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Digital Agenda in the EAEU Countries: The Case of Kyrgyzstan

Declared 'EAEU Digital Agenda 2025' shows the interest of countries towards the topic of economies' digital transformation. The Kyrgyz Republic is not an exception. The Government accepted national policies that cover the subject of digitalization, some key sectors of which are identified. The article includes the analysis of policies within 'EAEU Digital Agenda 2025', state policies 'National Strategy of Development of the Kyrgyz Republic for 2018-2040' and the 'Concept of Digital Transformation 'Digital Kyrgyzstan' 2019-2023', main indicators of digitalization of all five EAEU member-states, as well as investigation of digitalization in agricultural sector, tourism sector and creative economy.

Key words: *Eurasian Economic Union, Kyrgyz Republic, digitalization, digital agenda.*

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Introduction

2019 is named the "Year of Regions' Development and Digitalization" in Kyrgyzstan in purpose to further development of regions and introduction of technologies into daily life of communities. According to the President of the Kyrgyz Republic, Sooronbai Jeenbekov, "digital technologies will enter the whole areas of life – education, medicine, business, tourism"[2].

According to Merriam-Webster's Dictionary, 'digitalization is the process of converting something to digital form'.[3] According to representatives of ministers of the Eurasian Economic Commission (EEC), 'digitalization is horizontal change

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2 Information Agency 'Sputnik'. 2019 is declared the Year of Regional Development and Digitalization of Kyrgyzstan. URL: <https://ru.sputnik.kg/society/20190109/1042778796/kyrgyzstan-zhehehnbekov-2019-god.html>.

3 Merriam-Webster Dictionary. URL: <https://www.merriam-webster.com/dictionary/digitalization>.

of traditional models of the economy'[1], and digital economy is economic activity based on digital processes, models, technologies, digital goods (services), including produced by electronic business[2].

Digital economy is observed under the prism of digital transformation which is formulated by the EEC as change of economic structure, change of traditional markets, social relations, and government related to the penetration of digital technologies into them[3].

The term "digital transformation of the Kyrgyz Republic" used by local public authorities means development of digital government, including parliament, where digital platforms are established by default with focus of digital services on mobile devices[4].

The purpose of this article is to analyze policies where the term 'digitalization' is declared, identify current achievements in digital transformation of important for the country sectors, pointed out in 'National Strategy of Development of the Kyrgyz Republic for 2018-2040' and in the 'Digital Kyrgyzstan', find any reference to digitalization in EAEU's documents and programs in those sectors and look at existing activities in in digital transformation of those sectors in some EAEU member-states.

Policies for Digitalization

All five members of the Eurasian Economic Union (EAEU) accepted the 'Digital Agenda 2025', a medium-term strategic document defining the goals, principles, tasks, directions and mechanisms of cooperation of the EAEU member states on the implementation of the EAEU digital agenda. EAEU Digital Agenda is the

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1 Eurasian Economic Commission (2018). Novyye tekhnologii: vozmozhnosti i riski. Chto dadut YEAES innovatsionnyye finansovyye instrumenty – blokcheyn, kriptovalyuty i t.p.? (New technologies: opportunities and risks. What will the EAEU give innovative financial instruments - blockchain, cryptocurrencies, etc.?). URL: <http://www.eurasiancommission.org/ru/nae/news/Pages/13-02-2018-1.aspx>.

2 Eurasian Economic Commission (2019). Digital Agenda of EAEU. Glossary. URL: <https://digital.eaeunion.org/extranet/about/glossariy.php>.

3 Ibid.

4 State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27>.

range of issues on digital transformations within the framework of developing integration, strengthening the common economic space and deepening cooperation among member states, reflected in the 'Statement on the EAEU Digital Agenda' (signed by the heads of EAEU member states on December 26, 2016).[1]

The main purposes of Digital Agenda are:
- accelerated transition of economies to a new technological way
- high-quality and sustainable economic growth
- creating an enabling environment for innovation
- the formation of new industries and markets
- updating mechanisms of integration cooperation
- increasing the efficiency of economic processes
- enhancing the competitiveness of the economies of EAEU member states

Besides this, each county has own national digital transformation program. Thus, Kyrgyzstan has 'The Concept of Digital Transformation "Digital Kyrgyzstan" 2019-2023' which was accepted in 2019. The Concept determines structure of transformation, management system and basic processes of country's digitalization. Moreover, the Concept determines the main sectors of economy where digital transformation is more than preferable: agriculture, light industry, tourism and creative economy.[2] The Concept defines management system, steps of Concept's realization and target indicators where indicators of 2016-2018 are taken as basic ones.

The Concept puts indicators which Kyrgyzstan should achieve by certain year. Thus, the share of public services provided in electronic format in relation to the total number of public services provided in the traditional way is equal to 7% in 2018, and by 2023 it should be equal to 80%; the share of digitized documents of state authorities was 5% in 2018, and by 2023 this indicator should be 80%.[3]

'The Concept' is not the only national program that declares about digitalization and digital transformation of Kyrgyz economy. Plans about digitalization is described in 'The National Strategy of Development of the Kyrgyz Republic for 2018-2040' (or '2040 Sustainable Development Strategy' briefly), which was

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1 Eurasian Economic Commission. Main Directions Implementation of The EAEU Digital Agenda Till 2025. URL: <http://www.eurasiancommission.org/ru/act>.

2 State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27>.

3 More target indicators are available at: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27>.

signed by the President of Kyrgyzstan in 2018. Notion about Kyrgyzstan's digitalization goes through the whole strategy, and it is declared that by 2040 the Kyrgyz Republic should be a digital hub station on the Great Silk Way, and created datacenters network will provide ICT services to the whole region: Central Asia, EAEU, Middle East, China and Europe.[1] Besides description of country's vision by 2040 with intermediate results achieved by 2030, the Strategy includes priority sector of development: industry, agro-industry complex and cooperation, light industry, tourism.

In addition, the country has the National Program of Digital Transformation on creation of open, transparent, technology intensive community at the level of each citizen, competitive business, stable government and reliable international relations named 'Taza Koom' (or "Clean Community" from Kyrgyz language). 'Taza Koom' is a key component of the '2040 Sustainable Development Strategy'. Taza Koom should assist in activating of transition into digital economy, and creating mobile and flexible state, with modernization of key social spheres of the country (education, health, ecology), economic (energy, agriculture, industry, services) and political (corruption prevention, fair elections). Taza Koom should assist in achievement of all17 Sustainable Development Goal (SDGs)[2] and related to them tasks[3].

Discussions about digital transformation are done with discussions about cyber security. Many countries admit the necessity to make their economies secure and strong from assaults including hacker attacks. Kyrgyzstan accepted 'The Strategy of Cyber Security of the Kyrgyz Republic for 2019-2023'. The Strategy includes definitions of cyber security and related topics, descriptions of the main targets and functions, touches upon international cooperation and technical standardization and depicts expected outcomes from its realization as well as its monitoring[4].

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1 Government of the Kyrgyz Republic. National Development Strategy of the Kyrgyz Republic for 2018-2040. URL: <http://www.gov.kg/?page_id=125892&lang=ru>.

2 The Sustainable Development Goals developed by United Nations Organization, are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it is important that we achieve each Goal and target by 2030.

3 Taza Koom. About the Taza Coom Digital Transformation Program of the Kyrgyz Republic. URL: <http://tazakoom.kg/site/concept/4>.

4 Government of the Kyrgyz Republic. Strategy of Cyber Security of the Kyrgyz Republic for 2019-2023. URL: <http://cbd.minjust.gov.kg/act/view/ru-ru/15479>.

Brief mention of the Digital Great Silk Way in terms of One Belt One Road realization is reflected in the Digital Kyrgyzstan 2019-2023 that its revival along with other international initiatives such as EAEU Digital Agenda, national policies on digital transformation "open up new opportunities for the private sector to expand sales markets and create new types of goods and services and participate in the global production chain"[1]. However, exact programs or activities within this initiative are still unknown.

Some Indicators Related to Digital Transformation

The EAEU Digital Agenda does not define certain indicators which the union itself and members separately should achieve by 2025. The joint survey done by World Bank and Eurasian Economic Commission operates with figures such as 2025 general target indicators. Among them there are increase in the share of the digital economy in the EAEU to annual GDP growth, growth of the number of employees in the high-tech sector, Increase in productivity of the main sectors of the economy, increase in exports of digital goods and services, as well as in digitally-mediated exports of traditional goods and services.

Experts did not divide target indicators by countries and outline common for the EAEU marks. For example, implementation of the EAEU Digital Agenda can assist in achieving target values of up to 3 percent in employment in the ICT sector, and it will be a 2.4 percent increase in employment rates by 2025. The digital services' share of total exports was 28.3 percent in the EAEU in 2015, and by 2025 this value should be about 34–36 percent.[2]

Besides target indicators, the survey quotes figures of potential influence of digital transformation on the economy by 2025. Thus, in case of provision of universal broadband access can secure a total GDP growth of 1.7 percent for the EAEU by 2025. The savings resulting from removing legal barriers to the implementation of the EAEU Digital Agenda can potentially reach 2.6 percent of GDP.

According to the EDB, the share of the digital economy in the aggregate GDP of the EAEU is less than 3%. The share of the digital economy in Russia's GDP is

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1 State Committee of Information Technologies and Communication of the Kyrgyz Republic, "The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023", <http://ict.gov.kg/index.php?r=site%2Fsanarip&cid=27. Accessed October 20, 2019>.

2 World Bank Group. The EAEU 2025 Digital Agenda: Prospects And Recommendations. Overview Report. URL: <http://documents.worldbank.org/curated/en/850581522435806724/pdf/EAEU-Overview-Full-ENG-Final.pdf>.

3.0%, and Kazakhstan - 3.9%. The contribution of the digital economy to Kyrgyzstan's GDP is 0.4% of the country's GDP[1].

The ICT Development Index[2] is used to monitor and compare developments in information and communication technology (ICT) between countries and over time. It includes ICT infrastructure and access indicators such as fixed-telephone subscriptions per 100 inhabitants, percentage of household with internet access, Mobile-cellular telephone subscriptions per 100 inhabitants, International Internet bandwidth per Internet user, Percentage of households with a computer; ICT usage indicators with indicators percentage of individuals using the Internet, active mobile-broadband subscriptions per 100 inhabitants and fixed-broadband subscriptions per 100 inhabitants; ICT skills indicators containing mean years of schooling rate and gross enrollment ratio (secondary and tertiary level). As of 2017, the ICT development index distribution among EAEU members is the following. From 176 countries, among EAEU members the lowest ranking belongs to Kyrgyzstan – 109, the highest belongs to Belarus – 32. Closer to Belarus's ranking is Russia; it has 45, then Kazakhstan with 52 ranking and Armenia with 75 ranking.

Table 1
ICT Development Index.

	Index	**Ranking - 2017**
Armenia	5,76	75
Belarus	7,55	32
Kazakhstan	6,79	52
Kyrgyzstan	4,37	109
Russia	7,07	45

Source: International Telecommunication Union, 2017.

The United Nations E-Government Development Index[3], which describes assessments of e-government development at the national level and is based on the weighted average of three normalized indices. As a composite indicator, the EGDI

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1 Information Agency "Tazabek". Kyrgyzstan 4.0: Vklad tsifrovoy ekonomiki v VVP Kyrgyzstana ne prevyshayet 0,4% (Kyrgyzstan 4.0: Contribution of the digital economy to Kyrgyzstan's GDP does not exceed 0.4%). URL: <www.tazabek.kg/news:1458087?f=cp>.

2 International Telecommunication Union, <https://www.itu.int/net4/ITU-D/idi/2017/index.html. Access October 22, 2019>.

3 E-Government Knowledgebase. URL: <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018>.

is used to measure the readiness and capacity of national institutions to use ICTs to deliver public services.

The highest index belongs to Russia, it is 0.7969 and has 32 ranking among 193 countries; the lowest belongs to Kyrgyzstan and is equal to 0.5835 or 91 ranking.

Table 2
E-Government Development Index.

	Index	Ranking - 2018
Armenia	0,5944	87
Belarus	0,7641	38
Kazakhstan	0,7597	39
Kyrgyzstan	0,5835	91
Russia	0,7969	32

Source: United Nations, 2018.

Networked Readiness Index[1] which measures the propensity for countries to exploit the opportunities offered by ICT. It consists from three components:

- the environment for ICT offered by a given country or community (market, political, regulatory, and infrastructure environment);
- the readiness of the country's key stakeholders (individuals, businesses, and governments) to use ICT;
- the usage of ICT among these stakeholders.

Among 139 analyzed countries, EAEU members have the following indexes and rankings: Kazakhstan has 39th ranking, Russia has 41st, Armenia has 56th and Kyrgyzstan has 95th. There are no data on Belarus:

Table 3
Networked Readiness Index.

	Index		Ranking - 2016
Armenia	4,3		56
Belarus	–		–
Kazakhstan	4,6		39
Kyrgyzstan	3,7		95
Russia	4,5		41

Source: World Economic Forum.

1 World Economic Forum. Networked Readiness Index. URL: <http://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index>.

The Global Innovation Index 2019[1] provides detailed figures about the innovation of 129 countries. It has 80 indicators exploring a broad vision of innovation, including political environment, education, infrastructure and business sophistication. Among 129 countries, the highest ranking belongs to Russia (46th ranking), Armenia (64th ranking), Belarus (72nd ranking), Kazakhstan (79th ranking) and Kyrgyzstan (90th ranking). More about the component "Creative Outputs" is described in chapter "Creative Economy".

Table 4
Global Innovation Index

	Ranking 2019
Armenia	64
Belarus	72
Kazakhstan	79
Kyrgyzstan	90
Russia	46

Source: World Intellectual Property Organization, 2019.

Among 176 countries, ranking of countries dependent on percentage of population with access to Internet and population having a computer is the following[2]:

Table 5
Access to Internet and availability of computers

	% of population with internet access	**% of the population have a computer**	**Ranking - 2017**
Armenia	60.50	64.7	76
Belarus	62.5	67	71
Kazakhstan	84.4	76.2	28
Kyrgyzstan	18.8	21.4	139
Russia	74.8	74.3	52

Source: Informational Portal NoNews, 2017.

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1 World Intellectual Property Organization. Global Innovation Index 2019. Energizing the World with Innovation. URL: <https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019.pdf>.

2 Informational Portal NoNews. URL: <https://nonews.co/directory/lists/countries/households-internet>.

Number of Internet users ranking[1] includes ranking among 182 countries. And the best results belong to Russia (7th ranking), Kazakhstan (40th) and Belarus (61st); Armenia and Kyrgyzstan has 87th and 101st rankings consequently.

Table 6
Percentage of Internet Users.

	% of Internet users	Ranking - 2017
Armenia	58.25	87
Belarus	62.23	61
Kazakhstan	77	40
Kyrgyzstan	20	101
Russia	76.4	7

Source: Informational Portal NoNews, 2017.

Number of Mobile Phone Users ranking[2] was done among 217 countries. Among EAEU states, Russia has the best result, 7th ranking, Kazakhstan has 50th ranking, Belarus has 81st ranking, Kyrgyzstan has 102nd ranking and Armenia has 134th ranking.

Table 7
Mobile Phone Users ranking.

	Ranking - 2016
Armenia	134
Belarus	81
Kazakhstan	50
Kyrgyzstan	102
Russia	7

Source: Informational Portal NoNews, 2017.

Internet Freedom 2018 ranking published by Freedom House[3], depicted that among EAEU states the most free Internet is in Armenia with 27th ranking, then

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1 National Statistics Committee (2019). Analytical Review Assessment Of The Level Of Digital Development In The Kyrgyz Republic. URL: <http://www.stat.kg/ru/news/institut-statisticheskih-issledovanij-i-povysheniya-kvalifikacii-nacstatkoma-podgotovil-analiticheskij-doklad-ob-ocenke-urovnya-cifrovogo-razvitiya-v-kyrgyzskoj-respublike>.

2 Ibid.

3 Freedom House. Freedom On The Net 2018. URL: <https://freedomhouse.org/sites/default/files/FOTN_2018_Final%20Booklet_11_1_2018.pdf>.

the second is Kyrgyzstan with 38th ranking. Belarus, Kazakhstan and Russia are ranked almost next to each other, 64th, 62nd and 67th consequently.

Table 8
Internet Freedom 2018.

	Ranking - 2018
Armenia	27
Belarus	64
Kazakhstan	62
Kyrgyzstan	38
Russia	67

Source: Freedom House, 2018.

Average cost of 1 GB mobile data[1] in 230 countries allows to identify that among EAEU countries, Kyrgyzstan and Kazakhstan have the lowest costs of 1 GB mobile data, then goes Russia with 12th ranking, Armenia (27th ranking) and then Belarus (48th ranking).

Table 9
Cost of 1 GB mobile data:

	Cost	Ranking - 2018
Armenia	$1.65	27
Belarus	$2.36	48
Kazakhstan	$0.49	3
Kyrgyzstan	$0.27	2
Russia	$0.91	12

Source: Worldwide Broadband Speed League, 2018.

Global Cybersecurity Index (GCI)[2] **measures the commitment of countries to cyber security** at a global level – to raise awareness of the importance and different dimensions of the issue. It measures legal measures, technical measures, organizational measures, capacity building, and cooperation – and then aggregated

1 Worldwide Broadband Speed League. URL: <https://www.cable.co.uk/mobiles/worldwide-data-pricing

2 International Telecommunication Union. URL: <https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx

into an overall score. From 152 countries, the best among EAEU states, the best ranking belongs to Russia, it is at the 26th place, the 2nd belongs to Kazakhstan (40th ranking), the 3rd belongs to Belarus (69th ranking), the 4th belongs to Armenia (79th ranking) and the 5th belongs to Kyrgyzstan (111th ranking).

Table 10
Global Cybersecurity Index.

	Ranking - 2018
Armenia	79
Belarus	69
Kazakhstan	40
Kyrgyzstan	111
Russia	26

Source: International Telecommunication Union, 2018.

Kyrgyzstan took 111th place (from 139) within Global Creativity Index (GCI)[1] in 2015. The GCI is a broad-based measure for advanced economic growth and sustainable prosperity based on the 3Ts of economic development — talent, technology, and tolerance. Among the other Eurasian Economic Union member-states, Armenia takes 103rd place, Kazakhstan – 84th, and leaders among the Union, Russia – 38th, and Belarus – 37th.

Table 11
Global Creativity Index.

	Ranking - 2015
Armenia	103
Belarus	37
Kazakhstan	84
Kyrgyzstan	111
Russia	38

Source: Martin Prosperity Institute, 2015.

The analysis of the main indicators of digital transformation of EAEU member-states shows that there is big gap between small economies as Armenia and Kyrgyzstan and bigger Belarus and Kazakhstan and the biggest Russia. Being al-

1 Martin Prosperity Institute (2015). URL: <http://martinprosperity.org/content/the-global-creativity-index-2015

most in one range of ranking, Belarus, Kazakhstan and Russia have better digital indicators that Armenia and Kyrgyzstan (with few exceptions in such as indicators as cost of 1GB mobile data, free Internet etc.) and it might lead to big disruption in achievement of target indicators of digital transformation within Eurasian Economic Union.

Digital Transformations in Kyrgyzstan

First Results

Under the State Committee of Information Technologies and Communication of the Kyrgyz Republic, the main state authority in ICT policy, regulation, coordination, control and support, the state enterprise "Center for Electronic Interaction" was established. This Center is the authorized by the Government of the Kyrgyz Republic operator of the "**Tunduk" system**, the system of interdepartmental electronic interaction[1]. The "Tunduk" system implies that ministries, departments, state enterprises, municipal authorities and other organizations (legal entities and individuals) must exchange information directly with each other on an inter-machine level. Within this system 65 state authorities are connected already.[2] It is expected that by the end of 2019 year 189 public services will be transferred to electronic format.[3]

At the "Tunduk" website the statistics of data exchange number by type of information is available[4]. Thus, the Ministry of Labour and Social Development of KR provided information about active state payments by personal identification number in the amount of 12 in May 2019, while in June 2019 this number was 344; the Ministry of Health shared information about the assigned population to the healthcare organization to the Compulsory Health Insurance Fund 267 times in June 2019 and 4884 in August 2019. Dynamics of data exchange between state authorities shows positive growing trend (see Figure 1), and it proves effectiveness of interdepartmental electronic interaction system, speed of data exchange and absence of paper-laden procedures.

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1 Center for Electronic Interaction 'Tunduk'. URL: <https://www.tunduk.gov.kg/about>.

2 Center for Electronic Interaction 'Tunduk'. Connection Progress. URL: <https://www.tunduk.gov.kg/connection-progress

3 Ibid.

4 Tunduk. Statistics on Tte Exchange of Data from Government Agencies through the MEIS "Tunduk" from 1 September 2018 to 1 September 2019. URL: <https://www.tunduk.gov.kg>.

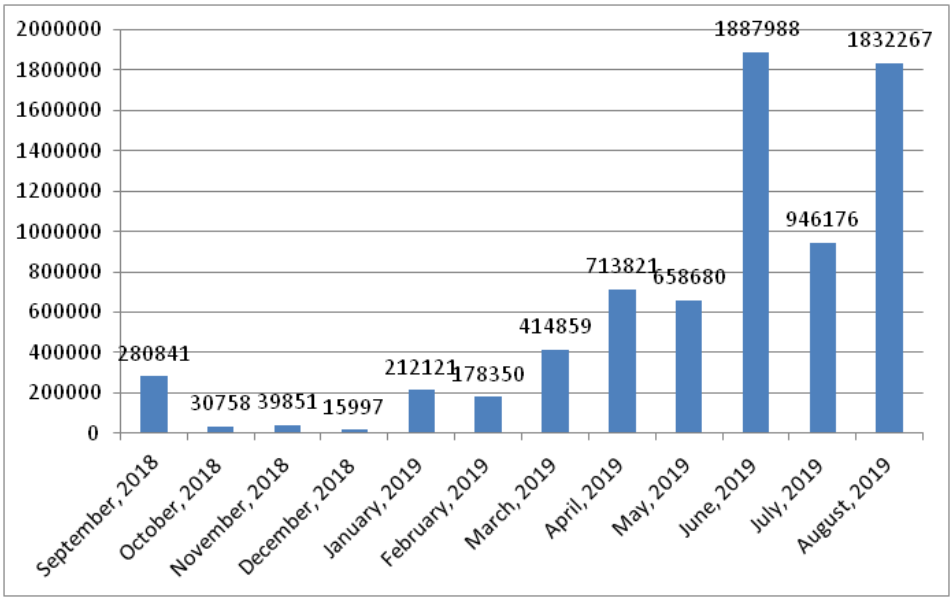

Figure 1. **Number of data exchange between state bodies within Tunduk system**

Source: Tunduk system.

As well, all technical works were done and interdepartmental regulations were signed between Department of State Purchases under the Ministry of Finance of KR, State Tax Service (STS) under the Government of KR and Social Fund (SF) of KR to create base for data exchange.

It was done for elimination of the need to provide paper certificates on the absence of debts of legal entities and individuals, which allows receiving this information automatically from the STS and SF. Currently the system is functioning[1].

Interdepartmental electronic interaction system Tunduk should significantly increase the efficiency of public administration and reduce the human factor and corruption in government agencies. And the first results show that at the moment everything goes in the right way.

It is worth noting that among 130 projects of the world, Kyrgyzstan wins prestigious award for the successful implementation of the "Tunduk" data exchange system in 2019. It is presented annually by the Estonian Academy of Electronic

1 *Tunduk. Statistics on Tte Exchange of Data from Government Agencies through the MEIS "Tunduk" from 1 September 2018 to 1 September 2019. URL: <https://www.tunduk.gov.kg>.*

Governance. The award ceremony was attended by about 500 delegates from 130 countries, representatives of the UN and the European Union.[1]

Within national program "Taza Koom" the component named "**Umnyi Gorod**" ("Clever City" from Russian) operates for several years in Kyrgyzstan. It includes many smaller projects, which should allow citizens to receive public services in electronic format, as well as increase the safety and comfort of people living in Kyrgyzstan. Within "Umnyi Gorod" program there is component named "**Bezopasnyi Gorod**" ("Safe City" from Russian) which should provide safety of citizens with the help of installation of cameras for photo and video recording of violations.

Since March 4, 2019 42 photo and video recording cameras are installed on crossroads in Bishkek, and the rest 68 cameras are going to be installed in other regions of the country[2]. Cameras installation was succeeded by significant increase of fees for violations of road traffic regulations. For example, if earlier driving while drunk was punishable by a fine of up to 10 thousand soms (145 U.S. dollars), now a fine of 17.5 thousand soms (252 U.S. dollars) is provided for ordinary citizens and up to 55 thousand soms (790 U.S. dollars) for officials.

Statistics shows that since the implementation of the Safe City project in Bishkek, the number of accidents has decreased by 49%, in the Chui region by 50%[3]. However, discussions about decrease of amount of fines are led since the moment of the project realization.

Another project which is the results of agreement between the Government of the Kyrgyz Republic and the International Bank for Reconstruction and Development / International Development Association (World Bank) called '**Open Data Action Plan**' (or 'Open Data' project briefly). The goal of the Open Data project is to create a national platform of open data and mechanisms for public access to

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1 Public Broadcasting Corporation of the Kyrgyz Republic (2019). Za uspeshnoye vnedreniye elektronnoy sistemy "Tunduk" Kyrgyzstan udostoyen nagrady (For the successful implementation of the electronic system "Tunduk" Kyrgyzstan awarded). URL: <http://www.ktrk.kg/post/27894/ru>.

2 Information Agency "Sputnik. Kyrgyzstan" (2019). V Bishkeke yeshche na 19 perekrestkakh poyavilis' kamery "Bezopasnogo goroda" — karta (In Bishkek, at another 19 crossroads, Safe City cameras appeared - map), URL: <https://ru.sputnik.kg/society/20190512/1044306516/bishkek-kamery-bezopasnyj-gorod-karta.html>.

3 Information Agency Knews (2019). "Bezopasnyy gorod": statistika za 7 mesyatsev pokazyvayet, chto situatsiya na dorogakh ukhudshilas ("Safe City": statistics for 7 months show that the situation on the roads has worsened). URL: <https://knews.kg/2019/09/13/bezopasnyj-gorod-statistika-za-7-mesyatsev-pokazyvaet-chto-situatsiya-na-dorogah-uhudshilas/>.

them due to special way of publishing information in formats suitable for subsequent processing and analysis. This approach allows for widespread reuse of public government databases by businesses, the media, and civil society.[1]

By October 2019, the platform of Open Data started to operate (see https://data.gov.kg) and it includes statistics from health sectors, investments, transport, industry, agriculture and etc. 12 state authorities such as Ministry of Justice, Mandatory Medical Insurance Fond, State Registration Service started to share information. The work in this direction has already been on track and first results show some progress. After 18 months since project's start, the Open Data project will be transferred to the Digital CASA subcomponent and will continue to be implemented as part of this large-scale 5-year project financed by the World Bank.

Digital CASA Project is regional integrational World Bank's program and has **Digital CASA – Kyrgyz Republic** component which is target-oriented on improving access to the Internet and reducing its cost, attracting private investment in the ICT sector and increasing the government's potential in the provision of electronic public services[2]. The Digital CASA - Kyrgyz Republic Project should create the basis for the implementation of the Taza Coom, which is a key component of the '2040 Sustainable Development Strategy'. The amount of financial assistance is 50 million U.S. dollars: 25 million are allocated in the form of a grant, and 25 million in the form of an interest-free loan with a commission of 0.75% per annum for services. The loan has a repayment term of 38 years, including a six-year grace period[3].

Besides mentioned above projects, the State Committee for Information Technologies and Communications of KR realized such projects as electronic records into preschool and school facilities, work under integration of electronic gates into the project 'Unified System of Accounting for External Migration' for the State Border Service and other projects.

The review of national policies and programs in the sphere of digitalization and digital transformations done by the Government of the Kyrgyz Republic for the last several years show significant progress in this direction, there are first positive results as Kyrgyzstan's award, as achievement of noteworthy characteristics

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1 State Committee of Information Technologies and Communication of the Kyrgyz Republic. About 'Open Data' Project. URL: <http://www.ict.gov.kg/index.php?r=site%2Fproject&pid=61&cid=24

2 State Committee of Information Technologies and Communication of the Kyrgyz Republic. About 'Digital CASA' Project. URL: <http://ict.gov.kg/index.php?r=site%2Fproject&pid=69&cid=25

3 Ibid.

in reduction of traffic regulation violations, solicitude about cyber security of the country, devotion to open data and many others.

But digital transformation of the economy cannot be done without transformation in key sectors. Next part includes analysis of digitalization of the main for the Kyrgyz Republic segments of the economy.

Agriculture

Being an agricultural country, with 11.7% contribution of agriculture, forestry and fishing to GDP in 2018 and 26.5% of employment in agriculture, Kyrgyzstan's state authorities indicate how important the digitalization of this sector is.

The main authorized for agricultural sector state body is the Ministry of Agriculture, Food Industry and Melioration. The Ministry of Agriculture submitted for public discussion government's draft resolution on establishment of state enterprise "Digital Agriculture" under this Ministry. Its activities will be aimed at the development and maintenance of information systems in the agricultural sector for digitalization of processes in the field of agriculture.[1]

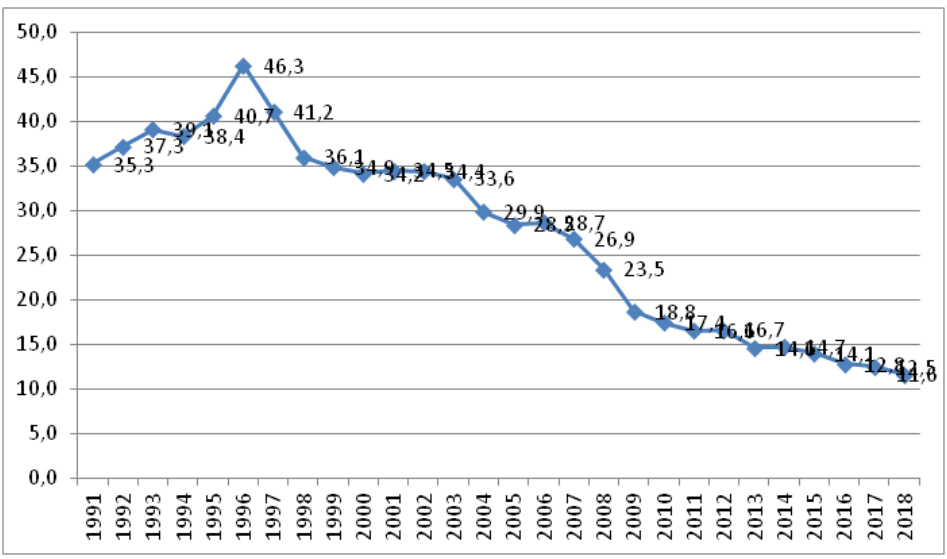

Figure 2. Agriculture, forestry, and fishing, value added, % of GDP

Source: World Development Indicators.

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1 Information Agency '24.kg' (2019). Uchrezhdeniye Tsifrovoye sel'skoye khozyaystvo poyavitsya v strukture Minsel'khoza (The institution "Digital Agriculture" will appear in the structure of the Ministry of Agriculture). URL: <https://24.kg/obschestvo/126722_uchrejdenie_tsifrovoe_selskoe_hozyaystvo_poyavitsya_vstrukture_minselhoza

Agro-industrial Complex and Cooperation are described in the National Strategy of KR's Development for 2018-2040, where state policy in agriculture is seen as provision of country's population by quality food and turning the industry into a supplier of high-quality environmentally friendly, organic products to global and regional markets. Concrete steps on digital transformation of agro-industry are absent, however, there is mentioned that "the development of unmanned aircraft, together with national and international satellite navigation systems, will contribute to the development of not only agricultural sector, but tourism as well. It is necessary to develop joint orbital constellation of commercial satellites in order to ensure agricultural issues, the deployment of productive forces, the cadastre of real estate, vehicle control, as well as communication satellites and the country's meteorology needs[1].

The Concept Digital Kyrgyzstan also describes necessity of optimizing irrigation, monitoring land quality for sufficiency of minerals, monitoring weather conditions and moisture, monitoring the status of crops and pest threats through the use of technologies such as integrated sensor systems, automated machines for sowing and harvesting, systematic collection and transmission of data, images of agricultural land through use of unmanned drones. As well, digitalization might be useful in farming: electronic identification and monitoring, the use of Internet of things technologies to monitor the condition of animals, the collection and analysis of data from pastures, changes in weather conditions can significantly affect the increase in farmers productivity[2].Whatsoever national documents or programs with detailed action plans on digital transformation of agricultural sector are missing.

The unified program on digital transformation of agricultural sector of the EAEU member states in the EAEU is missing as well. The Eurasian Economic Union gathers the best world practices of digitalization of agriculture. Thus, there was issued the 'Overview of Digital Agenda in the World. Digitalization of Agriculture' as part of the work of the working group for developing proposals for the formation of the digital space of the EAEU[3]. Best practices of large companies of Europe and USA are reported in special issue:

- drone companies produce field survey machines that are already used by farmers for planning of planting crops and harvest;

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1 Government of the Kyrgyz Republic. National Development Strategy of the Kyrgyz Republic for 2018-2040. URL: <http://www.gov.kg/?page_id=125892&lang=ru

2 State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanarip&cid=27.

3 Eurasian Economic Commission. Overview of Digital Agenda in the World. Digitalization of Agriculture. URL: <http://www.eurasiancommission.org

- robotic technologies are already actively used in agriculture, moreover, both in the field of field care and in harvesting. So, the Spanish robot SW6010 (the development company –AGROBOT) uses cameras to recognize ripe berries and cut them;
- a four-wheeled robot powered by solar energy has been created at the Australian Center for Robotics at Sydney University that can recognize weed fields in vegetable bushes and destroys them by local injection of chemicals;
- sensors and measuring transductors allow to measure the acidity of the stomach of livestock, the condition of the hooves, readiness for fertilization, the course of pregnancy, etc. These data allow better monitoring of health status of animals, developing individual methods of treatment and feeding. All this, as a result, has a beneficial effect on the products received from animals and on the reduction of financial costs, since the necessary medicines and vitamins are delivered to the animals precisely and on time, which prevents the diseases from moving to progressive stages.

It is early to say about implementation of such technologies as robotic technologies into daily routine of farmers of the Kyrgyz Republic. However, something from digital production is used by farmers. For example, some consulting companies in agriculture sell mobile agricultural guidelines on biological methods in agriculture, livestock breeding, integrated protection of tomato, potato, apple, apricot and wheat from diseases and pests. Performed information might be indispensable assistant to farmers, agricultural consultants, trainers and agronomists. As well, there are sold mobile applications such as BioControl, guidelines on biological methods for improving soil fertility and plant protection and other applications.

Another company sells mobile applications for agricultural production in the markets of Kyrgyzstan and Tajikistan. Those applications are integrated into the trading platform and with the GIS system

As well, there was developed a national food security and development atlas, Kyrgyzstan Spatial, by international organizations and academia. This source analyzes food availability, accessibility, stability and utilization, and the resulting nutritional status of individuals[1].

Kyrgyzstan's government plans to implement digital technologies by using intelligent drip irrigation and moisture sensors, e-identification of cattle stock. However, there is no developed action plan for realization of those plans just as financing of them. EAEU member states should develop joint programs on use of technologies in agriculture for better integration into the union, action plan for implementation of innovations into this sector, share best practices and achieve new results. Usage of digital technologies in agriculture by all members might be

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1 Kyrgyzstan Spatial. URL: <http://www.kyrgyzstanspatial.org

useful in creation of unified EAEU brands in agri-food industry and supply the whole world by commodities under this trademark.

Tourism

The share of tourism to GDP was 4.99% in 2018, according to statistics prepared by the Department of Tourism, which is under the Ministry of Culture, Information and Tourism. During the last twenty years there are heard phrases that "let's do Kyrgyzstan as the second Switzerland" or "Kyrgyzstan is paradise place" (which is true), however, the contribution of this sector has always been no more than 5%.

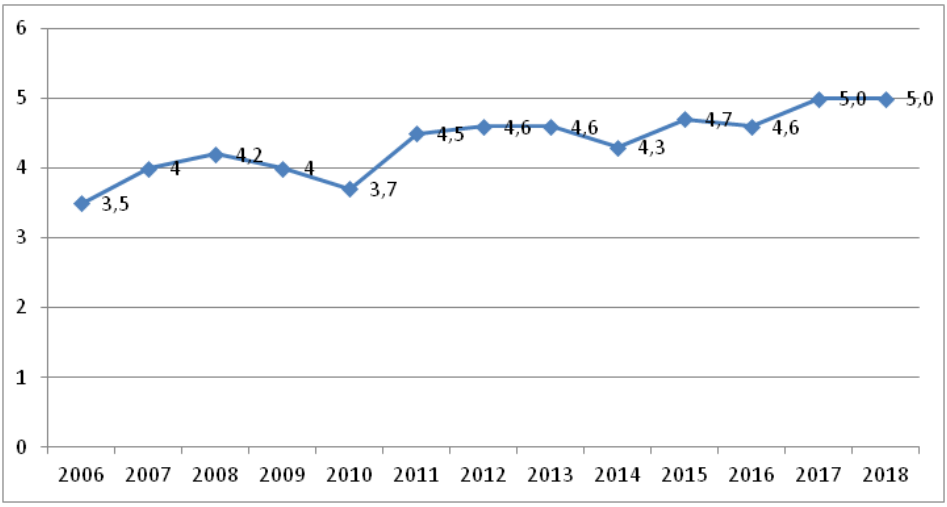

Figure 3. Share of tourism in GDP, %

Source: National Statistic Committee of the Kyrgyz Republic.

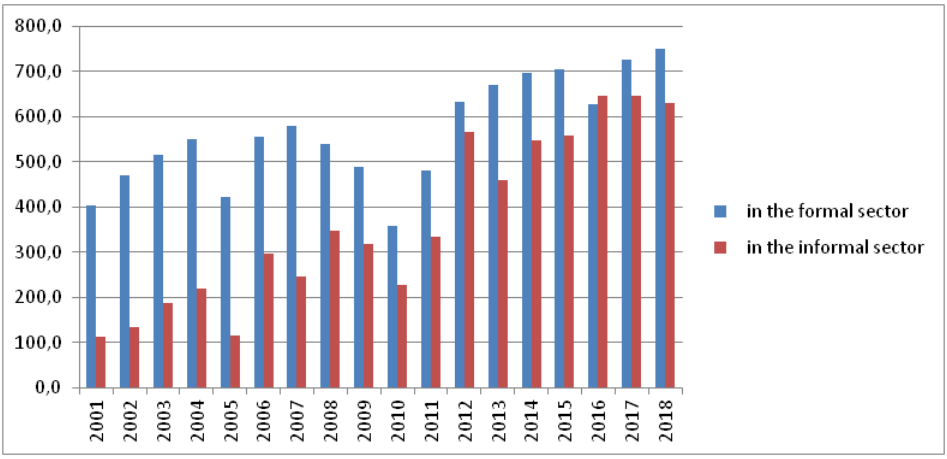

Figure 4. Number of tourists, thousand people.

Source: National Statistic Committee of the Kyrgyz Republic.

The number of tourists visiting Kyrgyzstan shows positive dynamics with few exceptions in 2005 and 2010 years, when the country had revolutions and situation was turbulent. In 2018 the number of tourists was 1,380.4 thousand people, 749.9 thousand of whom have rested in the formal sector and 630.5 had a rest in the informal sector.

Underlining the importance of tourism, Kyrgyzstan's government, however, does not have money for investments into this sector. The Government spent in total 158 billion Kyrgyz soms, 3 billion of which (or 1.9% of total budget expenditures) were spent on the item "Recreation, sport, culture and religion". From the determined amount, 2.2 billion KGS were aimed to the Ministry of Culture, Information and Tourism. As part of the Ministry, there are 25 professional theaters, 3 philharmonic societies, 60 libraries, 40 stationary club institutions, 27 museums, 1 recreation park, 1 Kyrgyzfilm Film Studio named after T. Okeyev, 37 regional and district film directors, 6 regional television and radio broadcasting companies, 49 editorial offices of regional and district newspapers and magazines.[1]

The accepted "Program of the Government of the Kyrgyz Republic for the Development of Tourism Sector for 2019-2023" in January 2019 underlines that tourism is an export-oriented sector.[2] Besides aims, purposes, tasks and target indicators, the Program illustrates that digitalization of tourism sector will be one of the strategic pivot points of its development. The further description of this point shows that under this measure is understood the unified database of economic reproduction, and recording of arriving tourists and receiving all the necessary information about the tourist infrastructure of the country[3].

The Digital Kyrgyzstan underlines that it is necessary to carry out a multilevel digitalization of business processes for that to increase the income of tourism-related enterprises, ensure the convenience and safety of tourists, and improve the image of the country as a tourist destination. Access to fast and high speed Internet and possibility of using various digital services for payments for goods and services might ease tourists' life and increase digitalization of the sector.

As a success case of digital transformation within "Taza Koom" in tourism sector, the example of launch of "E-visa" is provided. This measure makes it easier to

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1 Ministry of Finance (2019). Report on the implementation of the state budget of the Kyrgyz Republic for 2018. URL: <http://www.minfin.kg/ru/novosti/godovoy-otchet-ob-ispolnenii-byudzheta/otchet-ob-ispolnenii-gosbyudzheta-kr-za-2018-god.

2 Ministry of Justice of the Kyrgyz Republic (2019). Program of The Government Of The Kyrgyz Republic For The Development Of The Tourism Sector For 2019-2023. No. 36, 31 January 2019. URL: <http://cbd.minjust.gov.kg/act/view/ru-ru/12943.

3 Ibid.

obtain visa support by foreign citizens directly at the state border of the Kyrgyz Republic using an electronic visa. The applicant can also receive an electronic visa within 72 hours after the application.

Some experts indicate that digitalization in tourism sector might be used as creation of mobile applications for tourists that would inform not only about available services, hotels, cafes, parks, tourist destinations and entertainment, necessary telephone numbers, ATMs, but about emergencies and notifications to escape from visiting some places and tourist zones.

Talking about digitalization of tourism sector, one cannot imagine tourism without access to financial services, ability to receive cash and availability of conduction of cash-free payments. All ATMs in Kyrgyzstan accept Visa, Master Card, Union Pay International however when travelling across the country all tourist are advised to have cash on hand.

Regarding EAEU, tourism itself is not identified as one of priority sectors of union's integration. Consequently, no regulations, plans and related policies were designed by the EEC. However, the idea of creation of touristic package where EAEU as a single tourist destination, when tourists visit all five EAEU member-states at one time, pronounced at the Forum "Eurasian Weeks" in Bishkek, Kyrgyzstan by one of experts was met with warm reception by the attendant audience.

Creative economy

Being identified as one of priority sectors for digital transformation within National Concept 'Digital Kyrgyzstan', the notion 'creative economy' is used as 'creative industry', comprised of "industries that are based on the creation and use of intellectual property, namely: advertising, architecture, crafts, cinematography, design, fashion design, interactive entertainment, music, performing arts, the press, software and computing systems, television and radio"[1].

According to some Kyrgyz experts' calculations, the contribution of creative economy into GDP was 6.5% in 2017, but taking into account innovative technologies - 7.1% of GDP and the potential of the sector is highly underestimated.[2]

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1 Ministry of Economy of the Kyrgyz Republic (2019). The head of the Ministry of Economy at a meeting with the British Ambassador to the Kyrgyz Republic discussed issues of trade, economic and investment cooperation. URL: <http://www.mineconom.gov.kg/ru/post/5885.

2 Financial Publishing Office "Economist" (2019). V Kyrgyzstane sozdan Al'yans kreativnykh industriy. Chem on zaymetsya? OBZOR (An Alliance of Creative Industries has been created in Kyrgyzstan. What will he do? OVERVIEW). URL: <https://economist.kg/2019/02/25/v-kyrgyzstane-sozdan-alyans-kreativnyh-industrij-chem-on-zajmetsya-obzor

Kyrgyz national policies do not have exact action plan on digital transformation of creative economy yet, and it is likely that private sector will be the engine of progress of this sector: ICT specialists, representatives of arts and fashion etc. The 'EAEU Digital Agenda' does not have vision of creative economy's transformation yet.

There is one interesting component named Creative Outputs[1], and it is one of indicators of the Global Innovation Index (GII), which consists of three sub-indicators, divided into several sub-indicators as well. They are Intangible Assets which includes measures of trademarks by origin, industrial design by origin, ICT and business model creation, ICT and organizational model creation. The second subcomponent is Creative Goods and Services consisting of cultural and creative services exports, national feature films, entertainment and media market, printing and other media and creative goods exports. The third subcomponent is Online Creativity with generic top-level domains, country-code, Wikipedia edits and mobile application creation.

Among EAU countries, the best ranking belongs to Armenia, it has 48th ranking, then goes Russia with 72nd ranking, the third is Kazakhstan with 102nd ranking. Kyrgyzstan's Creative Outputs are ranked as 122nd and are the fourth among EAEU states. The fifth is Belarus with 126th ranking.

To support the development of creative economy in Kyrgyzstan, the Alliance of Creative Industries was established in early 2019, which consists of more than 20 companies from different sectors of economy.[2] It is aimed to actualize potentials of this sector, forming national products with high value added and monetization of cultural heritage and domestic culture.

In addition, the British Council, United Kingdom International Cultural Relations and Education organization, promotes the initiative "Creative Economy" in Central Asian countries, including Kyrgyzstan. This is 5-year program for higher education institutions to develop creative economics and entrepreneurial skills.

Potential of development of this sector of economy, its digital transformation is very high in Kyrgyzstan. Though, there are some cautions such as its enlargement in big cities of the country (Bishkek, Osh) without application to regions. Although, the slogan used by the Kyrgyzstan's High Technology Park[3], 'live in Kyrgyzstan and work for the whole world!' seems to be viable.

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1 Global Innovation Index. URL: <https://www.globalinnovationindex.org/gii-2019-report

2 Financial Publishing Office "Economist" (2019). Ibid.

3 High Technology Park is a zone with special regime for its residents establishing exemption from taxes and benefits on insurance premiums in accordance with the legislation of the Kyrgyz Republic. More information is available at http://htp.kg/

Table 12

Creative Outputs component of the Global Innovation Index.

		Armenia		Belarus		Kazakhstan		Kyrgyzstan		Russia	
		Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking
	Creative Outputs	32.2	48	10.8	126	18.4	102	13.3	122	25.1	72
7.1.	Intangible assets	43.2	55	8.	127	31.5	103	23.1	125	39.4	71
7.1.1.	Trademarks by origin	94.7	18	24.8	81	18.8	90	22.4	84	58.1	38
7.1.2.	Industrial designs by origin	1.9	52	1	68	0.2	98	0.5	85	0.9	69
7.1.3.	ICT and business model creation	54.2	88	n/a	n/a	54.7	87	36.5	124	53.3	91
7.1.4.	ICT and organizational model creation	52.8	67	n/a	n/a	48.2	87	34.8	120	58.4	49
7.2.	Creative goods and services	22.4	49	5.	101	6.8.	96	5.5	99	9.8	88
7.2.1.	Cultural and creative services exports, % of total trade	0.6	41	0.2	69	0.1	91	0.4	59	1	27
7.2.2.	National feature films	12.5	11	0.1	105	6	37	0.3	103	1.2	76
7.2.3.	Entertainment & Media market	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.5	43
7.2.4.	Printing and other media	1.5	33	0.5	90	0.5	92	0.7	81	0.8	78
7.2.5.	Creative goods exports, % of total trade	0.6	55	0.4	63	0.1	93	0.1	99	0.3	68
7.3.	Online creativity	19.8	34	22.1	31	3.8	71	1.5	47	12.1	
7.3.1.	Generic top-level domains	3	64	1.7	83	0.3	114	0.2	116	3.5	61
7.3.2.	Country-code	4.6	53	5.2	47	3.2	60	0.8	86	13.3	34
7.3.3.	Wikipedia edits	102.5	6	22.2	47	17.3	52	7.3	69	19.7	49
7.3.4.	Mobile app creation	2.5	60	66.5	6	0	90	0.1	85	18.1	26

Source: Global Innovation Index Report, 2018.

Conclusion

The contribution of the digital economy to Kyrgyzstan's GDP is negligible and digitalization in the Kyrgyz Republic is in its infancy, starting to gain momentum in Kyrgyzstan. However, the Kyrgyz Republic has done a lot for economy's digital transformation at this stage. The National Strategy of Development for 2018-2040 identified digitalization as a key element of development, the national Concept of Digital Kyrgyzstan 2019-2023 identified main indicators of country's digitalization with formulating target values and priority sectors where digitalization should assist in achievement of country's progress.

Thus, the digital market is developing at a steady pace, thereby characterizing the introduction of the digital economy as an integral factor in the sustainable economic development of our republic.

However, the EAEU Digital Agenda 2025 itself still does not have adjusted by all member-states Action Plan for the union and for each member. Following this, there are no developed indicators in priority sectors. Moreover, Kyrgyzstan falls behind other EAEU countries in many ICT indicators, which says that a lot of work should be done as by country itself as by the EEC to align the progress rate of digitalization. As well, harmonization of the legal and regulatory framework for digital transformation of EAEU member-states is required.

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Еникеева З.[1]

Цифровая повестка в странах ЕАЭС: анализ ситуации в Кыргызстане

Объявленная «Цифровая повестка ЕАЭС - 2025» демонстрирует интерес стран к теме цифровой трансформации экономики. Кыргызская Республика не является исключением. Государство приняло национальные

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программы, стратегии и концепции, которые охватывают вопросы цифровизации, а также определило некоторые ключевые сектора, подлежащих цифровой трансформации. В статье приведен анализ политики в рамках «Цифровой повестки ЕАЭС - 2025 года», государственной программы «Национальная стратегия развития Кыргызской Республики на 2018-2040 годы» и «Концепции цифровой трансформации «Цифровой Кыргызстан-2019-2023», их первые результаты, основные показатели цифровизации всех пяти стран-членов ЕАЭС, анализ цифровых трансформаций в сельскохозяйственном секторе, секторе туризма и креативной экономики.

Ключевые слова: *Евразийский экономический союз, Кыргызская Республика, Цифровизация, Цифровая повестка***.**

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