

# IMPORTANCE AND USE OF INFORMATION TECHNOLOGY IN SME'S IN MACEDONIA-CASE OF PELAGONIA REGION

**Dejan Zdraveski, PhD**

University "St. KlimentOhridski" – Bitola

Faculty of Economics - Prilep

E-mail address: [dejan\\_zdrave@yahoo.co.uk](mailto:dejan_zdrave@yahoo.co.uk)

**Margarita Janeska, PhD**

University "St. KlimentOhridski" – Bitola

Faculty of Economics - Prilep

E-mail address: [mjaneska@yahoo.com](mailto:mjaneska@yahoo.com)

**Kosta Sotiroski, PhD**

University "St. KlimentOhridski" – Bitola

Faculty of Economics - Prilep

E-mail address: [kostasotiroski@gmail.com](mailto:kostasotiroski@gmail.com)

**Ana Ivanoska Kukunoski**

E-mail address: [ivanoska.ana@hotmail.com](mailto:ivanoska.ana@hotmail.com)

## ABSTRACT

*According to European statistics, small and medium-sized enterprises make up about 98% of the overall business in Europe and employ 90 million people. Similar is the situation in Macedonia, where the basis of the Macedonian economy is comprised of small and medium-sized enterprises that represent drivers of economic growth. As in most of the developing countries, also in Macedonia, small and medium enterprises play a key role in promoting of economic and social development by creating new employment opportunities.*

*Information technology has a greater impact on the overall life in a society and thus on economic processes. Such influence is increasingly in small and medium-sized companies, especially with the development of new information technologies such as cloud computing, business intelligence, big data, Internet-of-Things, etc. The accent in this paper will be on implementation of information technology in small and medium-sized companies because the Macedonian economy relies mostly on these companies. Also, the information technologies are most important tool for growth of competitiveness of small and medium-sized companies.*

*This paper will present the current state of the implementation of information technology in small and medium-sized companies, especially in the Pelagonia region. The accent will be on whether companies use the new information technologies, for which purpose they use, how much they invest in new innovative solutions, did they have employed an information experts etc.*

**Key words:** *Information technologies, SME's, cloud computing, big data, economic growth*

## **Introduction**

Today's in modern economies that are characterized by great dynamism, technological breakthroughs and competition, there is a need for the development of a dynamic sector that can be quickly and easily adapted to the changes in the environment. Small and medium enterprises with their characteristics, such as simple organizational structure, centralization in decision making, greater flexibility, more efficient coordination, etc., can adapt to new economic conditions more quickly than large companies.

Small and medium enterprises are "spiritus movens" for the development of modern economies. According to the many experts, they are synonymous with the private sector and entrepreneurship, because they promote private property and entrepreneurial skills. Statistics in almost all countries show that small and medium-sized enterprises are absolutely dominant in the economies and most often represent more than 99% of the total number of companies.

SME's sector is dominant in developing countries, while high flexibility and low fixed costs being the key determinants of the comparative advantage of small and medium enterprises. Small and medium-sized enterprises are a source of innovation and therefore have a significant role to play in accelerating the technological and economic development of each country. Precisely because of this, the policies of the developing countries are aimed at undertaking a range of measures, economic reforms and implementation of strategies and national programs aimed at encouraging the development of small and medium-sized enterprises.

Conditions in modern economies create many opportunities for companies, but there are a number of barriers and difficulties they face. So, the question often arises: can SMEs deal with processes that are characteristic of the contemporary market economy, for example globalization, deregulation and the development of new technologies. But, thanks to its flexibility, small and medium-sized enterprises can adapt very quickly to the new conditions. Also, the development of information technology and its application in small and medium-sized companies greatly helps to overcome the barriers they face. Especially today, with the development of new information technologies, it is much easier for small and medium-sized companies to engage in the international market and to follow the processes of globalization.

Two decades ago only large companies could afford to implement information technologies in their work due to high costs of this technologies. Today, not only large companies, but also SMEs, with the development of new technologies such as cloud computing, data mining, business intelligence, can implement them to support business processes with relatively small financial resources. In this way they become competitive and they are able to penetrate the international markets

The fact that the diffusion of information and communication technologies (ICTs) is a reality in many parts of world, it is particularly for developing countries held to offer remarkable opportunities for the alleviation of poverty and the creation of employment. On that way IT have the potential to expand a country's economy by making SME's more accessible to local and global markets, improving their access to market information, providing information for better and more competitive prices, and lowering transaction costs.<sup>1</sup>

Information technology plays a major role in the development of small and medium-sized enterprises and their adjustment to changes in the environment. IT also enables SMEs to design and distribute new products and services more easily, but also redesign their own business processes to respond to changes in the environment.

---

<sup>1</sup> Shiel, H. et al. 2003. Understanding the implications of ICT adoption: Insights from SMEs. Logistics information management, vol. 16 (5),pp.312-326.

### SME's sector in Macedonia

The development of small and medium-sized enterprises is one of the key factors for achieving accelerated economic growth and increasing employment. The great importance of small and medium enterprises for the development of the Macedonian economy is confirmed by research related to the country's development opportunities, the experience and practice of developed countries, as well as countries in transition.

According to the European commission: "Small and medium-sized enterprises (SMEs) are the backbone of Europe's economy. They represent 99% of all businesses in the EU. In the past five years, they have created around 85% of new jobs and provided two-thirds of the total private sector employment in the EU. The European Commission considers SMEs and entrepreneurship as key to ensuring economic growth, innovation, job creation, and social integration in the EU."<sup>2</sup>

Therefore, the development documents and macroeconomic policies of the Republic of Macedonia, in the medium and long term, predicts that small enterprises will be a significant factor for increasing production and employment. Small and medium-sized business, with their vitality, intensity, adaptability of the requirements on the domestic and foreign market, competitiveness and the provision of new technologies and knowledge, contribute to creating new jobs and increasing production, and thus to developing the national economy. Today, most of the companies in Macedonia belongs to category of small and medium enterprises. They represent 99% of the total number of active enterprises, which is an important indicator for the participation of this category of enterprises in Macedonian economy.

If we make a comparative analysis, we can see that the situation in the SME's sector in Macedonia is compatible with the situation in this sector in the EU. It can be seen from the following table:

Table 1. SME's sector, Macedonia vs EU

Class size	Number of enterprises		Number of persons employed			Value added			
	Macedonia	EU	Macedonia	EU	Macedonia	EU			
	Number	Share	Share	Number	Share	Share	Million €	Share	Share
<b>Micro</b>	48981	90.4	93	119026	32.3	29.8	818	21.9	20.9
<b>Small</b>	4306	7.9	5.8	82079	22.3	20.0	836	22.4	17.8
<b>Medium-sized</b>	739	1.4	0.9	72706	19.7	16.7	758	20.3	18.2
<b>SME's</b>	<b>54026</b>	<b>99.7</b>	<b>99.8</b>	<b>273811</b>	<b>74.4</b>	<b>66.6</b>	<b>2412</b>	<b>64.5</b>	<b>56.8</b>
<b>Large</b>	157	0.3	0.2	94348	25.6	33.4	1327	35.5	43.2
<b>Total</b>	54183	100.0	100.0	368159	100.0	100.0	3739	100.0	100.0

(Source: 2017 SBA Fact Sheet, European Commission)

From the table it can be seen that the situation in the SME sector is very similar in the EU and in Macedonia in terms of the number of small and medium companies that are the basis of both economies. There is a certain difference in terms of number of employed provided by this sector and the added value it generates, but this difference over time decreases. As Macedonia

<sup>2</sup> [https://ec.europa.eu/growth/smes\\_en](https://ec.europa.eu/growth/smes_en)

approaches the EU, this gap will be further reduced, making Macedonia closer to the European average.

Due to the importance of this sector, Macedonia in its National Strategy for SMEs (2018-2023) continues the efforts to improve the business environment for the development of SMEs, while strengthening the efforts for improving the competitiveness and innovations.

“The latest review of the Economic Policy Index of the EU, SMEs (Organization for Economic Cooperation and Development (OECD) 2016) praises Macedonia for its institutional framework and operational environment, where the country is considered "one of the most advanced economies in the the region of Southeast Europe in terms of advancement of its SME sector ". The review encourages Macedonia to continue its reform program and ensure adequate provision of services that meet the needs of SMEs. The review also contains suggestions for improvements in monitoring and evaluating policies, programs and services for SMEs and supporting the diversification of non-banking sources of finance.”<sup>3</sup>

Also, in this strategy is presented that the Government will support the development of SMEs in this sector, promoting the use of IT in SMEs as a strategy for stimulating increased productivity and competitiveness. All these facts indicate the importance of information technology as a key factor for the development of SMEs.

“In the information society environment successful enterprises produce high technology goods and services and transform human effort materials and other economic resources into product and services that meet customers need. In such society, in order to be successful, SME would need high quality information and must always provide superior value, better than competitors, when it comes to quality, price and services.”<sup>4</sup>

### **Importance and use of Information technologies in SME’s**

Information technology helps companies to increase their effectiveness and productivity. Especially in the case of small and medium-sized companies who using IT, they can reduce operating costs. This would result in a lower price of the final products and services, but also the use of quality information could result in an improvement in the value of their output. Using new technologies facilitates the global connectivity of companies and provide new ways of delivering products and services. The new business models conditioned by the development of Information Technology enable to small and medium-sized companies’ access to new markets and new sources of competitive advantage, which are the basic conditions for growth.

For these reasons, the Government of Macedonia in its National Strategy for Small and Medium Enterprises (2018-2023r) emphasizes the importance of information technology and its uses by SME’s as a strategy for increased productivity and competitiveness. Also this document highlights the great support from the Government of Macedonia for the reforms in the IT sector, as well as support for the companies that promote the use of new advanced information technologies.

In this paper will be present a survey on the use of IT by small and medium-sized companies in Macedonia with a special accent on the Pelagonia region. Within this research, a survey was sent to 100 small and medium-sized companies via e-mail. Also, the companies covered by this survey were from different business sectors.

The companies that responded to the survey were from the following sectors:

---

<sup>3</sup> National Strategy for SMEs, Ministry of Economy of the Republic of Macedonia, 2017

<sup>4</sup> Pollard, D. (2006): Promoting Learning Transfer. Developing SME Marketing Knowledge in the Dnipropetrovsk Oblast, Ukraine.

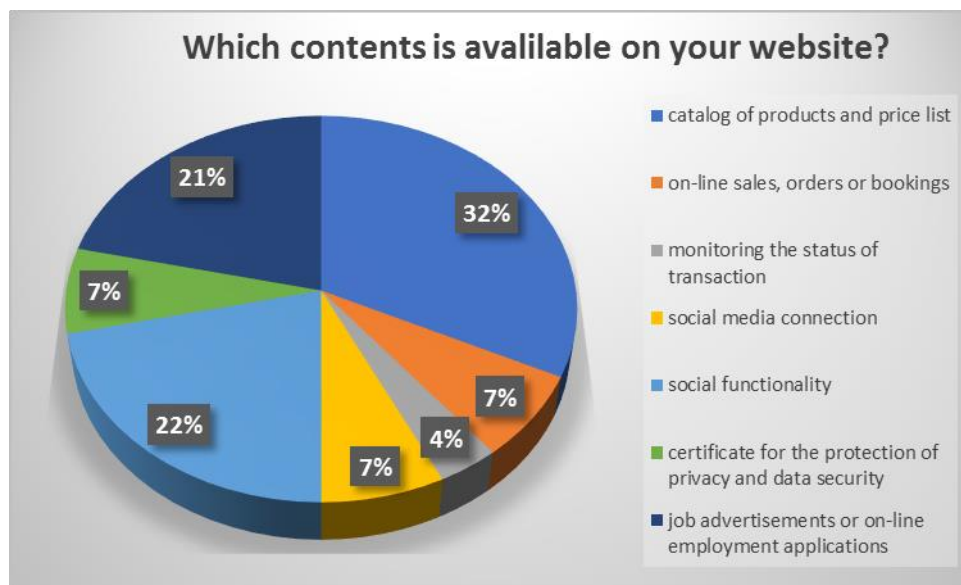
- Manufacturing-18,33%
- Construction-1,42%
- Wholesale and retail trade-23,96%
- Accommodation and food service activities-7,06%
- Information and communication-1,43%
- Other (medical services, cosmetic and hairdressing services, agriculture, farms, etc.)-47,8%

Due to the limited size of this paper, will be presented only the questions that are of exceptional importance for this research.

In today's economic conditions, it is elementary for each company to have its own website. This is due to a large number of reasons and some of the reasons are:<sup>5</sup>

- Your customers expect it-Six out of ten consumers expect brands to provide online content about their business on some form of digital property
- It provides social proof-Ninety percent of consumers claim that online reviews influence their buying decisions.
- You control the narrative-It's true that you cannot control what others say about you on social media channels, but you can influence public perception by creating your own story via a business website
- Your competitors all have company websites-If you're not staying competitive with your competition, you're giving shoppers a reason to buy from another brand
- You'll show up in Google search results-81 percent of consumers perform online research before making a purchase

Similar to this fact, also the most of the Macedonian small and medium sized companies have own website. According to our research 76% of Macedonian SME's have their own website, which is relatively big number of companies. But is very interesting which contents the companies offer on their website. The answers on this question is presented on Figure 1.



<sup>5</sup> M. Hendrickson, 10 Reasons Why Your Small Business Needs a Website, <https://blogs.constantcontact.com/small-business-website/>

Figure 1. Which content is available on your website?

According to results presented on Figure 1, most of the companies use their website for present their products and price list (32%), offer social functionality (22%) and job advertisement or on-line application for employments (21%). This result is logical because of nature of sector where companies works.

Regarding whether companies use any information technology, 100% of companies responded that they use information technology. This fact corresponds to today's environment in which companies operate where information technology has great impact in all aspect of society. It can be concluded that the use of information technology today represents base for competitiveness of any company, whether small or large.

The results of the survey on the question: "Which information technologies is used in your company?", are presented in the following figure.

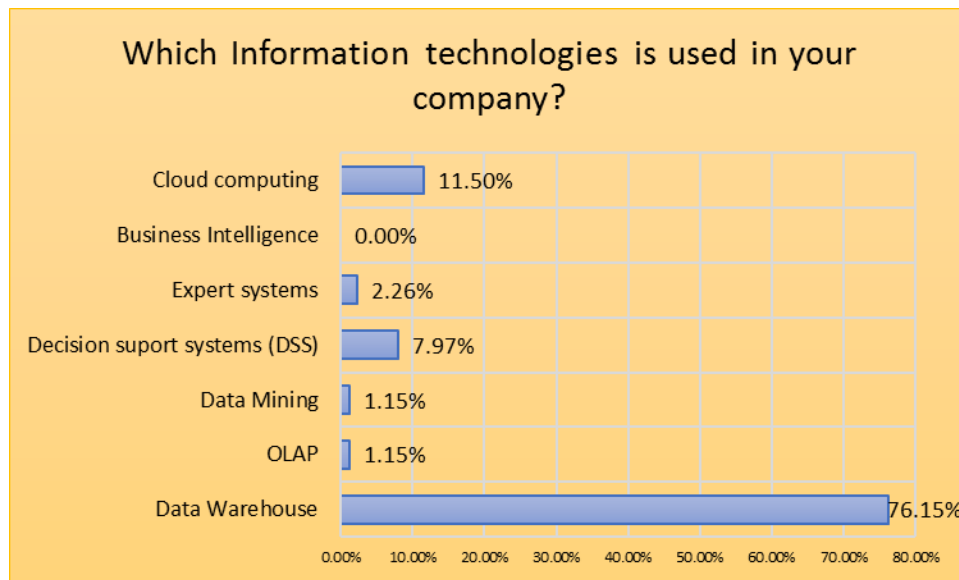


Figure 2. Which information technologies is used in your company?

From Figure 2 it can be seen that most of the companies use a software solution for a data warehouse, but it is also interesting that a significant number of small and medium-sized companies use a cloud services. Given that cloud, computing is a relatively new information technology, it is encouraging the fact that some of the Macedonian companies use a cloud services. Also interesting is the fact that companies don't uses business intelligence software. The reasons for this may vary, but small and medium-sized companies in Macedonia probably believe that it is relatively expensive software solutions. Although the market already has a number of business, intelligence software tailored for the needs of small and medium-sized companies.

The next question concerns on activities for which companies use the available information technology. The results can be seen in Figure 3.

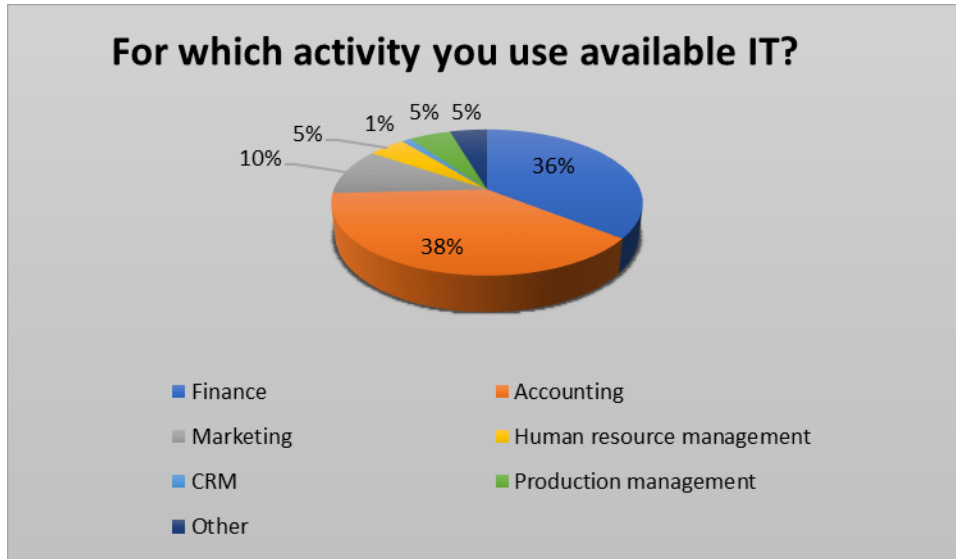


Figure 3. For which activity you use available IT?

The results suggest that most companies use available information technology to manage finance and for accounting operations. If you take the cumulative of these two functions, as many as 74% of companies use their IT infrastructure for financial and accounting activities. The rest of the companies use the available information technology in areas such as marketing, human resources management, CRM, production management, etc.

The use of IT by small and medium-sized companies allows a large number of benefits that improve their operations, increases productivity, improves their competitiveness, increases the privacy and security of their data, etc. Exactly with this field is relates next question from the research. Results are presented in the following figure. The companies answer of this question are given on Figure 4.

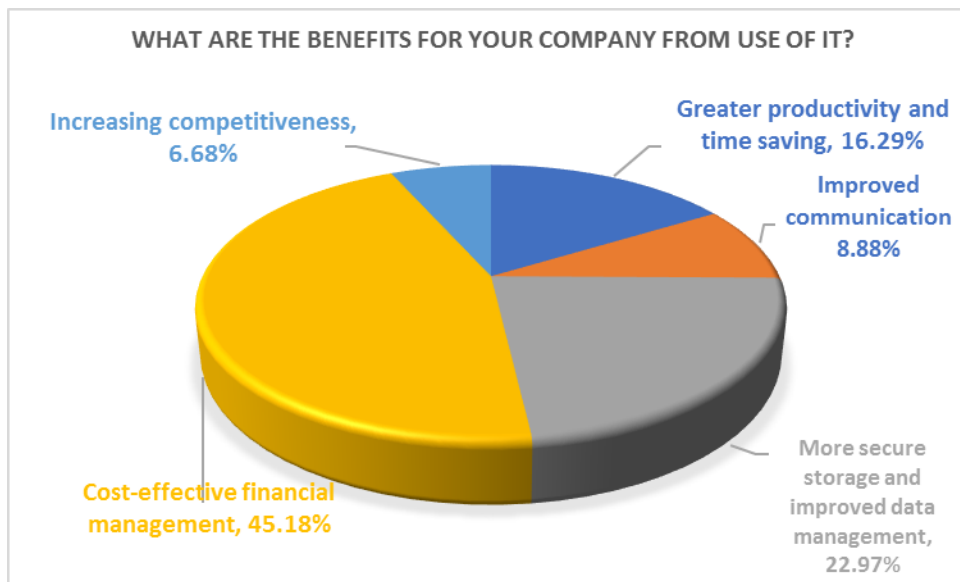


Figure 4. What are the benefits for your company from use of IT?

The companies believe that the greatest benefit of using IT is improved financial management of the company. This opinion is shared by 45.18% of companies. This corresponds with company responses to the previous question, where companies responded that available information technology most often is used for financial and accounting transactions. But also, a large number of companies think that the advantages offered by IT implementation in their operations are more secure storage and improved data management with almost 23% and greater productivity and time saving with 16%.

In today's environment, the social media has a great influence on all spheres of social life, as well as on the business. “Many organizations active on the social networking scene have direct links from their corporate websites to their social networking sites like Facebook, LinkedIn, Instagram, Youtube and Twitter, and use these social media sites to promote brands and support the creation of brand communities”.<sup>6</sup> Due to this fact, in this paper will be present the situation regarding the use of social media by the small and medium-sized companies in Macedonia. The results are presented in Figure 5.

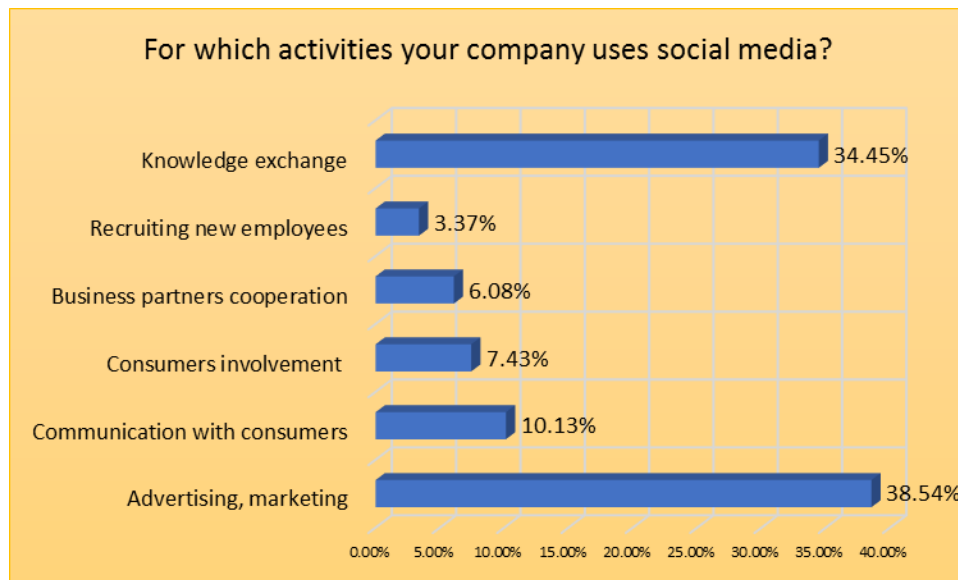


Figure 5. For which activities your company uses social media?

According to the research most of the companies use social media for advertising and marketing, or 38.54% of companies. Also, a significant number of companies uses social media for knowledge exchange or 34.45% of them. A very small number of companies, or only 3.37% use social media for recruiting new employees which is very different from developed European countries. The reason for this situation can be Macedonian labour market where we have many distortions and disproportionality. Because of that many companies looking a different way of recruitment of employees than through social medias.

<sup>6</sup> Kaplan, A.M. & Haenlein, M., 2010. Users of the world, Unite! The challenges and opportunities of Social Media. Science Direct, 53, pp.59-68.



## **Conclusion**

From the presented facts in the paper it can be concluded that SMEs are a driving factor for the Macedonian economy. On the other hand, information technology enables small and medium-sized companies to become competitive on the domestic and global market. From the research presented in this paper, a strong penetration of information technology in small and medium-sized companies can be noticed. However, despite the increased use of IT by SMEs, although information technology is perceived as critical in creating employment and job opportunities, compared to other countries in the region, they lag behind their counterparts.

According to the results of the survey, a positive trend is that most of the SMEs already use some kind of software solution in their operations, although they still mostly use some traditional software such as software for finance and accounting. Encouraging is the fact that some of the small and medium-sized companies already use certain cloud solutions, which is quite a positive and world trend. Also, companies already recognize the benefits that they would gain by applying advanced information technologies, such as cost-effective financial management, increased productivity, increased competitiveness, improved data management, etc. All these benefits will enable increased growth and development of small and medium-sized companies and thus of the overall economy of Macedonia.

Small and medium-sized companies in Macedonia should insist on the adoption of new information technologies because they will enable them greater competitiveness, growth and development of companies. Therefore, the Government of Macedonia should create an environment that will stimulate the application of IT and provide support to small and medium-sized companies in their aggressive implementation of information technology in their operations.

## References:

1. Baltzan, P. (2014). Business Driven Information Systems. Fourth Edition, New York: McGrawHill/Irwin.
2. Carter, S, Jones-Evans, D.(2006).Enterprise and Small Business: Principles, Practice and Policy (2nd ed.).Harlow: Prentice Hall
3. European Commission (2015). User Guide to the SME Definition. Luxembourg: Publications Office of the European Union. Accessed on: 01.08.2016, URL: <http://ec.europa.eu/DocsRoom/documents/15582/attachments/1/translations/en/renditions/pdf>
4. Herr H., Nettekoven Z. M. (2017), The role of small and medium –sized enterprises in development, Fridrih Ebert Stiftung
5. Hendrickson M., 10 Reasons Why Your Small Business Needs a Website, <https://blogs.constantcontact.com/small-business-website/>
6. Kaplan, A.M. & Haenlein, M., (2010). Users of the world, Unite! The challenges and opportunities of Social Media. Science Direct,
7. Laudon, K. C., & Laudon, J. P. (2012). Management Information Systems: Managing the Digital Firm. Twelfth Edition, New Jersey: Prentice Hall.
8. Leite, MP, Ferreira, A.(2011).SMEs and e-Business: Implementation, Strategies and Policy.Ebusiness managerial Aspects: solutions and case studies (Ed. Cruz-Cunha and Varajão).Business Science Reference.IGI Global
9. Mardikyan S. (2010), Analyzing the usage of IT in SMEs, IBIMA Publishing,
10. National Strategy for SMEs, Ministry of Economy of the Republic of Macedonia, 2017
11. Pearlson, K. E., & Saunders, C. S. (2013). Managing and Using Information Systems: A Systematic Approach, Fifth Edition. US: John Wiley & Sons.
12. Pollard, D. (2006): Promoting Learning Transfer. Developing SME Marketing Knowledge in the Dnipropetrovsk Oblast, Ukraine.
13. Shiel, H. et al. (2003). Understanding the implications of ICT adoption: Insights from SMEs. Logistics information management, vol. 16 (5),
14. Winston, E.R. and Dologite, D. (2002) “How Does Attribute Impact IT Implementation: A Study of Small Business Owners”, Journal of End User Computing, Volume 14, Number 2