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National "Digitalization" Projects in Central Asia: Opportunities and Perspectives for Russian (Tomsk) IT Companies

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"Digitalization program is a big journey, not a project with a finish line, it will live for many years and improve constantly" – Amr Salem, CEO of Smart Cities & Internet of Everything, CISCO.

The era of Internet is changing the fabric of our being sweepingly and globally. Digital technologies are now widely used in the consumer economy as well as in the system of the government planning. It is all happening in front of us. We are the contemporaries of the wide-scale processes of the society transformation towards its digitalization. However, it is hard to say where it will lead us and how it will end. The experience of digital projects in the leading countries suggests various trajectories.

This paper aims at analyzing digitalization processes in Central Asia in the global, Eurasian, regional and national dimensions. In the framework of this research, we will try to answer the following questions: how intense are the national projects? What do they aim for? What are their sources of funding and main executors? How can they be of interest for the Russian public, business and educational structures?

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Issues of terminology

The concept of digital economy, like the very idea of the global computer network, came to the world from the US Atlantic coast. Its date, place of birth and author are known: the Massachusetts Institute of Technology, 1995, Nicholas Negroponte. Today there are at least fifteen definitions that are more or less acknowledged by experts. In this paper we will use the terminology suggested by the Eurasian Economic Commission (EEC) which we find more pragmatic and utilitarian.

According to the EEC, the digital economy is "an economic activity based on the digital processes, models, technologies, digital goods (services), including those produces by the digital business. It is distinguished from other types of economic management by its link to Internet, as well as other mobile and sensor networks". If one were to over-simplify, one could say that digital economy is, basically, an "online economy".

Main digital technologies are: big data, neuro-technologies and artificial intellect, distributed ledger systems, quantum technologies, new industrial technologies and industrial Internet, components of robotics and sensory technologies, wireless technologies, virtual and augmented reality technologies.

An essential part is the participation of the state. However, in the different regions of the world, it varies significantly in goal-setting, financing and main priorities.

Flagship experience

Digitalization processes in different regions of the world are disharmonious, uneven and have different priorities. There is no single rating that could rank the counties' achievements in the effectiveness of the digital economy implementation.

The closest to reality is probably the evaluation made by the International Telecommunication Union, one of the most authoritative organizations setting the rules of the game in the information and communication technologies (ICT). According to it, the most advanced states in this sphere are the Republic of Korea, Iceland, Denmark, Switzerland, the United Kingdom, China, Sweden, the Netherlands, Norway and Japan. It is noteworthy that in the majority of the ratings Russia is somewhere close to the 40th place and belongs to the advanced group of countries by the level of digital economy development.

Flagships in the ICT implementation are primarily distinguished by strong government involvement in the issues of economy digitalization and by the systematic approach that is expressed through complex development programs.

Let us look briefly at the main strategies of some of the countries:

- USA – “Federal Cloud Computing Strategy”, 2009. The main goal is to decrease expenses and increase effectiveness of governance in public and private sectors.
- European Union – “Digital Agenda”. The main direction is “Digital single market – digitalization of the industry”.
- Germany – “Industry 4.0”. The country is planning to shift completely to the “internetized production”; annual investments in the ICT will amount to 40 billion Euros.
- China – “Internet plus”. The concept’s directions are Internet + manufacturing industry, Internet + finances, Internet + healthcare, Internet + government, Internet + agribusiness. In the case of China it is worth mentioning the much discussed “social credit program” based on the big data processing with regard to every single person, resulting in a number of significant decisions ranging from an accelerated issue of a Schengen visa to a denial of cash loans.

EAEU

December 26, 2016 is considered a “birthday” of the digitalization in the EAEU format. On this day the heads of states signed the Statement on the Digital Agenda of the Eurasian Economic Union. The Eurasian Economic Commission (EEC) acts as a coordinator of the digitalization processes in the EAEU. It examines the applications and provides the special environment for interaction, the portal for managing initiatives. Office for initiatives management, network of the centers of excellence and expert platforms exist under the auspices of the Commission. The digitalization projects developed by the EEC are characterized by the forethought, timeliness and pragmatism, and are aimed at supporting and strengthening the integration processes.

Summing up the Eurasian digitalization concept, one can say that it is aimed at the provision of the transparency of the transit processes and at the formation of the single intergovernmental field of information exchange. The goals of the digitalization projects are the scaling of the solutions in the EAEU area, the building of new partnership connections and the entering into the global markets. Main priorities are: digital traceability, digital transport corridors, digital industrial cooperation, digital trade, data circulation, systems of the regulatory sandboxes.

The EAEU already has the experience of joint projects: equipping vehicles with ERA-Glonass system, introducing digital vehicle certificate of title, creating digital databases for drug circulation, introducing the goods traceability monitoring mechanism, introducing identification and marking for the selective number of commodities, creating the Eurasian network of industrial cooperation and Eurasian technology transfer network.

The EAEU is creating an integrated information system (IIS) which suggests intergovernmental digital interaction and analytical support for the authorized agencies of the member states. The IIS is not tied to any particular territory, it has a trans-border nature. It is already used in the cooperation of the EAEU custom services.

Especially interesting is the digital industrial cooperation project which is based on the idea to form an EAEU-wide mechanism (ecosystem) of cooperation between responsible business subjects within the specially developed digital platform. At present the pilot project is implemented in Belarus and Russia. The operating procedures for platform's operators have been agreed upon. The service environment is being formed around the platform.

Russia, Kazakhstan and Kyrgyzstan

Although formally Russia is not part of the subject of the paper, it would be counterproductive to exclude it from the analysis.

Firstly, Russia plays the most active and noticeable role in dealing with the issues of economy digitalization within the EAEU. Secondly, Russian universities are training the world level IT specialists. Thirdly, Russian companies are increasingly active in the post-Soviet space, participating in several national digitalization projects. A number of Russian IT companies in several segments are quite successfully competing with such Chinese flagships as, for example, Huawei. Fourthly, Russian "Digital Economy" program is the most grand-scale project in this sphere within the CIS, automatically becoming a landmark. A list of the main comprehensive technologies that are planned to be developed and implemented corresponds to the most up-to-date trends. The financing is suggested to be about 3.5 trillion rubles, 2 trillion out of which should be disbursed from the federal budget in 2018-2024.

It is not insignificant that the program aims at the promotion of the coordinated development of the digital economy in the EAEU countries and at cooperation with the partners in SCO and BRICS formats.

Among the Central Asian states, Kazakhstan is the one that has approached the issues of the digital agenda development and implementation in the most comprehensive way. Russian "Digital Economy" program and "Digital Kazakhstan" program started almost simultaneously (on July 28, 2017, and December 12, 2017 respectively). Despite the serious criticism from the opponents (that can mostly be explained by Kazakhstan's domestic political context), currently the harmonious system is being formed that has a clear idea about the aims, goals, financial sources and key executives.

Working on its national digitalization program, Kazakhstan used the experience of the leading countries whose best practices (especially in agriculture, transport, and logistics) were creatively re-modelled and extrapolated to the specifics of the national economy.

A hallmark of the program is the dominance of the government on all levels. The role of the private sector is minimal. According to the "Forbes", "judging from the international experience, one of the key recommendation is that the governmental intervention in economy

should be indirect. The analysis of the "Digital Kazakhstan" program shows that the government intends to act in the opposite way. In other words, civil servants have already chosen the projects on the digitalization of particular businesses and given concessional financing to it, and it is them who are going to implement this digitalization".

The program makes an accent on the so-called "pragmatic start" – digitalization of the particular branches of the economy (so-called 23 "icebreaker" projects). It is assumed that the financing and administering of these projects will come from the quasi-public industrial structures themselves. Thus, the National Company "KazMunayGas" will implement the "Intellectual Deposit" project on its own means, and another national company, "Kazatomprom", will implement the "Digital Mine" project. Altogether, it is planned to draw 169 billion tenge from the quasi-public sector for the digitalization of the economy (in addition to the 141 billion tenge from the central budget).

Unlike the Russian project, Kazakhstan's approach does not assume the embeddedness into the EAEU processes. In this context the project only aims at "implementing partnerships with other international innovative clusters, including those from the EAEU / SCO countries and others… The actions will be synchronized with the analogous initiatives from the Custom Union countries".

The situation with the digitalization processes in Kyrgyzstan is quite complex and dramatic. The "Taza Koom" project became hostage to the prolonged political turbulence in the country, a chronic lack of financing and the absence of the necessary cadre of qualified specialists able to implement a large-scale project. After Prime Minister Isakov who had actively promoted "Taza Koom" resigned, the project's mentioning in the open sources stopped.

In 2018 several attempts to implement digitalization projects were noticeable. In particular, it is worth mentioning the negotiations with Chinese Huawei on the implementation of the "Smart Cities" project (they failed in 2018 allegedly due to the fact that the Chinese side kept delaying the preparation of the PFS) and the tender on the "Safe City" project (installing surveillance cameras in Bishkek) worth 2.3 billion soms. "Vega", a Russian company affiliated with "Rostec", won the tender, but its competitors immediately launched an information campaign to contest the results, claiming that the documents proving the winner's professional worth were absent.

On the whole, it can be concluded that the Kyrgyz leadership has the necessary frame of mind and an understanding of the goals but plans to achieve them exclusively at the expense of foreign money and the foreign companies' efforts.

Uzbekistan

The Uzbek approach to the digitalization of the economy is marked by the increasing intensification of relevant efforts. Having completed the 100 % computerization of the state authorities and the work on the creation of the web sites for the public agencies at all levels in the framework of the so-called "transitional period", the country's leadership in 2013 came to a systemic and strategic level of planning and implementation.

The Uzbek digitalization formula can be briefly described as the development of the broadband network infrastructure + "digital government" and databases + crypto currency technologies.

The basic document is the "Complex Program of Development of National Information and Communication System of the Republic of Uzbekistan for 2013-2020". Two main objectives are pursued in its framework:

- Development of the ICT, network and communication infrastructure. The carrying capacity of the access channels from Uzbekistan to the Internet backbones will reach 300 GB/sec. The development of the broadband access infrastructure will also cover the remote regions of the country. All in all, by 2020 it is planned to implement 17 large-scale projects with a total cost of 2.1 trillion soms.
- Projects and actions on the creation of the complex information systems and "digital government" databases. They include the provision and improvement of the digital interactions between citizens and authorities, the introduction of the government services on the basis of the "one-stop" principle, as well as the creation of the information systems complexes and "digital government" databases. In 2013-2020 22 projects are scheduled to be implemented, with the total cost of 217.9 million U.S. dollars.

Judging by these objectives, Uzbekistan has a serious demand for the software solutions that would be able to deliver the required level of the digital integration between public authorities defined by the measure of the usage of the common databases and the digital sharing of information between agencies.

A separate direction of the Uzbek government's activity is the stimulation of the digital economy formation. In 2018 the "Fund for the Support of Digital Economy Development "Digital Trust" was created with the task to consolidate investment, financial, and other resources on the prioritized directions of the digital economy development.

The uniqueness of the Uzbek approach to the economy digitalization lies in legitimizing the crypto currency and block chain sphere which is officially allowed by the Decree of the President of the Republic of Uzbekistan. Since October 1, 2018, the activity in the sphere of crypto currency circulation, including the creation of crypto currency exchanges, is subject to licensing. The operations with crypto currency are not subject to the Law on Currency Regulation.

Operations with crypto assets are free from taxation and the generated income is not part of the taxable base.

From January 1, 2021, block chain will be introduced in the activities of the public authorities, in clearing operations, in effecting payments, trade financing (letter of credit), and project financing. The block chain technology center will be created in Tashkent on the basis of the innovative Mirzo Ulugbek Innovation Center.

Tajikistan and Turkmenistan

In these countries the processes are lagging behind. In Tajikistan and Turkmenistan there are no single comprehensive documents of the systemic nature that could define the long-term strategy of actions in the sphere of electronization and digitalization.

Tajikistan is currently at the beginning of the process to introduce an integrated digital government system that could technically, technologically, normatively and in terms of peronnel provide the interaction between government, society and business as well as lay the foundation for the digital economy.

In total, the general architecture of the governance system and of the provision of government services to citizens is changing much slower that the ICT is being introduced. Most of the implemented ICT projects are still oriented at G2G and the level of reforms in the services for citizens remains low. Tajikistan repeats the situation characteristic for many developing countries where the implementation of the national computerization programs is usually nothing more than a constellation of the separate local projects while the government's coordination of all activities remains low.

Currently, Tajikistan implements the following projects: modernization of the state finances management; development of the corporate information systems for the automation of the business processes and the connection of all remote branches; single window for import, export and transit procedures; information system for public servants registration, etc. The ICT development projects are mostly financed by the state budget (75 %).

In the case of Turkmenistan it can be noted that one of the reasons for its lagging behind is the monopolization of mobile communication and Internet access by MC Altyn Asyr. As a result, the telecommunication and network sector has a low level of compliance with the international standards. The de-monopolization of this sphere is required together with legal and institutional reforms and a review of the licensing regime.

The Turkmen government understands the problems it faces in this sphere and has started implementing a number of large-scale measures aimed at intensifying the digitalization projects. Thus, on February 9, 2018, President Berdimuhamedow commissioned the Academy of

Science to develop the state program “Digital Turkmenistan”. Among the main goals are: broadening the 3G/4G network coverage to the rural areas and remote regions; electronic services; ICT education; development of the IMS-platforms; development of the satellite network; improvement of the climate for ICT market development making it open and competitive; cyber security issues. Given the growing demands of the population, Altyn Asyr must reach the complete and countrywide delivery of the modern communication means, including 3G, 4G, and, in the near future, 5G, high-speed internet and other services. With this project, the country coverage will reach 100 %.

In October 2018 the Ministry of Communications announced a contest for the creation, demonstration, and implementation of the innovative software solutions in different branches of economy.

As the information in Turkmenistan on the volume of financing for the implemented and planned ICT projects is closed, it is impossible to single out the financial streams in this sphere. There is, however, no doubt that the implementation of these projects will create new opportunities for the developers of software products and equipment of various degree of complexity to enter the promising market of Turkmen ICT.

SCO

Another interesting format of digitalization in the Eurasian space is the cooperation within the SCO. Its peculiarity is in its emphasis on security. Of course, it cannot be viewed as a full-fledged alternative, but it allows raising issues beyond the economic and integration agenda.

For the first time this issue was raised in June 2018 in the Qingdao Declaration of the Council of the Heads of States of the Shanghai Cooperation Organization. The document emphasizes the importance of “promoting and deepening mutually beneficial cooperation and the exchange of knowledge, information and best practices in the area of information and communication technology, including digital technology, to the benefit of economic and social development of the SCO Member States”.

A hallmark of the SCO’s approach is the adaptation of the digitalization process to the provision of information security and the fight against international terrorism. Therefore, member states gave high estimate to the anti-terror war games “Xiamen 2017” carried out in China in 2017. The main emphasis was on counteracting the usage of the Internet for terrorist, separatist and extremist purposes.

Conclusions and recommendations

What kind of conclusions can be made based on this information and what could be recommended to the Russian companies?

1. Almost the whole of Central Asia is involved in the digitalization of economy. Some countries already have their own national programs, some are on the brink of adopting them. Meanwhile, two out of five Central Asian countries are members of the EAEU, therefore falling within the EEC-initiated digital agenda.

2. Due to the objective lack of their own specialists national governments will rely on foreign developers, mostly from China, Russia, the US, and, possibly from the EU countries and the United Kingdom. The Chinese model is, however, less attractive as China insists on either locating servers on the Chinese territory (which automatically produces national security threats) or, if the customer lacks the necessary financial resources, acts via "tied credit" scheme or accepts payment in resources (in Tajik case it was the building of the CHPP in exchange for the rights to develop a golden mine).

3. Against this background, Russian companies have a good initial starting advantage of knowing and understanding those culturally close markets, of being ready to work with them on mutually beneficial terms without unfounded price increases, and of having software solutions attractive for their price/quality ratio.

4. A negative moment is the absence of the flagships of IT industry (with the possible exception of Yandex) in Russia that are able and, more importantly, ready to singlehandedly develop a nationwide project abroad. We have many companies that are ready to become executors of a particular task within a local project, but working at the level of the "platform solutions" is still a super-task for the most.

In this connection the idea promoted by the adviser to the Head of Rosneft Andrey Bezrukov (yes, the very same Donald Heathfield) looks interesting. It is based on the notion that the best thing that Russians can professionally do is to provide security. Therefore, speaking about our IT industry on the foreign markets, we could put forward a "security exporter" brand and promote the solutions in the sphere of digitalization at the level of nation states. The accent should be on the platform form, not on separate solutions, which would allow consolidating a wide spectrum of Russian developers and giving them an opportunity to participate in the solution of wider tasks. Such an approach would allow bundling several issues together, including the production of equipment, the training and retraining of personnel and the creation of jobs.