

## SMEs AND INNOVATION – CASE OF MACEDONIA

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### **Abstract**

*Considering the dynamic environment, competitiveness of small and medium enterprises depends on the speed with which new products can be presented in the market. Innovation represent specific instrument of entrepreneurship, and in general entrepreneurs are bringing innovation. Innovation represents activity that impregnates the existing resources with new capacities for creation of resources. Innovation sometimes may result in brand new, unknown product or replacement of some existing function for it's more efficient and successful performance. SMEs are more innovative than larger firms, due to their flexibility and their ability to quickly and efficiently integrate inventions created by the firms' development activities. Hence, in this paper the main focus will be on SMEs in Macedonia, their innovation and the business environment, excually the influence of business environment for creating innovation. To prove this we will test three hypotheses by using the ANNOVA model and in the end of the paper based on the obtained results we will purpose a measures for improving the business environment in Macedonia in order to stimulate SMEs innovation.*

*Keywords: SMEs, innovation, business environment*

*Clasificare JEL : L26, 031*

### **1. Introduction and context of the study**

Creating a competitive and integrated economy based on knowledge and innovation is a key condition for macroeconomic stability, economic growth and employment. In process of generating economic growth and job creation especially is important the role of SMEs.

Globalized world market enables activity of SMEs, which are becoming driving force of the economic development. Such movements led to changes in production philosophy in the most developed countries in the world during the last decades of 20<sup>th</sup> century, when the era of giant

corporations was changed by an era of small enterprises, which promote spirit of creativity and individualism, opposite to standardization and globalization promoted by the big and multinational corporations.

Business climate has a huge influence for SMEs establishing and developing. Business environment is a sum of all external and internal factors that influence a business.

In dynamic surrounding the competitiveness of small SMEs depends by the speed by which new products are introduced on the market and the costs for savings and improvements for them to be made. The innovations significantly contribute to increasing the productivity and quality of products and services, making companies more competitive. Really, they imply major changes in the company but if the subject does not change the products or services it offers, as well as the way they are created and delivered, then there is a risk other company to do that. Today, exist only the businesses that are capable of accurately targeted and constant change.

### **Literature review**

According to Paul Almeida professor at Georgetown University "SMEs play a unique, active and crucial role in the innovation process, technological advances and improving the high-tech information networks. [3] SMEs are more innovative than larger firms, due to their flexibility and their ability to quickly and efficiently integrate inventions created by the firms' development activities [2, 9, 15, 13].

Several studies have shown that there is a clear connection between innovation and the creation of an entrepreneurial economy [10].

A more powerful way to think of innovation is that it means: intentionally 'bringing into existence' something new that can be sustained and repeated and which has some value or utility.

According to the definition proposed by the OECD in its "Frascati Manual", innovation involves the transformation of an idea into a marketable product or service, a new or improved manufacturing or distribution process, or a new method of social service. [6]

Innovations are the key feature and a prerequisite for the development of small and medium enterprises. But they do not occur automatically their drive is entrepreneurship - powerful compounds of vision, passion, energy, enthusiasm, insight, judgment and hard work. [4].

There are different types of innovation [14]. The Doblin Group studied innovation throughout the world. They identified ten main types of innovation. Sawhney, Wolcott and Arroniz identified 12 different ways companies innovate.

## **1. Theoretical framework - SMEs, entrepreneurship and innovation**

Considering the fact that small enterprises are a heterogeneous group, it is hard to determine a single criteria or a unique combination of criteria, which will give a definite and unique response. There is no single, uniformly accepted definition of a small firm [11]. In that way, European Commission has given the definition for SME, and according to the last modification (in 2003), these are the quantitative criteria: number of employees, annual turnover and annual turnover and annual current assets.

Medium firms are those with fewer than 250 employees, turn over less or equal of 50 mil €, and total balance sheet less or equal € 43mil €, while small have at most 50 workers, turn over less or equal 10 mill. € and total balance sheet less or equal € 10mil €, and micro firms are those with 10 workers, turn over less or equal of 2 mil €, and total balance sheet less or equal 2mil.€.

The emergence and development of SMEs is closely associated with the emergence of entrepreneurship and private initiative.

Entrepreneurship becomes the main feature of a modern market economy. Entrepreneurship is considered as a general attitude that can be applied to business activities and daily life. In literature and practice there are different definitions of entrepreneurship.

Entrepreneurship is a dynamic and social process where individuals in cooperation with others, identify opportunities for innovation and work towards transforming ideas into practical actions in terms of social, cultural and economic context.

In business, entrepreneurship is starting and carrying on business in order to obtain profits. A. Smith, in his book "The Wealth of Nations", has talked about the entrepreneurial activity that is accomplished through: thrift and diligence; speculation business and business innovation.

According to J.A. Timmons [13] entrepreneurship is the ability to spot opportunities where others build chaos, contradiction and confusion. It is the ability to form a team of associates who will be able to solve a number of strategic and operational issues facing the business.

Entrepreneurship in SMEs is known as a traditional entrepreneurship, and in big companies like intraentrepreneurship.

For SMEs establishing the role of entrepreneur is very important therefore encouraging the entrepreneurial spirit is more than necessary in stimulating self-employment and small business development.

Typically, as entrepreneurs are denoted those who: bring innovation in the production of goods and services, taking risk doing permanent combination and recombination of factors of production and constantly diversified, i.e. allocate points to their most productive use. Specifically, they represent a researchers of changes, inventors to respond to these changes and use them as opportunities.

J. Schumpeter [10] identifies the entrepreneur as an individual who introduces new combinations, i.e. innovation. Entrepreneurs create new industry, which cause structural changes in the economy, while the old industries are exposed to the "creative destruction."

According to David Robinson the roles for successful entrepreneur are: introduce yourself; be comprehensive; be consistent; minimize the consequences of its failure; look for new ways; be willing to change.

From the above it can be concluded that entrepreneurship, emphasis on new products, new methods, new markets, new ways of working and organizing. That is why entrepreneurship is associated with innovation

As written by Ducker [5] "entrepreneurs in general bring innovations. They represent specific instrument of entrepreneurship. Innovation represents activity that impregnates the existing resources with new capacities for creation of resources". Innovation sometimes may result in brand new, unknown product or replacement of some existing function for its more efficient and successful performance.

Realizing the importance of innovation for economic development, the Confederation of Indian Industry together with INSEAD (The Business School for the World) have begun to calculate the index of innovation in order to assess the progress of innovation readiness in countries and highlighting the barriers which are facing the states, businesses and individuals. The traditional approach for innovation measuring includes parameters such as, patents per million population, publication of scientific journals, research costs and development costs, and so on.

On the other hand, the global innovation index includes five input pillars, namely: institutions, human capital and research, infrastructure, market sophistication and business sophistication; and 2 output pillars, namely: scientific and creative results. Each of these pillars is divided into three subpillars as follows:

- Institutions- political, regulatory and business environment;
- Human capital and research- education, high education and R&D;
- The Infrastructure is including the following subpillars: ICT, general infrastructure and ecological sustainability;

- Market sophistication- credit, investment, trade & competition;
- Business sophistication- knowledge workers, Innovation linkages and knowledge absorption;
- Knowledge and technology outputs - knowledge creation, knowledge impact and knowledge diffusion
- Creative outputs- Intangible assets, creative goods and services and online creativity.

Considering the meaning of innovations for SMEs development and economic growth in general the data in the following table are showing Macedonia rang according to Global innovation index (GII). Also Global innovation index report is important because it includes the seria of data, policies and practices for innovation promoting.

Table 1: GII for Macedonia, period 2008-2015

Year	GII
2008/09	89
2009/10	64
2011	67
2012	62
2013	51
2014	60
2015	56

Source: Global Innovation Index Report

As can be seen from the data of previous table the rang of Macedonia is getting better but still Macedonia is in the group of countries which economis growth is determinated by productivity of production factors.

## 2. Business environment and entrepreneurial activity - empirical evidence in Macedonia

Business environment is a sum of all external and internal factors that influence a business. According to the World Bank Report, the business environment is defined as a set of specific factors that influence to the opportunities and incentives to businesses for productive investment, job creation and expansion of businesses. Many developing countries, businesses are faced with excessive regulatory barriers, legal and institutional barriers etc.

That is why a key priority of development agencies and government structures should be the implementation of reforms to overcome these problems, excually to create a suitable business environment.

One of the key report which give relevant data for the conditions for doing business is Doing Business Report published by World Bank.

Doing Business indicators are focused mainly on measuring efficiency, such as procedures, time and cost to start a business or to transfer property. In the report of 2016 are analyzed 189 national economies, and according to the relevant criteria they are ranged. The key criteria are: (Doing business report)

- Starting a business
- Dealing with construction permits - assessing quality control and safety mechanisms
- Getting electricity - measuring reliability,prices and transparency
- Registering property - the paths of digitization
- Protecting minority investors
- Trading across borders - a new approach to measuring trade processes
- Enforcing contracts - measuring good practices in the judiciary
- Resolving insolvency - new funding and business survival

In Republic of Macedonia are made many reforms in way to improve the business environment, and that has result with better rang in Doing Business Report. (see table 2)

year	010	011	012	013	014	015	016
DB rang	6	8	2	3	5	0	2

Source: Doing business Reports

Creation of proper business environment means setting and applying of systematic laws which will eliminate the barriers for undisturbed and fast development of SME sector, creation of national politics for supporting small businesses, that will accelerate entrepreneurship in the country and will provide necessary production restructuring.

In Macedonia for the first time in 2008 entrepreneurial activity was calculate according to the methodology of the Global Entrepreneurship Monitor (GEM). Taking into account the data in GEM reports it can make the following conclusions:

– In 2008, TEA (Total Early-Stage Entrepreneurial Activity) index in Macedonia was 14.5%, it means that 14.5% of respondents aged 18-64 years were entrepreneurs, half of them were nascent entrepreneurs (i.e had business to 3 months), and half were new (i.e. had business to 3.5 years). Also half of them have stated that they are motivated by necessity and half of them are motivated by opportunity;

– In 2010, TEA index has decreased and it was 8.0% (the percentage of nascent entrepreneurs was 4.4% and the percentage new businesses owners was 3.6%) and parallel with this the total entrepreneurial activity has decreased as a result of decreasing the rate of owners of already established businesses;

– In 2012, TEA index was 6.97 %, the rate of nascent entrepreneurs was 3.73 % (those who has a business to 3 months) and 3, 24 was new (business to 3, 5 years). In Macedonia, 52% from the entrepreneurs have stated that they are motivated by necessity, whereas 29% are motivated by opportunity.

– In 2013, TEA index was 6,63 %, the rate of nascent entrepreneurs was 3.35% (those who has a business to 3 months) and 3, 53 was new (business to 3, 5 years). In Macedonia, 60,98% from the entrepreneurs have stated that they are motivated by necessity, whereas 22,95% are motivated by opportunity.

The key indicators for the entrepreneurial activity in Macedonia are shown in table 1.

Table 3: Indicators for the entrepreneurial activity in Macedonia

Year	nascent entrepreneur ship	new business es	TEA	establis hed business es	Mortgage rate of businesse s	% of TEA motivated by necessity	% of TEA motivated by opportunit y
008	7,20	7,70	14,50	11,00	5,30	47,17	13,45
010	4,80	3,10	7,90	7,60	1,60	59,00	23,00
012	3,73	3,25	6,97	6,73	3,86	51,95	28,73
013	3,35	3,53	6,63	7,29	3,30	60,98	22,95

In order to identify the influence of business environment to SMEs innovation, which is the main focus of research, we have tested several hypotheses, including:

*Hypothesis 1: Business environment in the period 2008 to 2013 does not influence to the entrepreneurs interest for innovation*

Table 4: Entrepreneurs interest for innovation in Macedonia for the period 2008-2012

Year	Enterprises want to experiment with new technologies and new ways of doing things	Innovations are very appreciated by enterprises	Existing enterprises are open for cooperation with new entrepreneurial enterprises as their suppliers
2008	2.57	3.03	2.91
2010	2.92	3.26	3.34
2012	2.70	2.86	3.11
2013	2.71	3.46	3.37

Considering the data in table 4 we came up to conclusion that the limited component for entrepreneurship in Macedonia for define period is that companies want to experiment with new technologies and new ways of doing things while stimulating entrepreneurship component is that many companies appreciate innovation.

Table 5: Anova: Two-Factor Without Replication

<i>SUMMARY</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
<b>1</b>	<b>Row</b> 3	8.51	2.836667	0.056933		
<b>2</b>	<b>Row</b> 3	9.52	3.173333	0.049733		
<b>3</b>	<b>Row</b> 3	8.67	2.89	0.0427		
	3	9.54	3.18	0.1677		
<b>Column 1</b>	4	10.9	2.725	0.020967		
<b>Column 2</b>	4	12.61	3.1525	0.068892		
<b>Column 3</b>	4	12.73	3.1825	0.046492		
<b>ANOVA</b>						
<i>Source of Variation</i>	<i>SS</i>	<i>f</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
<b>Rows</b>	0.298867	3	0.099622	5.424898	0.038171	4.757063
<b>Columns</b>	0.52395	2	0.261975	14.26577	0.005246	5.143253
<b>Error</b>	0.110183	6	0.018364			
<b>Total</b>	0.933	11				

Considering the fact that the empirical values of F-variables ( $F=5,424898$  и  $F=14,26577$ ) are larger than the corresponding theoretical values of the F-variables ( $F_{crit}=4,757063$ ) and  $F_{crit} =$

Fcrit=5,143253) we rejected the hypothesis and the conclusion is that the entrepreneurial environment in the period 2008 to 2013 has an effect to the innovation interest by entrepreneurs. We can come to the same conclusion if we compare the theoretical value of  $p = 0.05$  with 5% risk. The value is greater than the corresponding calculated ( $p$ -value)=0,038171 and ( $p$ -value)=0,005246, so the conclusion is the same.

*Hypothesis 2: Entrepreneurial environment in the period 2008 - 2013 does not affect to the interest in innovations by consumers*

Table 6: The consumer's interest for innovation in Macedonia for the period 2008-2013

Year	Consumers want to try new products and services	Innovations are very appreciated by consumers	Consumers want to buy products and services from entrepreneurial companies
2008	3.53	3.44	3.27
2010	3.67	3.68	3.43
2012	3.55	3.57	3.37
2013	3.81	2.97	3.39

From the estimates in Table 4, it can be concluded that stimulating entrepreneurship component in Macedonia for defined period is that consumers want to try new products and services, they also appreciate innovation and they are open for buying products and services from enterprises which are targeted to innovation.

Table 7: Anova: Two-Factor Without Replication

Anova: Two Without Replication						
SUMMARY						
	Count	Sum	Average	Variance		
Row 1	3	0.24	3.413333	0.017433		
Row 2	3	0.78	3.593333	0.020033		
Row 3	3	0.49	3.496667	0.012133		
Row 4	3	0.17	3.39	0.1764		
Column 1	4	4.56	3.64	0.016667		
Column 2	4	3.66	3.415	0.097633		
Column 3	4	3.46	3.365	0.004633		
ANOVA						
Source of Variation	SS	MS	F	P-value	F crit	
Rows	0.076467	0.025489	0.545541	0.669026	4.757063	
Columns	0.171667	0.085833	1.837099	0.238566	5.143253	
Error	0.280333	0.046722				

<b>Total</b>	0.528467
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Since empirical values of F-variables ( $F=0,545541$  and  $F=1,837099$ ) are smaller than the appropriate theoretical values of F-variables ( $F_{crit}=4,757063$  and  $F_{crit}=5,143253$ ), we accept the set hypothesis and conclude that the entrepreneurial environment in the period from 2008 to 2013 does not influence on the consumers' interest in innovations. We come to the same conclusion by comparing the theoretical value  $p=0,05$  or with 5% risk in statistical conclusion, which value is smaller than the appropriate estimated values ( $p\text{-value}$ )= $0,669026$  и ( $p\text{-value}$ )= $0,238566$ .

**Hypothesis 3:** *There are not differences in average marks for entrepreneurial environment by areas in the period between 2008 and 2012 in Macedonia.*

Table 8: Average marks for entrepreneurial environment in Macedonia by areas in the period 2008, 2010,2012 and 2013

2008	2010	2012	2013
2,41	1,92	2,12	2,33
2,49	2,23	2,48	2,65
2,47	2,81	3,01	2,86
2,43	2,4	2,55	2,54
2,2	2,19	2,3	2,27
2,76	3,04	2,86	3,05
2,01	2,19	2,38	2,37
2,94	3,34	3,52	3,02
3,21	2,19	3,13	3,00
2,31	3,04	2,29	2,36
3,41	3,61	3,57	3,54
2,78	2,49	2,84	2,83
3,16	3,18	3,52	3,25
2,38	2,35	2,4	2,58
2,25	3,28	3,57	3,66
2,69	2,92	3,11	2,94
3,14	3,54	3,36	3,36
2,58	2,72	3,12	3,02
2,84	3,17	2,9	3,18
3,41	3,59	3,52	3,39

Table 9: Anova: Two-Factor Without Replication

Anova: Two-Factor Without Replication				
<i>SUMMARY</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
<b>Row 1</b>	4	8.78	2.195	0.048567
<b>Row 2</b>	4	9.85	2.4625	0.030092
<b>Row 3</b>	4	11.15	2.7875	0.052025
<b>Row 4</b>	4	9.92	2.48	0.0058
<b>Row 5</b>	4	8.96	2.24	0.002867
<b>Row 6</b>	4	11.71	2.9275	0.020092



We took TEA as dependent variable and environment (area) as independent variables: Finances, Government policies, Government bureaucracy and taxes, Government programs for entrepreneurship support, Entrepreneurship education, primary and secondary, Entrepreneurship education post-secondary, Transfer of research and development, Commercial and law infrastructure, market dynamics, Open domestic market, Physical infrastructure, Cultural and social norms, Possibility for starting new business, Ability, knowledge for starting new business, Entrepreneurial Social image, Intellectual property rights, Support to women when starting business, Focus on high growth, Interest in innovations (enterprises), Interest in innovations (consumers). From the correlation matrix, according to the values of correlation coefficients, the most important segments of the entrepreneurial environment can be identified (represented by the average marks for entrepreneurial marking) and TEA value in 2008, 2010, 2012 and 2013.

Table 10: Segment of the correlation matrix (TEA index values and values of the average grades for the entrepreneurial environment or areas)

<b>Column1</b>	1	Column11	-0,37712
<b>Column2</b>	0,862069	Column12	-0,95426
<b>Column3</b>	0,42959	Column13	0,246546
<b>Column4</b>	-0,966	Column14	-0,63388
<b>Column5</b>	-0,43225	Column15	0,001452
<b>Column6</b>	-0,52679	Column16	-0,99529
<b>Column7</b>	-0,69628	Column17	-0,93759
<b>Column8</b>	-0,91075	Column18	-0,83677
<b>Column9</b>	-0,98114	Column19	-0,30782
<b>Column10</b>	0,462372	Column20	-0,54936
		Column21	-0,87299

If we make ranging according to the importance of positive influence, we can conclude that the following areas of entrepreneurial environment have influence on the rise of TEA index value: finances (0,537673) market dynamics (0,341277) and Government policies (0,042792).

If we make ranging according to the importance of negative influence, we can conclude that the following areas of the entrepreneurial environment have such influence on TEA index value: entrepreneurer’s social image (-0,99041) commercial and law infrastructure (-0,9443) and physical infrastructure (-0,92638). Here, it is important to note that only 5 of the mentioned areas of the entrepreneurial environment have positive influence on TEA index value increase, while 17 of the mentioned areas have negative influence on the TEA values increase. Namely, by increasing the average marks for entrepreneurial environment in those 17 areas, TEA index value decreases. It should be noted here that the area, or more precisely, the average mark for entrepreneurial environment that refers to abilities, knowledge for starting business 9- 0,41765) does not influence the TEA index value at all, for the researched period in R. Macedonia.

### 3. Conclusions

Based on the findings and performed researches, we can highlight some measures and recommendations for stimulating the SMEs and their innovation:

- ensuring macroeconomic stability
- reforms in the legal framework, which will mean encouraging the establishment of small and medium businesses and stimulating innovation. EU 2020 predict 3 % of GDP for development of innovation, while in Macedonia the percentage is 0.04% of

GDP.

– strengthening the financial support, through increased cooperation with banks, public financial institutions and SMEs, developing tools exclusively for the SMEs financing, particularly by issuing guarantees so called credit-guarantee scheme and the introduction of various non-banking financial institutions and practices.

– Increasing institutional support, establishment of a center for entrepreneurship, establishment of the Ministry for small and medium businesses, increasing the role of development agencies on, NGOs and so on.

– Building of stronger and more market-oriented technological-researching centers will encourage innovation activities with business entities. For establishing these centers, it is necessary to have grants for projects, development of financial instruments associated with innovations, help of the network of ‘business angels’, or funds of risk capital, advancement of the access to the banking capital etc.

– Intensification of the activities of the Fund for innovations and technological development etc.

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