

# *Problems and Prospects of Creation of Digital Ecosystem in Postal Service of Uzbekistan*

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**Abstract**— Today, large-scale information and communication revolution is in progress all over the world and digital technologies are spreading incredibly fast. The current stage of information and communication technologies development in Uzbekistan is characterized by the period of formation and high dynamics of development. However, issues of digitalization remain poorly addressed, problems and prospects for business development are not properly covered in the conditions of formation of the digital economy. The main subdivision activity of postal communication of Uzbekistan in recent years has caused disturbance and concern of the government in connection with the deterioration of its main indicators. In the international sphere, the republic does not show high indicators either. In order to change the situation and reform the activities of Uzbekistan postal service, the country's leadership and the government have taken a number of decisive measures this year. However, to implement successful reforms, it is expedient to form a digital ecosystem in the national mail of Uzbekistan.

**Keywords**—*Digital economy; postal communication; digitalization; «blockchain» technology; smart contracts; information infrastructure; digital ecosystem.*

## I. INTRODUCTION

Today, the development trends of the world economy show a rapid growth and coverage of the digital economy segment in all spheres of society. According to the prediction of experts, there is a possibility that those countries that "take a late start" in the direction of digital economy development, may hopelessly fall behind. Therefore, considering the existing

trends, rapid measures are taken in Uzbekistan to develop the digital economy, including the field of postal communication. It should be noted that the activity of postal service of Uzbekistan is the most socially significant for the society due to the wide distribution and coverage of postal services of all social strata of society and maximum accessibility according to the proposed payment rates. As in any country, the postal service of the Republic has such an important advantage as a branched network of post offices in all corners of the country that provide postal and related services. The strategic goal of the development of the national postal operator of Uzbekistan is to provide leading positions in the provision of postal services, the transformation of enterprise into a highly efficient and competitive company that implements world quality standards that is dynamically moving to profitable sectors of the economy. The achievement of this goal is largely determined by the level of provision of postal communication services, as well as applying new methods that will be used to improve the quality, expand the range of services provided, and digitize activities.

## II. PROBLEM STATEMENT

The main subdivision activity of postal communication of Uzbekistan JSC “O’zbekistan Pochtasi” in recent years has caused disturbance and concern of the government in connection with the deterioration of its main indicators (see fig. 1-6).

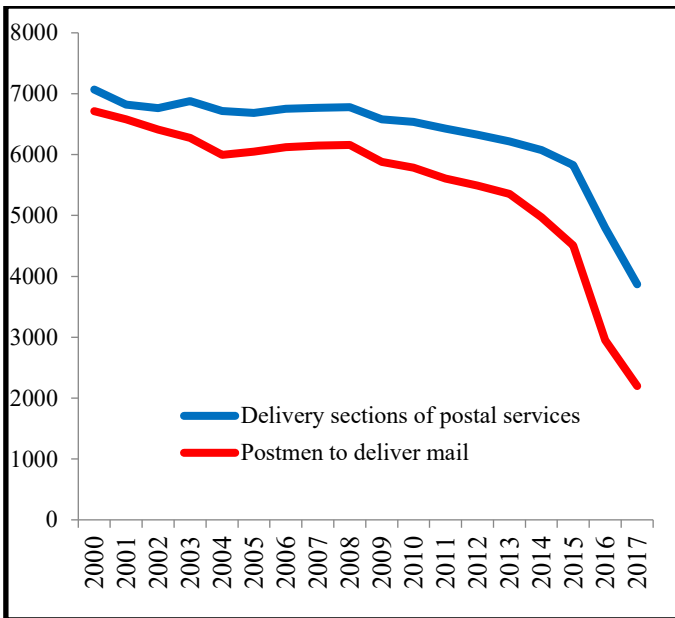


Fig. 1. The dynamics of changes in the number of delivery sections of postal services and postmen for the period from 2000 to 2017 [1].

A significant decrease in the most important and significant indicators such as the number of postal delivery parcels (more than 30%) and reduction in the number of mail-ordering postal workers (more than 60%) for the period from 2000 to 2017 is observed (see fig. 1).

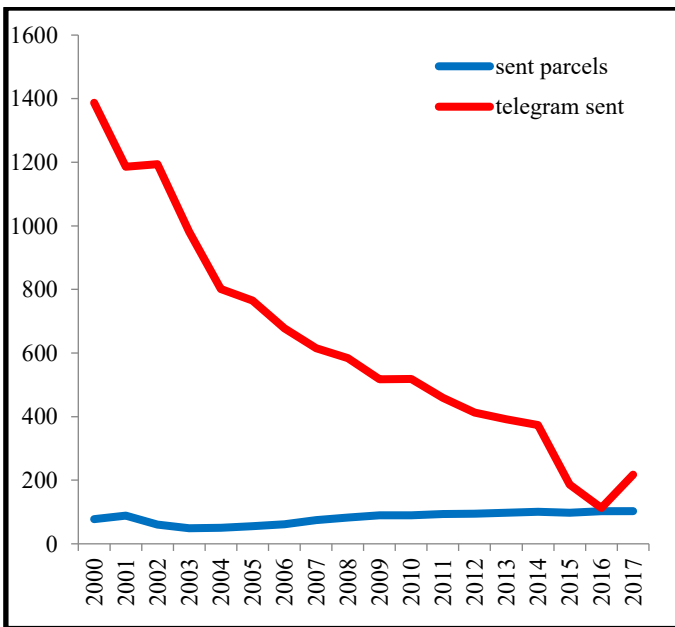


Fig. 2. The dynamics of changes in the number of sent parcels and telegrams, thousand pieces for the period from 2000 to 2017 [1].

The number of telegrams sent over the period from 2000 to 2017 decreased more than 12 times, and the amount of sent parcels comprised only 32.3% (see fig. 2).

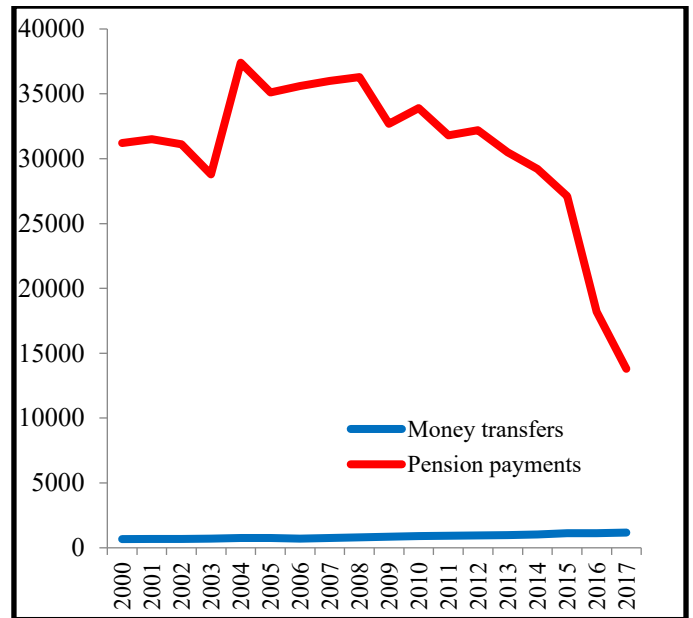


Fig. 3. The dynamics of changes in money transfer and pension payments for the period from 2000 to 2017, thousand [1].

Pension payments for the period from 2000 to 2017 decreased by more than 40% (see fig. 3), and starting from 2017, these payments are carried out by CB "Halq Bank". The number of money transfer for the same period increased by only 67.4%.

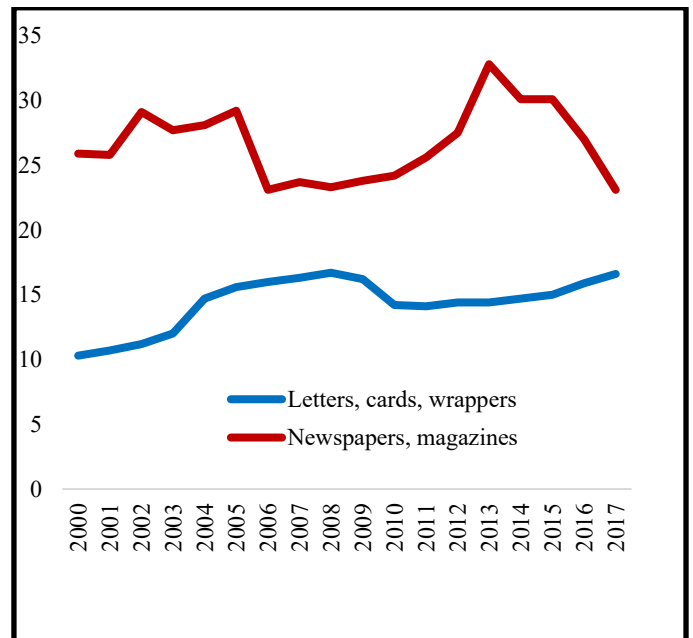


Figure 4. The dynamics of changes of sent letters, cards, wrappers, news papers and magazines for the period from 2000 to 2017, million units [1].

As it can be seen from figure 4, the dynamics of changes in sent letters, cards, parcels, as well as the delivery of newspapers and magazines for the period from 2000 to 2017 has a volatile character (see fig. 4).

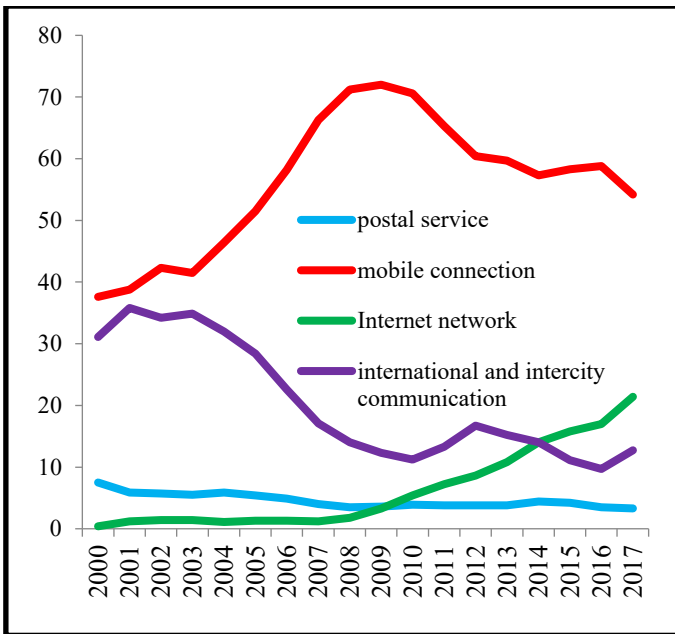


Figure 5. The dynamics of changes in the structure of revenue of communication enterprises from the provision of communication services (as a percentage of the total) [2].

As it is shown in the dynamics of changes in the structure of revenue of communication enterprises from rendering communication services to the public and enterprises, there is a variable trend in mobile communication (see figure 5-6). There is a decreasing tendency for postal, international, and long-distance communication, but the Internet networks are increasing.

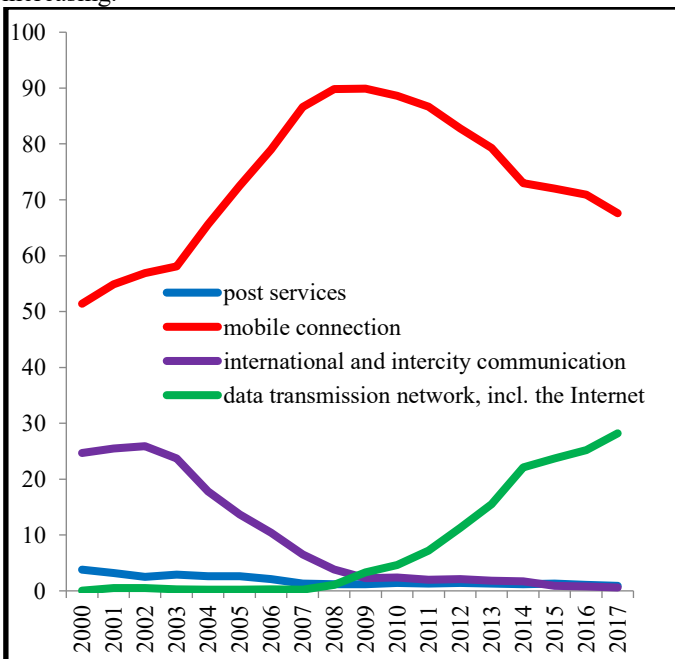


Figure 6. The dynamics of changes in the structure of revenue of communication enterprises from rendering services to the public (as a percentage of the total) [3].

from rendering services to the public (as a percentage of the total) [3].

At the same time, there is a tendency to decrease for postal, international, and long-distance communication and the Internet network, on the contrary, increases. Thus, most of the important indicators of postal service of the republic show a sharp fall, reduction and instability in indicators of the main types of postal services provided.

In the international sphere, the republic also does not have high indicators. Uzbekistan is a member of the Universal Postal Union (UPU) since February 24, 1994 and has the value of postal development index 0.013 belonging to the 4th group (List of countries and territories applying the provisions of transitional system of terminal expenses) from 5 groups (the most developed countries are included in the 1st group, and the least developed countries are included in the 5th group) [4]. While calculating the postal development index, gross national income per capita and the average cost of processing, as well as the delivery of the letter, are taken into account [5].

### III. RESEARCH QUESTIONS

Today, the President of Uzbekistan, Sh. M. Mirziyoyev, paid special attention to the development and mass introduction of ICT in all spheres of society. This is facilitated by the adopted Integrated Program for the Development of the National Information and Communication System of the Republic of Uzbekistan, designed for 2013-2020. The development of ICT in Uzbekistan is characterized by several stages [6, p.245]. Over the years of implementing, the Comprehensive Development Program of the National Information and Communication System, the industry's contribution to GDP has increased from 1.9% to 2.2%. The majority of the republic's indices in the UN rating on e-government were significantly improved (see Table 1).

TABLE 1. THE DYNAMICS OF CHANGES IN THE UNO E-GOVERNMENT RATING OF THE REPUBLIC OF UZBEKISTAN [7].

Index	2008	2012	2016	2018	Change 2018/2008
E-Government Rank	109	91	80	81	+28
E-Government Index	0,40570	0,509915	0,54335	0,62070	+0,215000
E-Participation Index	0,09090	0,23680	0,67797	0,75840	+0,667500
Online Service Index	0,27424	0,496731	0,68841	0,79170	+0,517460
Human Capital Index	0,90882	0,825445	0,69535	0,73960	-0,169220
Telecommunication Infrastructure Index	0,03811	0,207480	0,24630	0,33070	+0,292590

The conducted analysis shows that over the past 7 years, total volume of services in the republic has increased almost 4.5 times and amounted to 47.3% of GDP, and communication and information services have increased more than 3.8 times (see Figure 7). The volume of production of services for 2017 made up 116795.7 billion soums and increased by 8.9% [8]. In 2017, the volume of communication and information services comprised 7942.1 billion soums, which is 6.7% of the total volume of services. The basis for increasing the volume of

service production was the influence of a number of factors, such as the appearance of new types of services on the market, opening of new shopping centers, catering establishments, hotels, the expansion of educational services and the entertainment industry.

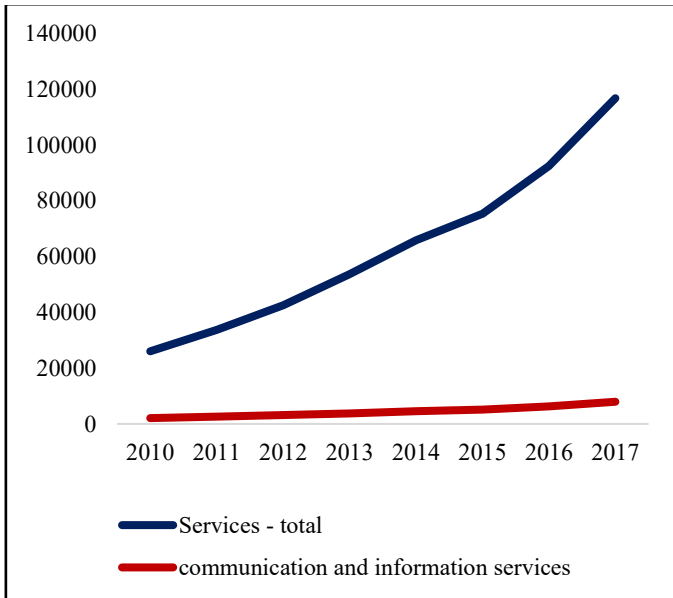


Fig.7. The dynamics of changes in the volume of services provided for 2010-2017, in billion UZS [9].

At the same time, in 2010 - 2017, the share of communication and information services decreased to 6.8%. In 2017, telecommunications services (wire line and mobile communications, Internet, satellite communication services, etc.) accounted for the largest share (87.3%) in communication and information services. In the sphere of telecommunications services, the number of mobile subscribers and total number of Internet users has increased (see fig. 8).

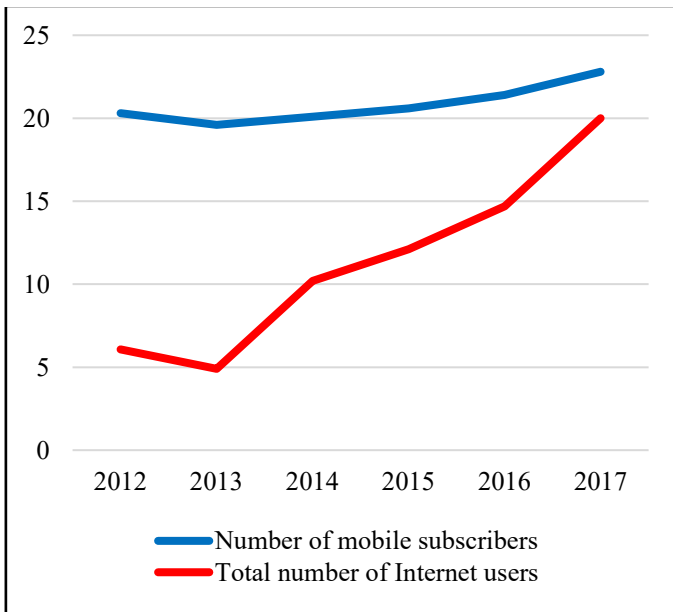


Fig.8. Dynamics of growth in the number of Internet users and mobile subscribers in 2010-2017, mln [10].

Nevertheless, these actions do not bring the expected results. Giving a speech at enlarged meeting of the Cabinet of Ministers dedicated to the results of the socio-economic development of the country in 2016 and to the most important priorities of the economic program for 2017, the President of the Republic of Uzbekistan, Sh. M. Mirziyoyev, noted that "Even those large enterprises, organizations and business associations that have strong need for improving technological processes and management systems do not show proper initiative for the introduction of ICT "[11]. In addition, a meeting devoted for reviewing the effectiveness of measures taken to develop information and communication technologies and ensure information security in Uzbekistan was held, where the President of the Republic of Uzbekistan Sh. Mirziyoyev noted that "in the field of information technologies there is still much to be done, the achieved results do not reach the indicators of other countries" [12].

#### IV. PURPOSE OF THE STUDY

The current situation in Uzbekistan is characterized by a rather intensive development of the information society and information and communication technologies. Uzbekistan is currently preparing to launch Digital CASA project approved by the World Bank and its implementation should start in 2019. At the national level, the goal of the program is to provide people with access to reliable and affordable Internet, attracting private investments in the ICT sector, and increasing the capacity of government to provide electronic public services to citizens and business [13].

To comply the postal services with modern requirements and consumer needs, as well as for digitalization, it is necessary to improve and modernize it regularly, to introduce new technologies and to create comfortable conditions for customers. Conducting scientific research in this area will allow studying and analyzing the current state of postal services in the republic and offering recommendations on improving and prospects for development, as well as using modern information and communication technologies and creating a digital ecosystem.

The investigation of international experience will enable to propose the creation of a qualitative, modern structure of rendering services and ways to optimize its provision in domestic and foreign markets. The results of proposed scientific research can be used in the process of developing a program of priority directions of socio-economic development of postal service of the republic, improving the efficiency development of postal services in the republic, etc.

The authors believe that the research hypothesis is that the digital economy will occupy a significant place in the postal service due to the rapid development of information sector in Uzbekistan. The goal of the research is to study and analyze the essence of foundations of postal service functioning, its features, as well as the identification of key problems, trends and directions of its further development. The authors' position is that the country is at the stage of transition to digital economy, and they are convinced that there is a need for large-scale researches, including the field of postal services.

In order to achieve the goal, the following tasks are set:

- to analyze the foreign experience in rendering the postal services;
- to analyze the main problems of digitalization of postal communication services in Uzbekistan;
- to estimate the prospects for further development of postal communication services in the country in context of its international importance;
- to develop proposals on improving the directions for further development of postal services in Uzbekistan.

#### V. RESEARCH METHODS

The scientific novelty of the research is to develop recommendations on improving postal services rendering on the basis of generalization of the best world experience, as well as proposals for expanding the scope of services, on both the domestic and foreign markets.

The practical significance of the research is that its results can be used:

- as a theoretical basis for further research on the market of postal services in the country;
  - in the process of developing a program of priority directions for the social and economic development of the republic's postal services;
  - for developing educational and methodological materials on the theory of rendering postal services, in teaching special courses, etc.
- The use of country models of digitalization of postal communication in scientific research and conducting a comparative analysis of it makes it possible to single out its general features that are characteristic for all its national models:
- formation of a fundamentally new fifth technological order, based on the use of information and knowledge;
  - creation of a global digital information environment;
  - restructuring of employment in the direction of its remoteness;
  - direct dependence of quality of life on the level of consumption of information resources;
  - an aggravation of problem of ensuring information security.

According to above mentioned theses, let's try to figure out what the digital ecosystem is and what kind of future is waiting for the national mail. In the most existing scientific sources, there is no unambiguous interpretation of a digital ecosystem concept. In some scientific sources, the digital ecosystem is represented by a socio-technical system in the form of computer programs used by agents to share knowledge in conditions of derivative self-development. Other sources suggest that modern organizations can be considered as mixed communities and ecosystems in which people and digital agents interact. It is also proposed to be regarded as the environment that provides conditions for innovative development and dissemination of digital services and products, applications and devices in a

certain sector of the digital economy. The main goal of creating a digital ecosystem is to provide operational and quality digital services taking into account all norms and regulations, as well as on conditions of maximum confidence. This ecosystem allows promoting, on the one hand, mutual understanding of information systems, and on the other hand, development of their subject, functional and interface specialization.

#### VI. FINDINGS

In order to change the situation and reform the activities of Uzbekistan postal service, the country's leadership and the government took a number of decisive measures currently. Thus, on February 19, 2018, the President of the Republic of Uzbekistan signed a decree "On measures of further improvement of information technologies and communications sphere," which underlines the issues of development of the digital economy, as well as problems and issues of postal communication development in the country [14]. In particular, it was noted that effective measures on modernizing the postal services and logistics system, introducing new methods of work of the national postal service operator and enhance the prestige of its activity in the market have not taken. The decree also specifies the following directions of reforming the postal service of the republic:

- reforming the legal form of activity of JSC "O'zbekiston Pochtasi", as well as by attracting foreign consultants and studying best international experiences;
- provision of JSC "O'zbekiston Pochtasi" with the rights to render services as an agent of banking and insurance services, including reception and transfer of payments, servicing of bank cards, attraction of free monetary funds of the population, rendering services in voluntary and compulsory insurance and other services on outsourcing terms;
- development of network operators and couriers of postal communication;
- organization of offices for international exchange of postal items abroad.

Furthermore, on July 3, 2018, the President of the Republic of Uzbekistan signed a resolution "On measures for the development of digital economy in the Republic of Uzbekistan" [15], in which such important tasks of further development of the digital economy in the republic were noted:

- to take measures to develop the turnover of crypto-assets;
- to adopt measures for the development of "block chain" technology;
- to implement and develop smart contracts;
- to improve the training of personnel for the development and implementation of platforms;
- to take measures on developing cooperation with international and foreign organizations in the sphere of development and implementation of platforms, as well as for joint realization of projects.

Earlier, on June 4, 2018, there were significant changes in JSC "O'zbekiston Pochtasi", where the general meeting of

shareholders decided to approve Yevgeniy Vladimirovich Birger as a chief director. An experienced professional, a bright representative of the Russian "Post of Russia", has consulted for several months, and afterwards accepted the invitation of the republic's leadership to be a head of postal communication of the republic. Getting started, E. V. Birger addressed to the postal workers of the republic, noting a number of significant features that characterize his future steps directed at carrying out reforms in the national postal communication [16]:

- to be aware of depth of postal communication crisis in the republic (see the above figures in Fig. 1-6);
- the necessity of ensuring an appropriate positioning of mail in the state and society;
- creation of an appropriate information infrastructure and preparation of national mail for the process of Internet and mail convergence and the creation of a single global multi-functional communication system;
- changing the legal form of postal service from the joint-stock company to another;
- formation of new legislation not only for postal communications, but also in telecommunications, electronic document management, public-private partnership and a number of other laws;
- creation of worthy working conditions for postal workers is one of the primary tasks;

Special importance is given to industry veterans and pensioners who have invaluable knowledge and experience. For a long period of time workers will rely on them as the most responsible and reliable workers; conditions for working pensioners will be created and those who have left will be invited on any terms.

It should also be noted that the concept of reform was announced. It contains innovative approaches of national mail transformation into a digital ecosystem. The implementation of this approach will create a powerful multiplicative effect in all areas by integrating national mail into the life of society and the state. Thus, the national mail will be transformed into a digital ecosystem soon (about 5-10 years).

The basis for creation and development of the concept of national mail reformation proposed by E. V. Birger into a digital ecosystem is likely to become a national mail cluster created as an independent unit on the basis of consolidation of leading enterprises within the framework of state regulation. Conceptually, the structure of the given ecosystem can be represented in several levels, interacting with each other according to developed and coordinated rules of developed concept [17, p.24]:

1. The semantic core, in the role of which a specially organized (transformed) enterprise must act in the form of institution for development, support and dissemination of ecosystem.
2. The infrastructure of functioning of digital services is a technological component of the ecosystem (a development and

support group, an operation group, a marketing group, a financial group, investors, developers, experts, specialists, etc.).

3. The user application and digital security services, including visual interfaces and market place applications, open tools for designers.

4. Personalized devices and facilities of Internet products and goods.

Proceeding from the above-stated theses of E.V. Birger and the presented structure of the digital ecosystem, there is a great probability of transformation of JSC "O'zbekiston Pochtasi" into an enterprise in the form of an institution for the development, support and spread of an ecosystem, whose legal form will not be JSC. In the role of cluster core, this enterprise will support and promote the organizations belonging to the cluster (project office, competence center, R & D center), branch enterprises, infrastructure institutions (digital transformation center and adaptation of products and services of digital market), consumers (access center to applications), development companies (a site for monitoring the quality and distribution of developments, a competence center and a business accelerator) and etc.

Earlier, the digital ecosystem formation was started by the post of Russia, which announced the creation of ecosystem for the development of e-commerce, a strategic partner of which is VTB Bank. Such well-known companies as "Amazon" and "Alibaba" can also be partners. It is planned to create the most extensive electronic trading system in Russia, on the basis of extensive network of branches which will be involved in similar foreign projects.

In accordance with Article 17 of the Universal Postal Convention, approved by the 25th Congress of the Universal Postal Union (Doha, 2012), the use of modern ICT, the development of electronic mail services are one of the priorities for the UPU members [18]. Based on this article, UPU member countries should agree on the provision of electronic mail services such as e-mail, registered e-mail, an e-mail stamp for certification and an e-mail box with each other. Such electronic postal systems are formed in a number of postal services in such European countries as Italy (Postal Registered electronic Mail), France (e-mail addresses "laposte.net", digiposte service), Germany (De-mail, state e-mail system, epost, e-mail system Deutsche Post), Estonia (Electronic mail center), Switzerland (Incemail), Sweden (ePostboxen) and Denmark (eboks) [19]. The unified electronic postal systems of these countries are based on the recommendations of Article 17 of the Universal Postal Convention. According to it, while registering in this system, the user (individual or legal person) receives a recognized (official) e-mail address, which in fact is an electronic post office box. Unified electronic mail systems provide electronic judicial significant document circulation, fixing the facts of sending and delivering electronic mail between users of electronic post office boxes, the invariability and safety of such postal items during their electronic transfer, storage of documents are in electronic form. In addition, the functionality of the systems allows the provision of additional services such as appeals to the authorities for obtaining various services, payment of utilities, electronic money transfers, etc. [20, p.17].

## VII. CONCLUSION

According to the above stated, the main task for postal communication of Uzbekistan in this direction is formation and development of a comprehensive mail service in electronic form through the creation of a single postal system that will provide legally significant electronic document interchange between state, local and physical authorities, and also legal entities. Exactly, the creation of such a single global multifunctional communication system was outlined in speeches of E. V. Birger, the chief director of JSC "O'zbekiston Pochtasi".

Thus, for implementation of successful reforms in the national post of Uzbekistan, creation of a digital ecosystem and a single global multi-functional communication system, it is advisable to formulate a system of state regulation, to ensure the legitimacy of rendering digital services, to develop a system of state support measures for industry, to develop a methodology for formation and filling of the semantic core, to develop infrastructure of digital services functioning, create pilot digital services (as e-commerce of post of Russia) and ensure their testing and transfer of innovative solutions to industry enterprises, etc.

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