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Uzbekistan on the Path of Digitalization

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Abstract. The role of digital technologies and the importance of effective informatization policy have been well actualized since the beginning of the global COVID-19 pandemic. Especially, for developing countries, like Uzbekistan digitalization has a potential to modernize and integrate national economy into the global economy, overcome major constraints, ensure digital upgrade and build information society for the benefit of population in post-pandemic recovery period. Under these circumstances, Uzbekistan intends to improve its digital capacity and policy reforms in order to prevail over current and future challenges. In this regard, the current processes of digital transformation and achievements in the country have been analysed by focusing on national digitalization strategy of Uzbekistan in the context of digital responses to the global pandemic and recently adopted Development Strategy of New Uzbekistan for 2022-2026.

Keywords: Uzbekistan, digitalisation, development, digital, e-government, Internet

Introduction

The importance of digital technologies and effective digitalization policy have been well actualized since the beginning of the global COVID-19 pandemic. Indeed, during the pandemic state, society and businesses are able to function mostly with the help of digital technologies. For developing countries like Uzbekistan digital transformation has a potential to further modernize society and integrate national economy into the global processes. In this vein, in the framework of the ongoing reforms and in the new Development Strategy of Uzbekistan for 2022-2026 special attention is being paid to digitalization of major spheres and to build a true information society in the country.

Certainly, "beyond ensuring continuity and connectivity, digitalization sets the foundation for a more resilient and inclusive economic transformation" (Tang, & Begazo, 2020). Consequently, most countries both advanced and developing countries are improving their digitalization and digital transformation policies to overcome challenges and recover from the negative effects of the global pandemic. According to the World Bank estimates strong connectivity infrastructure can mitigate up to 50 % of the negative economic impacts of the pandemics. In addition, 10 % increase in broadband connectivity can add at least 1 % to economic growth of the country, and a 1 % increase in internet connectivity can boost exports by 4.3 % (Burunciuc, 2021).

1. Literature review

Existing literature concerning digitalization and digital transformation in countries of Central Asia mostly focuses on analysing the public administration reforms and electronic government initiatives. In fact, E-Government is considered as the main tool of digital transformation and the United Nations E-Government Survey[3] is the effective criteria to

[3] The UN E-Government Survey, published by the UN Department of Economic and Social Affairs is prepared over a two-year period following an established methodology. It looks at how digital government can facilitate integrated

assess current readiness of a country for digitalization and digital transformation (ElMassah, & Mohieldin, 2020). The United Nations E-Government Survey is also recognized as a key ranking, mapping and measuring tool of the digitalization processes in any country across the world (UN DESA, 2020).

Indeed, the global pandemic renewed and anchored the role of E-Government – "both in its conventional delivery of digital services as well as new innovative efforts in managing the crisis". The global "pandemic has not only reinvigorated the role of digital government in its conventional delivery of public services and in ensuring business continuity, it has also brought about innovative ways in managing the crisis, such as in contact tracing, e-health, online learning, and remote working" (UN DESA, 2020). In addition, "the adoption of digital solutions has been a key factor underpinning the post-pandemic economic recovery, and the trend for rising digital inputs in manufacturing and services is expected to continue in the years ahead" (Beirne, 2022).

Regarding digital government transformation dynamics of in the region, it should be noted that overall, Uzbekistan and other Central Asian states have made serious commitments to adopt the path of a democratic civil society. E-government reforms in the region made significant steps toward open governance, participatory democracy, and an inclusive society, firstly moving these elements to the agenda of administrative reforms (Kuldosheva, 2021).

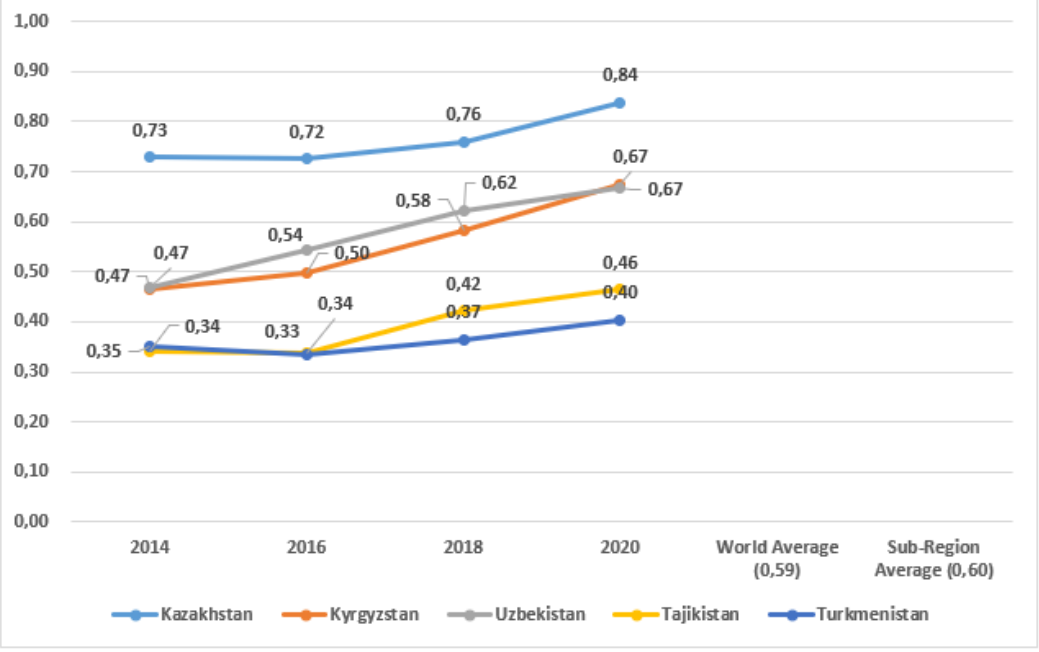

Figure 1. Digital Government Transformation Dynamics in Central Asian states
Source: Compiled by author based on data from "The UN E-Government Survey" for 2014-2020

In the recent E-Government Survey-2020 ranking of Central Asian states Kazakhstan is in 29th place with a very high EGDI - 0.8375, Kyrgyzstan was given 83rd position with a

policies and services across 193 UN Member States. The Survey supports countries' efforts to provide effective, accountable and inclusive digital services to all and to bridge the digital divide and leave no one behind.

high EGDI - 0.6749, Uzbekistan 87th position also with a high EGDI - 0.6590 and the two trailing countries are Tajikistan 133rd with an average EGDI of 0.4649 and Turkmenistan 158th with an average EGDI of 0.4034.[4]

As a result of the analysis, a clear division was revealed according to the levels of development of digitalization in the Central Asian countries into three clusters:

1. Very high (EGDI> 0.75) - Kazakhstan.
2. High (EGDI from 0.5 to 0.75) - Kyrgyzstan and Uzbekistan. Achievement
3. Medium (EGDI from 0.25 to 0.5) – Tajikistan and Turkmenistan.

Table 1. Central Asian countries in the UN E-Government Development Index 2018-2020

№	Country	Level of EGDI	Rank EGDI 2018	Rank EGDI 2020	Change
1	**Kazakhstan**	Very High	39 (0.7597)	29 (0.8375)	-10
2	**Kyrgyzstan**	High	91 (0.5835)	83 (0.6749)	-8
3	**Uzbekistan**	High	81 (0.6207)	87 (0.6665)	+6
4	**Tajikistan**	Middle	131 (0.4220)	133 (0.4649)	+2
5	**Turkmenistan**	Middle	147 (0.3652)	158 (0.4034)	+11
	World Average			**0.5988**	
	Region average			**0.6373**	
	Sub-Region Average			**0.6094**	

Source: Compiled by author based on data from "The UN E-Government Survey" for 2018-2020

Several scholars such as E.Johnson, B.Kolko, S.Maerz, M.Kneuer, and S.Harnisch assess critically e-government initiatives of Central Asian states. They drew attention to expanding internet facilities (including e-government) in the Central Asian region, meanwhile, were sceptic that it could improve transparency and foster democratization. In contrast, these researchers proposed the hypothesis that in Central Asia "regimes set up e-government as a response to globalization pressures and to demonstrate modernity and legitimacy to the international community" (Maerz, 2016).

According to Maerz e-government and/or e-participation indicators in the UN Surveys does not reflect real intentions and strategic motives of Central Asian governments mainly because of methodological and conceptual problems.

However, along with requirements of current trend at global level and economic benefits the necessity of introducing e-government in the Central Asian countries derived also from the high corruption levels in Central Asian states where implementing "e-government systems can decrease the level of corruption and improve the openness of governments for better service delivery to citizens" (Brimkulov & Baryktabasov, 2018).

Brimkulov and Baryktabasov has also pointed out several issues which "affect the result

[4] The assessment of values reflected in the E-Government Development Index (EGDI) composite with three components: The Online Services Index (OSI), the Telecommunications Infrastructure Index (TII) and the Human Capacity Index (HCI). Countries in the low EGDI group have EGDI values of between 0.0 and 0.25, those in the middle EGDI group have values in the 0.25-0.50 range, countries in the high EGDI group have values of 0.50 to 0.75, and those in the very high EGDI group have values of 0.75 to 1.00

of e-government implementation initiatives such as the level of development of ICT infrastructure, citizen's literacy in general and ability to use ICT in particular, the level of economic development, the level of legal framework development, political leadership etc." (Brimkulov & Baryktabasov, 2018).

According to the experts all of Central Asian states have very similar obstacles and challenges at the implementation stages of e-government programs. The first category of barriers of e-government defined as "the digital divide, lack of qualifications and specific knowledge of civil servants, and citizens' lack of IT skills". In point of the experts, "low levels of income, insufficient development of ICT infrastructure, high price of Internet access, and insufficient education in IT skills" are main reasons of above-mentioned factors. In addition, corruption, the insufficient development of ICT infrastructure, ineffective coordination between state bodies for e-governance, low-lying accountability and transparency, absence of evaluation and monitoring of ongoing projects, adequate financing of e-government projects, low level of information security and privacy were mentioned as main factors of hindering e-government projects in Central Asian region.

Table 2. Internet penetration rate in Central Asian states 2020-2021

№	Country	The UN E-Government Survey 2020	DataReportal 2021	Official statistics of region 2021
1	Kazakhstan	**78.9**	**81.9**	**84,2**
2	Kyrgyzstan	38	50.4	**70**
3	Tajikistan	21.96	34.9	**40**
4	Turkmenistan	21.25	33.2	**35**
5	Uzbekistan	**55.2**	**55.2**	**78**

Source: Compiled by author based on data from "The UN E-Government Survey 2020", "DataReportal" and Official data from the Governments (The Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan, Ministry of economic development and trade of the Republic of Tajikistan, Electronic government of the Republic of Kazakhstan, State committee on Information and Communication Technology of the Kyrgyz Republic)

2. Research Methodology

The research design of the paper applies mixed methodological approaches such as qualitative and quantitative.

Qualitatively, secondary sources like books, journal articles, previous research works and primary sources like national legislation (national strategies and programs), official statements, speeches, international and governmental publications have been utilized.

Quantitatively, in order to assess current digital readiness of Central Asia, their national digitalization strategies have been comparatively studied based on statistical data derived from a large panel dataset from the United Nations E-Government Survey 2020, including E-Government Development Index, Telecommunications Infrastructure Index, E-Participation Index. In addition, several reports and charts from the "DataReportal" – open-source informational platform have been applied to evaluate capacity for digital transformation in given countries of the region.

3. Analysis and results

In fact, digitalization and development of information-communication technologies (ICT) were prioritized in Uzbekistan yet in early 2000es. For instance, Uzbekistan has been implementing an integrated program of National Information and Communication System Development 2013-2020, the National Action Strategy on Five Priority Development Areas 2017-2021, the "Digital Uzbekistan – 2030" Strategy and the latest the Development Strategy of New Uzbekistan for 2022-2026 to implement digital transformation in national economy, industry and society in general.

Consequently, in a relatively short period of time, Uzbekistan has achieved visible results in the sphere of digitalization and ICT development. In particular, substantial progress has been observed in introducing e-government and ICT in public sector for the last few years, when in 2013 was launched "Single portal of interactive government services" – central e-government service of the country.

Moreover, digital and IT infrastructure of the country has remarkably improved, considerable amount of resources were invested which built solid foundations for better ecosystem of the ICT.

As a result, "in the field of digital economy and e-commerce in Uzbekistan for 2016-2020, the gross value added increased 1.8 times and reached 8.8 trillion UZS (about 9 billion US dollars) in 2020. The volume of services rendered in the IT sector amounted to 12.9 trillion UZS in 2020, which is almost twice what it was in 2016" (Abidkhadjaev, 2021).

Since the creation of IT parks in the country, the industry's export volume has increased 50 times and reached 40 million US dollars. The number of park residents increased from 147 to 500, more than 300 new companies were opened and 8,500 highly paid jobs have been created. In continuation of this work, plans have been developed to bring the sphere to a new level of development. In particular, it is planned to increase the volume of exports of services in IT-parks to 80 million US dollars by establishing close partnerships with major exporters (President.uz, 2021).

The total length of fiber-optic communication lines in the country has been remarkably expanding since 2016. For instance, during 2017-2022 it has increased almost 6 times and reached 118 thousand kilometers as of January 2022 (Mitc.uz., 2022).

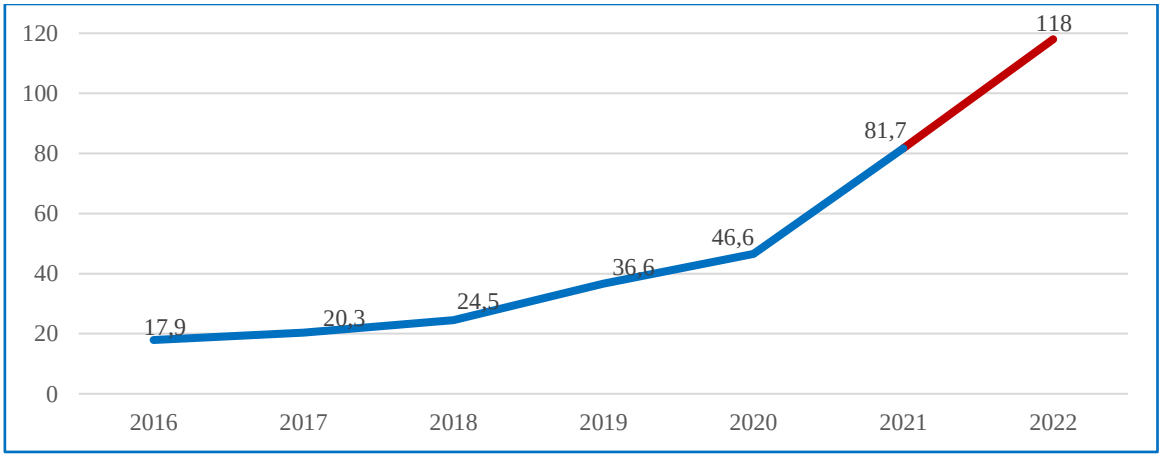

Figure 2. The total length of fiber-optic communication lines in Uzbekistan (thousand kilometrs)

Source: The Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan. https://mitc.uz/en/stat/6

Since 2017, the overall bandwidth speed of the international networks has been increased more than 28-fold – from 64.2 to 1800 Gbit/s in January 2022. (Mitc.uz., 2022).

As of January 2022, in Uzbekistan following the public administration reforms and digitalization of the sphere 56% public services provided through the portal of interactive public services (e-government portal). The number of public services on the e-government platform of the country (my.gov.uz) reached 307 and 1.3 million citizens are actively using such electronic public services (My.gov.uz, 2022). Whereas, the total number of Internet users in Uzbekistan reached 27.2 million (Mitc.uz., 2022).

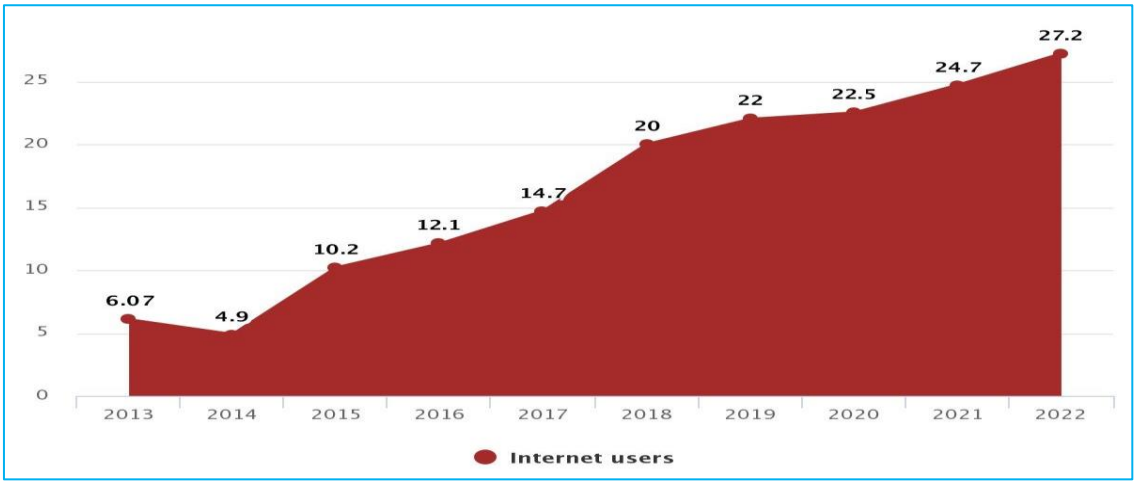

Figure 3. Total number of Internet users in Uzbekistan (thousands)

Source: The Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan. https://mitc.uz/en/stat/4

At the same time following the revealed vulnerabilities and challenges in the sphere, the government of the country has revised and upgraded its national digitalization strategy under the impact of the global pandemic.

Meanwhile Uzbekistan recognized the power of digitalization in transforming society, whereas the COVID-19 pandemic has made that transformation essential (Avliyokulov, 2020).

In this vein, the President of Uzbekistan Shavkat Mirziyoyev's Decree on October 5, 2020 has approved countries Strategy "Digital Uzbekistan – 2030" and "Roadmap" for its implementation. According to the document from the 1st August, 2021, all state obligatory payments such as fees and fines are being made through provided online payment-services. Furthermore, in line with the Strategy "Digital Uzbekistan – 2030" more than 400 information systems, electronic services and other software products in various areas of socio-economic development are being carried out automatically (Uzdaily, 2020).

Table 3. Target indicators of the "Digital Uzbekistan – 2030" Strategy

№	Indicators	Measures	2021 position	Targets by		
				2022	2025	2030
1.	The total length of fiber-optic communication lines in the country	thousand kilometers	41	70	120	250
2.	Broadband Internet coverage of country's territory	%	67	74	85	100

3.	Providing social infrastructure with broadband Internet	%	45	100	100	100
4.	Providing households with broadband Internet	%	67	74	85	100
5.	The level of Internet penetration	%	78	100	100	100
6.	Position of the country in E-Government Development Index of the UN	EGDI score (0-1)	0.66	0.70	0.75	0.86
7.	The share of digital public services provided through the portal of interactive public services	%	34	60	70	90
8.	The share of digital public services on mobile devices provided through the portal of interactive public services	%	5	30	42	60
9.	Transactions through the portal of interactive public services	%	25	45	60	75
10.	The share of business entities that have implemented an enterprise resource management system (ERP)	%	20	40	65	100
11.	Number of users of internet banking (individuals and business entities)	million	10	15	17	20
12.	Number of startup projects included in the incubation and acceleration programs of the software and information technology of the techno park.	piece	50	250	700	2300
13.	Number of quotas for admission to higher education and secondary special education institutions for training in the field of information technology	thousand	7	12	15	20

Source: Decree of the President of the Republic of Uzbekistan No. UP-60 "On approval of the Development Strategy of the New Uzbekistan for 2022-2026". January 28, 2022. https://lex.uz/docs/5030957 (In Uzbek)

Adoption of the "Digital Uzbekistan –2030" Strategy and the "road map" for its implementation in 2020-2022 creates, first of all, a legal basis for the transition to a digital economy. The document includes such priority areas as the development of digital infrastructure, e-government, the national digital technology market, education and advanced training in the field of information technology.

The strategy considers approval of two programs: digitalization of regions and digitalization of industries. Thus, two approaches are considered as territorial and industrial. Undoubtedly it will provide the most comprehensive coverage and effective implementation of the document.

Among expected results of "Digital Uzbekistan–2030" Strategy are high-quality and inexpensive Internet and mobile communications, the reduce of the digital divide between cities and villages.

The most important conditions and guarantees for the successful implementation of the Strategy is to ensure funding and increase the digital literacy of the population. So, according to the document, the Ministry for Information Technologies and Communications, together with other relevant governmental bodies will take measures to complete the digitalization of preschool education, health care and secondary schools by the end of first stage of the implementation period.

The implementation of the Strategy will ensure the provision of high-quality digital

services to the population, reduce corruption, increase the level of citizen involvement in government decision-making processes, modernize the system of higher and secondary education in order to ensure the competitiveness of citizens not only within the country, but also in the regional and global labour markets.

The Strategy contributes the implementation of other national strategic documents and programs and, first of all will be important for achieving the National goals and objectives in the field of Sustainable development for the period up to 2030 (UN SDG), as well as the Development Strategy of New Uzbekistan for 2022-2026.

The Development Strategy of New Uzbekistan for 2022-2026 which has been adopted on January 28, 2022 covers seven priority areas of further reforms regarding a good governance, public administration, the rule of law, economic development, social policy, spiritual enlightenment, security as well as an open, pragmatic and active foreign policy. In turn, the seven priority areas identify hundred target goals to be achieved by 2026.

Figure 4. Seven Priority Areas of the Development Strategy of New Uzbekistan for 2022-2026
Source: Development Strategy Center. February 1, 2022. https://strategy.uz/index.php?news=1469

Digitalization of several important spheres such as public services both at central and local levels by improving "e-government"; the judicial system; law enforcement; the traffic control system; healthcare system; social services as well as social protection, banking and agriculture sectors and other main spheres of the national economy have been targeted in the new Development Strategy.

In particular, improvement of the e-government of Uzbekistan and bringing the share of electronic public services to 100 %, implementation of "Mobile ID-identification" system of a person in the provision of public services, introduction of "digital passport of citizens" and "digital authority" project have been prioritized to digitalize public administration and optimize administrative procedures at central and local levels.

By maintaining stable growth rates of it is planned to reach 4,000 US dollars GDP per capita and join the group of countries with "upper-middle income" by 2030. In this regard, the development of the digital economy is also defined as the main "driver" with an increase in its share by at least 2.5 times by the end of 2026. Moreover, it is planned to expand the volume of the software products industry 5 times, and software export - 10 times, up to 500 million US dollars, the level of digitalization of production and operational processes in the

real sector of the economy, in the financial and banking sectors to 70% (Lex.uz, 2022). Moreover, digitalization of urban planning and construction, development of cities in accordance with the concept of "Smart City" has been prioritized.

Conclusion and Recommendations

The digital technologies as the driving locomotives during the global health crisis also accelerate digitalization progress in other areas such as public administration, education, medicine, employment and etc. Moreover, digitalization makes possible to maintain consistency in the functioning of the business activity of both public and private firms and companies, and also explores opportunities which must be used for the benefits and prosperity of nations across the globe.

Certainly, in the context of the global pandemic and in general digital technology and services play a central role in recovering from the pandemic and also building resilient economies. Therefore, expanded digitalization and digital transformation should be the main priorities for developing countries, like Uzbekistan.

Moreover, it is necessary to attract more international partners by diversifying their geography to ICT sector of the country. Introducing the right policy framework to enhance digitalization could strengthen not only legislative basis but also international cooperation for better information exchange and experience sharing. In turn, less developed ICT infrastructure and the legislative framework of the digitalization of hinder access to national legislature. In addition, privacy and data protection in the national legislative frameworks of the country should be reflected and guaranteed.

Enhancing affordability of and access to ICT, improving quality and cost of the Internet will not only contribute to narrow the digital divide within country and enhance digital learning platforms, but also increase digital literacy and competences among population. Investing in digital eco-system, ICT infrastructure and qualified IT services will facilitate modernize national economy and accelerate inclusive growth in all spheres.

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