

Social economic results of the development of Uzbekistan's of digital economy

Resultados socioeconómicos del desarrollo de la economía digital de Uzbekistán

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ABSTRACT

In conditions of globalization and strong competition, wide use of digital systems in people's social life, as well as various industries and spheres of developed countries, forces developing countries to digitalize their economic too. Therefore in order to strengthen Uzbekistan's economic competitiveness, wide adoption of digital technologies and solutions in economic spheres and industries is one of the crucial tasks to be achieved. Therefore, the problem of digitalization is one of the urgent directions to be investigated.

Keywords: Uzbekistan, digital economy, GDP, science and technology, digital banking

RESUMEN

En condiciones de globalización y fuerte competencia, el amplio uso de los sistemas digitales en la vida social de las personas, así como las diversas industrias y esferas de los países desarrollados, obliga a los países en desarrollo a digitalizar también su economía. Por lo tanto, para fortalecer la competitividad económica de Uzbekistán, una amplia adopción de tecnologías y soluciones digitales en las esferas e industrias económicas es una de las tareas cruciales que deben lograrse. Por lo tanto, el problema de la digitalización es una de las direcciones urgentes a investigar.

Palabras clave: Uzbekistán, economía digital, PIB, ciencia y tecnología, banca digital

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INTRODUCTION

In Global Economy digital economy systems are considered as integrated part of the economy and subject to permanent support of the states. In our country, digitalization of the economy will be the main driver in raising share of innovations in GDP, production of competitive and differentiated quality products, as well as increasing quality of rendered services to public, digital economy will be the main driver.

While the measures to improve the position of our country in World Economic Forum and Global Innovation Index are based on developing scientific and innovation activities, protecting the results of intellectual properties, increasing the share of ICT, these procedures result in the need for establishing a digital system with high security level.

In the development of global digital systems, first and foremost, the coordination of state and economic bodies and local government agencies with the necessary information systems and resources, the implementation of software and e-services in the country, is based on the digital economy, information technology market, creation of favorable conditions for attracting foreign investment through the establishment of centers, modern telecommunication infrastructure, development of communication technologies and networks, coordination of development of modern telecommunication service, enhancement of digital economy through introduction of electronic services in public administration and economy, development of e-commerce and software market, organizational, logistical and economic support of national segment of the Internet is digital media content. Development proposals through support, use in urban and regional infrastructure management, housing and communal services, transport logistics, safe and smart city " for the development of an 'intelligent system to improve the training of qualified personnel, (Lex.uz) plays an important role.

RESERCH METHODOLOGY

In order to conduct wide and through investigation of the practice of state motivation and implementation of digital systems in foreign countries, the study had effectively used various methods like analysis and synthesis, inductive, deductive, and grouping methods.

In order to draw conclusions and securing accuracy of the results, the study had exploited econometric methods of analysis.

LITERATURE REVIEW

The topic is very wide and had been investigated by various researches from developed and developing world. And the acceleration of IT growth in South, South West Asian countries have resulted in deeper leaving of this topic by researches..

For instance, Watanabe et.all had exploited this topic in various scientific works. In the article "Measuring GDP in the digital economy..." following thoughts had been analysed and investigated.

As revealed by Tapscott in his best-seller *The Digital Economy* published in 1994, the Internet has dramatically changed the way of conducting business and our daily lives. Further advancement of digital innovation, including cloud, mobile services, and artificial intelligence, has augmented this change significantly and provided us with extraordinary services and welfare never anticipated before. However, contrary to such an accomplishment, productivity in industrialized countries now confronts an apparent decline raising the question of a possible productivity paradox in the digital economy. The limitations of gross domestic product (GDP) statistics in measuring the advancement of the digital economy have become an important subject.

While this mismatch is an old problem rooted in the dynamics of product innovations, since mismatch brought about by information and communication technology (ICT) is very strong. Finding a solution to this critical issue has become highly crucial in the digital economy.

Based on an intensive review of preceding studies and empirical analyses of national, industrial and individual behaviors in the digital economy, this paper attempted to draw a perspective on this critical issue.

By means of an analysis of co-evolution among a shift in people's preferences from economic functionality to supra-functionality beyond economic value, the advancement of ICT and paradigm change to uncaptured GDP, a solution to this critical issue was investigated. New insights for measuring the digital economy were explored which provide insight into integration of national accounts with product-oriented micro-analysis efforts.

Watanabe, Chihiro& Tou, Yuji& Neittaanmäki, Pekka (Gaspareniene,.. 2016) stated that "the Internet has dramatically changed the way we conduct business and our daily lives by provided us with unprecedented services and conveniences. However, contrary to such accomplishments, productivity in industrialized countries is now experiences an apparent decline. This has raised the question of a possible productivity paradox in the digital economy. The limitation of GDP statistics in measuring the advancement of the digital economy has thus become an important subject.

This paper analyzed the structural sources of this problem.

Utilizing the results of empirical analyses of national, industrial, and individual behavior in the digital economy, solutions to these critical issues were investigated.

Based on the two-faced nature of information and communication technology (ICT) and the fact that people's preferences extend beyond economic value, the concept of uncaptured GDP was postulated and spinoff dynamism to a new co-evolution among advancement of the Internet, increasing dependence on uncaptured GDP, and a shift in people's preferences was

reviewed. This provided new insight and suggested a transformative direction to address the limitation of using GDP statistics in the digital economy.

Gaspareniene, Ligita & Remeikiene, Rita (Central bank of Uzbekistan 2019) in their study tried to focus on theoretical and empirical identification of economic and demographic characteristics of the subjects, operating in digital shadow economy.

Although, in general sense, the characteristics of the subjects, operating in digital shadow economy, are not extremely different from the ones of the subjects, operating in traditional shadow economy, the expert evaluation has enabled to identify the distinctive features of an illegal digital market seller, who can be represented as a young or middle-aged male with higher education, a professional in his operational field. With reference to the research results, sellers in digital shadow economy include the entities with officially registered activities, who are trying to evade taxation of the revenues earned from the operations in e-space. On the other hand, according to the experts, the amount of the officially accounted revenue earned by these entities may reach up to 300 EUR. Hence, the defined profile of an illegal seller, as of a subject, operating in digital shadow economy, proposes that a seller in digital shadow economy is an intellectually developed person with advanced professional skills, but insufficient financial earnings.

There is an endless list of studies related to the topic of our research, however the author tried to analyse the role of the state in developing digital economy. And based on this grounds in our study we will try to analyse the impact of the development of digital systems to social life, and analyse the share of scientific-technique costs in GDP

ANALYSIS AND RESULTS

As from 1 of August 2018, by the decree of the CBU the national legislative system had acquired new term “digital banking”. According to the legislation sets that banks or their branches rendering remote banking services via innovative banking technologies will be vellored as “digital bank”.

Services of “Digital banks” have several features::

- It should maximize clients digital access to the non.cash money circulator;
- It should provide modern methods of provision of secure banking services, by employing authentication of physic digital, biometric coded, combined methods;
- Optimization of data management and digital IT architecture via “Big data” instruments of the centralized Information Centre through domestic internet;
- Wide used of various form of social media, web programs, video communication.

The 1st stage of Uzbekistan digital banking services is in raising the quantity of users.

Thus, according to the CBU’s information in November 2018, 28 Commercial Banks had rendered remote banking services for 339 546 legal entities and 7 088 288 persons and Xalq bank had been found as the lider in providing such services for people with 2 611 718 clients.

Table 1.

Number of customers applied remote banking systems as of September 1, 2019

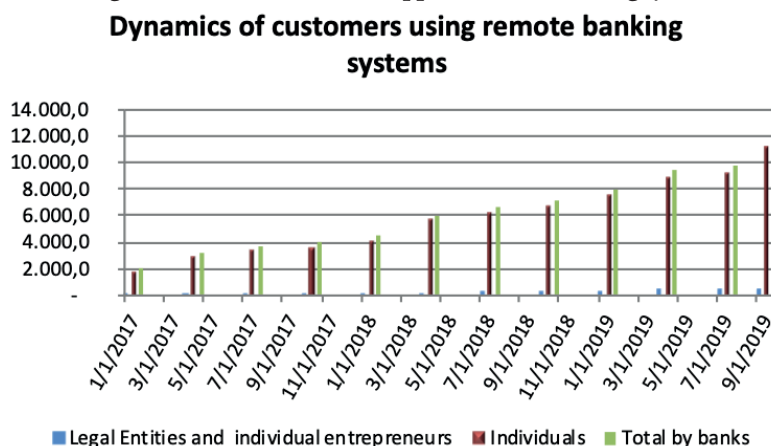
No	Bank's name	Legal Entities and individual entrepreneurs	Individuals	Total by banks
1	National bank for FEA	55 581	895 906	951 487
2	JSCB “Uzbek Industrial and Construction Bank”	22 384	682 974	705 358
3	JSCB “Agrobank”	100 158	1 317 200	1 417 358
4	JSCMB “Ipoteka-bank”	94 638	811 566	906 204
5	JSCB “Mikrokreditbank”	44 729	638 436	683 165
6	JSCB “Xalq banki”	40 637	3 765 711	3 806 348
7	JSCB “Savdogar”	3 723	74 252	77 975
8	JSCB “Qishloq qurilish bank”	18 001	244 315	262 316
9	JSCB “Turonbank”	15 601	144 424	160 025
10	JSCB “Hamkorbank”	67 169	661 849	729 018

11	JSCB "Asaka"	16 415	561 800	578 215
12	JSICB "Ipak Yuli"	15 210	294 055	309 265
13	JSC "ZIRAAT BANK UZBEKISTAN"	1 053	12 363	13 416
14	PJSB "Trastbank"	19 269	79 142	98 411
15	JSC "Aloqabank"	14 749	235 505	250 254
16	JSC "KDB Bank Uzbekiston"	814	21 298	22 112
17	PJSCB "Turkiston"	2 844	7 745	10 589
18	Subsidiary bank of "Saderat Iran"	114	702	816
19	JSCB "Universal bank"	2 988	28 785	31 773
20	JSCB "Kapitalbank"	14 373	121 549	135 922
21	PJSCB "Ravnaqbank"	1 868	8 433	10 301
22	PJSCB "Davri-Bank"	16 750	48 476	65 226
23	JSCB "Invest Finance Bank"	16 588	180 109	196 697
24	JSCB "Asia Alliance Bank"	9 515	205 548	215 063
25	PJSCB "Hi-Tech Bank"	1 258	19 875	21 133
26	PJSCB "Orient Finans"	8 156	139 485	147 641
27	JSCB "Madad Invest Bank"	513	6 926	7 439
28	JSCB "Uzagroeksportbank"	196	419	615
29	JSC "Poytaxt bank"	344	654	998
30	JSCB "Tenge bank"	-	2	2
Total by types		605 638	11 209 504	11 815 142

*Central bank of Uzbekistan (2019). The number of users of remote banking systems <http://www.cbu.uz/uzcl/statistics/paysistem/2019/09/174420/>.

Comparing the indicators for January 1, 2017 and the same period in 2018, we can see that the number of individuals using remote banking services has reached almost 2.3 million.

Figure 1. Dynamics of change in number of customers applied remote banking systems for 2017-2019.



* *Central bank of Uzbekistan (2019). The number of users of remote banking systems <http://www.cbu.uz/uzzc/statistics/paysistem/2019/09/174420/>.*

The main reason for this can be attributed to the implementation of currency liberalization policy in our country and the growth of commercial banks' liquidity. Increased access to cash, as well as an increase in the number of service payment terminals also stimulate the expansion of remote banking services.

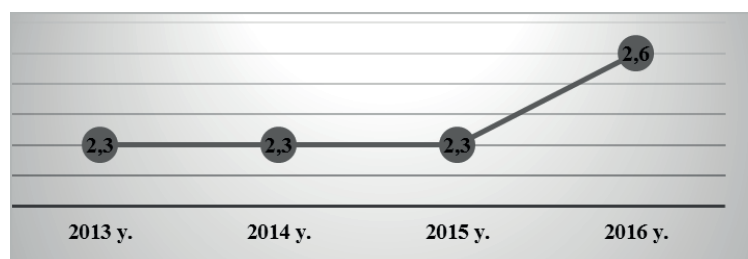
Thanks to introduction of Uzcard system in Uzbekistan and introduction of a number of projects that allow you to pay with mobile devices and computers at any time and place, a new business network - e-commerce is developing rapidly. Online payment services such as Click, MBank, Sms Payment are successfully working. People can go home and shop online such as Mytech.uz, Esavdo.uz, Uzbekmarket.uz, Bozor.uz, including food, clothing, appliances, perfumes, household goods and even furniture.

As a result of the effective implementation of the innovation policy in Uzbekistan, not only the banking services have become distant, but also the impact of the innovation policy on the real sector of the economy.

Today our country is recognized as the most dynamically developing country in the field of ICT. According to the International Telecommunication Union in 2017, in comparison with 2016, our country rose by eight points to 95th place in the ICT development index.

The share of ICT sector in GDP in 2016 was 2.6%. The highest share in the ICT sector is in the services sector.

Figure 2. ICT sector's share in the GDP of the Republic of Uzbekistan, %



* *State Statistics Committee data (2018). www.stat.uz*

The share of communications and informatization in the economy of the country is achieved through the provision of technical capabilities of the population to the telecommunication network, on their basis providing high-quality service, full transition to digital telephone communication and television systems. Information and communication as a form of economic activity is 2.5% of the GDP of the Republic of Uzbekistan.

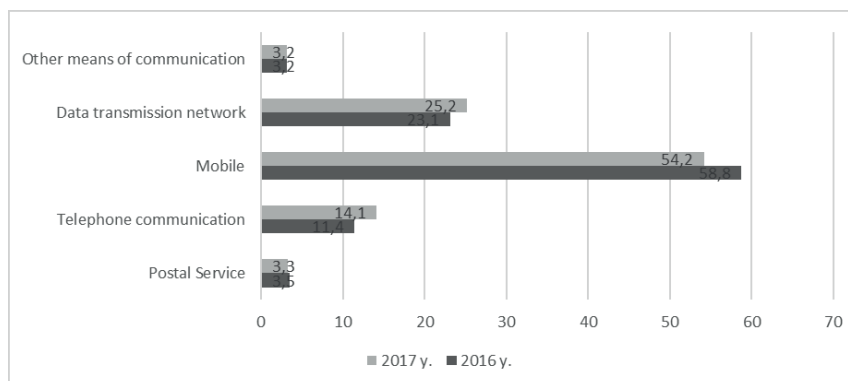
At present, the country is in great demand along with communication services, financial services, transport, trade and catering. Today, Uzbekistan is moving towards new horizons with the use of advanced information and communication technologies. Fiber-optic lines are used in all main types of trunk, regional and interstitial communication, which is the result of introduction of modern broadband technologies into telecommunication systems. Expanding the coverage area of such communication lines will allow expanding the range of ICT services provided in the market, improving the quality of video telephony services, Internet access, high-speed internet, ND-channel broadcasting. At the same time, digital technologies have been introduced, telecommunication networks have been reconstructed at all long-distance and international levels, as well as local telephone exchanges, the level of development meets modern requirements. Internet access channels have been greatly expanded. This, in turn, has allowed the operators and service providers to reduce the cost of channels by six times in the last five years.

Active use of ICT is based on the high human potential, which is widespread, equipped with the latest types of equipment and technology infrastructure. This work is aimed at improving the quality of life of people, improving their daily lives, and ensuring efficient use of state-of-the-art technologies. In 2017, the volume of communication services was 7168.1 billion soums and increased by 28.5% compared to 2016 (at current prices). The largest volume of mobile communication services (UZS 3881.0 billion); data transmission network, including Internet (1808,8 billion sums); services of long-distance and international telephone services (911.1 billion soums).

The share of services rendered to the population in the total volume of communication services was 71.2%. The volume of communication services provided to the population in 2017 was 5104.7 billion This figure increased by 25.1% (in actual prices) compared to 2016.

In the regional context, the largest share in the total volume of communication services was provided by Tashkent city (42.1%), Samarkand (7.7%), Fergana (7.4%), Andijan (5.9%), Namangan (5.4%). The Kashkadarya region (5.2%) was the most popular. The lowest shares were in Syrdarya (1.9%), Tashkent (2.5%), Jizzakh (2.5%), Navoi (2.7%), Khorezm (3.6%), Surkhandarya (3.9%), Bukhara (4.4%) and the Republic of Karakalpakstan (4.4%).

Figure 3. The structure of communication services by types of activity,%.



* State Statistics Committee data (2018). www.stat.uz

Dynamic expansion of mobile communication networks is observed in the republic. If it has only recently been used for speaking purposes, today this modern type of communication helps to get up-to-date information, information sharing, and financial transactions. Currently, Unitel LLC (Beeline trademark), Universal Mobile Systems (UMS trademark), RWC (Perfectum Mobile trademark), Coscom FE LLC ("U cell" trademark) provide mobile services in the market of Uzbekistan. Mobile communication services are provided in CDMA, GSM900, GSM-1800, UMTs 2100, 4G LTE standards. Mobile operators provide additional services for mobile users, including mobile internet, SMS-informer, internet banking and other services.

We also performed a regression analysis of GDP growth in mobile phone subscribers as well as deductions from GDP to scientific and technical costs during our research. This analysis is a regression and covers data on our country for the period 2000-2016.

Table 2 Dynamics of GDP and Scientific and Technical Expenses for 2000-2016

Years	GDP (billion dollar)	STC, %
2000	13,76	0,36
2001	11,4	0,34
2002	9,7	0,29
2003	10,1	0,27
2005	14,3	0,27
2006	17,3	0,22
2007	22,3	0,22
2008	29,5	0,19
2009	33,7	0,2
2010	39,3	0,19
2011	45,9	0,19
2012	51,8	0,2
2013	57,7	0,2
2014	63	0,2
2015	66,9	0,21
2016	67,4	0,22
<i>Here, GDP (billion dollar)=Y, the share of STC=X1.</i>		
<i>* Developed by the author on the basis of data from the World Bank.</i>		

Years	Y	X1
2000	13,76	0,36
2001	11,4	0,34
2002	9,7	0,29
2003	10,1	0,27
2005	14,3	0,27
2006	17,3	0,22
2007	22,3	0,22
2008	29,5	0,19
2009	33,7	0,2
2010	39,3	0,19
2011	45,9	0,19
2012	51,8	0,2
2013	57,7	0,2
2014	63	0,2
2015	66,9	0,21
2016	67,4	0,22

Years	lnY	lnX1
2000	17,27114	-0,66165
2001	2,433613	-0,73881
2002	2,272126	-0,94787
2003	2,312535	-1,03933
2005	2,66026	-1,03933
2006	2,850707	-1,29413
2007	3,104587	-1,29413
2008	3,38439	-1,47073
2009	3,517498	-1,40944
2010	3,671225	-1,47073
2011	3,826465	-1,47073
2012	3,94739	-1,40944
2013	4,055257	-1,40944
2014	4,143135	-1,40944
2015	4,203199	-1,35065
2016	4,210645	-1,29413

Multiple correlation coefficients R (multiple R) is a positive square root of R (multiple coefficients, Residual spreads, and R-square coefficients). These statistics are useful in describing the relationship between variables when performing variable regression (i.e., using multiple independent variables).

Multiple correlation coefficients describe the proximity of the relationship between dependent and variable. It varies from 0 to 1 and is calculated by the following formula:

$$R_{y|X_1, X_2, \dots, X_n} = \sqrt{1 - \frac{|R|}{R_{yy}}}$$

In our statistical analyzes, the correlation coefficient is 0.59.

The significance of the multiple correlation coefficients is confirmed by the Fisher F-test table. His hypothesis is that if the deviation probability value exceeds a certain level (often they are = 0.1, 0.05, 0.01, or 0.001). The following formula should be used

$$F_{nDFR} = \frac{\frac{1}{k-1} r_{y|X_1, \dots, X_k}^2}{\frac{1}{n-k} (1 - r_{y|X_1, \dots, X_k}^2)}$$

Quantitative measure of convergence	Qualitative description of the power of communication
0,1-0,3	Weak
0,3-0,5	Medium
0,5-0,7	Noteworthy
0,7-0,9	Higher
0,9-0,99	The highest

In our analyzes, F is 0.09. This indicates that the correlation between the observed variables and the invariant is very weak. That is, the impact of scientific and technical costs on GDP changes is low. It is important to take into account that social, cultural and other costs also play a role in changing the value of GDP. However, in developed countries, changes in scientific and technical costs are reflected in GDP dynamics. This is explained by the high technology share of high-tech goods in the country's GDP and the high technology in the export structure. Increased GDP expenditure on science and technology is a major factor in the country's GDP growth and development of the digital economy.

- But there are other problems that hinder the development of the digital economy in our country:
- Low internet speed in the country;
- Past Low public confidence in remote services (accustomed to paper receipts and other similar documents);
- Unprepared level of qualification of the population to digital system, etc.
- In order to solve the above problems we propose:
- The first step is to adopt the State Program for the Transition to the Digital Economy.
- It is also expected that at this stage a full study of information technologies, manuals and algorithms will be introduced in educational institutions; The following tasks should be set at the state level in the field of training and personnel training in the digital economy:
- Creating conditions for teaching the digital economy;
- Improving the education system that provides the digital economy with qualified personnel;

- The labor market, which should be based on the needs of the digital economy;
- Creating the necessary conditions for the development of the digital economy of Uzbekistan and the creation of a motivation system to ensure staff participation.

The modern education system has passed an active phase of computerization and information. These processes were crucial to funding, the level of development of universities, the level of faculty preparation, and so on. The cultural significance of digital media is clear regardless of their strengths and weaknesses. With their spread, there are changes that affect people's daily lives, cultural hierarchies, and people's interactions with each other and the world around them. The system of shaping cultural experience transforms the key areas of culture.

It is necessary to create a legal basis for the establishment of venture funds. In particular, it is necessary to point out that venture financing in the Republic of Uzbekistan is carried out by venture companies and venture funds.

Venture companies are legal entities focused on venture financing. Venture funds are legal entities formed through the sale of securities. Venture funds can also be formed from the Pension Fund, other public funds and insurance companies. Venture companies and funds are set up with at least 51% of the founders or the founders having their own funds. Venture companies and funds may direct more than 10% of their total funding to only one project.

Sources of financing Venture contracts are:

- Funds of venture entities;
- Funds raised by joint stock companies;
- The national budget or local budgets provided by the relevant budgets for these purposes;
- State organizations involved in the activities of the state budget and extra-budgetary funds, venture capital;
- Foreign investors;
- International financial institutions and funds;
- Personal savings of individuals.

The state will provide priority funding for the implementation of applied research activities, taking into account the use of research and development in production.

Program funding is provided on a repayable basis with the participation of stakeholders.

The second step is to develop a program for the use of digital systems for all segments of the population. Including:

Teaching general knowledge and concepts for 7-17 years. In addition to computer science, modern equipment and their equipment, which are the basis of the digital economy, we propose to integrate the "Digital System" discipline into the educational process.

This discipline teaches the design of ATMs, terminals, computers, android devices and other devices.

18- to 25-year-olds (students of higher educational institutions) are instructed to design and apply innovative technologies and techniques in their specialty. At the end of the course, each student will have to present a course work on his or her innovative ideas and projects. Depending on the direction of the higher educational institution it is applied to production activity. Innovative Ideal Course Courses should be sent to Manufacturing and Service Organizations within 30 business days of their submission and receive appropriate response. Such a system will allow young professionals to link innovative ideas to practice and to develop the digital economy.

There will be courses on digital technologies in the workplace for people aged 25-60 years. Such courses may be provided in a non-productive manner.

Also, if there were any training courses for designers such as Design, Banking and Digital Banking, there would be increased literacy in the digital economy.

The third stage is one of the most important for our country. At this stage it is necessary to increase the volume of state budget financing of production and innovation activities.

Today, there are few companies in the country that produce computers, bank terminals and electronic equipment. The main assets are imports. Even chips for plastic cards are imports. Once the second phase has started to yield its results, implementation of the third stage will not be difficult.

The main task of the state at this stage is to provide financial, organizational, legal support to new industries.

The fourth stage is the state support for the transformation of digital technologies into a livelihood, the active application of digital technologies in the service and production systems. For example, e-mailing a physician, electronically sending the results of the analysis and sending it to the doctor, and receiving a physician's e-signature diagnosis; or e-ordering meals in public places, etc.

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