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Zarkua Irakli, PhD Student
Vice-Chair of Tbilisi City Municipal Assembly
Georgian Technical University, Georgia
irakliz123@yahoo.com

GLOBAL CHALLENGES AND THE WAYS TO FIND INCENTIVES FOR INNOVATIONS DEVELOPMENT (CASE OF GEORGIA)

Abstract

The paper presents the general challenges of innovations development and also, discusses the situation in Georgia against the background of the global challenges. The position of country is

studied according the Global Innovation Index. The different ways to stimulate the innovations developments are explored on the base of scientific works. The program "Startup Georgia" has been considered as an example of an active state policy to stimulate the development of innovations.

Key words: *Innovation, Stimulation Innovations Development, Georgia*

The aim of the work is to identify general challenges of innovations development nowadays. In addition, it explores some aspects of Georgia's innovations development against the background of the global challenges to find the ways for stimulation innovative activities.

Developed countries have the best prerequisites for creating a new product. Historically, the world's innovation leaders are the United States, Japan, Germany, the United Kingdom and France. According to the Global Innovation Index, rankings of the world advanced economies provide a diverse picture to date. For example, according to the Global Innovation Index 2019 (GII, 2019), in the top 10 countries are: Switzerland, Sweden, the United States of America, the Netherlands and the United Kingdom, Finland, Denmark, Singapore, Germany and Israel. Georgia is ranked 48th with 37 scores (of 100).

The innovation efficiency ratio has a different picture. The Innovation Output Sub-Index indicator shows the ratio of innovative output to the incurred costs of innovation. According to the 2019 data, Switzerland has the highest indicator of innovation effectiveness. Following Switzerland in the rankings are Sweden and the Netherlands. The fourth is the United Kingdom, the 5th and 6th are China and the USA, the 7th and 8th are Finland and Israel, the 9th is Germany, and the 10th is Israel. Georgia is ranked 60th with 25.8 scores among 129 countries.

The Global Innovation Index sets a sub-index of incurred costs of innovation. The Innovation Input Sub-Index has five enabler pillars: Institutions, Human capital and research, Infrastructure, Market sophistication, and Business sophistication. According to this Sub-Index, world's top 10 countries are: Singapore, Switzerland, the USA, Sweden, Denmark, the UK, Finland, China (Hong Kong), Canada, Korea. Georgia is ranked 44th with 48.2 scores.

Today, the greatest attention of the world is attracted by the economies of Asian countries. It is believed that the future of the global economy has never been affected by them before as now. This is primarily about China, Japan and India. Presumably, China will continue to develop rapidly. The growth of its economy is mainly characterized by relatively simple foreign technologies and low-paid manpower, and it lags far behind the United States and other leaders in innovation. In the future,

namely technology and innovation will be decisive for China, for which China is taking serious steps. China has come close to Japan, although Japan is still the second economy in the world. As for India, it still lags behind China by more than one parameter, although it is possible that its huge potential of innovation and technology overtops China. India is one of the largest manufacturers of software technologies; it has great achievements in pharmaceuticals, biotechnologies, nuclear physics and other high-tech fields.

Today, a growing number of sectors of the world economy are becoming high-tech, i.e. development of the country without sufficient innovation potential is impossible. Technological innovations will change the nature of the business environment and almost every aspect of human life. Knowledge-based business and economic systems will be dominant ones to achieve competitiveness (Audretsch& Walshok, 2013; Gogorishvili, 2018; 2013; Moutinho et al., 2016; Papachashvili, 2014, 2016).

Some believe that Georgia with a small economy cannot independently conduct modern expensive scientific experiments. Together with other factors, the dawning of the age of globalization is also conditioned by a fast growth of expenses for allocation of modern science. Such issues are settled by pooling of the resources and collaboration of interested countries. As for the tasks of practical application, international cooperation in this area still has unprecedented dynamism of development.

Georgia's position according to the Global Innovation Sub-Index is the weakest in High-& medium-high-tech manufactures and it is ranked 91st with 0.1% that points out the necessity to strengthen future competitiveness of the economy. (GII, 2019)

Researchers of modern science, as a social phenomenon, explain that young business structures in countries with economies in transition are not ready not only to participate in such tasks, but also to be aware of them. The international standard in the practice of developing countries is based on the active role of state structures in this matter - on state guardianship. It is very important to include intellectual resources in the process of state building in Georgia. Mechanisms of exposure - identification of intellectual forces will not operate without a highly professional study - consideration of specific problems facing the state (Abralava, 2014).

It stands to mention that in 2018, the Noble-prize winner Paul Romer (his work demonstrates how knowledge can function as a driver of long-term economic growth; how economic forces drive the desire of firms to create new ideas and innovations; how economic forces govern the willingness

of firms to produce new ideas and innovations) notes that economic growth is the result of the innovative efforts of manufacturers, scientists and researchers, and everything that affects their actions (efforts) can have a long-term impact on our level of life. At the same time, he notes that the state has the power to encourage or hinder innovation through politics. (Nobel Prize, 2018)

Countries demonstrate different innovation incentives throughout the history. For example, universities of the United State of America have played an important role as drivers of local innovation for well over a century and state governments have emerged as major promoters of innovation much more recently… Focus on strategies for innovation-based development has grown in recent years (Best Practices, 2013) Regarding the ways of stimulation scientists indicate, that first-generation industrial promotion programs were included a science or research dimension, but nowadays there is a growing emphasis on the growth of local innovation ecosystems and their role is revitalizing older manufacturing sectors, helping new industries arise out of the established manufacturing base, and in recruiting out-of-state firms with knowledge-based incentives rather than traditional fiscal and infrastructure incentives (Audretsch&Walshok, 2013). One of the ways of innovation stimulation is financial assistance to the universities or permission to create business incubators. Discussing the incubation process for the creation of viable firms scientists indicate mix of factors and among them the government activities (Dominici&Levanti, 2015). The role of collaboration of the university, government and the business in the innovative development is the key topic of the studies (Gagnidze, 2018a, 2018b) and the need of innovative approaches in education system management is reviled as well (Lekashvili, 2019). We should remember, that "education has a vital role to play in developing the knowledge, skills, attitudes and values that enable people to contribute to and benefit from an inclusive and sustainable future" (OECD 2018).

The given research revealed low average level of engagement of enterprises in the innovation activities during 2013-2017 years in Georgia (table 1).

Table 1

Enterprise engagement in innovation activities during 2013-2017 years (%) in Georgia

	Years		
	2013-15	2016	2017
In-house R&D	12.1%	13.1%	12.9%
External R&D	5.0%	5.2%	5.6%
Acquisition of machinery, equipment and software	27.2%	21.5%	19.5%
Acquisition of external knowledge	7.8%	8.6%	9.6%
Training for innovative activities	15.1%	13.8%	14.4%
Market introduction of innovations	11.7%	11.8%	11.8%
Design	13.5%	15.6%	14.6%

Other	7.5%	10.4%	11.7%
Total	100.0%	100.0%	100.0%

Source: www.geostat.ge

Universities, research institutes, non-profit organizations are also less involved in the development of innovative goods or services and this indicator improved a little from 2013 to 2017 (table 2).

Table 2

Developed innovation of goods or services by organizations or institutions during 2013-2017 years (%) in Georgia

	Years					
	2013-15		2016		2017	
Your enterprise by itself	Innovation of goods	Innovation of services	Innovation of goods	Innovation of services	Innovation of goods	Innovation of services
Your enterprise	70.1%	61.4%	59.1%	56.4%	54.3%	41.0%
Your enterprise together with other enterprises or institutions*	10.6%	14.6%	12.6%	16.9%	15.7%	20.1%
Your enterprise by adapting or modifying goods or services originally developed by other enterprises or institutions	9.1%	13.7%	11.0%	14.2%	13.9%	19.8%
Other enterprises or institutions*	10.2%	10.3%	17.2%	12.5%	16.1%	19.1%
Total	100%	100%	100%	100%	100%	100%
* institutions include universities, research institutes, non-profits, etc.						

Source: www.geostat.ge

Among innovation promotion policies implemented in Georgia, it should be noted the program "Startup Georgia", which was created by the initiative of Prime Minister of Georgia within the framework of economic reform, which, on the one hand, is one of the components of the government 4-point plan. The program was developed together by Georgian Innovations and Technologies Agency and the Partnership Fund, which was approved by the government Decree No.206 as of May 11, 2016. The purpose of the program is to promote business based on innovative ideas and international market penetration.

The program consists of two components: innovative component and high-tech component. The Agency carries out a high-tech component and finances projects of the following directions: aerospace production, automobiles, artificial intellect, biotechnology, bioinformatics, computer engineering, computer science, information technology, nanotechnologies, nuclear physics, electromagnetic radiation, robotics and semiconductors. Program features as follows: The project is evaluated by leading international experts from Silicon Valley; Investment Funding up to GEL 100,000; Applicant's financial involvement is not required; Applicant's share participation is 95%; Submitting successful projects to international investors in Silicon Valley for additional investment attraction; The agency remains a partner of a 5% share in the joint venture for a period not exceeding 7 years and does not interfere with the startup management; Ensure mentoring and coaching. Within the framework of the high-tech component of the program "Startup Georgia" 20 startups were selected from 149 received applications and financed with the amount of 100 000 GEL. A total of 726 applications were received on the program of "Startup Georgia", 149 of which were high-tech component. (Start-up Georgia)

Although it does take time to evaluate the results of the activities of the firms facilitated by the mentioned program, the preliminary results show that it is successful, as a number of winning projects are already actively marketed and have entered the international arena as well.

Conclusions

Considering the development of innovations under the conditions of a small open economy, such as Georgia, we should pay attention to the circumstances that innovation market is global and there is global marketplace competition, which determines the intensity of competition and the complexity of strengthening in the market. Scientific knowledge is critical to creation of a new product, especially a high-technology product, and naturally requires adequate funding. Small economies lack such opportunities and it revealed in Georgia as well. The role of collaboration of the university, government and the business is crucial. The active policy pursued by the state to stimulate innovations is important and depended on the relevant understanding the challenges.

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Startup-Georgia, http://startup.gov.ge/geo/news