threat not only to the depth and uniqueness of the self but also to the depth and uniqueness of the culture we all partake in” [41]. “Community members are usually strangers to each other” [42], but online they become ‘friends’ to share memories with. The network is constantly creating a new kind of culture, which is a mix of introduced and exchanged cultures, namely the collective culture as well as the collective memory.

On the basis of previous theoretical review, the following hypothesis has been set:

H3: Sharing cultural values on social networks leads to the creation of a collective culture.

Methodology

Research Objectives

The research was conducted with the purpose of identifying respondents’ attitudes regarding the claims made by the authors in the questionnaire, in order to test the hypotheses

that were informed by the literature analyzed in this paper. The following hypotheses were set:

H1: Exchange of individual memories of social media users leads to the formation of joint memory.

H2: Social media users often remove previously deposited content, which they consider to be irrelevant, which leads to the adjustment to a common identity.

H3: Sharing cultural values on social networks leads to the creation of a collective culture.

Data Collection

The first part of the questionnaire consisted of questions related to respondents' demographic profile (gender, age and level of education). The second part was used to test respondent's attitudes which were measured using 5-point Likert-type scales, anchored from 5 = "Strongly agree" to 1 = "Strongly disagree".

Data collected from September to October 2019. was sent to 450 e-mail addresses of faculty employees on the territory of the Republic of Serbia. Until the end of September 2019, 392 questionnaires were received. For further analysis, the authors selected 349 properly filled questionnaires. Further analysis eliminated questionnaires in which respondents stated that they did not use social networks.

Basic Descriptives

Table 1. Demographic Profile of Respondents (N=349)

Demographic	n	%
Gender		
Male	179	51.3
Female	170	48.7
Age		
18-25	119	26.4
26-35	92	26.4
36-45	66	18.9
46-55	38	10.9
56-65	14	4.0
Education		
High School	73	20.9
University	135	38.7
MBA	63	18.1
PhD	78	22.3

Table 1 shows a basic description of the sample. Both genders are almost equal in representation with a slightly higher percentage in favor of male respondents. The survey participants were mostly below 18-25 years of age (26.4%), with University education (38.7%).

Results and Discussion

To test the hypothesis in this paper, authors made a list of six variables and tested the internal reliability of thus formed scale using the Kronbah (Cronbach) alpha analysis. The scale showed high reliability and internal consent since Cronbach's Alpha for the scale has shown that $\alpha=.906$. Kolmogorov-Smirnov's tests of Normality (Sig. <0.05), has directed the

use of nonparametric techniques for further research, so we have applied a chi-square test and Spearman's rank-order correlation.

H1: Exchange of individual memories of social media users sharing leads to the formation of joint memory.

The chi-square test of independence has shown that there is a statistically significant correlation between the attitudes of respondents on the issue that the exchange of individual memory of social media users leads to the formation of joint memory.

The relationship between these variables was $\chi^2(16, 1) = 306.567$, $p < 0.01$. Spearman's correlation of rank Rho = .575 shows that this is a positive high correlation. $R^2 = .322$, which indicates that 32.2% of respondents' views regarding the claim that network users exchange individual memories explains respondents' views regarding the claim that sharing individual memories leads to the creation of joint memory.

H2. Social media users often remove previously deposited content, which they consider to be irrelevant, leading to adjusting to a common identity.

The chi-square test of independence has shown that there is a statistically significant correlation between the attitudes of respondents on the issue that Social media users often remove previously deposited content, which they consider to be irrelevant, leading to adjusting to a common identity.

The relationship between these variables was $\chi^2(16, 1) = 398.269$, $p < 0.01$. Spearman's correlation of rank Rho = .490 indicates that this is a positive moderate correlation. $R^2 = .239$ means that 23.9% of respondents' views regarding the claim that social media users often remove previously deposited content, which they consider to be irrelevant explains respondents' views regarding the claim that removing previously deposited content leads to adjusting to a common identity.

H3: Sharing cultural values on social networks leads to the creation of a collective culture

The chi-square test of independence has shown that there is a statistically significant correlation between the attitudes of respondents on the issue that sharing cultural values on social networks leads to the creation of a collective culture.

The relationship between these variables was $\chi^2(16, 1) = 190.990$, $p < 0.01$. Spearman's rank correlation Rho = .494 indicates that this is a positive moderate correlation. $R^2 = .252$ means that 25.2% of respondents' attitudes regarding the claim that social network users share cultural values on social networks explains respondents' attitudes regarding the statement that sharing cultural values leads to the creation of a collective culture.

Conclusion

The purpose of this research was to examine social network users' attitudes towards mediated memory. The paper also points to a culture of forgetting that accompanies the digital storing of memory.

The first hypothesis is confirmed, as the results of the research have shown that there is a connection between the attitudes of the respondents on the issue that sharing of individual memory of social media users leads to the formation of joint memory.

The second hypothesis is confirmed as the results of the research have shown that there is a connection between the attitudes of the respondents on the issue that social media users often remove previously deposited content, which they consider to be irrelevant, leading to the adjusting to a common identity.

The identity of digital media users and their presentation on social networks are subject to constant change. User identities brought from offline communities, influenced by exchanges of cultural values and different beliefs, are constantly being modified and adjusted to common identities. In order to be completely immersed in common identity, users make adjustments to

their profiles in the sense that they delete some of the earlier content that represented their identity because these characteristics deviate from understanding what a common identity pattern on the web should be. However, this is not only a question of correcting content, but also of erasing the past and adjusting it to a new identity which constructs digital amnesia.

The third hypothesis is also confirmed as the results of the research have shown that there is a connection between the attitudes of the respondents on the issue that sharing cultural values on social networks leads to the creation of a collective culture.

Digitalization of culture and society and mediated stored memories from autobiographical and collective culture can easily be “transformed into a culture of forgetting, preserving the existing traditional cultural values” [43].

When identity and culture are interpreted as variables, it is also reflected in the phenomenon of cultural identity that also becomes a subject to change. In an age of online living and technologically mediated communication, there is a need to diverge from the traditional character of peoples and cultures in relation to the need for the individual to adapt to a common culture.

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PART II
ENTREPRENEURSHIP, ORGANIZATIONAL CULTURE
AND GENDER ISSUES

PROVIDING AN ENTREPRENEURIAL RESEARCH FRAMEWORK IN AN ENTREPRENEURIAL UNIVERSITY

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Abstract

While researches and commercialization of the results have been considered to a greater extent at entrepreneurial universities, the distinction between academic and entrepreneurial researches has not been addressed. Therefore, the purpose of this study is to understand the concept of entrepreneurial research which presents a more comprehensive and complete view of the entrepreneurial university and then to provide a framework that helps to comprehend this concept in universities. This study has been conducted using a constructionist grounded theory. The methodology of a structuralist grounded theory is an attempt to collect multiple but heavily focused data to identify and develop concepts. In this study, theoretical sampling and semi-structured interviews were used to collect data. In this framework, the extracted main categories including governance in universities, communication with industry, entrepreneurial training, entrepreneurial research functions, cultural and social requirements, entrepreneurial research and commercialization are the results of the research. Entrepreneurial research functions are summarized in value creation, innovation and technique creation. The value of this research is firstly to identify the gap between academic and entrepreneurial researches, and secondly to formulate and provide a framework for the concept of entrepreneurial research in universities. The results of this research provide a framework for higher education policymakers and planners to develop an entrepreneurial approach in academic researches. Applying this framework will also reduce the unemployment rate of alumni in the society, and the employment of alumni will increase the economic growth of the societies.

Keywords: Entrepreneurial university, entrepreneurial research, value creation, communication with industry, commercialization

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Introduction

New universities have a catalyst role for entrepreneurship by replacing the old with new educational and research systems for operating and modelling new businesses. For this reason, universities around the world have significantly expanded their curricula for entrepreneurship [1], [2], [3]. However, the number of students who have started entrepreneurial activities has not yet increased at a reasonable rate [4]. In Iran, entrepreneurship was implemented in 12 universities with more than a 20year delay compared with developed countries. In the late 2000s, based on the fourth economic, social and cultural

development plan of the Islamic Republic of Iran, a project entitled “KARAD”, was introduced to help solve the unemployment problem among alumni. “Enhancing and fostering entrepreneurial knowledge through entrepreneurship research and training in universities and higher education centres” have been emphasized in the aims section of this regulation.

Nevertheless, 18 years after this plan, the universities of Iran were not integrated with new (entrepreneurial) approaches. Emerging economies have shown the highest rate of research growth in 2018 based on estimations of the Clarivate analytics publishing institute, and also Iranian Scientific Publications have increased by more than 8% in comparison with the year 2017. However, 50,000 researches are annually conducted without an applicant (Hamshahri newspaper 2018), and much time is spent on these researches. Meantime, the share of university alumni out of the number of total unemployed individuals in Iran is 40.5% (Statistical Center of Iran 2019). Therefore, it is expected that some results of theses from faculties or researches will help to create business and student entrepreneurship and solve the unemployment problem, but this is not the case. Also, there are no facts or even estimations about how many student theses and faculty researches have been commercialized in Iran. One of the significant problems in Iran and other developing countries is that academic researches, especially dissertations, do not usually have a clear and defensible justification for various sections, especially in industry. As a result, they have not entrepreneurship capability.

Universities also tolerate high costs for academic researches to be carried out, which is not in line with the modern university approach. While creating entrepreneurship using research results will reduce the financial erosion of universities, it must be noted that some of these alumni have entered the universities as faculty members and, because they have been trained in the traditional way, this defective cycle continues and their students are trained and graduate with the same traditional view. Therefore, the critical issue is what re-definition universities should provide from their researches to evoke the concept of entrepreneurial research? Moreover, what framework, over time, can increase the capacity of universities to do entrepreneurial researches for correction of the above-mentioned defective cycle?

Therefore, this study first attempts to clarify the concept of entrepreneurial researches then to provide a framework for carrying out entrepreneurial researches in universities using the grounded theory approach. At first, the value of this research is to identify the gap between scientific and entrepreneurial researches and second, about the aim to develop and provide a framework for doing entrepreneurial researches in universities.

Theoretical Background

Universities are always involved in teaching and research Ben-David and Zloczower [5].

In the beginning, universities generally taught and prepared students in the fields of law, medicine, and theology, professionally. Then, Humboldt provided a model after which universities began to research [6]. In the second half of the 20th century, the development of new industries was based on university researches [7]. Over the recent 50 years, all industrialized countries and also the developing countries have paid attention to development of economic growth, technology and innovation by making people aware of the importance and decisive role of research [8], [9], [10] focused their attention on enhancing the level of different research indexes. Kirsty Newman *et al.*, team leader of the evidence into action team in DFID stated that investing in research helps the development of societies in four ways: in economic growth, social capital upgrading, technological development and notification for policies and practices [11]. Therefore, the countries with the most investment in research have more social capital, technology and advanced industries. Universities are the most important places for the production of science due to having the highest intellectual and spiritual capacities; therefore, organizing academic researches is one of the most important effective

factors on the overall progress and sustainable development of societies. But how should this be organized? And what is the difference in the nature and outcome of research in universities? Research at university can be divided into two academic and entrepreneurial types of research by comparing the two Merton and Gibbons models in producing science.

The re-reading of the position of science shows that the Merton model formed mainstream scientific production before the publication of Michael Gibbons *et al.*'s book named "New method of producing science" in 1994. However, after the publication of the book, the trend changed, and it was considered a critical moment in dialogue about how universities and institutes of higher education and research should be managed in Europe [12]. Gibbons called the new method of producing science as the second model of science, which is opposed to the traditional method of producing science or the first model of knowledge [13]. The Merton model is an ancient paradigm in scientific discoveries and has been founded on the domination of theoretical or empirical sciences, the endogen of fields and independence of scientists from host organizations or universities and has no relationship with political and economic equations and necessities [14]. While, the second model is based on three trends: prioritization management, commercialization, and responsiveness of the produced knowledge [15]. Therefore, the second model emphasizes the commercialization of higher education and regarding science and knowledge as goods from the industry and the private section. In the Merton model, individuals have the role of a scientist (fundamental and pure scientist). However, in the second model, the individuals have the role of a researcher (practical scientist, technologist and industrial researcher). Table 1 summarizes the differences between the two views. The characteristics of academic and entrepreneurial research are determined considering this pluralization and can distinguish them from each other:

Table 1. Traits of academic and entrepreneurial research

Academic research	Traits	Entrepreneurial research
The industrial age and before it	History (Jacob [12])	The post-industrial age
From the first pattern – Merton	The origin (Nowotny [13])	From the second pattern – Gibbons
Long-term	Duration of emergence (Nowotny, [13])	short-term
Fundamental	Type of research (Delanty, [14])	Practical
With communication	Communication with political and economic equations and necessities [14]	without communication
Scientists' independence from host organizations or universities (strong academic freedom)	The level of freedom (Oliveira, [52])	Researcher's dependence on scientific activities with economic and political institutions
Scientist (fundamental and pure scientist)	The role of people (Gibbons, 2001 & 2003)	Researcher (practical scientist, technologist and industrial researcher)
University is a growing place for science production	Beneficiaries (Oliveira, [52])	The university is no longer the privileged place of producing science. Knowledge is produced with other actors and institutions using new compositions and formulations from scientific knowledge
Specialists of the field	Determinants of scientific needs (Nowotny, [13] [15])	Applicants like planners and policy makers on the one hand and users and beneficiaries as consumers on the other
Based on endogenous of the fields and in the scientific	The power and location of science production	Based on the endogenous (determining the effect of scientific supernatural factors) social factors

Academic research communities	Traits (Delanty, [14])	Entrepreneurial research (on scientific facts and in the market and industry communities)
Manufacturer of science	The role of the university (Nowotny, [13], Delanty, [14])	Intermediation between the production of science (market-industry) and the consumer of science
University science course	Academic course (Nowotny, [13], Delanty, [14])	Post-academic science
In the traditional universities	Type of the university (Nowotny, [13], Delanty, [14])	At modern-entrepreneur universities
Specialized fields	Field structure (Gibbons, 2003:3)	Transdisciplinary
Understanding and explaining phenomena in the research	Researcher's concern (Gibbons, 2003:3)	Improving social status, productivity
Extending the domain and area of science from the scientific communities	Consequences (Nowotny, Scott & Gibbons, [15])	Commercialization of research results and creation of new companies and factories with cooperation of academics and non-academics (industry and private sector)
Understanding truth and enlightenment	Consideration from the science ([15], (Gibbons, 2003:3)	Goods-productivity
Academic	Researches management (Nowotny, [13])	Corporate and capitalism
Open minded Individual	Faculty (Delanty, [14]) Responsibility for the results (Nowotny, [13])	Contractor researcher Social responsibility, accountability, flexibility
More identical	Research skills (Nowotny, [13])	Heterogeneous and numerous
Government	Location of providing the research credits (Jacob, [12])	Private sector

Another way of identifying the concept of entrepreneurial research is to pay attention to the definitions provided by the Entrepreneurial University. Having an overall understanding and providing a clear picture of Entrepreneurial Universities is not just about training but also academic researches and is one of the crucial elements of an Entrepreneurial University and entrepreneurial research. Furthermore, previous studies have shown a positive correlation between researches and entrepreneurial activities [16].

As mentioned in the previous section, in the second model of science production, a powerful market-industry entity was included in the university interactions, which is considered as one of the essential characteristics of a modern university today. Nelson [17] has considered the modern university as an Entrepreneurial University. Also, Dabic *et al.*, [18] have argued that in a typical entrepreneurial university, all members' activities are managed and implemented in a way that the university becomes an economic entity or sub-company. It means the orientation of these activities should be profitable and gain competitive advantages [18]. Table 2 has provided the definitions for entrepreneurial researches according to the definitions provided by the Entrepreneurial University.

Table 2. *Entrepreneurial university and entrepreneurial research*

Entrepreneur University	Entrepreneurial research
Commercialization of knowledge (Etzkowitz [54], [55]; Guenther & Wagner, [56])	Its results should be commercialized
Communication with industry (Etzkowitz, 1984 & 2003 [57], [40]); (Kirby <i>et al.</i> , [31])	The needs of the industry should be solved
Search for funds (Etzkowitz, [54]; Kirby <i>et al.</i> , [31])	The private sector supplies its funds
Producing and utilizing the Knowledge (Etzkowitz [54], [55]; Guerrero <i>et al.</i> , [57], [58])	The applicability of the research results
Participating in regional social and economic development (Etzkowitz, [40]); (Kirby <i>et al.</i> , [31])	Its results lead to the social and economic development of society.
(Guerrero <i>et al.</i> , [59]); Salamzaeh <i>et al.</i> , [60], [61])	Establishing as a result of commercializing that company.
The university is regarded as an institution or quasi-corporation (Gibbons, [56]); Dabic <i>et al.</i> , [56])	Its results can be converted into new investments
Identify creative attitude an opinion that can be converted into new investments (Fayolle & Redford, [62])	It acts as a motive force for industrial and social innovation
A driving force for emerging industrial and social innovation (Romero, [29])	Should be innovative.
It has developed, based on the triple helix idea, and confirms innovation as one of the stimulus vectors of the relationship between the university, government and industry (Etzkowitz, [54], [63])	
Faculty member are looking for opportunities to commercialize innovation (Mustar Renault <i>et al.</i> , [64])	By identifying opportunity – innovation
Universities which consider new funds such as patents, contract research and partnerships with a private company (Etzkowitz [57])	Lead to patents and patents
A commercial university is involved with creating new commercial partnerships by university professors, technicians, or students, Chrisman <i>et al.</i> , [53])	Lead to business partnerships.
Transferring technology of the university is as formal efforts to invest in the academic researches (Dill & Sporn [65])	Its results will lead to the development of technology transfer.
An Entrepreneur University seeks alone innovation in business manner (Clark, [66])	Its results will lead to innovation in business manner
Entrepreneurial universities, like the heart of any entrepreneurial culture, have the ability to innovate, identify and create opportunities, work in teams, take risks and respond to challenges (Kirby, [67])	Its results will be responsive to the challenges in society.

To follow, after identifying the characteristics of entrepreneurial researches that are provided in Tables 1 and 2, a framework has been provided for entrepreneurial researches in universities through grounded theory.

Research Methodology

This research, with a qualitative approach, seeks to respond to the framework method of entrepreneurial researches through discovery. The qualitative approach includes different perspectives and schools, one being a context-based theory [19]. In a segmentation, classical and new styles of grounded theory have been divided into two objectives and constructionist categories. This research is placed in the group of constructionist grounded theory. The methodology of constructionist grounded theory attempts to collect multiple but heavily focused data to identify and develop the concepts. There is also a pragmatic basis for it. In the epistemological dimension, Charms believes that constructionist grounded theory is the discovering of a version of reality as a result of the interaction of the researcher and the data [20]. Constructionist grounded theory has emerged as a result of the development of constructionist theories in the social sciences. This approach seeks to understand social phenomena [21]. Therefore, the use of this method helps to reinforce an understanding of the

social phenomenon of the Entrepreneurial University. Douglas [22] also believes: the method of grounded theory has a suitable methodology for research in entrepreneurial areas.

According to Charms' view [20], [21], theoretical sampling was used in this study to investigate exploratory answers for questions of the research and the theoretical generalization of them. Semi-structured interviews were used to collect data. The interviewees were divided into three groups: a) members of the faculty of Iran's public universities (36 people); B) entrepreneur alumni of the universities who had established a company or startup after the thesis (12 people); C) Employers / entrepreneurial managers of the private companies (3 people). Each interview lasted around 30 to 45 minutes. All interviews were written according to Charms' theories (2006) and are used in three stages of open coding (to identify codes and concepts), centralized (for emerging core categories) and theoretical (to identify and integrate pivotal categories). Table 1 shows an example of codings.

Research Findings

Twenty-four centralized codes (concept) and six axial codes (theoretical) codes were extracted as a result of the three-stage coding of the collected data. Table 3 shows an example of coding.

Table 3. Example of concepts and codes extracted from data coding

Open coding (references or primary codes)	Centralized coding (concepts)	Axial coding (axial categories)
The purpose of research in traditional universities is knowledge production and the purpose of research in the Entrepreneur University is value creation. Value creation means providing a new idea from a research. Demand-oriented research. The economic value of an educated human cannot be calculated. Being latent of the value of public and social benefits in the word value. Transferring from training approach to research and from research to entrepreneurship for value creation. Converting the oil economy into an economy based on demand-oriented new knowledge and technologies, reproducing various cultural, human-social investments.	1. value creation	1. Functions of entrepreneurial research
Creating innovation in entrepreneurship, involving the human mind with innovations and new methods. Most innovations come from conscious and purposeful searches and through the analysis of new opportunities. The rise of the innovative researcher and their use of all senses and perceptions in providing new work, studying the new designs. Formation of entrepreneurship based on new innovation and technology. Consider reducing costs and increasing the quality of products or services in innovations.	2. Innovation	
Attention to the resultant of entrepreneurship and technology interaction. The use of up-to-date science and technology by the researcher, the benefit of the people in the society from more prosperity through new technology. Drawing the horizons and opportunities for new technology creation by the university, the need to build the infrastructure for the emergence of new technologies in the society ...	3. Technique creation	

Category sample: entrepreneurial research (category number 1)

The first category of data is the functions of entrepreneurial research. This category consists of three concepts: value creation, innovation and technique creation.

A. Value creation:

If research is conducted and did not create value, it cannot help the development of the society. In this regard, one faculty member believed that *"the share of any research value can*

be calculated through the level of problems in society. A young person who, after finishing their education and through the results of their research, puts what they have created into practice and creates value for society and for himself, this student is not a girl or boy who wastes their youthful energy and has no benefit for themselves nor their society”

Another interviewee summarized value in three ways:

“In my opinion, value in research means those researches which are based on demand. I mean real demands, not false ones. If any company hands over a topic or any subject to a university just because of assigning one percent of its budget to research and development, I call them false demands which will not solve any problems. Producing capital is another value in research. Values such as human, social, cultural and intellectual capital are created only in research teams. And the third value is to consider public interests. Especially, when we talk about sustainable value, public interests are redefined in the concepts such as the environment and human society”.

B. Innovation:

It is not possible to create value from research without innovation. If creative ideas for a new business are successfully implemented, innovation will be converted to entrepreneurship. In this regard, the CEO of a confectionery factory, who is also the founder of a university of practical science said: *“At first, I didn't think I could globalize my products, but we were able to reach such a position with a bit of reflection and attention to new tastes of people. I first asked my university researchers (students and professors) to research more about tastes. When research progressed, we discovered new factors such as changing the shape of Gaz, the mixture of Gaz with other sweets and even the type of packaging. For example, we designed the shape of the sweet tins like the cover of Hafiz's book of poetry, or mixed it with the famous Sohan of Qom, which was greatly welcomed to such an extent that this product has been exported to Canada, North America, European countries, China and other countries.”*

The CEO of a software company said: *“I always advise students, professors, and researchers to choose an endogen idea to start with which should be evaluated in two ways, one way is related to the concerns which arise in research, and the other is consistent with the needs of the society. Fortunately, we have had good results in the software production area, and we have had a 20% increase in the sales department compared to last year. This progress was due to two students' effort that helped us to reach our goal in the sales and marketing departments, by providing a new idea in their thesis”.*

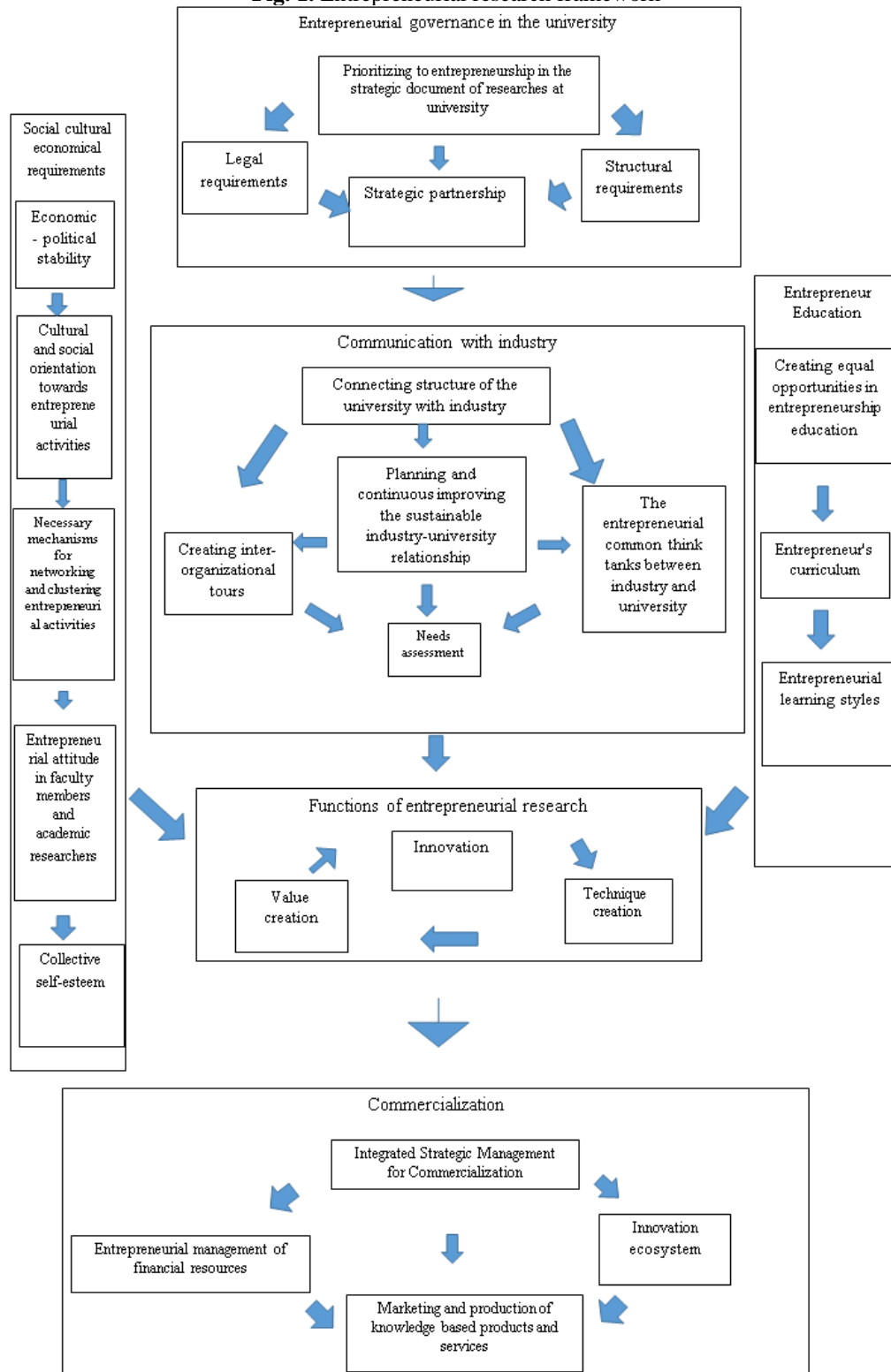
D. Technique creation:

In recent years, the relationship between knowledge and technology has been integrated so much that it is difficult to separate the realm of each of them practically, and may even be impossible in some cases. A person who creates a technique starts to create employment by utilization of the science and knowledge of the day. The CEO of a technology company expressed: *“in the new technologies area, knowledge has special importance. New technologies have a very high growth rate, and much value is added. This is because of the direct use of people's knowledge. For example, the cost of raw materials in an IC is negligible, but it becomes very valuable with suitable processing. In traditional business, the highest cost is spent on raw materials. You make money or better to say you convert electrons into money in the business of information technology area without raw materials and solely with technical knowledge. So, in businesses which are related to new technologies, creative human resources and the costs people have spent on gaining knowledge are the main sources”.*

The CEO of a knowledge-based company in the area of nano said: *“Firstly, I tell the students not to get stuck in a creative block i.e nano in this case. Business is like a boxing match. When the opponent's guard is down, you must strike while the going's good. The students must be ready. The old native Australians had something called boomerangs that*

they threw up into the air; it would hit the bird and come back. They did not target the bird's current location, but by predicting where the bird would be in the next 30 seconds, so they threw it ahead. Business is also like this. The students need to be aware, for example, Graphene is very much in high demand at the moment; they must look ahead and know how long it will take for a product to become a trending product? Those who thought about Graphene seven or eight years ago and worked hard to promote it are now the pioneers”.

Fig. 1. Entrepreneurial research framework



Discussion

In this study, we first tried to identify the concept of entrepreneurial research based on what is in theoretical basics. Then, a framework was provided for conducting entrepreneurial researches in the universities using Grounded theory. After analyzing the data from the interviews, the categories were extracted from the concepts.

The results of the analysis showed that entrepreneurial research has three important functions: innovation, value creation and technique creation which is consistent with viewpoints of Hitt *et al.*, [23], Samson and Gloet [24], Koller *et al.*, [25] in value creation; Crossan & Apaydin [26], Lewrick *et al.*, [27] and Drucker [28] in innovation and Atzkowitz (2001 and 2004), Romero [29] and Clark [30] in technique creation.

Relation with industry is another relevant category which is consistent with research results of (Atzkowitz 1984, 2003; Kirby *et al.*, [31], Link *et al.*, [32] and Etzkowitz & Klofsten [33].

One of the best methods to communicate with industry is the interconnection of industry and university structures where the researcher believes they create the “twin structures”, an organization which has been created on a shared mission. There are structural dependency and synapse between them at the same time, each of them doing their duty. For example, providing think tanks and organizational tour offices in centres and organizations can be the connection synapses of two organizations. Experts and specialists should be present in the think tanks. However, through inter-agency tours, everyone from high-levels to operational, from professor to the student from industry to university or vice versa can gain experience and prepare themselves for innovation and entrepreneurship. In this view, it is assumed that the knowledge flow created with close audiences [in inter-agency tours], is different from the knowledge flow produced by the farther actors in the think tanks [34] where bonding happens first and bridging second.

We can create an effective role in reinforcing the think tanks and in inter-agency tours by planning and through continuous improvement in the relationship of industry-university.

Besides, the sustainable relationship between industry and university facilitates need assessment category and causes it to form due to the need of market, society, industry and university research issues. According to Paul Jones, the deputy director of the International Centre for Transformational Entrepreneurship at Coventry University in the United Kingdom, universities should try to concentrate more on entrepreneurship activities according to the needs of the society [35].

Before this connection, university governance needs to orient towards entrepreneurship. In order to form this governance, prioritization of entrepreneurship in university research, a strategic document is essential. This prioritization leads to the formation of structural and legal requirements. According to the interviewees, the structure of the organization facilitates the entrepreneurial researches, if it avoids certainty and is compatible, flexible, dynamic and organic, the roles in entrepreneurial teams are quickly undertaken based on accountability and the flow of free information. Furthermore, based on the interviewees' opinions, legal requirements are formed through the executive guarantee of having a protecting intellectual property law, shortening the time it takes for plan approval, eliminating or amending cumbersome rules, clarity of laws intellectual property, lack of unnecessary rigour in adopting research plans and issues, changing academic regulations in research section. According to Kerr & Nanda [36] bureaucracy may neutralize innovations in the university.

After the formation of requirements, strategic partnerships are required for entrepreneurial research. Strategic cooperation goes along with strategic purposes of an academic college or university unit. It shows the multidimensional interaction between the involved devices and a diverse range of activities with the purpose of mutual benefit of the parties (Matthias Kuder quoted from Caspar-Terizakis and Yu [37]).

One of the facilitators of entrepreneurial research is entrepreneurial education. From the perspective of Gibb [38] education helps entrepreneurship in universities more than other factors. This training can be explained by an entrepreneurial curriculum, entrepreneurial-learning styles and by creating equal opportunities in entrepreneurship training.

Characteristics of the entrepreneur curriculum include demand-driven, curriculum updates, using an interdisciplinary and transdisciplinary approach, emphasis on the purpose of higher levels of Bloom's classification, teaching the technique of wealth creation, student evaluation based on ideas, creativity and innovation, equipping training space and place for teaching entrepreneurship training which is consistent with a perspective of Shepherd and Douglas [39] (1997) Etzkowitz [40] (2003) and Robles [41] (1998).

The next facilitator is in the framework of entrepreneurial researches on cultural and social requirements. One of these requirements is political stability, followed by economic stability.

According to the participants, maintaining political and economic stability is considered as one of the important factors to support an entrepreneurial researcher, especially in developing countries, and this is a way to avoid the single-product economy (oil), more dependency on academic budgets on the income caused by commercialization of research results, reducing the exchange rate and equity fluctuations and its effect on the provision of research instruments, reducing managerial displacements, not forcing entrepreneurs in unproductive economic practices, having a positive balance of economic performance in the society, making stable but flexible decisions, sustainable activities of political institutions such as government and parliament for academic entrepreneurship, and developing neutral rules for entrepreneur researchers.

It seems that political factors, in particular, have a significant effect on socio-cultural orientation towards entrepreneurship. According to the interviewees, this orientation could be in the form of theoretical coherence in the entrepreneurship issue among policymakers, planners and executives, eliminating discrimination of gender, religious and regional, social media roles in supporting entrepreneurial researches, maintaining a suitable position for industry and small businesses, suitable mechanisms to respect and support entrepreneurial researchers, commitment to research ethics and intellectual ownership, developing a culture of hard work and risk-taking, social and cultural mobility in the area of entrepreneurship. It is essential to notice that the relationship between politics and culture is two-sided and paying attention to both will develop the economy of the society. Because, on the one hand, according to Muers [68], the legitimacy of public culture and entrepreneurial value systems is the result of adopting a desirable policy in the area of entrepreneurship, and on the other hand, there is empirical evidence that shows culture plays a role in determining specific political results and its overall approaches in different places [42] and better policies will be adopted in the area of entrepreneurial researches if the culture and entrepreneurial attitudes are strengthened. OECD [43] has reported that purpose, creating mentalities and entrepreneurial attitudes in people have been considered in some countries like Denmark and Britain for developing economically. Dewey & Van Warren (2007), and Bosman and Fernhaber [44] also emphasized on this.

An entrepreneurial attitude creates and promotes collective self-esteem (one of the most important categories in cultural and social needs) among entrepreneurial researchers.

Collective self-esteem is very important in understanding the values and the entrepreneurial group beliefs, according to Luhtanen & Crocker [45] and Frese [46].

According to the interviewees, collective self-esteem will be obvious in the form of the right to speak and respond among members of the research team, belief in the capabilities of research colleagues, helping research colleagues with the purpose of commercialization of results, reinforcing collective skills, reducing fear and sense of danger in research groups and creating a sense of belonging and loyalty to the research team.

Networking entrepreneurial activities are also suitable facilitator for creating collective self-esteem. According to interviewees, finding professional groups and associations to help academic entrepreneurship, sharing information between university and industry, formulating a common strategy for networking between university and industry, integrating social capital through cultural networking, social networking for training entrepreneurial students are suitable mechanisms for networking. This part of the findings is consistent with Audretsch's opinions [51].

By considering these arrangements, commercialization of the research results would appear to be successful. Some authors, such as Lacetera [47] and Geuna, Salter & Steinmueller [48] have considered academic entrepreneurship as direct involvement of academics in the commercialization of their research results. In general, many factors have led universities to change their attitudes about how to utilize research results. Environmental tensions and reduction of university financial resources, investors' willingness to research and develop, and government policies along with economic development, competition, utilitarianism, and neoliberalism are the related causes with the commercialization approach in the results [49].

Integrated strategic management is necessary for the commercialization that reduces complexity. It can be implemented and reinforced through different ways, such as designing a commercialization organization cycle, managing effectiveness of intellectual properties, utilizing the ERP system, utilizing the PDCA Deming cycle, integrating industrial, commercial and technology policies.

An innovation ecosystem is formed by integrated management, and according to the interviewees; resistance is formed against environmental shocks in entrepreneurship, organizing adaptive collaborations, the presence of entrepreneurial accelerators, coordination of planning institutions and guiding entrepreneurship and formation of innovation poles. If attracting dangerous capital exists for university entrepreneurs, setting up an entity or financing office of venture activities, setting up university insurance to support academic entrepreneurs, allocating part of the endowment for academic entrepreneurship, risky investment, providing financial grants to carry out entrepreneurial research, holding transparent tenders to do entrepreneurial research, the management of financial resources will itself be an entrepreneurial activity. It should be noted that financing limitation is one of the biggest concerns which affects potential entrepreneurs around the world [36] and they are facilitated by the mentioned arrangements.

According to interviewees, providing marketing services to researchers, utilizing the suitable strategies to create demand in the market, familiarity with advertising methods, experimental marketing, and familiarity with market secrets will facilitate marketing entrepreneurial researches, and all of them will speed up commercialization.

Conclusion

This research provides ideas for entrepreneurship. The role of two words, research and entrepreneurship together, will provide a more comprehensive and different perspective for the university's research mission. The university, as a science production base, must explain entrepreneurial knowledge about the economic and social issues of the society. Furthermore, entrepreneurial research must be supported through precise planning and policymaking.

Finally, entrepreneurs can utilize the results of universities research to their business. We can draw and suggest the framework of Table 2 for entrepreneurial researches in the universities by integrating the two categories of research and entrepreneurship and taking into consideration what has been studied. With this framework, it seems that the gap can be bridged between entrepreneurial research and entrepreneurship in universities.

Practical results of the research: the results of this research provide a framework for higher education policy makers and planners to develop the entrepreneurial approach in academic researches.

Social results of the research: utilizing this framework reduces the unemployment rate of alumni in the society, and the employment of alumni will increase the economic growth of societies.

Research validation: two strategies have been used to validate this research: (i) review or feedback of counterparts [50], this considers the role of counterparts as the devil's advocate role. A person who is honest with the researcher asks challenging questions about methods, meanings, and interpretations, giving the researcher the opportunity to provide the attitude emotionally; (ii) Controlling the members that the researcher uses from the perspective of the participants to ensure the reliability of the findings and interpretations. This technique is considered as the most important technique for creating reliability [50].

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GENDER EQUALITY INDEX FOR COUNTRY REGIONS

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Abstract

This study introduces a gender equality index for country regions (GEIR) that provides a comprehensive approach for quantitatively measuring the gender equality and social progress at a sub-national level, as well as the ability of subnational governments to translate the economic growth into social progress. The main contributions of this index are the distribution of resources between women and men and the inclusion of regional differences.

The GEIR includes four pillars, twelve factors and a set of indicators. This GEIR was applied to 26 regions of Peru and the results show a low level of achievement in both the development of men and women and a significant gender gap.

Keywords: Social progress, gender, gender equality, regional progress

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Introduction

Gender equality is a key element to achieve a peaceful, prosperous and sustainable development [1]. Gender equality means that both women and men “have the same status and equal opportunities to fully enjoy their human rights and to contribute to the national, political, economic, social, and cultural development and, hence, benefit from the results” [2].

The right to equality and non-discrimination is included in the international system for human rights protection and in various international instruments. In spite of this, there are still troubling gender disparities in the world. According to the World Economic Forum, from 2006 to 2018, the gap in health, education, and political and economic opportunities between men and women only decreased by 3.6%. Moreover, despite an increased number of women among technical workers, the gap in economic opportunity will take 202 years to close.

Similarly, although there has been great political progress worldwide, there is still low female political representation (women represent 24 percent of parliamentarians and 18 percent of the world's cabinet ministers). In addition, there is not a direct proportion between the number of highly educated women, skilled female workers, and women leaders [3].

The United Nations Population Fund [4] stated that gender equality will only be achieved when women and men coexist in an environment where the decision power is equally distributed in order to have the same opportunities, rights, and obligations that lead to economic independence, education and the achievement of personal goals. In this context, the Gender Equality Index for Country Regions (GEIR) is developed and it is composed of 4 pillars, 12 factors, and 32 indicators. It aims to expose the reality of men and women based on the analysis of different factors that influence the subnational areas. The index can be a useful tool for the development of public policies and a guide for strategic social investment. This

paper introduces the methodology used for developing the GEIR and the results of its application in Peru.

Literature Review

Key international documents were analyzed to develop GEIR. For instance, the Platform for Action of the Fourth World Conference on Women in Beijing [5] which fostered women's empowerment, reaffirming the commitment to fully develop women's potential and specific aspects [6]. The "Millennium Development Goals" [7] and the "Sustainable Development Goals" set in 2015 by the United Nations also emphasized the achievement of gender equality and the empowerment of women and girls, the abolition of discrimination and violence against women, recognition of unpaid work, the participation of women in decision-making, ensure women's sexual and reproductive health, among others [1].

Gender equality can be defined as the equal duties, rights, responsibilities, and opportunities for men and women in the various aspects of life, recognizing the particularities of both without reducing them to sexual differentiation. It also involves building an environment with accessibility and fair use of resources that are essential for democratic societies and personal growth. Development in this category implies "removing the traditional culture, values, and gender roles that reproduce and maintain the subordination of women" [8]. The concept of gender equality recognizes that, historically, women have been discriminated against and it is necessary to close the gaps between women and men. Equal opportunities for women and men are essential for building political, social, and economic democratic societies [9]. This requires several key reforms to achieve equal rights in economic resources, properties, land, and services and to create policies and laws that promote gender equality and the empowerment of women and girls, such as the abolition of discrimination and violence against women, the recognition of unpaid work, the promotion of participation of women in decision-making, and the assurance of women's sexual and reproductive health [1].

Table 1. Gender Equality Indices

Index	Global Gender Gap Index	Gender Development Index	Gender Inequality Index	Social Progress Index:
Author	World Economic Forum	United Nations Development Programme		Imperative Social Progress
Name of the report	Global Gender Gap Report	Human Development Report		Social Progress Index Report
Publication frequency	Annual	Annual		Annual
Number of countries included in the study	149 (year 2018)	189 (year 2018)		146 (year 2018)
Objective	Describes the performance of the countries regarding the gap between women and men in order to understand if the countries distribute equally the resources and opportunities, regardless of the levels of national	Measures the Human Development Index (HDI) for men and women.	Measures gender inequality without taking into account the variables related to economic growth.	Evaluates the effectiveness with which a country's economic success translates into social progress.

	general revenue.			
Dimensions	<ul style="list-style-type: none"> • Workforce involvement and opportunities • Educational attainment • Health and survival • Political empowerment 	<ul style="list-style-type: none"> • Long and healthy life • Knowledge • Standard of living 	<ul style="list-style-type: none"> • Health • Empowerment • Labor market 	<ul style="list-style-type: none"> • Opportunity
Components	Workforce involvement and opportunities Educational attainment Health and survival Political empowerment	Long and healthy Life Knowledge Standard of living	Health Empowerment Labor market	Opportunity A
Methodology	The data are converted into proportions between women and men and were subsequently made equal to a benchmark (1). This means equal numbers for men and women in all indicators, except for the two health indicators because these have a different approach. Then, a weighted average is calculated in each dimension (the score in each indicator and the weights). The value of the dimension ranges from 0 to 1, where 0 is perfect inequality and 1 perfect equality.	The index is calculated separately for men and women. The same methodology included in the HDI is used. Each dimension has the same weight. The same points of reference included in the HDI are used to transform the dimensions on a scale that ranged from 0 and 1	The index includes three dimensions different from those included in the HDI, and these cannot be interpreted as a loss in the HDI. The index scores range from 0 to 1. The higher the value, the higher the levels of inequality will be.	The index includes three elements: 3 dimensions, 12 components, and 53 indicators. The factor analysis statistically determined the weights. The scores ranged from 0 to 100, where 100 is the highest score and 0 the lowest score.

Source: Developed based on the World Economic Forum [3], the United Nations Development Program, and Porter & Scott [10]

In the 1970s, researchers started looking for indicators that considered other aspects besides economic growth. For this reason, they developed social indicators that considered health, education, and social progress. In the 1980s, instruments for measuring gender and indicators separated by gender that show their respective realities were needed [11] because the awareness of the importance of equality between men and women increased, and it was recognized as a positive element for personal growth, economic and social development in all countries. Currently, there are four indices of interest for this study: (a) the Gender Development Index (GDI); (b) the Gender Inequality Index (GII); (c) the Global Gender Gap and; (d) the Social Progress Index (SPI). The GDI and GII were developed by The United Nations Development Program (UNDP), the SPI by the Social Progress Imperative, and the Global Gender Gap by the World Economic Forum (Table 1).

The UNDP pioneered the development of gender indices and presented the GDI in the Human Development Report in 1995. This index studied the inequality based on the same aspects considered by the Human Development Index (HDI), calculating the same values: health, knowledge, and standard of living for men and women separately. The higher the value, the lower the difference between men and women. This received criticisms due to the

combination of relative and absolute achievements, i.e., even though a country obtained a good score with respect to gender equality, the overall score was poor due to low income [12].

By 2006, the World Economic Forum introduced a new index, the Global Gender Gap Report. The index quantifies and qualifies the distribution of resources and opportunities between men and women. It analyzes four dimensions: economic participation and opportunity, educational attainment, political empowerment, and health and survival. Each dimension is composed of a set of indicators. The number of indicators in this index is 14 and, in 2018, the Global Gender Gap Report included 149 countries [3].

In 2010 the UNDP overcame the criticisms to the previous index and presented the Gender Inequality Index (GII). The GII covers three dimensions: reproductive health, empowerment, and labor market. Unlike the GDI, this index does not depend on allegations, i.e., it does not use a method to add missing data and none of the indicators are directly related to a country's economic growth. The Human Development Report (where the GDI and GII are included) published in 2018 included 189 countries (UNDP, 2018). Finally, SPI offers a different approach. It measures a society's ability to meet the basic needs, increase the quality of life, and create conditions and opportunities to reach the population's potential. The index combines three dimensions: basic human needs, the opportunity for progress, and well-being.

These are broken down into 12 components; one of them addresses the gender issue [13].

The data used for these indices were collected from international sources. The Global Gender Gap Index draws on information retrieved from the International Labour Organization (ILO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), among others. In addition, GDI and GII relied on databases created by the World Health Organization (WHO), the United Nations Population Fund (UNFPA), and the World Bank, among others. Finally, the Social Progress Index, for the gender aspect, retrieved information from UNESCO.

Constructing an Index

For the Organization for Economic Cooperation and Development (OECD) and the Joint Research Center (JRC), developing indicators involves a solid theoretical framework, a structure of the subgroups of the phenomenon, and a list of the selection criteria for the underlying variables [14]. The theoretical framework should provide a clear definition of what is measured, the subcomponents, and the underlying indicators. In addition, multidimensional concepts can be divided into several subgroups and the connections should be described theoretically or empirically [14]. The selection criteria for underlying indicators can be similarly developed and should serve as a guide to determine whether or not a variable should be included. A composite indicator is the sum of its parts; therefore, the variables must be selected by identifying the characteristics related to relevance, soundness, timeliness, accessibility, among others. Finally, even though a proper theoretical framework can lead to a sound indicator, the data used to build it is subjectively selected. The quality and accuracy of composite indicators benefit greatly from improvements in data collection and availability [14].

The adequacy of an indicator lies on its ability to capture part of the information related to a real phenomenon [11]. In order to achieve this, the indicator should comply with several basic conditions (a) validity, i.e., to show the actual differences of the characteristics that are measured; (b) reliability, i.e., the differences are not chance results or random errors; (c) sensitivity, i.e., the results must show finite distinctions of what is measured, and must be precise enough to reflect changes; (d) understandable, i.e., results should be easily interpreted to provide coherent information; and (e) accessibility, i.e., to obtain information and make calculations in an agile way [11]. The GEIR is a social indicator because it is "a statistical

measure related to the amount or magnitude of a set of parameters or attributes of a society” [15] Specifically, it measures men’s and women’s current access to resources in various dimensions in each region. Social indicators can be classified according to the measurement objective. These can be impact, effect, and compliance indicators [16]. The GEIR is an impact index because it measures the social progress of gender equality at the end of a period. Gender indicators use the gender approach in statistics. The various factors that influence men and women differently are considered [17]. For this reason, ECLAC noted that the gender approach in statistics is necessary because it shows different roles, activities, tasks, and responsibilities for both sexes [18]. The first step in the statistical construction of the index was the standardization of the data collected, as the information is measured differently in each indicator. This was done with the following formula:

$$\frac{(X_i - \bar{X})}{(\text{Standard deviation})} = \text{INDICATOR}_i$$

X_i : Score of the indicator i

\bar{X} : Average of the indicator i

The following step was testing the variables of interest using Cronbach’s alpha (CA). This allows estimating the internal consistency of the factors within each pillar. The OECD suggests a minimum threshold of 0.70 as an acceptable measure of reliability [14]. When the model was validated after verifying the consistency and suitability of the indicators, the weights had to be calculated – based on the Principal Component Analysis (PCA) – in order to obtain the GEIR. Therefore, the resulting index is the weighted average of the value obtained in one region in each of the three dimensions. The GEIR applies to men and women independently, which creates a general ranking for each group. This technique allows the combination of indicators in a component that captures the maximum value in data variance and reduces any redundancy among the indicators [13], thus leaving only the most important variables with weights according to their significance. Next, the Min-Max method [14] was used, which converts each variable into a score from 0 to 100. To achieve this, the best-case scenario and the worst-case scenario, the utopia, and dystopia respectively, were used to benchmark each region and allow an effective comparison. In addition, the score is easy to interpret by both policymakers and interested citizens, making the progress of women and men in each region readable at a glance. This method is represented as follows:

$$\frac{(\text{INDICATOR}_i - \text{Worst case scenario})}{(\text{Best scenario} - \text{Worst case scenario})}$$

With the information already normalized and with solid verifications of internal consistency and goodness of fit, the last step is the aggregation of information. The GEIR is aggregated as follows, with each pillar having equal relevance in the equation:

$$\text{GEIR} = \frac{1}{4} * \sum_a \text{PILAR}_p$$

Pillar_p : Every pillar in the index.

Each pillar includes factors that represent independent concepts related to the pillar, since they have equal significance for the GEIR, the weight is the same:

$$\text{Pillar}_p = \frac{1}{3} * \sum_f \text{CFactor}_f$$

$Pillar_p$: Every pillar in the index.

$CFACTOR_f$: Factor f within the pillar p.

Similarly, the factor is the sum of i weighted indicators determined by the principal component analysis:

$$FACTOR_f = \sum_i (W_i * INDICATOR_i)$$

$FACTOR_f$: Factor f within the pillar p

$INDICATOR_i$: Indicator i within the factor f

W_i : Weight of each indicator i within the factor f.

After this, a second test to verify the goodness of fit, the Kaiser-Meyer-Olkin (KMO), was run. In general, this value should exceed the 0.5 threshold [19]. Therefore, all factors with a KMO value equal to or greater than 0.50 were selected.

Gender Equality Index for Country Regions (GEIR)

Based on the literature review, GEIR is composed of 4 pillars, 12 factors, and 32 indicators analyzed by sex in each of the country regions. These pillars are social progress, education, health, autonomy, and opportunity. Each pillar has three factors. The education pillar includes the following factors: (a) primary education, (b) secondary education, and (c) educational attainment. The health pillar: (a) access, (b) morbidity, and (c) basic care. The autonomy pillar: (a) economic autonomy, (b) physical autonomy, and (c) decision-making autonomy.

The opportunities pillar: (a) access to higher education, (b) employment, and (c) time use.

These variables were chosen due to their theoretical relevance in gender equality and social progress in the literature review, which will be explained for each pillar (Tables 1, 2, 3 and 4).

Education

The Education pillar includes factors that measure women's and men's educational development levels. It takes into account primary and secondary education, considering enrollment and attendance, and educational attainment, which covers the literacy level and years of completed studies.

The pillar education is included because the access to education and higher levels of schooling are the main accomplishments achieved by women. However, those achievements are not directly proportional to the economic equality and power of this population [18]. The UNESCO Institute for Statistics [20] estimated that, worldwide, two-thirds of illiterate adults are women and 16 million girls will never go to school. Educational shortcomings will limit women's access to information and opportunities [14]. Moreover, several studies showed the positive effects of the mother's education on their children and on the reduction of poverty factors [18]. Strengthening women's education is a collective benefit. A higher level of education is related to lower infant fertility, mortality rates, and better outcomes for their descendants [14].

Concerning the access to education, girls are the least favored in certain regions due to the level of poverty, violence, culture, among other reasons. There are also gender gaps in the academic performance at school, due to the household situation (which is related to the mother's lack of education in comparison with the father's), regardless of the school status (public or private). In addition, according to the student's ethnicity, these performance gaps can increase in regions [21]. These previous studies showed that the efforts should focus on reducing gender gaps because educational equity is an important piece of education policies.

All measures might be effectively achieved in the long term if the gender pay gap is narrowed and a greater social cohesion is achieved [21].

Health

The health pillar includes three factors that measure women's and men's health. The first is the access to health services, which examines the access to any type of health insurance, possession of the national identity card, and the distance to the nearest health center. The second factor is morbidity, which measures hospitalizations and chronic diseases. The third factor is the basic health care services, which cover medical appointments in public health centers and medicine reception. The Pan American Health Organization (PAHO) [22] promotes gender equality in health so that men and women can have good health, avoid incidents, or die from unjust or preventable causes. A person must have a higher purchasing power in order to have good health; hence, this important pillar is correlated with wealth.

This correlation has a large impact on the difference between the situation of men and women. According to Rodriguez [23], in developing countries such as Colombia, socioeconomic status is a critical determinant of the perception of the population's health.

This status varies according to regional income inequality. In Spain, a study with infants and adolescents was conducted to determine the self-perceived health and the quality of life by gender. The results showed that women are twice more likely to perceive worse health and a lower quality of life than men [24].

The United Nations (n.d.) stated that women have less access to health care services due to the lack of resources, even though women demand more health care services throughout their lives (reproductive health). The lack of access to knowledge, nutrition, employment, and income provides fewer opportunities for women to have good health. Empowered women contribute to the health and productivity of their families and communities. Women's reproductive health, the ability to control their own fertility, and the access to information and services to improve their health are essential [4]. Health public policies entail public expenditure, even though the effect of this inequality would lead to more significant results in the households [23].

Autonomy

The autonomy pillar covers three factors: economic, physical autonomy, and decision-making. These three components are important aspects to measure the person's action as an individual and as part of the society. These factors are consistent with ECLAC's [8] autonomy proposal. According to ECLAC [8], physical autonomy refers to women's reproductive rights and gender-related violence; decision-making autonomy refers to the women's involvement in decision-making in politics, and women's participation under conditions of equality; while the economic autonomy is "women's capacity to generate income and personal financial resources, based on access to paid work under conditions of equality with men" (p. 23). This pillar is a major factor for this study because gender equality can't be achieved without the support of social and judicial institutions, access or control of resources, and social or political participation [4].

In regard to the economic autonomy, at the global level, labor markets have inequalities between men and women in regard to opportunities, treatment, and results. In general, women are more likely to stay unemployed and have fewer opportunities to enter the labor force [25].

Economic autonomy explains how women can generate income and resources from paid work under equal conditions with men [17]. In regard to economic empowerment, six out of ten of the world's poorest people are women. Economic inequalities are reflected in women's unpaid work. In general, women continue to be discriminated in the economic sphere [4].

Physical autonomy is expressed in two dimensions: women's reproductive rights and gender-based violence [17]. The World Health Organization defines this violence as "the act that results in physical, sexual or psychological harm to women, including threats of such acts or arbitrary deprivation of liberty". On average, one out of every three women around the world has experienced physical and/or sexual violence by the partner [26].

Decision-making autonomy refers to the presence of women in the Government branches and to the measures to promote their full and equal participation [17]. In regard to leadership and political participation, women are underrepresented in managerial positions, elected officials, public administration, etc. This is due to the structural barriers in discriminatory laws and institutions that limit women's opportunity to vote or to be represented; and to the gaps related to education, contacts, resources, and other necessary elements to become leaders [27] (UN, 2012). However, some social movements led by women have resulted in the improvement of well-being indicators for the population's benefit. This demonstrated women's leadership skills and the ability to relate to others [28].

Opportunity

The opportunity pillar measures the indicators related to the conditions for obtaining the necessary resources to have the direction of the citizens' own lives. This dimension includes access to higher education as the main requirement for better employment opportunities. This component includes the enrollment at art and technology education centers and the number of graduates from universities. It also considers the characteristics of female and masculine employment to measure their participation in the labor market, informality, and underemployment. Finally, it considers women's and men's use of time, taking into account the time spent working during both the workweek and the weekend. The latter is a unique contribution of the GEIR since it is the only index that included this category in its variables.

This pillar is of paramount importance for individual citizens and for society as a whole, since higher education creates knowledge, teaches specific skills, and promotes values; however, there are disparities in the access to higher education. Despite a global increase in supply and the number of enrolled students, some regions have mostly men as higher education graduates and the gap expands in doctorate degrees [20].

As for the use of time, Kanter [29] described women's entrance into the labor market as the most important silent social revolution of the twentieth century. This resulted in profound changes in the labor market, educational attainment, reductions of the female fertility rate, family relations, and greater participation in decision-making [6]. Despite this, there are still great challenges with respect to the equitable participation of women in economic activities.

Women and young people are over-represented in the informal economy and women's incomes are lower in all the employment categories [25]. Globally, women work less time than men in paid work activities and take care of unpaid household work, which involves a significant amount of time [30].

In addition, each factor is broken down into indicators that explain its relevance. The number of indicators per component varies (from two to three) to explain the component more accurately. Tables 2, 3, 4 and 5 show the pillars, factors, indicators and sources of the model, alongside the questions that explain the importance of the components in each dimension.

Each question shows the perspective taken by the index and the elements to be measured.

Table 2. Factors, Indicators, Variables, Unit and Objectives of the Education Pillar

Factors	Indicator	Variable	Unit	Objective
Educational attainment	Literacy	Literacy of men/women (+15 years old)	Percentage	Do women and men have equal access to primary education?
	Years of study	Years of study completed by men/women (+15 years old)	Years	
Primary Education	Attendance at primary school	Attendance at primary education (boys/girls from 6 to 11 years)	Percentage	Do women and men have equal access to secondary education?
	Primary school enrollment	Primary school enrollment (boys/girls from 6 to 11 years)	Percentage	
Secondary education	Attendance at secondary school	Attendance at secondary education (male/female)	Percentage	What are men's and women's achievements with regard to the level of
	Secondary school enrollment	Attendance at secondary education (male/female)	Percentage	

Table 3. Factors, Indicators, Variables, Unit and Objectives of the Health Pillar

Factors	Indicator	Variable	Unit	Objective
Access to health	Distance to the health care center	Men/women do not receive medical care	Percentage	What are women's and men's access level to health services?
	National Identity Card	Men/Women with a national identity card	Variation % over the years	
	Health insurance	Men/Women with some type of health	Percentage	
Morbidity	Hospitalizations	Hospitalized Men/Women	Percentage	What is the difference between men's and women's life expectancy and health
	Chronic conditions	Men/women reported suffering from a	The percentage in relation to the total of	
Basic care	Medical attention at public health centers	Number of outpatient medical attention	Number of cases per 1000 habitants.	How often do men and women come to public health centers?
	Medicine reception	Men/Women who receive medicine	Percentage	

Table 4. Factors, Indicators, Variables, Unit and Objectives of the Autonomy Pillar

Factors	Indicator	Variable	Unit	Objective
Economic	Economic dependence	Men/women without own income	The percentage in relation to the total of	What are the economic factors that represent men's and women's autonomy?
	Labor income	Men/women's average monthly income	Current PEN	
	Unpaid work	Unpaid family workers	Percentage	
Physical	Adult sexual abuse	+18-year-old men/women rape victims	Total registered cases per 10,000 habitants.	Is men's and women's physical integrity valued and respected equally?
	Child sexual abuse	Men/women rape victims under 18 years old.	Total registered cases per 10,000 habitants.	
	Human trafficking	Men/Women alleged victims of human trafficking	Total registered cases per 10,000 habitants.	
	Family violence	Registered cases of family and/or sexual violence	Total registered cases per 10,000 habitants.	
Decision-making	Councilors	Number of councilmen/councilwomen	Total cases per 10,000 habitants.	How do men and women participate in democracy and politics in their regions?
	Municipal governments	Number of men/women mayors.	Total cases per 10,000 habitants.	
	Parliament	Number of men/women parliamentarians	Total cases per 10,000 habitants.	

Table 5. Factors, Indicators, Variables, Unit and Objectives of the Opportunities Pillar

Factors	Indicator	Variable	Unit	Objective
Access to higher education	University enrollment	Men/women between 17 and 24 years old enrolled	Percentage	What is the highest level of education achieved by women and men?
	Enrollment in art higher education	Men/Women at artistic training centers	Total enrollments per 10,000	
	Enrollment in technological higher	Men/Women at technological training	Total enrollments per 10,000	
Employment	Informality	Male/female informality	Percentage	Are there equal opportunities to enter the labor market for women and men?
	Participation in the labor market.	Economically active men/women in an	Percentage	
	Underemployment	Economically active underemployed	Percentage	
Use of time	Time used in paid labor	Average hours per week men/women spent doing	Hours per week	How do men and women distribute their time?
	Employer	Men/women who employ others in a registered	Percentage	
	Weekend labor	Total hours of labor during the weekend by	Hours per weekend	

GEIR Background

The ongoing cultural processes in Peru called for the GEIR. The extreme centralization during most of Peruvian history led to the regions' underdevelopment. In recent years, several attempts to reform the political, tax and administrative centralization were made. Despite the mixed results of these policies, the transfer of resources to subnational governments increased as a result of the sustained economic growth, but it is still the backbone of decentralization and regional budgets regardless of the recent deceleration of economic growth. Therefore, a major factor in the future development of the country is the subnational governments' ability to optimize public spending according to cultural and tax constraints (IPS, 2017). In addition, in the last decade, there is a marked and increasing societal interest in gender issues. In 2007, the member states of the ECLAC requested the constitution of a gender equality observatory during a Regional Conference held in Quito [31]. Then, the creation of the SDGs (UN) in 2015 included gender equality as the goal number 5. In Peru, the creation of the “*Ni una menos* [Not one woman less]” movement in 2016 was a direct response to gender violence and quickly gained support in the capital and most regions (La Republica, 2018). The government took several actions to address “*Ni una menos*” and deal with the gender gap in general.

As these decentralization and gender gap awareness processes develop, the need for a better progress indicator and a better summary of interesting variables for policymakers becomes more evident. Thus, we created the GEIR as a tool to evaluate the needs of each region and to assist the local authorities to make strategic spending according to those needs.

This would represent a significant improvement in contrast to the current indicators used by the Peruvian government, which mostly reward the execution of the scheduled budget regardless of the result. Instead, the GEIR helps measuring the ability of subnational governments to translate the economic growth into social progress [13] taking into account that the effects of this progress might not be homogenous for women and men. Hence, this index presents different results for each and emphasizes the difference between the scores of men and women at the national and regional level.

Results

Accuracy depends on the quality of the data used to create any index. The GEIR has statistical information collected from secondary sources and it also includes primary information collected from specific surveys conducted in all the regions of the country. The secondary sources are official statistics published mostly by the National Institute of Statistics and Data Processing (INEI), with specific data from the Ministry of Education (MINEDU), the Ministry of Health (MINSA), the Office of The Attorney General and the National Vital Statistics and Civil Registry Office (RENIEC), the entity responsible of the registry of identified population. The indicators – health, education, autonomy, and opportunities – were selected based on these sources of information. In addition, the government has taken measures to ensure the transparency and usefulness of the data for policy-making and scientific research by aligning the INEI's standards to those of the United Nations and EUROSTAT [32].

With the required information to create the index, the next step is standardizing the data, and verifying its suitability. Table 6 shows the results of Cronbach's Alpha and KMO for each factor of the GEIR with both tests above their recommended thresholds in all cases.

Thus, validating the internal consistency of the variables within each factor and the goodness of fit.

Table 6. Statistical Analysis by Dimension

Pillar	Factor	Cronbach'Alpha	KMO
Education	Primary education	0,9667	0,5000
	Secondary education	0,9737	0,5000
	Educational attainment	0,8176	0,5000
Health	Access to health	0,8247	0,6916
	Morbidity	0,7164	0,5000
	Basic care	0,8357	0,5000
Autonomy	Economic	0,8505	0,6395
	Physical	0,9944	0,7911
	Decision-making	0,8485	0,5591
Opportunity	Access to higher education	0,8124	0,7134
	Employment	0,9453	0,7597
	Use of time	0,8211	0,6548

The following step is the principal component analysis (PCA) (Appendix A) and setting the utopias and dystopias for every indicator. The use of the Min-Max method allows to assign each pillar a value from 0 to 100 depending on the level of achievement. In order to show the progress of each gender in every region of Peru, and facilitate the comparison, a 7-point scale was used. It ranges from: extremely low (25 to 34 points), very low (35 to 44 points), low (45 to 54 points), medium-low (55 to 64 points), medium-high (65 to 74 points), high (75 to 84 points), and very high (85 to 100 points).

Table 7 shows the results for men and women, together with the existing gender gap by region, the results by dimension of the women index, the men index and the gender gap can be reviewed in Appendixes B to D. In 2018 none of the regions were able to score higher than medium-low, a worrying situation for the country, and the gender gap was significant. Despite the troubling breach, not all pillars have a large gap, and the situation can vary a lot among the regions. Health and education show a more equal situation, even though differences still

exist. In the latter, there is even a reversal in 4 regions, with women's score being superior to the men. As for regional inequality, the highest scores were obtained in the coastal regions of the country, particularly the capital and southern coast, a historically better developed area.

Meanwhile, most regions in the Andes and the Amazon have very low development for men and women, and the gender gap is also large, with a notable exception in Ucayali.

However, it should be noted that having relatively high development does not mean less gender inequality, Moquegua has one of the largest breaches in gender equality while also having very high scores for men's index and women's index, being first and fourth respectively. An inverse situation can be observed for Loreto, ranking 25th and 18th while having the third smallest breach. Another result of interest is the size of the gap by dimension, with the opportunity pillar and autonomy pillar having the worst breaches. The latter has by far the largest gender gap, with an average national difference of -26.8 as shown in the Appendix D. It is no coincidence that factors within this pillar, such as gender violence and economic dependence, are the issues brought up by “*Ni una menos*” movement.

Table 7. General results of the GEIR – 2019

Region	Women Index	Ranking	Men Index	Ranking	Gender gap
Piura	37.0	13	44.8	19	-7.9
Ucayali	39.5	10	47.6	16	-8.0
Loreto	32.7	18	41.3	25	-8.6
Lima (city)	47.9	2	56.7	4	-8.7
Ica	48.5	1	57.7	3	-9.2
Tumbes	42.5	6	52.6	8	-10.1
PERÚ	37.9	12	48.4	14	-10.5
Lambayeque	39.1	11	49.6	12	-10.5
La Libertad	36.5	14	47.9	15	-11.4
Lima (provinces)	40.2	9	51.8	11	-11.6
San Martín	29.7	21	41.4	24	-11.7
Huánuco	28.4	23	40.7	26	-12.3
Callao	42.6	5	55.2	5	-12.7
Junín	35.3	16	48.6	13	-13.3
Amazonas	30.6	20	44.3	21	-13.7
Cajamarca	25.1	27	39.0	27	-14.0
Madre de Dios	40.7	7	55.0	6	-14.3
Tacna	40.3	8	54.7	7	-14.4
Puno	32.7	19	47.3	18	-14.6
Ayacucho	27.3	24	42.6	23	-15.2
Arequipa	43.8	3	59.2	2	-15.4
Cusco	28.9	22	44.4	20	-15.5
Áncash	36.3	15	52.0	10	-15.6
Moquegua	42.7	4	59.9	1	-17.1
Pasco	35.0	17	52.4	9	-17.3
Huancavelica	26.1	25	43.7	22	-17.6
Apurímac	25.7	26	47.3	17	-21.6

**Due to the large cultural, economic and demographic difference between the city of Lima and its surrounding areas, this region*

Discussion

This paper introduces a novel gender equality index that is useful for public policy decisions and shows the results of its application in Peru. The main contributions of this index are the recognition of the relevance of the time use, an important variable to measure unpaid labor – which is a major gender issue, as well as the identification of the regional information and the existing gender gap in a country. This index overcame one of the main criticisms of early indicators, which is the inability to separate gender equality from local development. By capturing regional differences, it becomes easier to understand the current situation of a country through the national score. The information that otherwise would be unavailable becomes visible. This, alongside the decision to split the scores for men and women, makes the index a useful tool to identify gender gaps, independently from the level of development in an area. Therefore, it gives policymakers a powerful tool for the strategic allocation of resources to the regions.

However, it is worth to note that the availability and quality of secondary data in Latin American regions is an important constraint for developing indices. This is a major issue for applying the GEIR in other countries, since the index requires different data of every region.

Only the Government can collect this kind of information, which means that it is necessary to have cooperation agreements between the academic organizations that create the index and the Government. This might even allow including specific questions in the yearly surveys made by most governments, which could give valuable information for new GEIRs.

The GEIR should not be taken as a complete and final index, but instead as a part of the development process of necessary tools to identify inequalities. Further publications of the GEIR in Peru or in other countries would help to identify limitations or potential additions to refine the index and increase its usefulness as a policy-making tool.

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Appendix A

Weights used – Women's Index by Dimension 2018

Pillar	Factor	Indicator	Weight
Education	Educational attainment	Literacy	0.50
		Years of study	0.50
	Primary education	Attendance at primary school	0.50
		Primary school enrollment	0.50
	Secondary education	Attendance at secondary school	0.50
		Secondary school enrollment	0.50
Health	Access to health	Distance to the health care center	0.34
		National Identity Card	0.34
		Health insurance	0.31
	Morbidity	Hospitalizations	0.50
		Chronic conditions	0.50
	Basic care	Medical attention at public health centers	0.50
		Medicine reception	0.50
Autonomy	Economic	Economic dependence	0.35
		Labor income	0.36
		Unpaid work	0.30
	Physical	Adult sexual abuse	0.25
		Child sexual abuse	0.25
		Human trafficking	0.25
		Family violence	0.25
	Decision-making	Councilors	0.37
		Municipal governments	0.26
		Parliament	0.37
Opportunity	Access to higher education	University enrollment	0.34
		Enrollment in art higher education	0.34
		Enrollment in technological higher education	0.33
	Employment	Informality	0.33
		Participation in the labor market.	0.33
		Underemployment	0.34
	Use of time	Time used in paid labor	0.36
		Employer	0.30
		Weekend labor	0.34

Appendix B

Results of the Women's Index by Dimension 2018

Region	General	Education	Health	Autonomy	Opportunity
Ica	48.5	50.2	49.8	32.2	61.9
Lima (city)	47.9	56.3	39.8	41.9	53.7
Arequipa	43.8	53.9	37.9	31.0	52.6
Moquegua	42.7	50.1	38.9	34.2	47.7
Callao	42.6	46.9	43.7	42.2	37.5
Tumbes	42.5	47.1	39.7	36.2	47.0
Madre de Dios	40.7	43.0	45.6	29.9	44.1
Tacna	40.3	55.7	35.1	28.5	41.7
Lima (provinces)	40.2	48.3	48.8	31.7	31.9
Ucayali	39.5	38.9	45.7	36.3	37.1
Lambayeque	39.1	37.9	47.2	41.0	30.1
PERÚ	37.9	40.2	39.7	34.4	37.4
Piura	37.0	37.4	44.2	39.6	26.7
La Libertad	36.5	37.2	38.2	39.7	30.9
Áncash	36.3	38.8	39.0	38.0	29.5
Junín	35.3	38.6	40.1	29.3	33.1
Pasco	35.0	39.1	39.0	30.9	31.2
Loreto	32.7	21.5	39.4	36.6	33.3
Puno	32.7	39.3	30.3	34.8	26.3
Amazonas	30.6	27.0	36.5	35.7	23.2
San Martín	29.7	20.8	40.0	34.8	23.2
Cusco	28.9	24.3	28.0	28.7	34.7
Huánuco	28.4	17.5	42.5	29.7	23.9
Ayacucho	27.3	14.3	37.8	30.2	27.0
Huancavelica	26.1	15.4	40.3	31.5	17.0
Apurímac	25.7	19.3	30.6	29.7	23.2
Cajamarca	25.1	13.4	37.8	32.2	16.8

Appendix C

Results of the Men's Index by Dimension 2018

Region	General	Education	Health	Autonomy	Opportunity
Moquegua	59.9	51.4	45.7	76.4	66.1
Arequipa	59.2	57.9	40.6	66.4	71.9
Ica	57.7	45.9	52.1	64.5	68.3
Lima (city)	56.7	52.4	42.3	64.2	67.7
Callao	55.2	55.3	46.1	62.8	56.7
Madre de Dios	55.0	53.0	50.1	68.4	48.5
Tacna	54.7	58.6	38.4	66.6	55.0
Tumbes	52.6	53.5	42.6	62.4	51.9
Pasco	52.4	47.3	44.5	67.9	49.9
Áncash	52.0	52.6	44.4	66.6	44.3
Lima (provinces)	51.8	45.4	50.0	67.1	44.8
Lambayeque	49.6	38.6	47.5	61.1	51.2
Junín	48.6	40.6	44.1	63.9	45.9
PERÚ	48.4	41.3	42.4	61.2	48.8
La Libertad	47.9	41.5	41.2	62.0	46.9
Ucayali	47.6	31.7	48.1	59.6	50.8
Apurímac	47.3	44.1	35.3	71.8	38.1
Puno	47.3	55.0	34.2	62.5	37.3
Piura	44.8	35.6	45.3	59.2	39.1
Cusco	44.4	36.3	31.6	59.5	50.5
Amazonas	44.3	36.7	36.8	69.7	34.0
Huancavelica	43.7	30.7	42.4	74.1	27.6
Ayacucho	42.6	28.9	42.0	68.3	31.0
San Martín	41.4	27.9	41.6	62.8	33.3
Loreto	41.3	27.3	40.2	57.6	40.1
Huánuco	40.7	26.1	45.7	62.9	28.1
Cajamarca	39.0	26.5	41.0	60.4	28.2

Appendix D

Gender Gap – Women's Index by Dimension 2018

Region	General	Education	Health	Autonomy	Opportunity
Piura	-7.9	1.8	-1.1	-19.6	-12.4
Ucayali	-8.0	7.2	-2.4	-23.3	-13.7
Loreto	-8.6	-5.8	-0.8	-21.0	-6.8
Lima (city)	-8.7	3.9	-2.5	-22.4	-14.0
Ica	-9.2	4.3	-2.3	-32.3	-6.5
Tumbes	-10.1	-6.4	-2.9	-26.2	-4.9
PERÚ	-10.5	-1.1	-2.7	-26.8	-11.4
Lambayeque	-10.5	-0.7	-0.2	-20.1	-21.1
La Libertad	-11.4	-4.3	-3.1	-22.3	-16.0
Lima (provinces)	-11.6	2.8	-1.2	-35.3	-12.8
San Martín	-11.7	-7.1	-1.5	-28.0	-10.2
Huánuco	-12.3	-8.6	-3.3	-33.2	-4.2
Callao	-12.7	-8.4	-2.3	-20.6	-19.2
Junín	-13.3	-1.9	-4.0	-34.6	-12.8
Amazonas	-13.7	-9.6	-0.4	-34.0	-10.8
Cajamarca	-14.0	-13.0	-3.2	-28.2	-11.4
Madre de Dios	-14.3	-9.9	-4.5	-38.5	-4.4
Tacna	-14.4	-2.9	-3.3	-38.0	-13.3
Puno	-14.6	-15.7	-3.9	-27.7	-10.9
Ayacucho	-15.2	-14.6	-4.2	-38.1	-4.0
Arequipa	-15.4	-4.0	-2.7	-35.4	-19.3
Cusco	-15.5	-12.0	-3.6	-30.7	-15.8
Áncash	-15.6	-13.7	-5.4	-28.5	-14.8
Moquegua	-17.1	-1.3	-6.7	-42.2	-18.4
Pasco	-17.3	-8.2	-5.5	-37.0	-18.7
Huancavelica	-17.6	-15.3	-2.1	-42.5	-10.6
Apurímac	-21.6	-24.8	-4.7	-42.2	-14.8

STORYTELLING AS A COMMUNICATION TOOL FOR ESTABLISHING AN ORGANIZATIONAL CULTURE FOCUSED ON CHANGES IN SPORT ORGANIZATION

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Abstract

The concept of organizational culture as a context in which information, ideas, beliefs and ideologies of different organizations are exchanged, in which there are also political changes, is in the recent years receiving more attention, both in theory and in practice. More attention is paid to the skills and abilities of the organizations to make changes in order to provide internal coherence, identity and image communication and the expected outcomes. The economic sustainability, which is difficult to predict, is more easily provided if the organization has culture directed towards changes and if storytelling techniques are used to communicate the changes. Among other things, this led researchers and practitioners to direct themselves more to the study of the influence of the organizational culture and storytelling, as a communicational technique, to the organizational sustainability and changes. We believe that the most efficient and economical way for making organizational changes, and creating changes of the oriented organizational culture is by storytelling as a communication tool.

Keywords: Organizational culture, communication, storytelling, organizational changes

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Introduction

Much of the academic literature regarding organizational communications deals with organizational culture since it enables seeing different issues in this area – from the fields of human resources, organizational behavior, to organizational changes and economic and ecological efficiency. However, there is little theoretical underpinning on what actually constitutes a sustainability-oriented culture change? Furthermore, there are only generic prescriptions in the academic literature on how organizations can realize and implement the changes of their cultures and other aspects of work (for example Halme [1]). There are also studies that have criticized the existing models and theories of organizational culture and changes, mostly because of an over-reliance on simplified formulae and a lack of insight into how cultural changes might occur [2], Newton and Harte, (1997). These models often do not address how cultural change should be initiated, monitored or imposed as the subject of managerial intervention and control. On the other side, storytelling, as a technique of communication that shapes, distributes and changes the organizational culture, organizational values and ideologies is, unfortunately, not even mentioned in this context. In order to establish and study the possible relation between the organizational culture, its forms and variations, and storytelling as a technique of communication and organizational changes, we

will firstly make a summary and a theoretical view, including the definitions, of the concepts that we are going to use in this paper.

The Concept of Organizational Culture and Storytelling

The concept of organizational culture first emerged by the end of the 1970s and at the beginning of the 1980s [3], [4], [5], [6] and soon became one of the most influential, but also most controversial concepts in management research and practice [7], [8]. The concept of organizational culture has been interpreted very differently which led to the fact that even nowadays there is no consensus regarding its definition [9]. The culture theorists have suggested various definitions ranging from the notions of accepted behavioral rules, norms and rituals [10], to shared values, ideologies and beliefs [6] and, on an underlying level, shared patterns of meaning or understanding [11], [12]. Everybody agrees that an organizational culture includes all the members of an organization, motivates and develops on all levels (including the existence of subcultures), and is based on the broad history which is realized in the material aspects (artefacts) of an organization (e.g., its name, products, buildings, logotype and other symbols including its top managers). Thus, in addition to the intangible things such as values, ideologies and beliefs, the organizational culture also implies material aspects that are very important for the corporate identity concept. However, while the studies of the corporate identity focus on the idea how those material aspects express the key idea of an organization towards the outer factors, the organizational culture studies deal with the question how they are realized and how they are interpreted by the members of the organization.

Despite different interpretations and different culture dimensions, there are many common themes and similarities in the organizational culture research [13]. First, concepts that are used to identify and define organizational culture often overlap in different studies; therefore, several scholars have tried to develop frameworks to categorize important dimensions and to provide a conceptual foundation for the study of organizational culture [3], [14], [15], [16].

Second, the values, ideologies and beliefs are considered important for understanding an organization's culture and have been regarded as a reliable representation [17], [18].

Storytelling as a communication tool is in managerial literature frequently understood as the use of narratives, or the skill of telling stories, in the areas that originally were not considered to be narrow areas of its application, at least not until the 20th century.

Storytelling has steadily increased over the last few decades in management, in all its communication spheres, managerial processes and systems. Although it is not the subject of our discussion, we find it very interesting that the influence and the connection between the narrative (story) and management, human potential, or its role and influence within an organization, were rarely brought together until the second half of the 20th century.

Storytelling is the art of using language, and storytelling as a communication tool is the means to achieve certain communication goals. Storytelling is directed at the audience which is expected to generate emotional connections with the story, to acquire certain values or change behavior.

Stories are, in the context of organizational culture building, actually building blocks of knowledge, the grounds for remembering old and learning new things. Stories connect us with our being, with the past, include us in the current social, cultural, organizational and other contexts, lead us into the future, teach us, make us predict possible consequences of our and other people's actions. Storytelling is a leadership skill which is developed within the context of dominant organizational culture and which basically develops the individual's ability to find and tell a personal story. This skill acts in at least two directions: emphasizes the values

that people should believe in and evokes feelings that encourages them to make changes and to be active.

Among the first ones who connects storytelling on one side and managing, leadership and organizational context on the other is David M. Boje [19] who recognizes that the story (narrative) and its importance in management have been strongly influenced by: 1) development of logical and scientific thinking in management, especially in human resources area and 2) information technologies in communication processes (in all areas, including management).

Furthermore, the role and the importance of the story, narrative, through the prism of the importance of myths and legends in organizations, and its ability to strengthen organizational performances is recognized by Weick and Browning [20], Dennehi [21], Gabrijel [22], Taylor *et al.*, (2002), Denning [23], Boje, 2006.

In the work *Storytelling in Organizations: The power and traps of using stories to share knowledge in organizations*, authors Sole and Gray Wilson show the importance of storytelling for conveying knowledge in organizations and of different strategies, identifying:

Storytelling: sharing of knowledge and experiences through narrative and anecdotes in order to communicate complex ideas, concepts and causal connections. Modeling: sharing of knowledge and experience through exposure to both the conscious and unconscious behavior of others, particularly “experts”. Examples of modeling include mentoring, apprenticeship, symbolic conduct and specific demonstrations and opportunities for observation.

Simulations: sharing of knowledge and experience through experiential situations that recreate the complexities of action. Examples of simulations include case studies, role playing and technology-supported simulations.

Codified resources: sharing of knowledge through reference to formal, systematic and structured sources. Examples include standard operating procedures, manuals, instructions, textbooks, memos or data bases in which knowledge has been formally codified.

Symbolic objects: sharing of knowledge through access to images, diagrams or objects which represent or illustrate the underlying knowledge or ideas. Examples include a map of a city, signs, logos or prototype car.

The Purpose of Storytelling as a Communication Tool

In academic literature we find several characteristic storytelling types most frequently shown as case studies in organizations. Without a thorough analysis of the leaders who were the narrative generators, it seems that a leader type determines to a large extent the narrative that would be structured in business.

Authors Sintonen, T. & Auvinen, T. [24], by studying the case of a crisis situation observe that when a leader takes upon himself the role of a storyteller, the narrative has multilevel concept goals, interprets the organization’s past, and not present state, and is directed towards the future of the employees’ children. They conclude that such leadership has used a discourse power of a combined storytelling. The other group of authors, Auvinen, T., Aaltio, I. & Blomqvist, K. M. [25], notice that leaders tell stories in order to build a culture and a relationship based on trust, to enforce self reflection of the employees and to emphasize the need for advanced training. More managers can take part in building a narrative and in its presentation, with the previously determined goals that they want to achieve with storytelling: employee motivation, inspirational conflict resolution, finding the focus of the problem and building trust, acquisition of new corporate values and readiness to changes. The authors believe that stories can be an efficient method of the influence on employees, and even a good precondition for building trust between managers and employees. Auvinen, T., Lämsä, A-M.,

Sintonen, T. & Takala, T. [26], observe that a narrative is used for manipulation and in this case storytelling is an integral part of leadership.

The authors identify four types of narrative that correspond to leader (manager) types, connecting it to the organizational culture type: humorous, pseudo-participative, seductive and pseudo-empathetic. There is the question of ethics that has been excluded from the narrative, and the managers often explained that organizational culture is such that they are often forced to be manipulative.

In the qualitative research done by Sintonen, T. and Auvinen, T. (2011), the authors emphasize the power of the story, particularly its visual character, but also suggest that the used methodology was not always able to explain all aspects of the narrative influence, since the qualitative data contain a set of discourse aspects that are difficult to be investigated without adequate quantitative analyses. They also suggest that visualization additionally supports the result communication. The author Auvinen, T. (2012), focuses on the model of organizational reality in which we have “the ghost leader” whose influence, authority and function are unquestioned, and that are based on a structured and placed narrative. The author says that the role of storytelling is crucial in the formation of such leaders and such organizational cultures. In addition, he believes that this kind of leaders, with a well thought out storytelling, maintain their power and the existing organizational culture even with the support of informal leaders in the organization. The researches have studied the role of storytelling in problem solving [27], organizational reconstruction (McWhinney & Battista [28], socialization of new employees Louis [29], Brown [30], collective positioning (McWhinney & Battista [28], Boyce [31], self-training Boje [32], [33] lifelong learning Helmer [34], introduction of innovations and new product developments Zien [35]. All mentioned above only illustrates the possibilities of the use of storytelling in different domains. Many researchers prove that stories can be a very powerful way of presenting and passing a complex and multi dimensional idea, value, belief or ideology [36]. The task and the role of storytelling is to contribute to the inner consensus regarding the organization’s identity, to forming organizational culture as a context for everyday work and to individual and group initiatives for changes within the organization.

Conclusion

Based on the researches in communication management and organization management, and also based on the analysis of relevant academic literature, we believe that it is possible to connect the use of storytelling to the models of organizational culture on the basis of the competing values framework (CVF) and that storytelling can be a very efficient communication tool for creating an organizational culture directed towards changes. Storytelling achieves great effects in communication processes of an organization when it is directed towards specific organizational culture. It was the subject of discussion of Sole and Wilson [37] at the end of the 20th century who concluded that storytelling is a means to: 1) Share norms and values: Stories (narratives) powerfully convey norms and values across generations within the organization. They derive from the organization’s past, but can also describe its future (Denning, 2001). Buckler and Zien [38] argue that the most important thing is that storytelling offers a compelling context and a robust vision, with the emphasis on the organization’s tradition which is in the context of the future, thus facilitating the identification of future steps and goals. Brown [30] notes that employees tend to express understanding of the organization and that they are committed to the use of stories. Furthermore, she says that the extent of an employee’s familiarity with the organization’s narrative might indicate the employee’s acceptance of the organizational norms and values [30], 2) Develop trust and commitment: Stories successfully communicate the competences and commitments within the

organization. Revealing personal stories can expose one's own competences and commitment, signal one's trust or willingness to be vulnerable to others and to organization Chasin *et al.*, [39]. At work, stories of commendation or complaint about other people communicate their personal reliability and trustworthiness to others. Similarly, stories about the organization and management can convey information about the organization's trustworthiness vis-à-vis its employees, which can reinforce or undermine employee commitment. Wilkins [40] notes that generating commitment is a key function of organizational stories and legends. 3) Share tacit knowledge: Stories enable a useful exchange of the embedded and highly contextual knowledge (tacit knowledge) that can help to solve the most difficult problems in the organization, even the resistance to changes. The Institute for Knowledge Management Boje, [41] describes a story as "a tiny fuse that detonates tacit understanding in the mind of the listener". Often the canonical wisdom and knowledge of the organization which is built into formal processes is insufficient to solve the problems that arise in the real world. In such circumstances, the tacit knowledge and experience-based knowledge come to the fore instead. 4) Facilitate unlearning: Brown (in Denning, 2002) claims that storytelling is essential for accelerating environmental transformation in organizations – internal and external.

Employees create culture in which they learn not only how to learn, but also how to make decisions or why something has been decided, to rethink how, and even why certain activities have been undertaken. Acknowledging that there is a tacit knowledge and experience employees lose "taken-for-granted dimension" about issues that are not clear to them. Thus, storytelling becomes one of the communication tools that helps us unlearn out of date practices and ineffective mental frames which shape a new perspective with employees. Rational arguments have support in emotional or intuitive elements of tacit understanding. Stories are very effective in achieving this goal. 5) Generate emotional connection: Denning [42] notes that stories have the inherent capacity to direct a person to engage his emotions because they are structured to talk about the unexpected, or talk differently. Stories of the unexpected naturally prompt emotional responses since they suggest the potential threat, but at the same time offer a way of understanding and responding to the receiver's needs. This emotional response makes knowledge "sticky" [43], [44], [37] Stories are particularly relevant for communicating complex knowledge within organizations, including awareness of values and norms both collective and organizational, and of details and solutions to complicated problems.

In organizational culture as a context of everyday practice and business, knowledge is frequently defined as "the capacity for effective action" [45], [46], [47]. Thus, knowledge per se is not a direct goal of organizations in sport, until the moment of its application when it becomes a new organization's value, whether quantitative (economic) or qualitative – the one expressed through accepting organizational identity, cohesion, broad consensus, understanding or trust. In communication context, the ultimate purpose is to create organizational culture directed towards changes using storytelling as an efficient technique of organizational communication.

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EMPLOYEE MOTIVATION AND CULTURAL INFLUENCE

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Abstract

It is well known that, as they perform their work-related activities, people use only a small portion of their creative abilities and potentials, while the largest portion remains unused. If people are motivated, they invest more energy and passion into their work, and their good spirit helps them overcome all types of problems they come across at work. Likewise, motivated employees are in the state of emotional and intellectual satisfaction and feel great devotion to the organization they work for. An old Japanese saying speaks volumes about the importance of motivation: There is no point in carving a Buddha if you do not bring spirit into it. The question of motivation has become quite a challenge for modern managers because motivation is a continuous and changeable process that demands an individual approach.

Numerous factors impact motivation and one of the most significant ones, to which special attention should be paid in the globalization era, is the cultural one.

Keywords: motivation, culture, employees

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Introduction

In order to achieve success in any segment of our lives, we need motivation. According to one of the definitions, motivation is an activity that drives people to fulfil certain needs. In the context of business, motivation is important because it represents one of the crucial factors that drives employees towards achieving their own business success which then consequently shifts to the organization as a whole.

Due to its positive effects on the employee performance, motivation has become one of the most talked about managerial topics in modern business circumstances. Almost every success-oriented organization today is highly focused on employee motivation [1]. In other words, "no organization in today's competitive world can have superior performance unless every employee is committed to the goals of the organization and unless he/she does not work as an effective team member" [2]. Managers are faced with a difficult task of recognizing why people act in a certain manner in certain circumstances and what can be done to increase their creative contribution, which is the basis of the problem of modern business and development.

Those managers that succeed in discovering what motivates their employees, will also find the key to success because the manager's success depends on the individual success of each and every employee in his/her team.

Motivation is a process that makes ordinary people perform outstanding activities. A motivated employee has a higher level of employee morale, satisfaction and self-confidence, which are all the factors directly influencing the productivity, quality of services they provide,

survival, growth and development of the organization, as well as the loyalty of employees towards the organization they work for. An adequately motivated team member is energetic, does not fear changes, has a positive approach to challenges and business activities, and as such can boost morale in other employees and lead them towards higher achievements.

Culture and motivation are closely connected. Cultural dimensions are adopted during the socialization of our personalities and then applied throughout our entire lives, which means that employees reflect the elements of their culture (assumptions, beliefs, values, norms) onto their business. Cultural intelligence is a characteristic of every modern person that believes to be a global citizen. It implies openness and skills in understanding certain cultures and their influence on the business process and in that way facilitates business interaction and enables the setting of harmonious atmosphere and successful business relationships.

Employee Motivation

The importance of motivation in modern business is not only emphasized by managers, but also by psychologists. When asked what the most important thing in human nature that modern managers should be aware of is, two thirds out of 70 interviewees said “motivation”.

Understanding the notion of motivation and work satisfaction is of the utmost significance for the creation of work places, organizational culture and climate, the award system, the system of progress, managerial styles [3].

The following definitions of motivation can be found in the literature:

- Motivation is a psychological characteristic of people that influences their level of devotion to a particular thing. It consists of the factors that cause, channel and support human behaviour in a certain desired direction [4].
- Motivation is a set of forces that drives and keeps the person working for the organization, i.e., the person starts one activity and stays focused on accomplishing it [5].
- Work motivation is a psycho-sociological category stemming from the attitude of an individual towards work and his/her readiness to be engaged in the accomplishment of work goals [6].
- The definition of R. Dubin states: “Motivation represents complex forces starting and keeping a person at work in an organization” [7].
- Motivation can also be observed as the strength within a person that will influence the intensity and persistence of voluntary behaviour [8], [9].
- Motivation is a process of initiating, directing and sustaining human behaviour in terms of a certain goal [10].
- From the perspective of managers, motivation can be defined as: an activity that makes people act in a desirable way for the sake of achieving the company’s goals and simultaneously for the sake of satisfying the employees’ needs [11].
- Everything that makes an activity happen, that directs it and determines its intensity and duration is called motivation [12].

So, based on the abovementioned definitions, it can be said that motivation is an invisible but powerful force that drives people and keeps their behaviour well-directed, that it is a complex process, that it influences the relationship an employee will have with the organization, etc. Likewise, motivation is a continuous and very challenging activity since the “needs of the employees are diverse and changeable and are of different value for each employee” Vujić, 2008, [13].

We can say that the motivational system of the organization is well designed if it enables the organization to:

- attract and retain highly qualified work force,
- encourage its employees to be highly engaged in the performance of their work assignments and
- set the creativity and innovativeness of employees free in the aim of achieving the desired performances within the organizations.

A good-quality motivational system can be achieved if the managers try to make a connection between employees and their assignments, if they follow their goals, try and provide awards that are personal and connected to the work performance of every individual, enable an atmosphere of learning and progress for their employees, acknowledge salary as a motivational factor, etc. According to Jokić, Bradonjić, Čočkalović [14], “strategies in the process of employee motivation that managers mostly use are: communication (good communication between managers and their subordinate structures enables the meeting of the most basic human needs), the manager’s attitude towards the employees (this strategy is based on McGregor’s XY theory that managers have towards the subordinate members of the organization), designing and enriching work assignments (this strategy is designed in the aim of reducing boredom at the workplace), and behaviour modification (this concept is based on the encouragement of a certain behaviour depending on the consequences such behaviour brings about).” Aleksić Glišović, Jerotijević, Jerotijević [15] state that “modern motivation theories indicate that the motivation that employees feel about their work is less related to material rewards and more to the job design itself”. What we should definitely have in mind is the fact that “every company is unique and therefore it needs to independently work out its own and individual way of managing its intellectual capital by using the existing models solely as a base” [16].

One example of a company that returned to the very top of successful companies on a global scale thanks to motivation is the Xerox Company. When Anne Mulcahy became the Managing Director of this company, the company had gone bankrupt due to severe debts, and the employees had been extremely worried for their future. Anne Mulcahy that spent her days paying visits to cities in which the company had offices and talking to the employees, used to say: “Morale and motivation are something I care the most when it comes to the Xerox Company. I think that morale and motivation have the deciding influence on our ability to make results. People should be involved and motivated and feel that they are contributing to something important. I spend most of my time with buyers and employees and I think there is nothing more important any of us leaders could do than to communicate and strengthen the ties with those two most important groups” [17]. Today, thanks to her approach to the challenges she had been faced with and to the efforts her highly motivated employees had invested, the Xerox Company not only recovered, but again became the leader in the development of new digital technologies for colour printing. So, immediate managers play an important role in the motivation of employees and they are the crucial factor in identifying and joining together the needs of the organization with the individual needs, interests and ambitions of their personnel. Modern managers, who have a responsible attitude towards the future of their organizations and are well aware that people are at full liberty to decide where and how they will direct and invest their efforts, should find an adequate model for starting off their motivation because “motivation is a directed activity, not an accidental one” [9].

Even though we can clearly see from the abovementioned example that a proper motivational system provides benefits for organizations, quite often “the simple needs and motives of employees are not well understood and are ignored” [18]. Today’s imperative is: “managers must understand the needs and behaviour of people in order to become efficient leaders and the ones who can inspire team members and enable their development” [19]. In their book *The Future of Management* [20] Gary Hamel and Bill Breen state: “If you want to

outdo an increasing mass of newcomers thanks to your innovations and the way of thinking, you need to learn how to inspire your employees to give their best every day.”

Culture and Motivation

Motivation is a strong variable in terms of organizational behaviour onto which the values of a particular national culture have a great impact. According to Janićijević [10] “needs, motives, desires of people depend to a great extent on their understanding of the world, human nature and attitude towards people”, which are all characteristics of culture.

Geert Hofstede defined, based on the conducted empirical research, the dimensions of national culture most commonly used when exploring how the dimensions of national cultures influence the managerial style. The aim of his research was to explain the specific ways of human behaviour and point to the significance of taking into consideration various cultural elements within the international economy, communication and cooperation. Some of his dimensions that can be useful for the understanding of the process of motivation within organizations are:

- *Uncertainty avoidance index*. National cultures with a high uncertainty avoidance index (e.g., Germanic cultures, certain Latin-American, Serbian and Japanese national culture) condition a strong need for security in the motivation of employees because people in such cultures have a low level of tolerance to risk and therefore rely on their experts and their knowledge, laws, institutions, rules, order and control. In cultures like these there are deeply rooted beliefs and rules of behaviour which are almost always abide to. On the other hand, in cultures with a low uncertainty avoidance index, managers are free to let their employees make decisions, even the risky ones, because their characteristic is that they will more easily venture out into entrepreneurial endeavours.
- *Masculinity vs. Femininity*. Cultures with the so-called “male values” (The United States of America) imply a high intensity of the need for achievement, development and self-realization. In such cultures, the most valued things are money, success, ambitiousness, material goods, competitiveness and that’s where the secret of motivation hides. In “female cultures” such as the culture of the Netherlands, Sweden, Denmark, Norway and Serbia, dominant values are the quality of life, lack of uncertainty of employment, taking care of our loved ones, preservation of environment, solidarity and equality. Therefore, in such cultures the need for belonging is favoured in comparison to other needs. Possible conflicts are resolved by negotiating and reaching a compromise, and incentives such as flexibility and free time have a favourable influence on employees.
- *Individualism/collectivism*. In individualistic cultures (The United States of America) the relationship with workers is mostly contractual, i.e. a worker offers his/her work in exchange for a salary which is in proportion to the number of work hours. Workers in cultures such as these like to solve problems on their own, to independently make decisions and they believe that every worker should be awarded in accordance with the level of his/her contribution and the success they achieve. In collectivistic cultures (Japan, as well as the culture of Serbia) people want to be perceived as members of a certain group in which they take care of each other, take responsibility for each other and look after each other. The relationship between workers and employees is emotional, companies take care of their employees and expect their loyalty in return. The awards are equally distributed inside the group. So, in collectivistic cultures, the most important need is that for belonging, while in individualistic cultures the most

prominent need is that for achievement, which is a useful information for the process of motivation.

Two completely different cultures are the cultures of China and America, which has been confirmed by research on motivation of their employees and their approach to work. The research on the comparison of the Chinese and American employees' motivation [21] showed that Chinese employees don't find the interestingness of work as well as being up-to-date with happenings at their workplace to be important factors of motivation, unlike their American colleagues. Likewise, Chinese employees don't think they should be specially awarded for performing an important or difficult assignment, while the Americans find that quite important. Another important factor is the loyalty of managers (superiors) to their employees.

Chinese workers think it is important to have a strong relationship between the employees and their managers because their culture nurtures strong interpersonal relations. American employees described the relationship between managers and employees as something of poor influence on their work activities. The biggest differences are the interpersonal loyalty and work conditions that Chinese workers emphasize. Also, the research showed that Chinese managers are far better acquainted with the desires and needs of their subordinates than Americans are. The consequence of that is that Chinese culture nurtures a strong interpersonal relation, while the Western culture separates work from friendship and by doing so puts limitations to the nurturing of interpersonal relationships within the organizational culture [21].

In a research that aimed at identifying motivational factors in regards to employees in Serbia [22], what makes employees satisfied with their work and increases their performance, a total of 500 employees from 15 different small and medium-sized organizations took part, out of whom 213 were women and 287 men. By analysing the collected data, six relevant factors which represent 20 manifest items concerning work satisfaction were identified. The first place was taken by interpersonal relations, the second by the stability of the workplace, the third by the organizational management, the fourth by freedom and creativity at work, the fifth by the possibility of influencing improvement and progress and the sixth by the style of control. According to the results, not all identified factors have the same significance, and the first three factors have the greatest relevance in explaining the variance: first – interpersonal relations; second – stability of the workplace; third – organizational management.

The identified factors are in complete accordance with the characteristics of the Serbian culture as described by Hofstede. Proper interpersonal relations, since the Serbian culture is a “feminine culture” characterized by people taking care of the loved ones, solidarity and equality, the need for belonging and solving conflicts by negotiating and reaching a compromise. Also, our culture is collectivistic and, in its people, want to be seen as members of a particular group wherein they take care of each other, take responsibility for each other and look after each other, and the relationship between employees and employers is not strictly business-based, but rather emotion-based. Further on, in Serbia, in which the culture is feminine and has a low uncertainty avoidance index, the stability of the workplace is an important motivational factor since people simply do not like big changes and risk.

Managerial method has a significant impact on the workload and the solving of possible conflicts. According to our culture's characteristics, employees in Serbia expect equal treatment of all employees, a fair award system, flexibility and free time.

Conclusion

Employee motivation has become a crucial phrase and a dominant preoccupation of modern managers and organizations on a highly competitive global market. The way an organization manages its human resources can help it in creating and sustaining its

competitive advantage. The basic goal of every manager would be to create such a business environment in which competent people perform their activities with high levels of enthusiasm, energy and motivation. We can freely conclude that the crucial role of leaders in regards to achieving better work and business results is in inducing creative energy, i.e., motivation. Motivation is closely connected to the phenomenon of culture and that is a fact which must not be neglected in the globalization era.

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PART III

FINANCES AND BANKING

THE RELATIONSHIP BETWEEN STRATEGIC MANAGEMENT AND PUBLIC RELATIONS AND THEIR IMPLICATIONS FOR FINANCIAL OPERATIONS

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Abstract

In this paper, the co-authors have addressed the relationship between strategic management and public relations, and their implications for financial operations. In addition to growth and development, financial results of an organization are the focus of a business plan implemented by the director general (strategic manager), and as a rule, they represent the hierarchical link between the public relations service and other services affecting financial operations. The lack of appropriate internal communication and coordination of this “triangle,” which is a common occurrence in practice, adversely affects financial results.

In this paper, explanations of their mutual relations in the above “triangle” with certain recommendations shed some light on multidimensional frameworks of modern business, in which heterogeneous, renaissance knowledge and experiences are required, on the application of which the outcomes of overall, and especially financial business depend.

For the aforementioned reasons, in addition to aligning the organization with the environment, strategic managers also have in their portfolio of activities the internal alignment of individual teams, whose synergy contributes to the achievement of the vision, mission, and strategic goals.

Keywords: strategic management, public relations, financial results, director general

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Introduction

Contemporary financial operations of organizations are the result of understanding heterogeneous, renaissance knowledge and experiences, which are mutually intertwined and complementary. The umbrella discipline, which brings together the various specialties of the complex world in which organizations operate, is strategic management, and it finds application from small entrepreneurial ventures to multinational global companies. Depending on the nature of the business, teams of different specialties are formed within the organization, and the outsourcing of certain resources is possible if necessary, using the “make or buy decision” model. According to Chandler's view that the organizational structure monitors the implementation of the strategy in achieving the goals, organizations opt for the appropriate structural modalities when it comes to the necessary tasks related to public relations, as well as those related to financial operations and reporting. Harmonizing the relationship between these activities is one of the keys to success.

By structure, in addition to the introduction and conclusion, the paper has three subunits:

1. Public relations in a globalized world; 2. Contemporary challenges of strategic management, and 3. Financial operations parameters and company image.

Public Relations in a Globalized World

The process of globalization has brought people, economies and cultures together, and has contributed the most to the free flow of goods and services. National economies have recognized the importance of engaging in global flows of capital and ideals. In parallel with this trend, “the integration of national economies into global markets has led to the privatization of public operations and the reduction of direct state participation in the traditional trade activities of public services” [1]. The efforts taken to realize strategies would not be possible without the active involvement of the public relations sector, regardless of what business the company is engaged in. “Although the basic goal of public relations is the same, regardless of whether it is about activity in the business, political, cultural, sports, or humanitarian field, the models of organizing PR can be quite different” [2].

Identifying business diversity is critical for deciding where and how a company wants to get involved in the market. “Multinationally oriented companies apply a regiocentric orientation in business, i.e., operate in regional parts of the world market. Globally oriented companies apply geocentric business orientation, i.e., operate in the global market” [3]. In an era where everything local becomes global and vice versa, it is crucial to determine a positioning strategy. “For each segment that a company follows, a product positioning strategy must be created. It can be assumed that any competing product in circulation occupies a certain place in the market segment” [4].

Being different in the market, creating certain actions is primarily a task of the public relations (PR) sector. It is necessary to identify the target group, the market, and highlight all the peculiarities and differences between companies and products. For, “the totality of all attributes that an individual (or target group) recognizes (or imagines) when facing a company's name, sign, or product, i.e., the sum of all the characteristics that separate one organization from others in the market, forms its corporate identity” [2], which brings competitive advantage. Therefore, it is precisely this corporate identity that determines the strategy of positioning the company with respect to the intended target public, which it addresses, and what channels of communication it will choose, thus, “the organization uses the media as the primary means of transmitting messages sent to the target public. That is why an organization needs to establish and maintain good media relations” [5].

Today, the media are a bridge for connecting with modern consumers. It is necessary to develop adequate PR actions that will constantly remind customers of the product or service the company distributes. “Practice shows that the success of any more ambitious PR action depends greatly on knowing the characteristics of the target public and its segments. This task is not easy at all since the potential audience does not include only the buyers (or service users), but much more sophisticated groups which consist of suppliers, distributors, carriers, wholesalers and their advisers” [2]. Traditional media such as print, radio and television represent only one part of the communication spectrum of activity in the media sphere. The decisive role was taken by the Internet. “The Web has changed the rules. If you continue to follow traditional public relations techniques, I am sure you will realize that they have no effect anymore” [6]. With the development of new technologies, there have been advances in PR techniques and modes of presentation. “In the new e-market of ideas, organizations are emphasizing their expertise in different ways, such as great web locations, podcasts, blogs, e-books and online press releases that address customer needs” (Scott, 2009). Also, companies

present their comparative advantages on the increasingly popular social networks, all in support of strategic management activities.

Contemporary Challenges of Strategic Management

The literature has debated whether and to what extent public relations are part of strategic management itself. Whatever the conclusion, the fact is that “contemporary societies require public relations professionals who can handle global interactions, relationships and responsibilities, and who can manage relations between organizations and stakeholders in a globalized, digitized world where issues and crises are becoming commonplace in terms of mismanagement of organizations” [7].

Strategic managers, in addition to considering their current position, are focused on the medium- and long-term plan, and so view their customers as having a “degree of inclination to present satisfaction regarding the same satisfaction in the future” [8]. In this context, the role of public relations managers is significant in that they adequately present certain phenomena in the internal and external public, which ultimately affects perception.

Among the contemporary challenges of strategic management, the inadequate implementation of the formulated strategy particularly stands out. In general, certain influences that come from the external environment can have a negative effect on an organization’s operations. Rapid and dynamic, and often unexpected, changes in technology, social developments, as well as financial and other risks contribute to the raising of questions, which often cannot be easily answered in an adequate and timely manner.

More than ever, the strategic management employees in their actions take into account individual consumer preferences, which ought to be the focus of attention since they make the decision “whether to consume certain goods or not” [8]. Given that there is a variety of risks in contemporary business, organizations often choose to conclude appropriate insurance contracts where possible [9].

Financial Operations Parameters and Company Image

The image as a complete picture of the company’s business is crucial for the effectiveness of strategic management.

In the turbulent and changing environment, as it is today, the primacy of business lies in mastering and controlling relevant information, while simultaneously sublimating and integrating the goals of different stakeholders of the company. Every company that wants to operate effectively and efficiently needs to adopt and implement this mindset. Thomas A. Stewart points out: “Information and knowledge are the thermonuclear competitive weapon of our time.” Therefore, the importance of having the right information to operate effectively is essential [10].

The company needs to satisfy the interests of a wide range of heterogeneous groups: customers, suppliers, creditors and many others. Therefore, a negative image of a company that appears in public can have negative repercussions on a business manifested in a decline in the value of business indicators and vice versa. Due to the appearance of a negative image of the company’s business, the aforementioned stakeholders withdraw. This situation is followed by competitors who are stalking the business of other companies in the same industry, and who can take advantage of the company's poor image and attract customers to themselves.

In such situations, efficiency in decision-making of top management is very important.

Responding promptly to information sent through the media can save a company from a significant drop in sales revenue, and even from making losses.

Contemporary business conditions have imposed a new stage in business reporting. There is a need to apply new forms of reporting, as a comprehensive tool for communication with stakeholders. On the other hand, presenting the company's intentions and goals as defined by the business strategy, and presenting key business indicators can enhance the company's image in the capital market. A holistic and integrative reporting approach that incorporates several dimensions of a company's business is a brilliant example of the new business and reporting technique used to increase the company's visibility in the eyes of customers.

However, in day-to-day business, looking through the prism of strategic management and its relationship with the financial aspects of the company's operations, indicators can be identified which are an adequate measure of reflecting company information in the public (Customized: Cherian and others): sales volume, return on equity, return on assets, amount of revenue, collectability of receivables, negotiation and pricing policies with suppliers, operating expenses, interest rates with creditors, and more.

Financial reporting is the process of presenting financial data in different forms of reports, both traditional and contemporary, and does not have a single unified goal, but rather a goal derived from the needs of different stakeholders, whether internal or external users. Further, financial information and the use of reports based on them are directly reflected in the reduction of uncertainty and risk in making business decisions.

By providing extremely valuable financial and accounting information, it seems quite clear that financial reporting contributes not only to the rational decision-making of its users, but also to the strengthening of the financial system, the increased use of financial statements, and, in general, the building of trust and security in business communication [11].

In this regard, it is necessary to create a legal framework, as well as climate in which the creators of these reports will consistently and unambiguously present information that reflects actual transactions in the company, minimize the need for tax evasion of entities, by applying the effects of overestimating or underestimating certain balance sheet items, presenting unrealistic costs, and other elements.

The value of a corporate brand and reputation brings to the company benefits that in the long run increase the company's financial performance and market value [12]. In other words, the higher value of companies, which is reflected in the positive image of the company, increases sales and increases the return on invested capital, which leads to the achievement of competitive advantage and vice versa.

The relationship between strategic management, company image, and financial performance is not a new issue, but theorists and practitioners are looking for new mechanisms to regulate their relationships. Disclosing the business of now already textbook examples of Enron and WorldCom companies, establishing the Corporate Governance Code as well as the OECD Principles, draws attention to the close relationship between establishing the company and stakeholder relations, as well as creating true, continuous and credible business information. It is a well-known fact that today in the era of globalization and digitalization, customer preferences are constantly changing, which has a direct impact on investments in new products, new services, new forms of marketing and advertising to reach as many customers as possible before the competition, as well as to occupy a larger market share. A business understood in this way will enhance the synergy of action and joint decision-making within the company.

Conclusion

The above considerations indicate that if there is continuous communication between strategic management, public relations and financial operations, the financial performance of the business will serve the identified strategies of target customers, revenue, market share, and

return on equity. In other words, to achieve these goals, it is necessary to ensure continuous maintenance of relations with all interest groups, and, above all, with customers who are extremely sensitive to company information and the amount of representation of companies in the media through various forms of advertising.

To present oneself in the modern business world, to be different, is an axiom. The positioning of products and services in consumer awareness is the key task of the public relations sector. The choice of communication channels and the way of sending messages to the target public significantly influences the financial aspect of companies' operations. Also, the media are the ones that represent the bridge for connecting with customers, and more recently the global network – the Internet – is taking over the main role in the media sphere.

Companies that have a well-established customer relationship system have better financial performance than companies that do not create a strong relationship and communication with them, and strategic management contributes by looking at the internal and external environment and taking appropriate measures and activities.

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THE DETERMINANTS OF BANK STABILITY: EVIDENCE FROM SELECTED BALKAN COUNTRIES AND TURKEY

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Abstract

The phenomenon of financial stability has gained importance as monetary and fiscal policies aiming at price stability in the global crises are not sufficient to prevent financial crises. After 2007 global crisis, the importance of bank stability better understood. This paper investigates the determinant of bank stability in selected Balkan countries and Turkey. For this aim, we used to Z-score and NPL as dependent variables. We used bank performance, financial structure and macro variables as independent variables. According to ANOVA test and regression analysis, the strongest correlation between non-performing loans as the dependent variable of the Western and some EU Member countries (Bosnia and Herzegovina, Serbia, Croatia, Slovenia, Montenegro, Macedonia) and Turkey was achieved with the following independent variables: the total non-interest income to total income and foreign bank assets to total bank assets. Observed on the other hand, the weakest link between NPLs as a dependent variable was achieved with the following independent variables: the gross domestic product, the net interest margin ratio, Lerner index and the cost to income. Another dependent variable, i.e., Z-score was recorded the strongest correlation with the following independent variables in the model: the gross domestic product, the Lerner index, the net interest margin and the cost to income. The weakest link was achieved with the following independent variables: the total non-interest income to total income and the foreign bank assets to total assets.

Keywords: Financial stability, Lerner index, economic activity, Z-Score

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Introduction

Globalization, which gained momentum after the 1990s, caused huge monetary movements on world trade and capital flows to developing countries increased significantly. These movements, which started to be speculative, increased the financial vulnerability of developing countries and caused repeated crises in the world economies again.

The 2007-2008 US sub-financial crisis and its consequences on the general economy have increased interest in investigating bank failures that have become central to political and economic debates [1]. In that period, leading famous banks and financial institutions (for example Lehman Brothers) had gone bankrupt or recorded huge losses, posing a high risk in the financial market. Consequently, a lot of instability occurred in the financial and banking sectors. Therefore, the stability of the banking sector is a major concern for bank supervision

and academics, but it also attracts attention at a broader macroeconomic level, as the banking sector plays the most important role in the financial sectors.

While the concept of stability can be briefly defined as stability and stabilization, it is also considered as a success criterion. Banking stability can be defined as the stability of banks, which are interconnected by direct participation in interbank deposit markets and syndicated loans, or indirectly by lending to general sectors and registered transactions. Whatever the definition of banking stability may be, a problem that is not entirely understood in the literature is that factors that influence banking stability in emerging economies when considering the role of financial institutions and institutional qualities [2]. According to some experts, capital resources are insufficient to achieve banking stability in developing countries due to structural weaknesses [3]. Given the complexity of modern financial systems as well as the global trends, financial stability has been associated with multidimensional conditions connected to the well-functioning of financial systems (Lassoued, 2017).

The determinants of banking stability and its impact on the stability of the financial system may vary in different countries. The empirical literature shows that some economic factors, financial structures and institutional factors can influence banking stability. This subject is important especially in emerging countries which do not have improved financial systems. So, we use data for Turkey and selected Balkan countries regarded as emerging countries in our analyses.

Similar changes took place in individual Balkan economies both in the economy and in political systems, which meant that they had to build a market economy from scratch in parallel with the restoration of political and state independence [4]. One of the reasons that we investigate these countries is that these countries have quite a similar modern history and experiences about banking application. An important feature of the Central and Eastern European banking sectors is that banks have relatively small and relatively simple traditional business models compared to the EU. And banking sectors in these countries are characterized by a high share of foreign banks and since the late 1990s foreign banks have been playing the role of host countries [5]. Since this year, banking sector in this region countries serious changes have been like this liberalization of capital flows, which leads to privatization, legal, financial and structural reforms, diversification of banking products and services, and an increase in the credibility, robustness and performance of the banking sector [6]. And, Turkish banking sector has features similar to Balkan countries. Banking sector has been growing since 1980s in Turkey [7] also foreign banks entering to Turkish banking sector has been growing since 1990s foreign bank entering to Turkish banking sector is grow after 1990s [51].

In addition to the size and structure of the financial system, there are large differences between the observed countries and are primarily bank-based. Banking sector assets comprise 80 to 92 percent of financial sector assets in the observed countries. For example, these percentage are %81 in Turkey, %91.8 in Serbia, %86.3 Bosnia, %86.3 in *Macedonia* and %86.8 in *Montenegro* and banking sectors in the region are important levels [13], [14].

Banking sectors in Balkan economies are underdeveloped due primarily to the legacies of the pre-transition planned economy [52]. The economies of selected countries are among those that suffered the most the global downturn of 2007-2009 and after. The one of effects of global crisis observed on non-performing loans. One of the most important problems of banks developing in the Western Balkans since the late 1990s is the poor quality of bank assets [9], [10].

As last dimension, in selected countries, a relatively high level of concentration of the banking sectors was observed [11], [12]. As a result of these, it is important to analyses financial stability and to improve policy for financial stability in these countries. So, it can be prevented more depth economic problems.

The purpose of this paper is to investigate the determinants of bank stability from 2006 to 2017. To do this, we analyse the financial structure, banking efficiency and macroeconomic variables of both Turkey and selected Balkan countries. We use two measures of banking stability which are Z-score and non-performing loan (NPL). Our explanatory variables include bank performance variables, financial structure and macroeconomic variable.

Therefore, this study is a temporal and contextual extension in the art of science. The second contribution of this study is to analyse the factors which determine the stability of observed countries. For policy makers and bank management it will be useful to control those factors that can destabilize the banking system. And finally, to general society, to help them to choose the safe and stable banks. The findings of this study will provide useful insights for regulators, practitioners, policy makers and researchers for similar emerging countries.

The rest of the article is organized as follows: Section II consists of a review of the literature and various studies on the stability of banks around the world. In section III, the methodological approach, sample, data collection, and research model are discussed. The empirical results of the study are presented in section IV. Section V consists of a conclusion and recommendations.

Literature Review

It is obvious that the existing literature differs from the past studies according to their sample data, different methodological approach and objectives. Firstly, we find studies that investigate the factors explaining the stability of conventional banks [15], [16], [5], [17].

While some of studies use only country – level data [2], [18], [19], some others use both bank and country level data [20]. However, there is limited studies about both Islamic and conventional banking stability [21], [1]. Diaconu and Oanea [22] used only countries-level data. İbrahim and Rizvi [23] and Lassoued [24] investigated only bank stability on islamic bank.

One of the controversial aspects in literature pertains to the role of competition in influencing bank stability. Competition is usually considered a positive force in most industries; this is expected to have a positive impact on industry performance, delivery quality, innovation and international competitiveness [25]. Scientists and policymakers have focused on the role of banking competition in the stability of the financial system, as well as bank-specific factors that can influence relationships such as size, capitalization, and liquidity [26].

There are a number of studies that have investigated the effect of bank competition on banking stability. Competitive conditions in the financial sector are also relevant to be studied due to their impact on financial stability [27]. These studies have shown that there is generally no consensus on whether competition in the banking system leads to stability or fragility [26], [27], [28], [29], [17], [20].

The other important dimension of bank stability is bank concentration degree. Karkowska and Pawłowska [5], Shijaku [30], Ijtsma *et al.*, [20] and Kasman and Kasman [31] investigate how the level of concentration affects stability.

In addition to the internal determinants of stability, represented generally by the characteristics of the bank, the macroeconomic environment in which banks operate remains the country's macroeconomic variable and an external factor that can affect the stability of the bank. For example, Adusei [16] investigated the effect of internal factors (bank size, funding risk) on bank stability. Similarly, while Wang *et al.*, [15] investigated the cost and profit efficiency, Lassoued (2017) investigated corporate governance. Apart from these Pak [32] investigated the effect of ownership structure on bank stability. Moreover Ozili [2]

investigated the determinants of banking stability using bank-level variables; financial structure; institutional quality and macroeconomic factors.

The last dimension of bank stability is institutional development on banking sector such as Fang *et al.*, [18]2014; Hou and Wang, [33].

Our study differs from previous studies. The situation in the banking sector has been studied from different perspectives: its stability, profitability, efficiency, competition, concentration. But, related to stability, there are a few papers in selected countries [34], [35].

And, we can not see paper about bank stability compare Turkey and Balkan countries.

Data and Methodology

Data

This empirical study uses country-level data for observed countries. The data is annual for a period of twelve years between 2006 and 2017. We use the balanced panel data, which are obtained from the Bankscope database, the World Bank and from central banks of selected countries. We use two dependent variables called Z-score and NPL as the measure of financial stability. We use six independent variables as foreign banks (FRG), Lerner index (LRN), net interest margin (NIM), non-interest income (NII), bank cost to income (CI), and gross domestic product (GDP).

We would like to answer the following question: Which of the independent variables in the model has the strongest impact on the banking stability of the observed countries on the one hand, and on the other hand, which of the variables has the lowest impact? In this research, we will present a modified version of the model developed by Abel *et al.*, [29] and Ozili [2].

We will present the model in the following way:

$$Stability = f(\text{financial structure, bank efficiency, macroeconomic factors}) \quad (1)$$

The preceding equation is adapted to the dependent and independent variables in the model:

$$ZScore_{i,t} = \beta_1 NIM_{i,t} + \beta_2 NII_{i,t} + \beta_3 CI_{i,t} + \beta_4 LRN_{i,t} + \beta_5 FRG_{i,t} + \beta_6 GDP_{i,t} + e \quad (2)$$

The Z-score is a widely-used bank stability measure [31], [21], [5], [2], [29], [36]. It represents the ratio of bank buffer capital and profit to the risk of volatility in returns. The Z-Score indicates how quickly a company's profits would decline before a bank's capitalization is used up.

The Z-Score combines the profitability, capital ratio and return volatility of the banks in a single indicator. Apparently, the Z-Score will increase with banks' profitability and capital ratio and decrease with increasing volatility in returns. From an economic point of view, the Z-Score therefore first measures the likelihood of a bank going bankrupt if the value of the assets falls below the value of the debt. A higher (lower) Z-Score therefore implies a lower (higher) probability of an insolvency risk [19].

For another dependent variable, i.e., for NPL, the regression equation can be expressed as follows:

$$NPL_{i,t} = \beta_1 NIM_{i,t} + \beta_2 NII_{i,t} + \beta_3 CI_{i,t} + \beta_4 LRN_{i,t} + \beta_5 FRG_{i,t} + \beta_6 GDP_{i,t} + e \quad (3)$$

We also use NPL, another measure commonly used for stability [31], [2], [29], [37]. This analysis allows us to understand whether competition has an impact on systemic risk measured by the level of non-performing loans. The higher the value of the indicator, the risk is the bank's portfolio. Higher non-performing loans indicate lower credit quality, higher bank sensitivity or levels of lending corruption.

We use common independent variables for two models. We divided the independent variables as financial structure, banking efficiency and macroeconomic. We use foreign ownership on banking sector and Lerner Index for financial structure of banking sector.

Foreign banks can be a channel for spreading shocks in one country and affecting the credit supply in another. As a result, foreign banks can cause financial instability [38].

However, the presence of foreign banks can also bring new technologies, new financial services and products, and can also provide a wide range of financial services to the country's financial service users, thus jointly improving the breadth and depth of financial intermediation in the financial system helps to establish more stable financial system [2].

Foreign ownership in banking sector is especially important for observed countries.

There are a number of studies that have investigated the effect of bank competition on banking stability [39], [40]. In recent years, studies have investigated competition in the banking industry used various models such as Panzar Rosse H statistic, Lerner Index and Bresnahan-Lau model. Because of the fact that the lerner index of Lerner index has been widely employed in empirical models of banking competition and measures of market power [41], [42], [29], we prefer Lerner Index.

The Lerner index is the relative markup of prices relative to marginal costs [43], and is used to measure the extent to which banks exercise market power [44]. The Lerner Index measures the fees charged by mark-up banks to customers by calculating the difference between price and marginal cost (expressed as a percentage of price). A higher value of the Lerner index means a lower level of bank competition.

We use three variables to measure bank efficiency. First, bank efficiency is measured by the net interest rate of return (NIM), which refers to a bank's net interest income as a share of its average interest-bearing assets. A higher level of net interest margin may indicate that the banking industry is inefficient, the market power is enhanced or the market competition structure is reduced, so that banks can earn higher profit margins. Profitable banks have higher NIMs and are more stable than less profitable banks [45].

Our second variable is non-interest income. Non-interest-related income includes net income from transactions and derivatives, net income from other securities, net fees and commissions, and other operating income. A related question to ask here is: Will the bank's decision to switch to non-interest income generating activities affect bank risk? Indeed, as documented by Armstrong and Vashishtha (2012), executives have an incentive to reduce idiosyncratic risks while increasing systemic risks. Therefore, some people believe that engaging in non-interest income activities will diversify a bank's investment portfolio, thereby reducing its unique risks [46].

The last variable in the efficiency of the banking sector is the cost-to-income ratio. This is important because the bank's operating expenses account for the sum of net interest income and other operating income [45].

We take gross domestic product (GDP) as the most important indicator of economic growth. During periods of rapid economic growth, loan default rates tend to be low, which has a positive impact on the stability of the banking industry [2].

We show below both dependent and independent variables on Table 1.

Table 1. brief description of the dependent and independent variables

VARIABLE	MEASURED BY	REFERENCES
Foreign Bank (FRG)	Foreign bank assets/total bank assets	Ozili [2], Karkowska and Pawłowska [5]
Lerner index (LRN)	Difference between output prices and marginal costs	Abel <i>et al.</i> , [29] Ozili [2], Chileshe [26], Kasman and Kasman [31]
Net interest margin (NIM)	net interest income/invested assets	Ozili [2], Korbi and Bougatef [1]
Non-interest income (NII)	Non-interest income/total income	Chileshe [26], De Jonghe [47], Stiroh and Rumble [48] Nisar <i>et al.</i> , [50], Ozili [2] Abuzayed <i>et al.</i> , [37], Nguyen <i>et al.</i> , [49], Danişman [34]
Cost to income (CI)	Operating expenses/total income	Ozili [2], Ijtsma <i>et al.</i> , [20], Abuzayed <i>et al.</i> , [37] Nguyen <i>et al.</i> , [49], Lassoued (2017)
Gross domestic product (GDP)	Real gross domestic product growth rate (%)	Shijaku [30], Fang <i>et al.</i> , [18], Adusei [16], Ozili [2], Korbi and Bougatef [1], Chileshe [26], Nisar <i>et al.</i> , [50]

Hypothesis

We would like to test below hypothesis:

- I. The null hypothesis is why the independent variable does not significantly affect the dependent variable.
- II. The substitution hypothesis is why the independent variable does significantly affect the dependent variable.

The representation of the model will examine calculation of the correlation coefficient (r), the coefficient determination R^2 and adjusted coefficient determination (\bar{R}^2). There is also an analysis of variance (ANOVA), which will test the significance of all variables in the model.

Results

The significance test will be performed for all variables using a t-test at a significance level of 95%. Before hypothesis are tested, basic statistics values are given in Table 2 and 3.

Table 2. Descriptive statistics of all variables: 2006-2017

Variables	Obs	Mean	Std. Dev.	Min	Max
ZScore	47	7.015	4.893	-0.241	18.208
NPL	47	13.383	6.131	2.576	21.58
NIM	47	3.990	0.974	1.851	5.667
NII	47	35.734	12.154	25.146	74.057
CI	47	60.615	10.553	43.149	94.317
LRN	47	0.2114	0.0960	-0.002	0.324
FGN	47	58.875	17.369	35	88
GDP	47	1.35e+11	2.85e+11	4.10e+09	9.40e+11

Source: Calculated by the author (STATA 13.0)

The previous table illustrates the obtained data of descriptive statistics of dependent and independent variables in the model of the countries of the Western Balkans and Turkey.

Given that standard deviation represents a measure of risk, the strongest volatility was recorded by the GDP, followed by the foreign bank assets to total bank assets then the total net interest income to total income and the non-performing loans. The GDP is a very important indicator of economic activity and overall financial situation. In the countries of the

Western Balkans, the GDP had a very volatile trend. For example, in Bosnia and Herzegovina, the annual growth in 2008 was over 5%, so that in 2009 it would have recorded a negative value of about 3%. Stabilization has not come about since 2013. Also, other countries of the Western Balkans had the same trend in circulation except for Turkey, where the growth of GDP had a continuous growth trend.

Table 3. Correlation matrix between dependent and independent variables
Source: Calculated by the author (STATA 13.0)

Variables	ZScore	NPL	NIM	NII	CI	LRN	FRG	GDP
ZScore	1.000							
NPL	-0.036	1.000						
NIM	0.407	0.457	1.000					
NII	0.034	0.273	0.257	1.000				
CI	0.314	0.441	0.672	0.728	1.000			
LRN	0.158	-0.577	-0.215	-0.241	-0.431	1.000		
FRG	0.204	0.603	0.787	-0.072	0.440	-0.537	1.000	
GDP	-0.294	-0.133	-0.534	0.287	-0.181	0.383	-0.792	1.000

From the previous table it can be seen that the strongest correlation between Z-Score with other independent variables: the net interest margin (0.41), then the bank cost – to – income ratio (0.314) and foreign bank assets to total assets (0.204). On the other hand, the weakest correlation between the dependent variable (Z-Score) was achieved with the following independent variables: the non-performing loans (-0.04) and GDP (-0.294). In terms of non-performing loans, the strongest positive relationship was achieved with the following independent variables: the foreign banks assets to total bank assets (0.603), then net interest margin (0.457), the cost to income ratio (0.441).

In EU countries, the net interest margin ranges from 1% to 2%, which is a sign of the development process of financial mediation and the efficient placement of bank loans. Thus, foreign banks make a dominant share in the total portfolio of loans, which in turn leads to an increase in toxic loans due to, on the one hand, a bad debtor's ability to pay and on the other hand due to poor selection and moral hazard. In the Western Balkan countries, 4 to 5 foreign banks account for more than 70% of the total structural participation in the granting of loans, which certainly represents the oligopolistic position on the banks market. The weakest correlation, non-performing loans has made with the following independent variables: LRN (-0.577) and GDP (-0.133).

The table below illustrates the interdependence between Z-Score as the dependent variable and the selected independent variables in the model. The obtained coefficient of determination is 32.5%, while the adjusted coefficient of determination is 22.6%, which means that there are 23% change in the independent variables to the dependent relation.

Table 4. The basic model of regression analysis: 2006-2017

Source	SS	Df	MS	Number of observations 47		
Model	365.89	5	60.982	F (5,42) 3.29		
Residual	759.79	42	18.531	Prob >F 0.000		
Total	1.125,68	47	79.513	R-squared 0.325		
				Adj R-squared 0.226		
				Root MSE 4.305		

ZScore (dependent)	Coef.	Std. Err.	T	P>[t]	[95% Conf. Interval]	
NIM	2.033	1.717	1.18	0.243	-1.435	5.502
NII	-0.209	0.106	-1.96	0.050	-0.425	0.006
CI	0.338	0.151	2.23	0.031	0.032	0.645
LRN	11.914	11.513	1.03	0.307	-11.337	35.166
FGN	-0.098	0.1232	-0.80	0.429	-0.347	0.1503
GDP	1.39e-12	5.23e-12	0.27	0.791	-9.17e-12	1.20e-11
_cons	-11.05919	8.5402	-1.29	0.203	-28.306	6.188

Source: Calculated by the author (STATA 13.0)

The significance test will be performed for all variables using a t-test at a significance level of 95%. The p-value of the selected variables if greater than 0.05 will be considered to have a significant relationship with the dependent variable, i.e., capital adequacy ratio, otherwise the relationship between the dependent and the independent variable will be considered unsinkable. The previous table shows that the highest significance in terms of p values has independent cost – to – income (0.03) and non interest income (0.05). Therefore, increasing the probability of bankruptcy leads to an increase in the accompanying costs.

As it seen table, while NII variable is negative relationship with Z-score, CI variable is positive relationship with Z-score. Both variables are important as istatistics. The results are compatible with literature (such as Ozili, De Jonghe [47], Stiroh and Rumble [48], Danişman [34].

The previous table shows that there is a positive link between the the Z-score and GDP.

Also, the positive correlation between Z-Score was achieved with the following independent variables: Lerner index (11.914) and net interest margin (2.033).

A number of major foreign banks in the Western Balkan countries are entering risky placements with the sole aim of achieving high net interest margins, which in turn leads to an increase in Z-Score and a weakening of capital. Observed from the other side, the weakest link Z-Score as a dependent variable was recorded with the following independent variables: the non-interest income to total income (-0.21) and foreign banks assets to total bank assets (-0.01). Therefore, with the increase in political and financial instability in the Western Balkan countries, a possible gradual withdrawal of deposits could lead to the withdrawal of foreign banks and further expansion of financial instability. In terms of testing the zero and alternative hypotheses through the empirical and the theoretical value of the F test, we came to the next conclusion. The value of the F test for 5 degrees of freedom in the numeration and 42 in the denomination was 2.44. The value of the F test is 3.29, which is more than the theoretical value which rejects the zero hypothesis and confirms the alternative hypothesis. This also confirms the individual influence of independent variables on the dependent variable.

The table shows the correlation between NPLs and independent variables. It is obvious that greater significance has been achieved between NPLs and independent variables compared to Z-Score and independent variables. The coefficient of determination between the NPLs and the independent variables is 72.30%, while the adjusted determination coefficient is 68.30%.

Table 5. The basic model of regression analysis: 2006-2017

Source	SS	Df	MS			
Model	1.278,16	5	213.03	Number of observations	47	
Residual	488,59	42	11.917	F (5,42)	17.88	
Total	1.766,75	47	224.947	Prob >F	0.000	
				R-squared	0.723	
				Adj R-squared	0.683	
				Root MSE	3.452	

NPLs (dependent)	Coef.	Std. Err.	t	P>[t]	[95% Conf. Interval]	
NIM	-1.127	1.377	-0.82	0.418	-3.908	1.654
NII	0.200	0.085	2.35	0.024	0.027	0.373
CI	-0.094	0.121	-0.78	0.441	-0.340	0.151
LRN	-6.362	9.232	-0.69	0.495	-25.008	12.284
FGN	0.251	0.098	2.54	0.015	0.0518	0.450
GDP	-5.46e-12	4.19e-12	-1.30	0.200	-1.39e-11	3.01e-12
_cons	3.728	6.848	0.54	0.589	-10.103	17.559

Source: Calculated by the author (STATA 13.0)

Independent variables in the model that had positive values, or a significant effect on the dependent variable is as follows: non-interest income (0.200) and foreign bank assets to total bank assets (0.251). The results are compatible with literature (such as Chileshe, 2017; Nisar *et al.*, [50]. From Table 5 it can be seen that the highest significance in terms of p- and t-test is expressed in the following independent variables: foreign bank asset to total assets (0.015) and non interest income (0.024). Thus, with the increase in the participation of foreign banks in the countries of the Western Balkans and Turkey, has created an oligopolistic position where banks aim at increasing the net interest margin at a higher risk, and due to negative selection and moral hazard, they create toxic credits and increases in the provision and costs.

Conclusion

We analyzed the determinants of the banking sector in the Western Balkan countries and Turkey from 2006 to 2017. To do this, we use ANOVA tests and regression models. Based on the results, the null hypothesis was rejected because it did not indicate that the independent variable affected the dependent variable. Another hypothesis is acceptable, as the significant impact of selected independent variables on nonperforming loans and Z-score has been shown.

The results of the survey showed that financial stability was tested through the interdependence of NPLs and Z-Score conditioned by macroeconomic indicators, selected indicators of bank operations and certain indicators of the industrial branch. Therefore, the banking stability in the observed countries is primarily determined by specific bank performance, as well as the industry-specific and certain macroeconomic indicators. The strongest correlation between NPLs as dependent variables was recorded with the following independent variables: foreign bank assets to total bank assets and non-interest income.

The weakest link between NPLs as a dependent variable was recorded with the following independent variables: the GDP, the net interest margin and the Lerner index. With the increase of non-performing loans and risk placement, there is a gradual narrowing of net interest margins.

The significant correlation between Z-score as dependent variables was recorded with the following independent variables: non-interest income and bank cost to income. The insignificant link between Z-score as a dependent variable was recorded with the following

independent variables: the GDP, foreign bank assets to total bank income, the net interest margin and the Lerner index.

These findings offer some important policy implications for regulatory authorities. It is important decrease of NPL and Z-score for bank stability. For this aim, both authorities and policy makers need to be monitored closely foreign banking asset, cost to income and non-interest income.

New research by the authors on the given subject can certainly be expanded depending on the availability of the database and the longer time series. Thus, the use of appropriate variables could provide the basis for a better analysis. In addition, the influence of different macroeconomic and regulatory variables on bank stability could be explored. We use only one variables (GDP) as macro economic. It is possible to use different variables. These macroeconomic and regulatory variables could include measures such as the exchange rate, the different corporate governance measures, bank private sector credit to GDP ratio and capital requirements.

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PART IV
NATIONAL, REGIONAL, GLOBAL DEVELOPMENT
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CORRUPTION AND THE DOMESTIC MARKET – PROBLEMS AND CHALLENGES

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Abstract

In this paper the authors analyze the process of improving the efficiency of the national economy in regards to solving the problem of transitional recession, with a special review of the issue of corruption. The problem of improving the efficiency of the national economy, apart from the direct economic factors, is in close correlation with the establishing of efficient state regulations, efficiency of the legal system and an independent judiciary system, but also with the establishing of professional management in previously state-run companies.

Keywords: economy, corruption, efficiency, market, competitiveness

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Introduction

One of the issues crucial to the development of a nation's economy is establishing an efficient state apparatus which, by working together with a functional, independent judiciary system, resolves problems in the economy in a way that is satisfactory to its citizens.

Corruption has been present as a big problem in all the transitional economies, indicated by the fact that all countries in transition, including the ones that successfully joined the European Union (Croatia, Bulgaria, Romania and to a certain extent Slovenia), had or currently have considerable issues. Large capital naturally finds its way towards the sphere of politics via the political elites, who are not immune to cooperation that is in mutual interest.

The most common opinion of our socio-economic analysts [1] is that, like in the majority of the former communist countries, corruption in Serbia has roots spanning from the previous regime. The social crisis and upheavals have benefited corruption greatly. Totalitarian regimes, the absence of democratic institutions and a non-functioning market economy were prerequisites for a wide spread of corruption.

The default period that was analyzed were the nineties, however the period before 1990 and the socialist system, built upon the annulment of a majority of modern values (private property, market mechanism, democratic state system) should also be kept in mind.

The period of the socialist system and the ruling communist party (SKJ) has created a fertile soil for what would follow during the nineties: a strong bureaucratic apparatus has been created existing solely for its own sake, a party state, nepotism followed by a negative cadre selection, politically incentivized investments and the collapse of the economy over the interests of a small number of political and economist groups (oligarchies of the former SFRJ Republics). Even though the transition had begun in 1989, there were no major changes in

Serbia until the democratic upheaval in 2001. The Republic of Serbia had much bigger problems in the last 30 years than the other countries in transition – political deadlock and wars in the former SFRJ have led to a systematic crisis in the Republic of Serbia, and the political oligarchy of the previous regime had destroyed a considerable part of the state institutions, leading to a part of them being “privatized” by the new ruling regime (judiciary system, internal affairs and intelligence, finances, education etc.).

The institutions of the Republic of Serbia were in a very bad shape during the democratic shift, and the transitional recession that followed has benefited the further interconnection between the political oligarchy and the big domestic capital (which was acquired with the help of rather shady practices during the nineties). The first few years were marked by the clear connection between the political structures and the big domestic capital, whose goal was to establish a good position for the times to come.

After the real transition of the economy had begun in the year 2000, there was a noticeable sentiment that the will of the new state administration is capable of overcoming the limitations of managing the newly democratic country and turn the things around. It had proven to not be enough and had failed, due to being included in the systemic corruption – both small and large.

Analysis of Some Aspects of Corruptive Practices in the Domestic Economy

The issue of corruption is often mixed with the other social problems, such as the abuse of authority or nepotism. These problems are considerable and their resolution would improve the social picture of Serbia, but are certainly not substantial problems related to corruption.

The main source of corruption is within the system itself and within the mechanism of function of the state apparatus. The essential problem is within the close interconnectivity between the political and the financial oligarchies. In every transitional country both groups are rather new and have the need to prove themselves as well as satisfy their own interests.

When it comes to big domestic capital, it is evident that the connections on the domestic market date back from the communist era, and the main relations are high state officials – political parties – intelligence structures – big capital. Sometimes the gray zone of the economy is included in this correlation.

When it comes to the foreign capital the relations are far less complicated, due to the direct connection between the political parties and their cadre in the state administration and the representatives of the foreign capital.

Therefore, the problem of corruption is in a natural correlation between the political groups and the representatives of big capital, primarily due to the inadequacies in the functions of the state institutions. Corruption is also sometimes linked to the unrealised process of lustration – the cadres of the previous regime have completed a transition of their own towards the democratic parties in order to maintain their economic and social positions and continue with the realization of non-market business practices (maintaining a monopoly, setting up jobs for the selected few, inappropriate financial stimulation of the party cadre employed in public enterprises etc).

The best example of such behavior could be found in the results of a research conducted in the domestic market during 2010. “How the citizens of Serbia view the transition from socialism to capitalism” had been conducted on a sample of 1813 respondents from the entire territory of Serbia. Respondents aged from 16 to over 70 and coming from different educational backgrounds and social strata have been included in the research [2].

When it comes to the transition of government, 23% of the citizens of the Republic of Serbia believed that the country was still governed by the criminals, 18% believed that it was ruled by the president, the Government and the Parliament, 18% believed it was ruled by the

owners of the big companies, 12% believed that it was ruled by the political parties, 12% believed that Serbia was ruled by the international community and 15% were uncertain as to who was governing Serbia.

When it comes to the transition of property and ownership the majority of the citizens, around 44% of them considered that the process was a “highway robbery”, 27% believed that privatization was a necessity but was conducted in a wrong way, 26% were unable to rate it and only 3% had supported such a way of privatization.

When it comes to the trust in the institutions, while observing the 10 most important social institutions, only the trust in the educational system has received the median grade of 3 with the remaining institutions receiving far worse scores. The levels of trust were higher with the institutions of order (military, police and the legal system), than with the political institutions (the president, the government, political parties) and the evaluation ratio was 2,86 to 2,83.

The most common sources of corruption on the domestic market have been cited as:

- The crisis of morality,
- General poverty,
- A practically non-existent legal state [1].

It is evident that there is a problem with the development of democratic institutions and markets in Serbia and a prominent pessimism among the citizens in regards to the methods, tempo and the quality of social reforms.

In order to deal with the problems in this area, the Government of the Republic of Serbia has established the Anti-corruption Agency which began operating in January of 2010, preceded by the founding of the Board of the agency in 2009. Some of the main activities are monitoring the sources of financing for the political parties, as well as monitoring the dual functions of the state officials. The general rule book on gifts received by the state officials has been adopted in November of 2010, according to which no state official was to receive gifts whose total value, in a single year, was higher than the average wage in the Republic.

Every gift must be recorded, which relates not only to products but also services such as traveling abroad etc. The main goal of the actions by the Agency is to create an ambient which would lead to lowering the levels of corruption without appearing repressive.

Special responsibility is on the political groups acting within the Parliament, which are expected to set an example to the other organs of the state administration.

Opportunities for Increasing the Efficiency of the Domestic Economy

The World Economic Forum annually publishes the report on global competitiveness, in which the key indicators impacting the competitive position of a national economy are analyzed. The global competitiveness index analyzes several groups of indicators such as:

- Environment,
- Human capital,
- Market,
- Innovations and the ecosystem [3].

Factors included in the environment are the institutions, infrastructure, ICT implementation and macroeconomic stability. The human capital includes individual indicators such as healthcare, skill levels etc. The market indicators include the products market, labor market, the financial system and the size of the market. The last group of indicators – innovations and ecosystem, include the dynamics of doing business and the capacity for implementing innovation. Based on said indicators, the most competitive nations in the world are the USA, Singapore, Germany, Switzerland, Japan, The Netherlands, Hong Kong, The United Kingdom, Sweden and Denmark.

According to the report for 2018, Serbia is ranked as the 65th out of 140 analyzed countries and is ranked higher than some of the nearby countries, such as BIH (91st place), North Macedonia (84th place), Montenegro (71st place) and Croatia (68th place). The only FYR republic ranked higher is Slovenia (ranked 35th). When it comes to possible issues with corruption, Serbia is ranked as 66th which is an expected rank for a country with a transitional economy.

According to the Report on global competitiveness for 2018, the most significant problems experienced by the economy of the Republic of Serbia related to the set of indicators are shown in the table.

Table 1. The most significant problems of the economy of the Republic of Serbia based on the indicators of competitiveness in 2018

	In depth analyzed indicator	World ranking
1.	Level of buyer sophistication	127
2.	Reliance on professional management	122
3.	Relation toward entrepreneurship	119
4.	Protection of private property	115
5.	State regulations efficiency	113
6.	Legal system efficiency	108
7.	Adequate system of reporting	108
8.	Independent judiciary system	107
9.	Level of market dominance	106
10.	Intellectual property protection	100
11.	Cooperation between the employers and the employees	100

Source: The Global Competitiveness Report 2018, World Economic Forum oct. 2018, pp. 500-501, www.weforum.org

As it can be concluded from the table, some of the key problems of the economy of the Republic of Serbia are not economical in nature, such as the protection of private property, state regulation efficiency, legal system efficiency, adequate system of reporting and independent judiciary system.

These problems, all within the top 10 worst ranked characteristics of the economy of the Republic of Serbia according to the report by the World Economic forum for 2018, are having a detrimental effect on the general efficiency of the economy. Solving them could improve the corruption levels within the economy.

Another important element that could have a positive effect on lowering the levels of corruption is the establishment of the institution of professional management in all the state companies and enterprises. It can be deduced from the table that one of the key problems of the economy is the general unreliability of the professional management, particularly in the state companies, where it was chosen based on belonging to a political party, which opens the doors for various forms of corruption. Furthermore, one of the problems of the domestic economy is the probability of preventing the conflicts of interest, in which aspect Serbia is ranked higher than the general average – in 2018. Serbia was ranked 95th in the world in said criteria.

The management is considered the most responsible for the way an organization is doing business. The greatest responsibility of the management is to adequately manage the resources of the organization [4]. Management creates plans (stages and time for applying strategies) and activities (turning the plan into activities) [6].

The role of the management is of essential importance to a successful business result, the process of applying the modern management methods and techniques and the improvement of quality in doing business. Global economy demands that a competitive economy is built based on knowledge, new technology application and innovation. Innovation becomes a basic factor

of growth and development of the company. Namely, it always leads to new solutions, new ideas and new ways of doing business [7]. Therefore, today, innovation-based industries are the most important factor for creating value and creating a competitive advantage [8].

Customers are considered the most important source of innovative ideas in the process of developing a new product [9].

Adequate application of knowledge is key for improving the competitiveness of domestic businesses. We are at the crossroads between the hitherto dominant “mass economy” whose basis was the mass production and use of energy from one and the so-called. “Knowledge economy”, on the other hand [10]. It implies that the management of state companies (especially those state-founded and of essential importance) must be appointed based on professionalism and not based on politics.

When it comes to the role of state companies and their management in this area, it is considered [5] that an underdeveloped market mechanism and the existence of an inadequate tax system, which clearly recognizes different areas of socially responsible initiatives such as philanthropy, allows for certain companies in transitional countries to use this form of corporative social responsibility in the goal of achieving their personal profit interests (financing certain groups with the goal of achieving profit).

Conclusion

Economy progress demands for the creation of a competitive economy based on knowledge, the application of new technologies and innovation.

The globalization trend, initiated in the late 20th century, continues in the 21st century. It is a complex; multidimensional process presents in all sectors of the economy and society [11].

Globalization is considered as the only road for every transitional country, for which it is crucial to develop a market economy based on the industrial production. It is also important that an efficient system of institutions is established in a domestic economy, which would function in accordance with the defined legal infrastructure and with the end goal of achieving welfare for the citizens and the economy itself.

Establishing the efficiency of the state regulations, the legal system and independent judiciary system has an impact on reducing the corruption on a national economy level. Establishing the institution of professional management in state companies, independent from the political structure, is also an important factor in the reduction of corruption.

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DEVELOPMENT OF PRIORITY AREAS FOR IMPROVING THE REGIONAL ECONOMIC POLICY IN RUSSIA

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Abstract

In the 90s of the XX century, at a meeting of the UN World Commission on Environment and Development, a decision was made on the need to find a new paradigm for the development of civilization. The report “Our Common Future” prepared by this UN Commission substantiated the principle of “sustainable development” as a progressive form of development of society. Its peculiarity lies in the fact that it will satisfy the needs of not only the modern generation of people, but, at the same time, it will not infringe on the ability of future generations to ensure their existence.

In the XXI century, it is recognized as a determining principle for the development of countries and regions. To begin implementing the sustainable development principle in the regions of the Russian Federation, it is necessary, first of all, to develop a sound long-term strategy for the actions of all participants in regional activities, taking into account the complex interaction between socio-economic, environmental and other factors.

In methodological terms, this is an extremely complex interdisciplinary problem that excludes any intuitive approaches.

In the era of the digital economy, a complex of modern methods of informatics and system analysis and computer tools is required to consider the above interactions in practically accessible and analyzable economic and mathematical models, provided with a reliable, timely and complete information base.

It should be especially noted that in recent years the emphasis of social development has shifted from the factor concept of economic growth to the significance of human role as a subject of economic activity with human social goals.

Keywords: world economy, crisis, social development, regional economy, economic policy, socio-economic potential, sustainable development, competition

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Introduction

Analysis of multidirectional processes of regional development and forecasting of a regional socio-ecological-economic system is always in the focus of attention of Russian and foreign researchers in the field of economics, sociology, geography, etc. [1], [2], [3], [9].

Despite that a wide range of social development factors studied in the economic literature exist, nevertheless, there is still no single universally accepted interpretation of them [1], [8].

Of course, this situation actualizes the problems of a comprehensive analysis and diagnosis of sustainable growth factors for the regional economy in order to determine effective measures for their priority involvement. Based on this, we came to the need to develop new methodological approaches to the study of the essence, formation and development of the socio-economic potential of the region.

Potential reserves and other opportunities of the territory, especially its structure, geographical location, inertia of economic growth, etc. are considered as parameters for assessing the socio-economic potential of the region.

In many works on the subject under discussion, it is recommended to consider the volume and efficiency of production, the level of involvement of production capacities, competitiveness of products, susceptibility to organizational and technological innovations, the level of informatization, etc. to assess the production potential of the region.

However, many of these indicators still remain as wishes, because they cannot be estimated or measured in any way due to the lack of statistical data necessary for this in the reports of the Federal State Statistics Service of the Russian Federation. Technically, they can be obtained (and not always) in the course of sample surveys directly at the economic entities themselves.

The development of market relations, the liberalization of business activity conditions, etc. gave an impetus to a new understanding of the territorial socio-economic potential's essence as the ability of the regional socio-economic system to adapt and stably function in conditions of increasing competition. It seems to us that in modern realities it is advisable to consider the socio-economic potential of the region in the form of a complex characteristic that takes into account both the internal resources of the territory (a combination of material assets, technologies, personnel, etc.) and the specifics of the surrounding and internal market and managerial environment.

At the same time, the given goal of studying the socio-economic potential of the region is of particular importance, because it predetermines the choice of the integral (generalizing) indicator and the analysis method itself.

Research Methodology

The theoretical and methodological basis of the research was the scientific papers and research results of Russian and foreign scientists in the field of management theory, sustainable development of the regional economy on the assessment and forecasting of regional trends in the development of the socio-economic potential of the territory.

The methodological base of this study is represented by fundamental methods of scientific knowledge, including such as system analysis, dialectical unity of qualitative and quantitative assessment, etc.

In the process of forming the formulated theoretical principles, conclusions and recommendations, a number of methodological tools and methods were used, including such as economic and statistical ones, systemic and structural analysis, forecasting, grouping, and generalization.

Research Results

In the course of the evolutionary development of mankind, the search for optimal ways of social development has never stopped under any circumstances. However, we must admit that the modern stage is the most dramatic, for humanity has realized that it is on the verge of a

global catastrophe and self-destruction while maintaining the current principles and characteristics of the traditional path of its development, which requires a new development paradigm.

For humans, the habitat system has historically expanded through the complication of the structure of the human community itself, and over time an incomparably more complex system has developed that is called society. We consider it appropriate to recall the dictum of the already not fashionable in Russia, but, nevertheless, outstanding classic of political economy K. Marx: "Society is a historically developing set of relations between people that takes its shape in the process of their joint activity". [5]

In the course of our study, we found that the greatest difficulty in a comprehensive assessment of the socio-economic potential of a region is to establish the most characteristic and relatively independent statistical indicators and develop principles of their comparability to create a system of criteria that allow an objective assessment of the situation in question.

When analyzing the degree of regional development, first of all, the GDP (gross domestic (regional) product) is considered. Indeed, although with some convention but nonetheless, it integrates the final results of all types of activities that together create added value. Moreover, the algorithm for solving this problem consists of the following steps:

1. The formation of the necessary information base, a set of parameters and indicators;
2. Factor analysis of spatial development;
3. Solving the problems of constructing a typology of objects;
4. The solution of dynamic systems typology problems.

Moreover, any methodology must comply with a number of requirements, such as adaptation to the existing system of statistical indicators; it also must objectively disclose the position and significance of regional development factors, taking into account the interests of society and business structures.

It must be admitted that in practice we often deal with difficultly formalized indicators, and even with those for which there is no proper information base. In other words, most of the proposed methods are not suitable for wide replication and use ... [7], [12], [14]

Undoubtedly, in these conditions, the possibility of using tools for assessing the regional policies of foreign countries is even more complicated. In addition to the above, a lot of problems affect this, beginning from the need to improve the constitutional and legal provisions of federal relations and up to establishment of the level and methods of state participation in the economy, and to the system of strategic management of business entities.

In the current period of regional development of the Russian Federation constituent entities, the most effective instrument of regional economic policy is inter-budget transfers.

Initially, the regions received the right to receive a transfer in need of support when their per capita budget income was less than the average per capita budget income in all regions of the Russian Federation. However, due to the fact that the per capita incomes of regions were considered without appropriate adjustment for the prevailing regional prices, this made it impossible to compare regional and average per capita incomes in the country.

This situation made it possible to argue that such a transfer is nothing more than a simple subsidization of the regions without any connection with the actual level of public needs for public services.

Other examples can be cited, confirming that the current financing mechanisms used for the socio-economic equalization of the regions do not solve many problems of financing the expenses of the constituent entities of the Russian Federation.

Another problem is that the number of targeted federal target programs does not correlate with federal funding opportunities. [10]

All this requires the distribution of financial support for the regions through the development of special budgetary standards for financing costs. Such an approach will ensure

the necessary minimum of state social standards and social norms for solving the main problems of local importance, taking into account the actual possibilities of the consolidated budget of the Russian Federation for their targeted financing in a current financial year.

For depressed territories, including depressed republics of the North Caucasus, a permanent federal budget deficit and an acute shortage of own funds for the mundane tasks of implementing any component of the regional socio-economic policy is always extremely problematic [11], [13].

But on the other hand, it is also necessary to recognize on the ground the need to find domestic resources to pursue their own economic policies, as well as large-scale attraction of investors.

Today, in all constituent entities of the Russian Federation, their own regional economic policies have been formed and are being implemented, including with elements of investment activity. To this end, local legislation has been developed and adopted to regulate investment activities; a mechanism has been proposed for providing incentives to investors (within their powers); special structures have been created to enhance investment processes, etc. [2]

We have to admit that the geopolitical situation and a number of ethnic conflicts in the region do not allow the depressed republics of the North Caucasus to receive the necessary impetus to mobilize foreign investors. There is not even a single financial-industrial group in the republics.

Under these conditions, it is also not necessary to talk about the existence of effective relationships between interregional economic structures and constituent entities of the Russian Federation. They are simply absent there.

In the course of our study, we noted that such a component of the regional economic policy as effective property management, reorganization of enterprises, and the development of the local stock market are poorly involved. To this end, it is advisable to create a special investment company in the republics of southern Russia to promote investment there. Its competence may include such procedures as initial preparation, examination of investment projects, and organization of internal and external investment.

It should be noted that all the depressed republics of the North Caucasus are agrarian-oriented, labor-surplus and land poor regions, which at the same time have a rather solid potential for agro-industrial development. In these conditions, it is advisable for regional authorities to concentrate all resources on the creation of new structures in district, republican and interregional chains “production – storage – advanced processing – implementation – insurance”.

The regional agro-industrial policy should be focused on the constructive transformation of the sectoral structure of agro-industrial production and meet the real needs of the domestic market as the main consumer of agro-industrial products.

At the current stage, among the most priority areas for the implementation of agricultural policy in the republics it is necessary to note the need to provide sufficient state support to the agricultural processing sector, assistance in attracting investments, legislative determination of privileges for supporting enterprises to pay taxes to regional budgets, etc.

It seems to us that it is necessary to stop the transfer of authority without proper funding and attempts to solve social and economic problems only in federal structures, and not to use their own powers. The efforts being made to stimulate economic growth and many investment processes in depressed republics are virtually disappearing due to lack of funds.

Under these conditions, it is necessary to launch as soon as possible a new reproduction mechanism ensuring effective interaction between micro and macro levels of the economy and the transition to a policy of sustainable economic growth in order to ensure expanded reproduction of resources. It seems to us that the mechanism under consideration, in contrast to the current one, will orient not as usual to temporary financial stabilization, but to

increasing the value of public and private assets, including also human capital in the long run. In other words, it is intended for the integrated development of the socio-economic potential of the regions in almost all areas.

Conclusions and Proposals

1. An analysis of the results of ongoing regional economic programs showed that in today's realities there is another problem, besides the acute shortage of funds: the inability to form and choose the goals of regional economic policy on the ground.
2. It has been established that the current mechanism for implementing regional economic policy, as a rule, is aimed at supporting existing production capacities, although it would have been more necessary to direct them to restructuring.
3. It seems to us appropriate, when implementing federal investment programs, to move away from the sectoral principle to the territorial-sectoral one. This will allow for more effective implementation of an active agro-industrial policy and restructuring of business entities.
4. In our opinion, when developing regional economic policies in labor-intensive depressive republics, it is necessary to take into account the economic activity of the private sector and its potential. Regions need to learn how to use it as an effective internal resource.
5. For the effective implementation of the regional socio-economic policy in the depressed republics of the North Caucasus, it is necessary to achieve its harmonious combination with agro-industrial, tourist-recreational and structural policies, coupled with a range of measures for the cost of small business.

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DETERMINING THE DIMENSIONS OF THE INNOVATION ABILITY IN LOGISTICS SECTOR BY USING PLITHOGENIC-CRITIC METHOD: AN APPLICATION IN SAKARYA PROVINCE

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Abstract

Today's changing and developing level of competition and power, continuous learning, knowledge and technology management, transformation in the production process, market-oriented-based innovation and knowledge as communication applications, companies are routed to make more resources and research about the ability of innovation. The innovation factor has enabled new processes, products, ideas to adapt successfully for the production and market structure, and correspondingly implementation of them. In this point of view, innovation ability is the integration of new information resulting in product and process innovation by activating the power that a company provides to its employees. This ability has referred to the information between internal knowledge and external market demands.

Accordingly, the factors affecting the innovation capability dimensions have a vital importance for companies. The fact that there exist limited number of studies on the weighting of the factors affecting the dimensions of innovation ability in the comprehensive literature review, is another factor increasing the importance of the subject. In this study, the innovation ability dimensions have been weighted in corporate logistics companies in Sakarya. Plithogenic set based CRITIC method, which is one of the multi criteria decision making techniques, has been used. The most important factor in the study was determined to be ability of accessing information resources.

Keywords: innovation; innovation ability; dimensions of innovation ability; Plithogenic Sets; CRITIC

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Introduction

Innovation factor, which is the adaptation and integration of ideas or behaviors to the company, is a concept that have a direct relationship with the dynamic structures of companies, competitiveness, R&D activities, skills to develop their basic skills and their level of use of technology. Therefore, innovation may be considered as a strategical requirement for companies to survive in the global, competitive environment and market conditions to sustain their existence.

Fundamentally innovation, generally based on research and development, is considered to be associated with new product development/production [1]. Especially the new economic structure that has emerged as a result of globalization has increased the severity of the existing competition in the sectors in which businesses operate. In this economic structure, enterprises have to increase their competitiveness in order to survive. To achieve this, businesses have started to act in an innovative way to increase their competitiveness, reduce costs and/or to make a difference [2].

Innovation capabilities are extremely important for businesses to maintain their competitive structure against their competitors. In particular, small and medium-sized enterprises play a key role in enabling them to achieve their goals, due to their limited ability to move and respond flexibly [3]. In this context, the innovation capability examined in the study is generally considered as one of the most important dynamics that guide companies in order to get the innovation ability of a company and its advanced competitiveness in national and international markets [4].

Innovation capability is often synchronized with companies' official R&D activities and innovation-output related new products. This linear innovation model has led to the emphasis on technological and scientific knowledge in firms and to consider formal R&D studies as an indicator of firms' technological progress. Additionally, three variables are included in the analysis of innovation capacity, being the capabilities, internal resources, and external inputs over the network [5].

In this context, the sources in the literature show the dimensions of innovation capability that is vital for companies. They expressed as learning ability, R&D ability, marketing ability, production ability, access to information resources, ability to use resources for the benefit of the company, creative thinking ability, organizational ability and strategic ability and [3]. The importance of creating innovation capability in all of the above-mentioned components plays an active role in ensuring that all the activities of the companies are performed smoothly, providing cost advantage and power of competitiveness. Creating the dimensions of innovation capability is a multi-criteria decision-making problem in which firms, planning, process efficiency and quantitative-qualitative elements are handled together on an operational and strategic level.

The purpose of the study in this context is to evaluate the dimensions of innovation ability in corporate logistics companies in the province of Sakarya. "CRITIC" has been used as one of the multi-criteria decision-making methods. In the following part of the study, the importance of innovation capability and comprehensive literature review for creating dimensions of innovation capability have included. In the third section, information about *Plithogenic sets* and *Neutrosophic sets* have been presented, and the application section of the study has been given in the following stage. In the last section, suggestions have been made regarding the results and future studies.

Literature Review

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation as well as the experimental conclusions that can be drawn. Innovation ability has been used in various fields in the literature. In this context, the purpose and dimensions of the innovation capability are given in the Table 1.

Table 1. Literature Review Related with Innovation Capability

Authors	Dimensions	Aim of the Study
Moussaa & El Arbi [6]	-Employees' innovation capability -Human Research Information System Usage (frequency of use)	This research focuses on the study of the impact of the HRIS' use in human resources department (HR) on individual innovation capability.
Sheng Margaret [21]	-Number of Employees -Firm Age -Number of Subsidiaries -Industry -Joint Venture Entry Mode -Merger and Acquisition Entry Mode -Strategic Alliance Entry Mode -Absorptive Capacity	The hypotheses are tested on a data set consisting of survey data collected from 220 senior managers or executives at the headquarters of Taiwan-based MNCs. Interestingly, structural social capital between headquarters and subsidiaries strengthens the negative association between subsidiaries' cross-border knowledge tacitness shared and explorative innovation capability; relational social capital attenuates the negative association between subsidiaries' crossborder knowledge tacitness shared and both explorative and exploitative innovation capability.
Hansen <i>et al.</i> , [7]	-Internal R&D effort -Hiring of skilled managers and workers - Learning through firms' acquisitions, joint ventures and licensing -Learning within firms at the local (cluster or regional) level - Learning from suppliers, universities, service providers -Imitation from competitors	To examine the innovation capability development trajectory of a local Indian subsidiary of a Danish first-tier supplier of wind turbine blades by adopting an analytical framework based on the literature on innovation capability building in latecomer firms, which is combined with insights from the literature on Multi Nominal Companies subsidiary capability evolution.
Alexe & Alexe [8]	-Conditions -Resources -Processes -Results	To determine the importance given to the dimensions of the innovation in machine building industry contribute to the possibility of achieving the analyzes of benchmarking on the innovation management among various companies in other industries, in this case, the IT&C industry.
Khedhaouria & Thurik [9]	-Human capital and research -Infrastructure -Institutions -Market conditions -Business conditions	Building upon the national innovation system perspective and using a fuzzy set qualitative comparative analysis approach (fsQCA), by proposing an integrating framework to determine the conditions that lead to high levels of national innovation capability outcomes.
Nada & Zulfikar [10]	-Strategic Capability -Managerial Capability -Operational Capability -Adaptive Capability	To explore and to find the relationship of service value creation capability with service innovation capability and to assess the service innovation by using a proposed model for service value creation capability. The model in study is empirically validated in Danish and Turkish SMEs to identify the correlation between the service value creation and service innovation through an integrated service value creation capability model analysis.

Methodology

Plithogenic sets

As a generalization of neutrosophic set, plithogenic sets consider the decision makers' views more accurate and consistent by taking truth, indeterminacy and falsity membership functions into the account. Plithogenic sets consist of elements which are characterized in terms of attribute values. The accuracy of results can be increased via using contradiction degree. Plithogenic set (PS, B, S, ad, cd) consist elements described by attributes $B = \{b_1, b_2, \dots, b_m\}$, $m > 1$, having the values $S = \{s_1, s_2, \dots, s_n\}$, for $n > 1$ [29]. Contradiction and appurtenance degrees constitute the plithogenic sets. Contradiction degree function $cd(s, D)$ is useful to compare the values of attribute and dominant values. Appurtenance degree function for the element x in terms of criteria can be written as $ad(x, s)$ [11], [12].

Consider B as a set consist of unidimensional attributes $B = \{b_1, b_2, \dots, b_m\}$, $m > 1$, and $b \in B$ as an attribute with value spectrum set L that can be described as finite discrete, infinitely countable or infinitely uncountable set with value range for attributes according to the judgments of decision makers $S = \{s_1, s_2, \dots, s_n\}$, for $n > 1$. Dominant value for attributes is determined by decision makers in terms of contradiction degree [12].

Contradiction degree function $cd(s_1, s_2)$ for attribute value can be written as $cd: S \times S \rightarrow [0, 1]$. The type of contradiction degree function for attribute value can be defined as fuzzy, intuitionistic or neutrosophic too [12].

Appurtenance degree $ad(x, s)$ for attribute value s is $\forall x \in PS, ad: PS \times S \rightarrow P([0, 1]^t)$, $ad(x, s)$ is subset of $[0, 1]^t$, and $P([0, 1]^t)$ is power set of $[0, 1]^t$ with respect to fuzzy, intuitionistic and neutrosophic appurtenance degrees for $t=1, 2, 3$ [13].

Neutrosophic Sets

Neutrosophic Sets proposed by Smarandache [14] having with degree of truth, indeterminacy and falsity membership functions in which all of them are totally independent.

Let U be a universe of discourse and $x \in U$. The neutrosophic set E can be written with a truth membership function $T_E(x)$, an indeterminacy membership function $I_E(x)$ and a falsity membership function $F_E(x)$, and is shown as $E = \{ \langle x: T_E(x), I_E(x), F_E(x) \rangle, x \in U \}$. Also the functions of $T_E(x)$, $I_E(x)$ and $F_E(x)$ are real standard or real nonstandard subsets of $]0^-, 1^+[$, and can be stated as $T, I, F: U \rightarrow]0^-, 1^+[$. There is not any restriction on the sum of the functions of $T_E(x)$, $I_E(x)$ and $F_E(x)$, so $0^- \leq \sup T_E(x) + \sup I_E(x) + \sup F_E(x) \leq 3^+$.

Let a single valued neutrosophic triangular number $\tilde{b} = \langle (b_1, b_2, b_3); \alpha_{\tilde{b}}, \theta_{\tilde{b}}, \beta_{\tilde{b}} \rangle$ is a special neutrosophic set on R . Additionally $\alpha_{\tilde{b}}, \theta_{\tilde{b}}, \beta_{\tilde{b}} \in [0, 1]$ and $b_1, b_2, b_3 \in R$ where $b_1 \leq b_2 \leq b_3$. Truth, indeterminacy and falsity membership functions of this number can be computed as below [15], [16], [17], [18]:

$$T_{\tilde{b}}(x) = \begin{cases} \alpha_{\tilde{b}} \left(\frac{x-b_1}{b_2-b_1} \right) & (b_1 \leq x \leq b_2) \\ \alpha_{\tilde{b}} & (x = b_2) \\ \alpha_{\tilde{b}} \left(\frac{b_3-x}{b_3-b_2} \right) & (b_2 < x \leq b_3) \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

$$I_{\tilde{b}}(x) = \begin{cases} \left(\frac{b_2-x+\theta_{\tilde{b}}(x-b_1)}{b_2-b_1} \right) & (b_1 \leq x \leq b_2) \\ \theta_{\tilde{b}} & (x = b_2) \\ \left(\frac{x-b_2+\theta_{\tilde{b}}(b_3-x)}{b_3-b_2} \right) & (b_2 < x \leq b_3) \\ 1 & \text{otherwise} \end{cases} \quad (2)$$

$$F_{\tilde{b}}(x) = \begin{cases} \left(\frac{b_2 - x + \beta_{\tilde{b}}(x - b_1)}{b_2 - b_1} \right) & (b_1 \leq x \leq b_2) \\ \beta_{\tilde{b}} & (x = b_2) \\ \left(\frac{x - b_2 + \beta_{\tilde{b}}(b_3 - x)}{b_3 - b_2} \right) & (b_2 < x \leq b_3) \\ 1 & \text{otherwise} \end{cases} \quad (3)$$

Where $\alpha_{\tilde{b}}, \theta_{\tilde{b}},$ and $\beta_{\tilde{b}}$ denote maximum truth membership, minimum indeterminacy membership and minimum falsity membership degrees respectively.

Let $\tilde{b} = \langle (b_1, b_2, b_3); \alpha_{\tilde{b}}, \theta_{\tilde{b}}, \beta_{\tilde{b}} \rangle$ and $\tilde{c} = \langle (c_1, c_2, c_3); \alpha_{\tilde{c}}, \theta_{\tilde{c}}, \beta_{\tilde{c}} \rangle$ as two single valued triangular neutrosophic numbers. Addition of two single valued triangular neutrosophic numbers are written as below (Abdel-Basset *et al.*, 2017):

$$\tilde{b} + \tilde{c} = \langle (b_1 + c_1, b_2 + c_2, b_3 + c_3); \alpha_{\tilde{b}} \wedge \alpha_{\tilde{c}}, \theta_{\tilde{b}} \vee \theta_{\tilde{c}}, \beta_{\tilde{b}} \vee \beta_{\tilde{c}} \rangle \quad (4)$$

Subtraction of two single valued triangular neutrosophic numbers are presented as Eq. (5):

$$\tilde{b} - \tilde{c} = \langle (b_1 - c_3, b_2 - c_2, b_3 - c_1); \alpha_{\tilde{b}} \wedge \alpha_{\tilde{c}}, \theta_{\tilde{b}} \vee \theta_{\tilde{c}}, \beta_{\tilde{b}} \vee \beta_{\tilde{c}} \rangle \quad (5)$$

Inverse of a single valued triangular neutrosophic number ($\tilde{b} \neq 0$) can be stated as follows:

$$\tilde{b}^{-1} = \langle \left(\frac{1}{b_3}, \frac{1}{b_2}, \frac{1}{b_1} \right); \alpha_{\tilde{b}}, \theta_{\tilde{b}}, \beta_{\tilde{b}} \rangle \quad (6)$$

CRITIC (Criteria Importance Through Inter-criteria Correlation) Method

CRITIC is an objective weighting method proposed by Diakoulaki *et al.*, [19] and rely on two components of information emitted by criteria. Contrast intensity can be defined as the first one separating each criterion and consider standard deviation as measurement tool.

Conflict between criteria can be handled as second one that is measured by linear correlation coefficient. Steps of CRITIC can be stated as follows [12], [20]:

1- A membership function is described for the purpose of mapping the criteria K_i into the interval $[0,1]$ by demonstrating the degree of how alternative d is close to ideal value of g_j^* and far from the anti-ideal value of g_j^- . If criteria j is benefit based $g_j^* = \max_i K_j$ and $g_j^- = \min_i K_j$, and if j is cost based $g_j^* = \min_i K_j$ and $g_j^- = \max_i K_j$. A vector z_{dj} is formed for each criterion and can be written as below:

$$z_{dj} = \frac{K_j - g_j^-}{g_j^* - g_j^-} \quad (7)$$

2-Standard deviation σ_j is computed for examining each criterion in terms of each vector z_{dj} .

3-Symmetric matrix is constructed that shows the linear correlation coefficient $cc_{jj'}$.

4-Conflict of criteria can be computed as follows:

$$\sum_{j=1}^m (1 - cc_{jj'}) \quad (8)$$

5-The components of contrast intensity and conflict of criteria are combined as below:

$$K_j = \sigma_j \sum_{j=1}^m (1 - cc_{jj'}) \quad (9)$$

6-Normalization process is applied with respect to transmitted value of information as Eq. (10):

$$w_j = \frac{K_j}{\sum_{j=1}^m K_j} \quad (10)$$

Plithogenic Sets Based CRITIC Method

In this study plithogenic sets based CRITIC method is applied due to increasing accuracy of examination process under uncertainty. Contradiction degree function as a part of plithogenic set aggregation is considered to achieve more reliable outputs. Steps of the plithogenic sets based CRITIC method can be summarized as below [12].

1-Criteria $K = \{K_1, K_2, \dots, K_m\}$, alternatives $A = \{A_1, A_2, \dots, A_n\}$ and decision makers $DM = \{DM_1, DM_2, \dots, DM_h\}$ are determined.

2-Neutrosophic triangular scale is considered for evaluating criteria by decision makers and shown as Table 2.

Table 2. Neutrosophic triangular scale

Importance linguistic variable	Triangular neutrosophic scale	Rating linguistic variable
Very weakly important	$((0.1, 0.3, 0.35), 0.1, 0.2, 0.15)$	Nothing
Weakly important	$((0.15, 0.25, 0.1), 0.6, 0.2, 0.3)$	Very low
Partially important	$((0.4, 0.35, 0.5), 0.6, 0.1, 0.2)$	Low
Equal important	$((0.65, 0.6, 0.7), 0.8, 0.1, 0.1)$	Medium
Strong important	$((0.7, 0.65, 0.8), 0.9, 0.2, 0.1)$	High
Very strongly important	$((0.9, 0.85, 0.9), 0.7, 0.2, 0.2)$	Very high
Absolutely important	$((0.95, 0.9, 0.95), 0.9, 0.1, 0.1)$	Absolute

3-Subjective criteria weight's matrix (V) is formed via equations shown as below:

$$V = [v_j^s]_{1 \times m} \quad (11)$$

$$v_j^s = \frac{v_{jh}}{p} \quad (12)$$

where v_j^s represent the elements of subjective criteria weight's matrix and v_h^j shows the weight of criteria K_j examined by decision maker h.

4-Normalized subjective weight for each criterion is computed as below:

$$v_j^{sn} = \frac{v_j^s}{\sum_{j=1}^m v_j^s} \quad (13)$$

5-According to the CRITIC method weight of each criterion is computed by using Eqs. (7)-(10).

6-Plithogenic aggregation operations are applied in order to increase the accuracy of results. For this purpose, normalized subjective weights and objective weights are composed.

Firstly, a contradiction degree cd is determined for each criterion related to the dominant one. Then plithogenic neutrosophic set intersection is described as follows:

$$\begin{aligned} & ((d_{i1}, d_{i2}, d_{i3}), 1 \leq i \leq n) \wedge p((e_{i1}, e_{i2}, e_{i3}), 1 \leq i \leq n) = \\ & \left((d_{i1} \wedge_F e_{i1}, \frac{1}{2}(d_{i2} \wedge_F e_{i2}) + \frac{1}{2}(d_{i2} \vee_F e_{i2}), d_{i3} \vee_F e_{i3}) \right), 1 \leq i \leq n \end{aligned} \quad (14)$$

Analysis

In this study the dimensions of innovation ability for logistics sector are evaluated via plithogenic sets based CRITIC method. For this purpose, dimensions are determined according to the extended literature review made by authors. Then a survey was designed that is suitable for CRITIC method and responded by nine decision makers having experienced in logistic sector. Dimensions of innovation ability for logistics sector can be seen as Table 3.

Table 3. Dimensions of innovation ability for logistics sector

Criteria	Dimensions of innovation ability
C1	Learning ability
C2	Research & development ability
C3	Marketing ability
C4	Production ability
C5	Accessing information resources
C6	Using resources for firm's benefit
C7	Creative thinking ability
C8	Organizational ability
C9	Strategic ability

Subjective weights of criteria are calculated according to Eqs. (13), (14) and can be written as Table 4.

Table 4. Subjective weights of criteria

Criteria	Subjective weights
C1	((0.88,0.83,0.9),0.85,0.14,0.12)
C2	((0.93,0.88,0.93),0.8,0.14,0.14)
C3	((0.8,0.75,0.84),0.81,0.15,0.13)
C4	((0.69,0.63,0.75),0.73,0.16,0.16)
C5	((0.89,0.84,0.9),0.76,0.17,0.16)
C6	((0.8,0.75,0.84),0.73,0.17,0.17)
C7	((0.92,0.87,0.92),0.76,0.16,0.16)
C8	((0.85,0.8,0.89),0.85,0.15,0.12)
C9	((0.89,0.84,0.9),0.78,0.16,0.15)

Normalized subjective weights are computed according to Eq. (15) and objective weights are obtained via Eqs. (9)-(12) and stated as Table 5.

Table 5. Normalized subjective weights and objective weights

Criteria	Normalized Subjective weights	Objective weights
C1	((0.115,0.115,0.114),0.12,0.1,0.09)	((0.014,0.023,0.025),0.06,0.112,0.035)
C2	((0.121,0.122,0.118),0.113,0.1,0.11)	((0.023,0.018,0.0034),0.021,0.032,0.041)
C3	((0.104,0.104,0.107),0.114,0.11,0.1)	((0.018,0.022,0.034),0.018,0.041,0.053)
C4	((0.09,0.087,0.095),0.103,0.11,0.12)	((0.016,0.035,0.021),0.046,0.03,0.032)
C5	((0.116,0.117,0.114),0.107,0.12,0.12)	((0.019,0.037,0.028),0.012,0.027,0.031)
C6	((0.104,0.104,0.107),0.103,0.12,0.13)	((0.018,0.026,0.029),0.03,0.034,0.04)
C7	((0.12,0.121,0.117),0.107,0.11,0.12)	((0.026,0.028,0.037),0.031,0.047,0.05)
C8	((0.111,0.111,0.113),0.12,0.11,0.12)	((0.016,0.017,0.023),0.021,0.053,0.026)
C9	((0.116,0.117,0.114),0.11,0.11,0.11)	((0.022,0.013,0.019),0.032,0.041,0.039)

Normalized subjective weights and objective weights are combined via plithogenic aggregation operation in terms of contradiction degree according to Eq. (16) and presented in Table 6.

Table 6. Plithogenic aggregation operation outputs for criteria

Criteria	Contradiction degree	Aggregation	Crisp value
C1	0	((0,0.02,0.052),0.016,0.038,0.028)	0.0053
C2	0.13	((0.003,0.023,0.025),0.017,0.016,0.024)	0.0125
C3	0.24	((0.061,0.027,0.043),0.065,0.012,0.005)	0.0014
C4	0.34	((0.011,0.034,0.018),0.044,0.008,0.017)	0.0023
C5	0.45	((0.054,0.036,0.059),0.032,0.025,0.08)	0.0321
C6	0.56	((0.047,0.032,0.058),0.014,0.012,0.062)	0.0251
C7	0.68	((0.019,0.025,0.034),0.044,0.056,0.052)	0.0145
C8	0.82	((0.013,0.026,0.041),0.018,0.012,0.015)	0.0182
C9	0.95	((0.033,0.052,0.035),0.019,0.036,0.042)	0.0169

According to the Table 6 while C5 (ability of accessing information resources) was obtained as the most important one with having 0.0321 value, C3 (marketing ability) was found as the least important innovation ability criterion for logistics sector. Ranking of other criteria can be written as C6>C8>C9>C7>C2>C1>C4 respectively.

Conclusion

In this study dimensions of innovation ability for logistics sector are prioritized via plithogenic sets based CRITIC method. For this purpose, dimensions related to innovatin ability are obtained based on extended literature review process. Plithogenic sets are preferred compared to crisp, fuzzy, intuitionistic, pythagorean and neutrosophic sets due to giving more accurate outputs after the examination process under uncertainty. The criteria were ranked according to the judgments of 9 decision makers having experienced in logistic sector.

Additionally, determining and weighting the innovation ability dimensions for logistics sector can be handled as a real-world decision making problem and appropriate for solving via multi criteria decision making techniques under plithogenic sets. Although the criterion dimensions are close to each other, the C5 criterion (ability of accessing information resources) has made a difference compared to the other dimensions. For future studies dimensions for innovation ability can be expanded and results can be compared with different multi criteria decision making methods. Also, different dimensions can be applied for various logistic based applications.

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ANALYSIS OF THE COMPETITIVENESS OF THE SECTOR OF SMALL AND MEDIUM ENTERPRISES AND ENTREPRENEURS IN THE REPUBLIC OF SERBIA

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Abstract

The sector of small, medium companies and entrepreneurs (SMEs) has an important role in the economic development of countries around the world. The advantage of this sector lies in its flexibility, quick adaptation to change and the quality of satisfying the modern, increasingly demanding market. Through the sector of small, medium enterprises and entrepreneurs it is possible to develop a competitive economy based on innovations, knowledge and new technologies and influence the competitiveness of the Republic of Serbia.

The aim of this paper is to point out the importance of improving the competitiveness and innovation of the SMEs sector for the future economic development of the national economy.

Keywords: competitiveness, SMEs, Serbia

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Introduction

The SME sector is one of the key factors of the modern economic development. The attention of many authors has been directed in the direction of this sector due to the fact that, in the fast changing and increasingly competitive global business environment, the small and medium enterprises (SME's) exert a strong influence on the economies of many countries and are considered as the engine of economic growth and technological progress [1]. Their importance is reflected in significant flexibility, but also in increasing the efficiency of inputs utilization [25].

Authors [2], [3], [4] consider this sector to have an important role in the creation of new jobs, the development of an entrepreneurial spirit, the development of innovation in a country and as such is essential for economic growth, employment and the mitigation of poverty. The recent developments of SME's and increasing their numbers in a market economy has proved the strategic importance of this sector for the following reasons [5]:

1. Supporting the development of SME's helps the reconstruction of the larger inefficient enterprises;
2. SME's mitigate the monopoly of large enterprises and offer competitive goods and services in accordance with the changes in modern economies;
3. Small industrial enterprises produce goods mainly for the domestic market, utilizing mainly national resources, thus stimulating the national economy.

The development of new technologies, and business environment of the new age have resulted in the need for the application of strategic management [27] as a 'tool' which, in a swiftly changing environment, can help organizations achieve their objectives more

efficiently and effectively by understanding their internal and external environments [28]. In the modern business environment, competitiveness represents the key to success of every enterprise. Many scientists consider that competitive advantage is achieved by acquiring a superior position in the market. This superiority depends on the consumers and therefore it can be observed and analyzed from their perspective [18]. One of the definitions of competitiveness is that competitiveness implies the improvement of stature of an individual, company and state compared to other similar entities [6]. Therefore a huge number of SME's is competing against competitors on both the domestic and the international markets. The development of entrepreneurial talent is of paramount importance when it comes to sustaining competitive advantage on the global market and in circumstances of the new economy, which is being catalyzed by innovations [19]. Spremo [7] considers that the competitiveness of a country is influenced by many factors, but the key factor is the competitiveness of the companies, them carrying the economy development

Characteristics of the SMEs Sector in the Republic of Serbia

In the economic politics of the European Union small and medium companies play a central role. By implementing the Lisbon strategy in 2000 a strategic approach in the development of the SMEs has begun with the goal of making the European Union the most competitive economy by 2010. However, the implementation of the goals that were set did not follow an expected pace, partially due to the worsening of the world economic situation and the increased competitiveness of new economic powers, but also due to the slow progress of reforms in the EU countries themselves [8]. Unfulfilled strategic goals of the EU set in 2000 have brought forward the creation of a new strategic development framework for the period from 2010 to 2020 called "Europe 2020", focused on the following strategic priorities [9]:

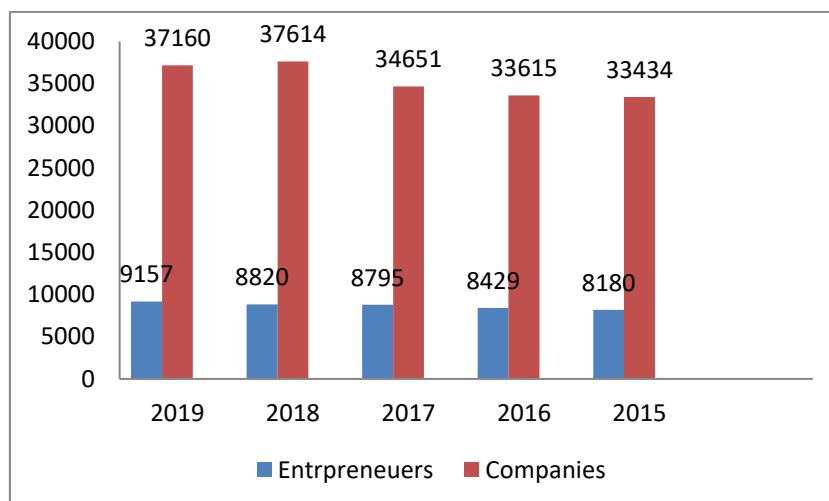
- Smart development – development of an economy based on knowledge and innovations (scientific and technological research and development, innovations, education and digital society);
- Sustainable development – at the same time, encouraging competitiveness and production which would utilize resources more efficiently;
- Inclusive growth – better participation on the job market, fight against poverty and social cohesion.

During 2009 Serbia has faced the world economic crisis, due to the cessation of positive economic development trends and which had an effect of declining business and foreign exchange activity, growth of unemployment, reduction of investments etc. Besides the crisis, transitional processes and business restructuring have had an impact on the reduction of employed citizens without having a significant investment cycle planned, which should have engaged the free work force. The question of efficiency of business systems and economy subjects is even more emphasized in the cyclic occurrence of global economic crises and demands the reconsideration of strategies and growth policies on every level [10].

The analysis of the SMEs is a very current topic in all countries. As the SMEs is the source of the birth of successful entrepreneurial ideas [23], many authors have analyzed the SME sector in their studies [10], [20], [21], [22], [24], [26], [29].

It is estimated that the SMEs account for 99,8% of active business subjects, provide two thirds of employment and turnover in the non-financial sector, provides 43,2% of exports in the non-financial sector and generates 32% of the Serbian GDP. Average number of employees in the SMEs is 2,4 which shows one of the key weaknesses of this sector compared to the member states of the EU, where the average number of employees is 4,2 [11].

Graph 1. shows the number of companies and the number of employees in the last two years (2018 and 2019).



Graph 1. Number of newly established companies and entrepreneurs (2018-2019) [12]

The SMEs sector of Serbia has been noted to be growing in the past several years. Graph 1 shows the number of newly established companies and entrepreneurs in the time period of 2015-2019, according to the Business Registers Agency. Fig. 1. shows the number of companies and the number of employees in the last two years (2018 and 2019)

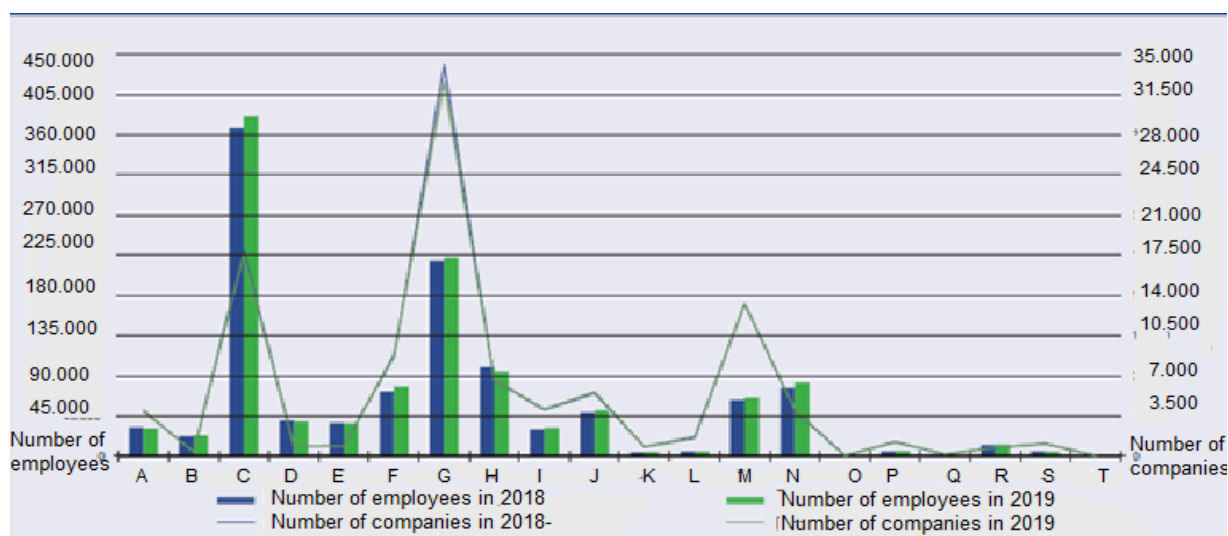


Fig. 1. The number of companies and the number of employees in the last two years (2018 and 2019) [13]

Interchangeable sectors: A – Agriculture, forestry and fishing; B – Mining; C – Manufacturing industry; D – Providers of electricity, gas, steam and air conditioning; E – Water, waste water management and process control. *Non-interchangeable resources:* F – Construction; G – Retail and wholesale, vehicle and motorcycle repair; H – Traffic and warehousing; I – Accommodation, lodging and food service providers; J – Information and communication; K – Finances and insurance; L – Real estate; M – Professional, scientific, innovative and technical activities; N – Administrative and auxiliary service activities; O – State administration and defense, compulsory social security; R – Education; Q – Healthcare and social care; R – Art, leisure and recreation; S – Other service activities; T – Homemaking

as employment, Homemakers as producers of goods and services for their own needs; U – Activities of extraterritorial organizations and bodies.

Sector S – Manufacturing has had the most employees, followed closely by sector G – Retail and wholesale.

According to the number of companies, prominent sectors are sector G – Retail and wholesale (32.560 or 31,2%) and C – Manufacturing industry (17.548 or 16,8%), followed by the sector M – Professional, scientific, innovative and technical activities (13.255 or 12,7%), even though the number of companies in those sectors has declined compared to the previous year (approximately 1.514, 421 i 10 companies respectively) [13].

Competitiveness of SME's in the Republic of Serbia

In order to increase their competitive ability, the companies need to restructure in order to face the demands of modern business and to become more productive and competitive [14].

According to the definition of OECD, competitiveness is the measure of capability of a country to produce goods and services passing the test of the international market in free and equal market conditions, while at the same time retaining and increasing in the long term the real income of the citizens. The European Commission (1994) has defined competitiveness as: expressed capacity of the companies, industrial regions, nations or supranational associations and as such kept, in order to secure the international competitiveness, to secure a relatively high return of the production factors and a relatively high level of employment on a sustainable basis.

In the Republic of Serbia, based on the principle of the “Small Business Act for Europe” – SBA (current framework for the development of SMC's in the European Union), the Strategy for the support of development of SMC's and competitiveness has been enacted for the time period of 2015. to 2020.

The strategy defines 6 strategic points which have been further elaborated through specific goals. These strategic goals correspond to the pillars of the Strategy [15]:

- I. Improvement of the business environment;
- II. Improvement of access to the sources of financing;
- III. Continuous development of human resources;
- IV. Strengthening of sustainability and competitiveness of SME's;
- V. Improved access to new markets;
- VI. Development and promotion of the entrepreneurial spirit and enticing the entrepreneurship with women, youth and social entrepreneurship.

Strengthening of sustainability and competitiveness of SME's, the fourth pillar of the Strategy has four dimensions:

1. The first dimension: Increasing the efficiency of the institutional support to the business and development of the SME's;
2. The second dimension: The optimization and improvement of the utilization level of existing, and the development of new business infrastructure;
3. Strengthening the innovativeness of the SME's;
4. Stimulation of the business cooperation and creating the chains of value.

In order to control the success of the implementation of the Strategy, precise and measurable indicators have been set with the goal of checking whether the planned goal has been achieved. Table 1. [16] shows the achieved values in the period from 2008 to 2013 and the planned values for the period from 2015 to 2020. For the period from 2008 to 2013 the real average yearly turnover growth rate of SME's was -2,9%, while the planned turnover growth rate for the period from 2015 to 2020 is 4,0%.

Table 1. Indicators for tracking the strategic goal – Strengthening the sustainability and competitiveness of SME's [16]

Strengthening of sustainability and competitiveness of SME's			
Real average annual turnover growth rate of the SME's	(2008-2013.) -2,9%	(2015-2020.) 4,0%±1	Produced indicators - Statistical Office of the Republic of Serbia
Annual turnover growth rate of the SMC's with manufacturing or processing innovations	10,1% (2013.)	13%	Inovation Union Scoreboard
Annual turnover growth rate of the SME's with marketing or organizational innovations	11,7% (2013)	14%	Inovation Union Scoreboard
Quality of the local suppliers	Rang 98/144 (2014-2015)	In the first 60	Global Competitiveness Index

Source:[16]

By analyzing the data, none of the four set indicators of the fourth pillar have not been fulfilled yet, though there was significant improvement within the third and fourth indicator.

Table 2. Review of progress in achieving Pillar IV indicators [16]

Indicator	Initial value	Targeted Value	Current value	Source of data
Real average annual turnover growth rate of the SME's	(2008-2013.) -2,9%	(2015-2020.) 4,0%±1	2,18%	Produced indicators – Statistical Office of the Republic of Serbia (2013-2016.)
Annual turnover growth rate of the SMC's with manufacturing or processing innovations	10,1% (2013.)	13%	6,6%	Inovation Union Scoreboard
Annual turnover growth rate of the SME's with marketing or organizational innovations	11,7% (2013)	14%	12%	Inovation Union Scoreboard
Quality of the local suppliers	Rang 98/144 (2014-2015)	In the first 60	79/137	Global Competitiveness Index

Due to the changes in the methodology Innovation Union Scoreboard, and in order to improve the accuracy of measuring, the indicators should be harmonized with the new methodology. The global competitiveness index for 2018 has also changed the methodology, it no longer estimates the quality of the local suppliers, which implies that this indicator must be harmonized with the new methodology.

The report on SME's for the 2017. shows that the total competitiveness of the SME's is inviolably affected by the industrial competitiveness (which represents the basis of export competitiveness).

Competitive advantages, unlike the comparative advantages, are based on the entrepreneurial environment, education, structure, quality of production and infrastructure, which in a way presents the opportunity for the growth of productivity, export and investment. It is necessary to identify the key factors which would stimulate the restructuring

of the real sector and which would have an effect of increasing the overall competitive potential of Serbia.

The level of competitiveness of the SME's sector of Serbia falls behind significantly compared to the EU-28 average, as indicated by the comparative analysis of quantity indicators of business (employment per company, GVA per employee). The average number of employees per company in the SME's sector of Serbia is 2,4, while in the countries of EU-28 it is 4,0. Also, the productivity of the SME's sector in Serbia is significantly lower (approximately 3,5 times less) compared to the average of EU-28.

Table 3. shows the business indicators of Serbia, the EU countries and neighbor countries (Slovenia, Romania, Bulgaria, Croatia, Hungary) of Serbia for 2015. and 2016 [17].

Table 3. The business indicators of Serbia, the EU countries and neighbor countries of Serbia for 2015. and 2016 [17]

Country	Years	Number of companies	Number of employees (thousand)	BVD (GDP?) (billion EUR)	Number of employees per company	BDV (GDP?) per employee (thousand EUR)	Involvement of SMEs in the non-financial sector		
							Number of companies	Number of employees (thousand)	GVA (billion EUR)
EU-28	2016	23.171,3	91.738,8	4.045,4	4,0	44,1	99,8	66,8	57,4
	2015	23.500,3	91.178,8	3.971,5	3,9	43,6	99,8	66,3	56,5
Bulgaria	2016	336,0	1.467,7	15,7	4,4	10,7	99,8	74,8	63,3
	2015	326,2	1429,4	14,9	4,4	10,4	99,8	74,8	64,5
Croatia	2016	147,5	692,3	13,5	4,7	19,5	99,7	69,4	61,4
	2015	146,6	687,5	12,4	4,7	18,0	99,7	69,5	58,5
Hungary	2016	551,2	1.860,4	30,3	3,4	16,3	99,8	69,6	53,5
	2015	536,6	1.811,1	29,5	3,4	16,3	99,8	69,8	53,1
Romania	2016	465,6	2.600,1	31,9	5,6	12,3	99,6	65,4	52,8
	2015	458,1	2.551,6	28,5	5,6	11,2	99,6	65,5	52,3
Slovenia	2016	138,9	440,7	13,3	3,2	30,2	99,8	72,9	64,6
	2015	134,7	435,7	12,4	3,2	28,5	99,8	73,7	64,2
Serbia	2017	357,2	873,5	10,9	2,4	12,5	99,9	66,0	56,7
	2016	340,1	837,5	9,9	2,5	11,8	99,9	65,7	56,2
	2015	324,6	801,7	9,1	2,5	11,3	99,8	65,7	57,7

Comparative performance indicators of the SMEs sector (employment per enterprise and productivity) are significantly lower compared to the EU average and most of the observed countries in the region. In 2016, SMEs in Serbia employ an average of 2.5 workers per company, which is less than the average of the EU-28 (4.0 workers) and all neighboring countries. The productivity of SMEs in Serbia is 3.7 times lower than the EU-28 average (2.4 times that of Slovenia), and of the surrounding countries it is higher only than Bulgaria.

Conclusion

In order to achieve an efficient competitive advantage, enterprises should strive to be in front of the others in their search for innovative and hard to imitate ideas. Only those companies which systematically strengthen their competitive position could remain in business. Competitive advantage could to a large degree be achieved through constant striving for a greater level of innovation and efficiency improvement. Improving the competitiveness of this sector is largely determined by supporting the competitiveness of the national economy, especially by improving key parameters in those segments where the Republic of Serbia has competitive shortcomings. Small and medium enterprises, because of their flexibility and they have a good precondition to develop innovation and thus ensure market competitiveness.

The flexibility of small and medium enterprises in particular comes to mind expression in periods of slowing economic activity and crisis. In order to speed up economic recovery and growth and increase the economic well-being of its inhabitants, the Republic of Serbia must create conditions for better export positioning of its economy. Positive experiences of small business on economic growth and development industrialized countries indicate that one of the strategic.

The goals of the Republic of Serbia should be the faster development of SMEs as a modern concept of small business development and export potential of the economy.

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