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THE IMPACT OF TRENDS IN THE SOFTWARE INDUSTRY ON THE ECONOMIES OF DEVELOPING COUNTRIES

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Abstract: *This paper analyses the impact of the new trends in the software industry on changes in the economies of developing countries. Global economy has undergone a drastic transformation in recent decades. Once isolated markets are now part of a single, global market. Information technologies have changed the ways the World operates and have had a significant impact on global economic performance. Many economies and enterprises have implemented this technology, trying to use them in order to gain competitiveness, economic growth and development. Due to the large capacity for employment and opportunities for achieving significant revenue, especially through outsourcing IT services and software exports, today's ICT sector is in the focus in the countries in transition. Dozens of developing countries have become important exporters of software products and services. In this context, the world's attention was attracted by India, mainly due to its outstanding performance in export of software services, which can be inspiring for other developing countries.*

Keywords: *Software Industry; Developing Countries.*

INTRODUCTION

New trends in the global software market have opened up the opportunity to individuals and firms from low income countries to participate in software production and development. "New Software Exporting Countries" are those dozens of countries, from Brazil to Philippines, which have started exporting software products and services over the last few years. Almost all of these countries are underdeveloped, but with a newly-industrialized, rapidly developing economy. Much has been written about the unbelievable success of India as a software exporter, which can be very inspirational to many developing countries.

1. TRENDS IN THE SOFTWARE INDUSTRY

The Gartner Worldwide IT Spending Forecast, a leading indicator of major technological trends in hardware, software, IT services and the telecommunications market, estimates that IT spending in the world will amount to $ 3.5 trillion in 2017, which is 1.4 more than in 2016. [1]

It is estimated that worldwide consumption for computers, tablets and mobile phones, will reach $ 645 billion in 2017. It is also expected that the data warehouse segment will increase by 0.3 percent in 2017. Companies are moving away from buying data storage servers from traditional manufacturers and instead renting the power of cloud servers from companies like Amazon, Google and Microsoft.

Table 1: Worldwide IT Spending Forecast (Billions of U.S. Dollars).

	2017 Spending	2017 Growth (%)	2018 Spending	2018 Growth (%)
Data Center Systems	171	0,3	173	1,2
Enterprise Software	351	5,5	376	7,1
Devices	645	1,7	656	1,7
IT Services	917	2,3	961	4,7
Communica-tions Services	1.376	-0,3	1.394	1,3
Overal IT	3.460	1,4	3.559	2,9

Source: *www.gartner.com (April 2017)*

One of the most expressive trends in business software is the use of IT resources as a service, and not as a product. Such modern approach to computing is called Cloud Computing. It provides a simple network access, at the request of the user, and a shared set of resources, for example, network resources, servers, hard disk space, applications, and services.

Cloud computing service models are:

SaaS - Software as a Service - software applications are available through an interface, such as a Web browser.

PaaS - Platform as a Service - a model where users use the Cloud platform to support applications they bought or developed themselves, that is, as a platform for storing, testing and maintaining code.

IaaS - Infrastructure as a Service - Cloud model in which users get to use resources such as CPU power, disk space, operating system, and the like. In times of economic instability, many countries are looking for a policy that will stimulate growth and job creation. The software industry is not only one of the fastest growing industries, but also directly affects the creation of new jobs at the global level which is why, in many developing countries, it is regarded as a strategic national industry that deserves special attention.

The most significant economic effects of the IT sector development are: [2]

1. *Direct job creation;*
2. *Contribution to GDP growth;*
3. *The emergence of new services and industry;*
4. *Transformation of labor;*
5. *Business innovations.*

The impact of the software industry on labor migration is different. The success of the sophisticated industry can fuel the loss of newly trained professionals (brain drain) or slow down migration and even attract returnees (for example, India) or attract new migrants (for example, Ireland). A potentially significant and often insufficiently valued contribution of the software industry is its positive impact on entrepreneurship and corporate governance in other industries. Although less visible from the macro contribution to employment, this role is a source of productivity improvements in other industries and can have a strong long-term impact on the growth and development of the national economy. The effects of exports of the software industry on national economies are shown in Table 2.

The software industry is very dynamic and uninterrupted on the move. Very frequent appearance of new products and different innovations, persistently define and redefine the constant change of this industry.

Table 2: Direct and Indirect impacts on national welfare anticipated with growth of the software export sector. [3]

National Impacts of a Software Export Industry	Comments
Impact on labor: • Employment • Wealth • Wages • Emigration, immigration, repatriation	Wages of software professionals rise. Software export industry creates jobs. Owners of software equity increase wealth. Similar indirect impacts on labor in other sectors.
Impact on new organizational forms: • Raise standards/ change the culture of work • Improve business forms and structures • Increase technological/innovative entrepreneurship • Professionalize Human Resource policies	Organizational structures are flatter. The software export industry adopts international business norms that have direct impacts on software firms and indirect impacts on other sectors. Transformation of work culture toward attainment of high quality international standards of process and outputs.
Stimulate infrastructure and other industries: • Ancillary/support services • Technology infrastructure • Education and training • Quality of Life • Related industries	Indirect impacts:externalities. Externalities are spillovers and stimuli to other firms outside the immediate industry. Software demand spurs investment in communications infrastructure Related industries such as *IT-enabled services* are stimulated. Demand for software skills spurs investments in general education, higher education and specialized training institutes.
Economic impacts: • GDP • Trade balance	Direct and indirect impacts: Software exports contribute to GDP growth. Software exports improve national trade balance, though currency strength may hurt other national sectors.
Political impacts: • Increase income inequality • Political backlash • Reinforce moderate middle class	Indirect political impacts: income inequality rises leading to possible political backlash;enlarged middle class more likely to support democratic and pro-market policies.

Source: *American University, Washington D.C.*

Business-software companies need to continually review the structure of their business and take courageous steps to achieve better financial results. They want to do it, because there are increasingly aggressive competitors on the market. On the other hand, stronger competition has made customers more demanding. They are demanding from the business software industry that their products have better performance, better features, to be independent of the platform, more flexible and to keep their price as low as possible. In the end, a successful software export industry can lead to improvements in the quality of life that make the location or land more attractive to life.

2. THE IMPACT OF THE SOFTWARE INDUSTRY ON THE ECONOMIES OF DEVELOPING COUNTRIES

Global trends in information and communication technologies have enabled economic growth for countries in transition through improving infrastructure, communication, efficiency, productivity, competitive advantage and job creation. It has also been shown that organizational, management and other innovations introduced by information technology companies followed companies in other industries, which contributed to improving their performance. In this context, mainly due to its outstanding performance in the export of software services, India has attracted world attention, an example that may be inspiring for other developing countries.

India is a global leader in the outsourcing of IT services and software production. With a large number of talents for the IT industry, India offers a wide range of IT services, such as application development and maintenance, remote infrastructure management, software testing, research and development and state-of-the-art software engineering. [4]

The success of the Indian software industry has increased the relative value of professional workers, not just developers, but also IT managers and analysts. The growing importance of human capital, in turn, has led to innovative models of entrepreneurship and organization, pioneering in the software sector, which are slowly growing and expanding to other sectors of the Indian industry.

Demand for software skills fosters higher investment in general education, higher education and specialized training institutes. Growing profits in the softwares industry are causing greater investment in education and training by both the government and the private sector.

One of the countries in transition whose economy is heavily influenced by global trends in the information technology sector is Serbia. Many Serbian companies develop software for their own needs, but there is also a growing demand for outsourced products by the foreign

The technology company Nordeus, which deals with the development of computer games, is one of the largest software and Internet business entities in Serbia today with an annual turnover of over 70 million Euros. Its Top Eleven football manager has reached 100 million registered users and 10 million active players on a monthly basis, on Web Android and iOS devices, making this brand and officially the most popular mobile sports game in the world. [5]

Schneider Electric DMS Novi Sad is a software IT company for research, development and engineering in the field of power system management. Its main product DMS software is in use in over 50 companies and 130 dispatch centers around the world. The company is rapidly growing and gathering over 1,000 experts from the field of energy and computing. [6]

Asseco SEE represents a group of companies operating in Eastern and South-Eastern Europe, with competencies in the field of IT solutions for banks, telecommunications companies, the public sector, insurance, manufacturing and healthcare. [7]

Saga d.o.o. Belgrade is engaged in consulting, system integration and innovative IT solutions, with the main focus on software development and provision of professional services. It has become a part of the ICT Group - New Frontier Group, which now employs over 2,000 IT professionals in 17 countries. [8]

The value of the Serbian IT market is estimated at around 700 million euros. In the Serbian IT industry, there are only five large companies (with more than 250 employees). The total number of small and medium enterprises is 337, which is 17.1% of all IT companies and is considered an unfavorable indicator. More than half of the companies in the SME segment are from the software sub-sector, 180 out of 337. The Serbian IT industry is characterized by a large number of micro enterprises (1,629), which have low financial capacities, insufficient technological and managerial skills. Investment and support to the SME segment is seen as a decisive factor for the rapid development of IT industry. [9]

CONCLUSION

Due to the ability to generate significant export revenues, high capacity for employment, positive impact on entrepreneurship and corporate governance in other industries, and, finally, contribution to quality of life improvement and,

consequently, making the location or country more attractive to life, the software industry is at the center of attention in many developing countries.

Serbia, as one of those countries, has the resources and the potential to leverage the impact of market changes in the software industry in order to achieve faster economic development and growth.

REFERENCES

[1] Gartner, Inc. (2017). *The Gartner Worldwide IT Spending Forecast*.

[2] Carmel E., (2003), *The new software exporting nations: Impacts on national well being resulting from their software exporting industries*, American University, Washington D.C.

[3] Kvochko E., (2013), *Five ways technology can help the economy*, World Economic Forum.

[4] Tholons, (2016), *Top 100 Outsourcing Destinations*, www.tholons.com.

[5] http://www.nordeus.com

[6] http://www.schneider-electric-dms.com

[7] https://asseco.com/see

[8] http://www.saga.rs

[9] ttp://www.vojvodinaICTcluster.org