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Defining Digital Economy of the Shanghai Cooperation Organization Member States

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Abstract. The paper is devoted to some of the macro-regional aspects of digital economy. Special attention is paid to the definition of the level of digital economy development in the Shanghai Cooperation Organization countries. Currently the topic of digitalization and the perspectives of its development in other countries is under academic discussions. Thus, the authors of the article provide the definition of digital economy and stress its significance in the modern world. The analysis of the current state of digital economy in the countries of Shanghai Cooperation Organization was conducted and the most commonly used approaches in digitalization assessment were shown. The study led to the conclusion that it is important to choose an appropriate method to make an assessment of digitalization among member states.

1. Introduction

1.1. Problem statement

The outcomes of the recent (2018) Shanghai Cooperation Organization (SCO) meetings (17-th) show that digital economy will play a great role in the near future. In particular, the Chinese Premier Li Keqiang claimed that the SCO member's aim is to „strengthen cooperation in the digital economy, smart manufacturing and to foster innovation-led new growth drivers" [8]. The significance of the digitalization has been also discussed by the participants of the Business Council BRICS and SCO meeting during the "X International IT forum" (2018) [7].

Currently the Shanghai Cooperation Organization includes eight member states: the Republic of India, the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Islamic Republic of Pakistan, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan. Moreover, the Shanghai Cooperation Organization cooperates with 4 observer states and 6 dialogue partners. One of the SCO's main goals is to promote effective cooperation in economy and technology among all its members [20]. The term "Digital economy" (also known as the Internet Economy, the New Economy or Web Economy) is not new. Applying to other sources, it has existed for more than a decade [5; 17]. In different papers, such as "Defining and Measuring the Digital Economy" by Bureau of Economic Analysis (US Department of Commerce) the meaning of digital economy is partly revealed [1].

1.2. Goals of the research

The aim was to reveal a conceptual definition of the digital economy and to determine the state of digitalization of the SCO state members and to define whether they have a digital economy strategy or not. In this paper the components that form the digital economy both in the world and in the SCO countries were analyzed. Moreover, the most commonly used approaches in digitalization assessment were shown. The topic of the digital economy in different countries is under academic discussion. Nevertheless, there are blank spaces in terms and definitions of the digital economy and, what is more important, in its assessment. Although, it is hard to make a choice on the exact method that will determine the digital economy level of SCO countries precisely, it is important to make an assessment of digitalization among them. The paper will be useful for academics, economists, policymakers and general readers as well.

The research is based on secondary data such as official statistical data collected from the internet, research papers, articles, newspapers. The MS Excel was used in order to analyze the data.

3. Analysis of theoretical approaches

Based on different research papers, news etc., the authors summarized and suggested a general definition of the digital economy that is suitable for the SCO countries as well. The digital economy is a model of the international economy where the main impact on businesses and consumers is made by digital products and services, mainly based on the internet and recent information technologies. One of the problems and features of this phenomenon is that it is hard to measure the digital economy [18]. This is due to the rapid change in information technologies. When describing the term of digital economy, different authors analyse it from different angles. Thus, they describe its infrastructure; recent changes and its impact on different economic indexes (for example, GDP, inflation); main technologies that will make the biggest positive impact on business. Less attention is paid to an approach of common "composite digital economy indexes" creation that could show “digital growth” and other spheres of digital development of international society.

The assessment of the digital economy of the Shanghai Cooperation Organization countries and their digital ranking is rarely described. Various scientific research papers have been investigated to find out that there are several approaches on how to measure the digitalization and the digital economy.

The most commonly used approach is an assessment of digital economy state based on an index of digitalization that measures how well a digital economy is developed. We found that there are two global digital indexes: “Digital Economy and Society Index” (DESI) and „the Digitalization Index” (DiGiX) based on a similar approach [2]. Thus, the question what a DESI is and how it can be calculated arise. DESI overall index is calculated as the weighted average of the five main DESI dimensions: 1 Connectivity (25%), 2 Human Capital (25%), 3 Use of Internet (15%), 4 Integration of Digital Technology (20%) and 5 Digital Public Services (15%). In order to conduct the following analysis the data located on the official website of European Commission and independent researching groups were taken into account [19]. As the research states, DESI is a “composite index that summarizes some 30 relevant indicators... and tracks the evolution of primarily EU Member states”.

Unfortunately, DESI is available for 47 countries where 28 are the countries of the European Union and only two countries are the SCO members (Russia and China).

Hence, there is an issue concerning the comparison of international digital economy states. Despite that, it was possible to find an independently calculated “DiGiX index” that partly solves the problem mentioned above. Considering the comparison of Digital economy of SCO countries, DiGiX index was used for further investigation [2].

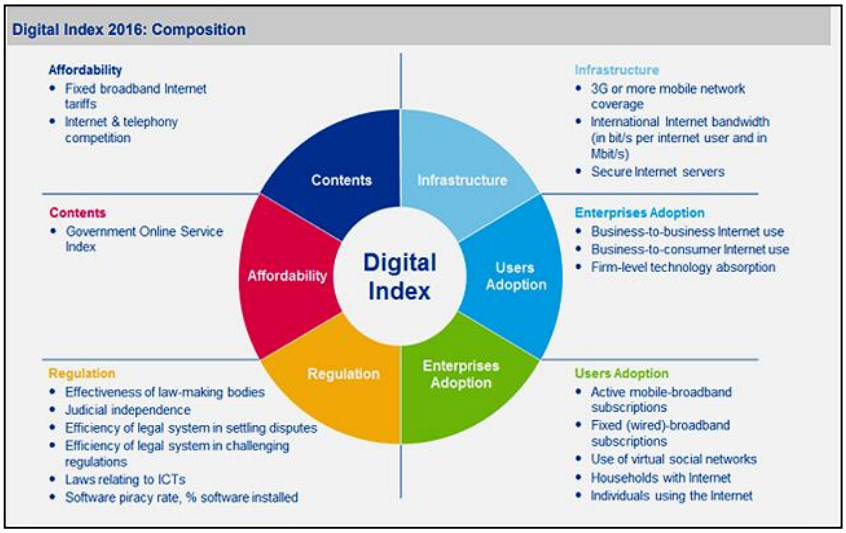

Figure 1. The digitization index 2016 (DiGiX) Composition [2].

The DiGiX index represents six sides of digital economy and considers different variables related to digitalization. The composition of DiGiX is described in Figure 1. The index represents a descriptive statistics of 20 indicators. It needs to be mentioned that DiGiX 2016 summarizes data which was collected during the calendar year of 2015 which is one of the most recent research data on digitalization. This index includes 100 countries including India, Russia, China, Kazakhstan, and Pakistan.

4. Findings

It can be admitted that SCO data for state members including Republics of Tajikistan, Uzbekistan and the Kyrgyz Republic is not provided. This leads to the problem of digital economy assessment. The collected existing data was presented in form of graphs [2].

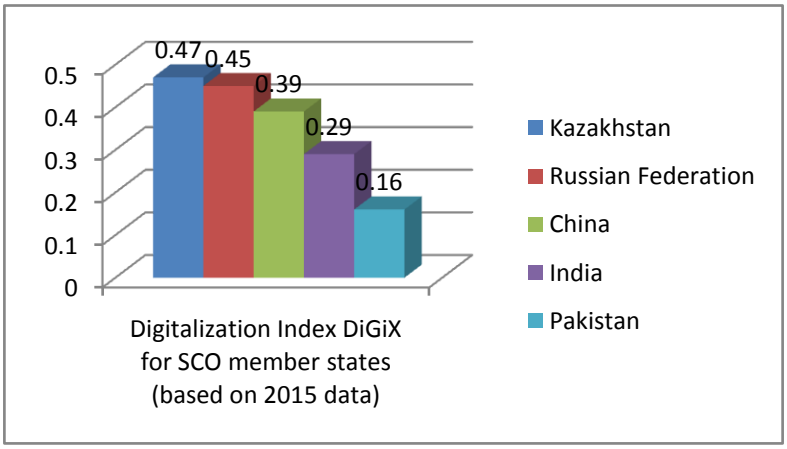

Figure 2. The Digitalization Index for five SCO member states.

The available data shows that the Republic of Kazakhstan might be the highest-placed state member of SCO in digitalization with 47% digitalization performance. The second result in the presented bar chart belongs to the Russian Federation with 45%. As it can be seen, the third position is taken by the People's Republic of China with the result of 39%. According to the data presented in the report, some SCO developing countries exhibit higher scores than other developed countries such as Italy (44%), Poland (43%) or Greece (40%) and some others [2].

Table 1. Government digital economy programs of SCO state members.

SCO state member	Digital economy development program name	Time coverage	Aim
Kazakhstan	Digital Kazakhstan	2018-2022	Includes two directions: Digitization of the existing economy and creation of the digital industry of the future [13]
Russian Federation	Digital Economy program that includes five separate projects	2018-2024	Complex digital transformation of economy and the social sphere of Russia [18].
China	Digital China is mentioned within a program «Made in China 2025» and other documents	In some sources 2015-2025, long term vision 2050.	Ends its reliance on international technology and upgrade its industrial capability and smart manufacturing by ensuring that innovation, product quality, efficiency, and integration drive manufacturing across 10 key industries. Becomes leader in information technologies [6;12;11].
India	"Digital India" includes National e-Governance Plan 2.0.	Launched since 2015	The main aim is to transform India into a digitally empowered society and knowledge economy. Includes directives to transform the financial industry and stimulate competition in the financial sector and provide more security against fraud [16].
Pakistan	Digital Pakistan („Digital Pakistan Policy") [14]	Not mentioned	A key goal of the Digital Pakistan Policy is to create a digital ecosystem with infrastructure and institutional frameworks for the rapid delivery of innovative digital services, applications and content.

Kyrgyz Republic supported by the World Bank	„Digital CASA – Kyrgyz Republic“	2018-2023, long term vision 2040	An increase of access to more affordable internet, crowd- in private investment in the ICT sector, and improve participating governments' capacity to deliver digital government services in Central Asia and parts of South Asia, through the development of a regionally integrated digital infrastructure and enabling environment [9;10]
Uzbekistan [3;21;22]	„Digital Uzbekistan 2030“	2018-2030. In the stage of development	Active implementation of the advanced information and communication technologies (ICT) in economy and other spheres of life, effective fight against corruption
Tajikistan	Unknown	Unknown	Not developed well yet [22].

The search for the missing data for the unmentioned SCO countries led to an older research based on data from 2004 to 2011. The analysis of an earlier research conducted by another research group shows that a digital index was calculated for most of the countries in the world [4]. They were also divided into four groups: „clusters of digitalization”: “constrained” including SCO countries like Kyrgyz Republic, Tajikistan), “emerging” (China, India, Uzbekistan, and Pakistan), “transitional” (Kazakhstan) and “advanced” (Russia). To a certain extent it gave an understanding what the level of the digitalization among various countries was. However, it’s time that all of SCO digitalization indexes should be recounted in order to make an objective picture of digitalization [4].

Furthermore, other sources of information were analyzed in order to determine whether the SCO governments member-states provided a digital economy strategy or a development program. The result of our investigation was placed into the table.

D-Russia internet-portal awoke the problem of consistence of digital economy program and other national programs. Mass media links to the World Bank report, and claims that the Republic of Tajikistan, Uzbekistan and the Kyrgyz republic have only basics of digital economies so their digital economies are not developed well [15].

5. Conclusions

In conclusion, the authors state the following results. Firstly, the definition of the digital economy for SCO countries and international economies was suggested. Secondly, different approaches of determination for the current state of digitalization and digital economy were shown. They include GDP approach which is based on assessment of composite index of digitalization such as “Digital Economy and Society Index” (DESI) and “the Digitalization Index” (DiGiX).

Secondly, the analysis of digitalization of Shanghai Cooperation Organizations state members including Kazakhstan, Russia, China, India and Pakistan showed that Kazakhstan, Russia and China are taking leading positions as SCO state members.

Thirdly, it was found out that some of the developing SCO countries have a higher scores compared to several developed countries. It was revealed that topic of digital index measurement and assessment of the Kyrgyz Republic, Republic of Uzbekistan and Tajikistan is not fully covered. Moreover, the state of digital economy of these countries can be defined as uncertain.

Finally, the collection, structuring and comparison of the government Digital economy programs for all SCO state members showed several issues that are needed to be solved. Among them there is a necessity for in a better information distribution of digitalization of SCO state members, especially in Tajikistan; the necessity for financial support of digitally developing economies and creation of a consulting assistance by the digitally developed SCO state members. In further research, problems of government digital strategies consistence will be explored.

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