Academy of Public Administration under the President of the Republic of Kazakhstan

UDC 330.47

JUSSUPOVA GUL

Proactive Digital Government as an Effective Model of Public Management in Social Sector

6D051000 – Public and Local Administration

Thesis for the degree of
Doctor in professional area

Advisor (domestic)
PhD,
professor
B. Bokayev
Advisor (international)
PhD,
professor
Martha A. Garcia-Murillo (USA)

The Republic of Kazakhstan
Nur-Sultan, 2020

CONTENT

NORMATIVE REFERENCES

In this Dissertation, references have made to the following standards:

E-Government Act, 2002.

US E-Government Strategy, 2003.

The Law of the Republic of Kazakhstan «On Public Services», 2013.

The State program «Information Society» (2011-2020), Russia, 2011.

The State program «Information Kazakhstan 2020», 2013.

The National Program Digital Economy of the Russian Federation for 2018 - 2024, Russia, 2017.

The State program «Digital Kazakhstan», 2017.

The State program «Electronic Azerbaijan», 2011.

The State program for 2016-2020 on the implementation of the National Strategy for the Development of the Information Society in the Republic of Azerbaijan, 2015.

Long-Term Country Development Program: Kazakhstan-2030 Strategy, 1997.

Development Strategy of the Republic of Kazakhstan «Kazakhstan-2050», 2012.

Strategic plan for socio-economic development of the Republic of Kazakhstan until 2025.

The State program for the development of education and science of the Republic of Kazakhstan for 2020-2025.

The State program for the development of healthcare of the Republic of Kazakhstan for 2020-2025.

The state program «Affordable Housing - 2020».

The State programs «Employment -2020».

The Concept of social development of the Republic of Kazakhstan until 2030.

The Law of the Republic of Kazakhstan «On the status of a teacher», 2019.

The Law of the Republic of Kazakhstan «On Amendments and Additions to Some Legislative Acts of the Republic of Kazakhstan on the Status of a Teacher, Reducing the Load on Students and Teachers», 2019.

The Law of the Republic of Kazakhstan «On Education», 1997.

International Classification of Employment Status (ISCE-93).

The State program for the development of productive employment and mass entrepreneurship for 2017 - 2021 «Enbek».

The Law of the Republic of Kazakhstan «On personal data and their protection».

The Law of the Republic of Kazakhstan «On electronic document and digital signature».

The Law of the Republic of Kazakhstan «On Public Procurement».

The Law of the Republic of Kazakhstan «On Compulsory Social Health Insurance«.

The Law of the Republic of Kazakhstan «On Informatization« dated January 11, 2007 No. 217-III.

DEFINITIONS

In this Dissertation, the following terms are use with appropriate definitions:

New Public Governance – Public administration is not a system of internal organizational processes, but a new system of interaction between the government, private and non-profit organizations.

New Public Management – A new public administration system based on public interests, ideals of democratic governance and renewed civic engagement.

New Public Service – A model of the new public service (NPS), where public administration is considering from the point of view of creating a democratic society based on the concept of an active and involved society.

Digital Governance – A new scientific direction - digital public administration as a close tandem of public administration and e-Government.

Citizen Centric Approach – The principle of focusing on the needs of citizens.

Open and Transparency – The principle of openness and transparency.

Trustable Data and Resource Efficiency – The principle of data reliability and effective use of information in all spheres of human life.

Build Once, Use Many Times – The principle of a single entry of information, multiple use in all information systems.

Flexibility and Interoperability – The principle of flexibility and data compatibility of different information systems.

Privacy and Security – The principle of security and confidentiality.

Shared Digital Platform – A platform approach that simplifies the procedure of «seamless« integration of state and non-state information databases, the creation of new services.

Government-to-Citizen – Information interaction between the Government and citizens: the rights of citizens to freely exchange (search, receive, transfer, produce and disseminate) state public information.

Government-to-Business – Information interaction between the Government and business: leading to the development of electronic commerce mechanisms, competitive production of goods and services in the field of information and communication technologies, improving the management of supply of products for state needs, supervision, procurement and ensuring compliance with regulatory requirements.

Government-to-Government – Interdepartmental vertical and horizontal interaction of the Government: the interaction of government bodies at various levels, assuming the compatibility of standards for storing information and workflows, connection to unified networks of government authorities and government at various levels, the implementation of a program to informative various industries, the creation of interdepartmental, regional and local information systems , and databases.

Government-to-Employees – Interaction between the Government and civil servants: between the state and civil servants. This allows to reduce paper workflow with electronic document management and information interaction; reduce time costs by automating and optimizing business processes; cut costs.

The Digital Proactive Government – is the next stage in the development of the Digital Government, which provides for the creation of a unified digital analytical platform that includes «seamless« integration of state, non-state IS and databases for the provision of proactive services, predictive analysis and forecasting of EPR, providing effective information interaction between the government and citizens (G2C), government and business (G2B), interagency vertical and horizontal interaction (G2G), government and employees (G2E), as well as business with business (B2B) and business with citizens (B2C).

Digital Government – A government using digital technologies to create a single ecosystem, reengineering business processes of the functioning of the Government, creating and integrating government information systems, databases to ensure effective information interaction between the government and citizens (G2C), business (G2B), interagency vertical and horizontal engagement (G2G) as well as government and employees (G2E).

Governance Research Indicator Country Snapshot – a system of parameters consisting of 6 indices reflecting the parameters of public administration.

e-Participant – The concept of electronic participation: virtually every citizen will have the opportunity to express their opinion, influence public policy, propose effective measures to improve it, and take an active part in the public life of their country.

DESIGNATIONS AND ABBREVIATIONS

NPG	- New Public Governance
NPM	- New Public Management
NPS	- New Public Service
DG	- Digital Governance
CCA	- Citizen-Centric Approach
OT	- Open and Transparency
TDR	- Trustable Data and Resource Efficiency
BOUMT	- Build Once, Use Many Times
FI	- Flexibility and Interoperability
PS	- Privacy and Security
SDP	- Shared Digital Platform
G2C	- Government-to-Citizen
G2B	- Government-to-Business
G2G	- Government-to-Government
G2E	- Government-to-Employees
DPG	- Digital Proactive Government
DG	- Digital Government
MF RK	- Ministry of Finance of the Republic of Kazakhstan
MH RK	- Ministry of Healthcare of the Republic of Kazakhstan
MLSPP RK	- Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan
MES RK	- Ministry of Education and Science of the Republic of Kazakhstan
CCFES MES RK	- Committee for Control in the Field of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan
SWOT-Analyze	- A tool to analyze strengths and weaknesses, identify opportunities
Agile-Approach	- Rapid response approaches as part of Digital Proactive Government initiatives
GRICS	- Governance Research Indicator Country Snapshot
IT	- Information Technology
SLS	- Social and Labor Sphere
ICT	- Information and Communication Technologies
EG	- e-Government
OECD	- The Organisation for Economic Co-operation and Development
Single-Sign On	- The Concept of single sign-on from the personal account of the e-Government
e-Government Maturity Model	- The Concept of evaluating the maturity of the e-Government to systematize its development, conduct a comparative analysis of the implementation stages
SPDSES RK on 2020-2025	- State program for the development of the system of education and science of the Republic of Kazakhstan for 2020-2025

IS	- Information Systems
SP «Enbek»	- State program for the development of productive employment and mass entrepreneurship for 2017-2021 «Enbek»
SPDC	- Strategic plan for the development of the country until 2025
PSC	- Public Service Centers
GB	- Government Body
NEDB	- National Education Database
UNPF	- Unified National Pension Fund
PS	- Public Services
DB	- Data Base
SDB	- State Database
NGDB	- Non-Government Database
SSIF	- State Social Insurance Fund
SBPC	- State Benefit Payment Center
PPP	- Public Private Partnership

INTRODUCTION

The relevance of research. In a period of the rapid development of world innovative technologies, global digital transformation is the number one requirement of the time, affecting the life of society and the state structure as a whole. The importance and necessity of introducing modern and advanced digital technologies into government activities have also confirmed by the current ambiguous situation in the world associated with the spread of the COVID19 Pandemic.

This situation has aggravated and revealed all the existing shortcomings in the implementation of digitalization programs in the public sector, in the development of digital infrastructure. In addition, she showed the lack of effective and systematic online services in the social sector, providing a full-fledged existence of society in terms of general quarantine and isolation.

The accelerated development of innovative and digital technologies dictates its own rules in the activities of the society and the state. The problems of effective interaction between the population and state structures are solved by digitalizing the public sector, creating a digital platform, increasing digital literacy, using social networks, and other digital communications.

In particular, E-Government provides the effective interaction of social policy objects: the government, citizens, and business. Digitalization allows you to get rapid feedback, taking into account the interests of the population, to ensure the active online discussion of any matter, and the projects implemented to promote the ideas of the online application to the result, to conduct analytical studies and generate relevant forecasts of socio-economic development of the country.

In view of this, in today's world, virtually every country is now paying great attention to the development of electronic and digital government. Social isolation in Kazakhstan, in connection with the spread of the COVID 19 Pandemic, showed the relevance of the functioning of the e-Government, the advantages of its use, and revealed its weaknesses and problems that need to be concentrated and developed.

In most cases, government programs, strategic documents have developed without research and confirmation of economic justifications for the feasibility and profitability of decisions. For example, carrying out a program of universal social support and social benefits for temporary disability, e-Government was facing a lack of the actual data on the social status of Kazakhstan; data validation tools citizens carrying out a request for benefits; analytical data on the volumes allocated to finance the budget for this social initiative.

As a result, there is an increase in social tension, opportunities for corrupt schemes for the illegal accrual of social benefits, the emergence of the state budget deficit, and the lack of forecasts for the development of programs has being implemented. Measures of state regulation in the current conditions are of the nature of «first aid«, in which there is no systematic approach to solving problems. The current level of digitalization in the public administration of the social sphere allowed only partially implement the processes of training and education, the provision of medical and public services.

At the same time, the tasks the activities of the Digital Government have not implemented in full and / or not at the proper level. In particular, there is no systematic orientation of the primary tasks of the Digital Government towards the citizen of society directly and the satisfaction of his social needs in the provision of operational online services.

The relevance of the research work is aiming to improve the digitalization model of public administration in the social sphere of Kazakhstan (the domestic system of digital public administration of the social sphere). The same time it is need to create a modern digital platform for the provision of social services as an effective unified system for managing all state business processes and providing high-quality online services to society.

The degree of scientific elaboration of the problem. Currently, the significant amount of the research is representing by developments around the new public administration system based on public interests, ideals of democratic governance, and renewed civic activism, also research in the field of assessing the maturity of e-Government development.

According to the methodology for assessing the effectiveness of public administration of the World Bank, the level of participation of the population in the implementation of public policy affects the effectiveness of functioning of the Government [1].

The first definition of E-Government (EG) has given in 2001. However, its practical application has begun back in the 90s in the USA and Korea with the development of a digital program for the development of public administration and improving the quality of life of the population [2]. The evolutionary development of e-Government and the level of its maturity, taking into account the maturity models of e-Government, is given in the UN studies. The UN conducts its research taking into account the E-Government (UN) Development Index [3].

In 2001, an article by Karen Laynea, Jungwoo Lee «Developing Fully Functional E-Government: A Four Stage Model» was published, in which e-Government was seen as a Government using information and communication technologies and the Internet to expand access to government information and government services to citizens, business partners, employees, agencies and government agencies. This model of e-government development includes four stages of government development: cataloging, transactions, vertical integration and horizontal integration [4].

The main ideas of new public administration have indicated into the Strategic development plan of the Republic of Kazakhstan until 2025 [5] and Message from the President of the Republic of Kazakhstan Kassym-Zhomart Tokayev to the people of Kazakhstan 2019 [6]. At the same time, in the framework of the development of public administration and design of new governance system, many researchers and practices are studied the different evaluation methods of government development and methodological approaches of evaluation of public administration [7-9].

Other scientists such as Jonker J., Pennink B.J.W., W.K. Kellogg, Ponomarev A.B., Pikuleva E.A., and Kolmogorov Y.N., and Sergeev A.P. have considered the problems and the essence of the research methodology in the sphere of E-

Government development and public administration [10-13]. Also, the theory of public administration has been investigating by Kazakh scientist Atamanchuk G.V. in the framework of designing the Digital Government in Kazakhstan [14-15].

The ideas of new public administration have been firstly developed in the United States that presented by the journalist David Osborne [16, 17], which shows several new principles of public administration. The New Public Governance (NPG) approach, proposed by Osborne in 2006, took into account the development of public consciousness and led not the government, but the interests of citizens.

The rapid development of digital technologies has changed the view on the public administration system, creating a new scientific direction - Digital Public Administration as a close tandem of public administration and e-Government.

In this context, the importance of digital governance is reflected in studies by the UNDP, World Bank, UN, Kettani D., Moulin B., Michael Milakovich, N.A. Volgina, Munoz L.A., Bolivar M.R., International Labour Organization, Eurasian Electronic Labor Exchange, US Market place, I.Y. Alekseeva, Bell D., Yakimova O.U., Tereshchenko L.K., M.A. Garcia-Murillo, Clinton W.J. & Gore A., Whitehouse Administration of USA, West D., Gartner Group, Dyatlov S.A., Khramtsovskaya N.A., Smorgunov L.V., West D.M., and other practitioners and scientists in the field of ICT.

The issues of the historical development of public administration in developing countries were studied by the UNDP Global Center for Excellence in Civil Servants. For example, the UNDP Center studies the implementation of public sector reform in developing countries [18].

In studies on the development of electronic and digital government, much attention is paid to the issues of public administration efficiency and its mechanisms. In particularly, according to the methodology of the World Bank the effectiveness of Government is determined by several parameters, including the assessment of the quality of public services, where digitalization is a providing tool for the provision of public services to the society [19].

The Commission of the European Community defines e-government in a slightly different way that American scientists: as “the use of ICT in public administration combined with organizational changes and new skills to improve services and democratic processes, and strengthen support for public policy” [20].

Other scholars D. Kettany and B. Moulin investigate the problems of public administration in developing countries from the point of view of quality service delivery and proposed the concept of “good governance” in the framework of the development of e-Пovernment [21].

According to Professor of Florida University Milakovich M.E., the rapid development of digital technology, social media has changed the traditional classical system of government and allowed the concept of digital freedom and e-democracy to be implemented [22]. The questions of new trends, new technologies for improving public services and participation for good governance also have considered in the other foreign, and Kazakh investigations such as Volgina N.A. [23], Munoz L.A., Bolivar M.R. [24].

In the same time, these questions have presented in the works of World

Employment and Social Outlook [26], Eurasian Electron Labor Market [27], US Market Place [28], and I.Y. Alekseeva [30].

The problems of social framework of the information society and the questions of developing of e-Government with providing state services presented by the Bell D. [31], Yakimova O.U., Koroleva T.P., Kovalenko E.G., Polushkina T.M. [32], and Terezhenko L.K. [34].

Let us consider more detail the several international studies on the new public administration system based on public interests, ideals of democratic governance, and renewed civic activism.

The studies the American scientist Garcia-Murillo M. [35], an American politician from Arkansas Bill Clinton [36], and study of White House of USA [37] have proved that the digital public administration provides the opportunity for electronic participation of society in the implementation of public policy, elections, and ensures the implementation of civil rights and freedoms of citizens.

According to another American scientist Darell West, e-Government was an opportunity to provide information to the population in the public domain on government websites and for transformation of service delivery and citizen attitudes [38]. Since the 90s, large consulting companies have been working on issues of influence and prospects for the development of computerization in all sectors of human life. In 2000 Gartner Group introduced the presentation of the development model of EG and its 4 phases [39].

Over the past 20 years, scientists have been studying the implementation of information and communication technologies in public administration, trying to create unified approaches to the development of e-Government to conduct a comparative analysis of the implementation of EG around the world.

For example, Russian researcher Dyatlov S.A. and Khramtsovskaya N.A. have studied the evolution of the E-Government and its concept, structure, and functions [40, 41].

Another Russian scientist Smorgunov L.V. attempted to single out a «narrow» and «wide» understanding of e-Government. In a «narrow» sense, e-Government reflects the improvement of public administration by the use of new information technologies, which ultimately allows increasing its effectiveness in providing services to the public [42].

The American researcher West D.M., the researcher of Princeton University from New Jersey has studied the technology and public sector performance within e-Government [43]. Other foreign scientists Perry J.L., Hondeghem A., and Wise L.R have presented the public administration review about twenty years of research and presented it to agenda for the future [44]. By World Bank, e-Government is interpreting as the process of use by state bodies of information technologies that can transform relations with citizens, businesses, and other branches of Government [45]. The public administration review and the evolution of e-Government is considering too in the work of Moon M.J. [46].

OECD and UNESCO have using the concept of «Electronic Authority (Leadership)». According to UNESCO's methodology, e-Government is the process of using information and communication technologies to improve the process of

information exchange in society and improve the quality of services provided, stimulate citizen participation in decision-making, ensure accountability and openness of public authorities [47].

The questions on the investigations of e-Government maturity models and measuring maturity approaches have been presenting in the works of Fath-Allah A., Cheikhi L., Al-Qutaish R.E., Idri A. [49], Chaushi A., Chaushi B., Ismaili F. [50], Andersen K.V., Henriksen H.Z. [51], Di Maio A. At the same time, there is a diverse view of researchers on the semantic content of e-Government and of the public administration development. Examples of these interpretations have presented in the foreign studies and comparative analyses with a benchmark study of UN, OECD, European Union, UNESCO, World Bank, World Economic Forum, International Labour Office, Sage Research Center [52-55].

The use of the term «Digital Government» is controversial by the point of scientists and practitioners. It allows you to see the potential and prospects for the development of e-Government and directions for research using the benchmark analysis that presents in considered studies and works. To study the principles of building e-Government and developing an effective model of public administration, the experience of the USA, France, UK, Germany, Finland, Korea, Estonia, Russia, Azerbaijan, Singapore, Curacao, Mordovia has analyzed in works [56-80].

The Kazakhstan experience and developing of public administration of the Government has considered too in the works of scientists and practices of republic such as Kasen M., Amirova A., Arsikulova R., Janenova S., Yessimova S., Diachenko S., Zharkenov Y., Baimenov A., Tynyshtykbaev A. & Abdimomynova A.

Thus, according to the analysis of publications and developments of foreign countries, we can conclude that more and more research is devoted to the interpretations and definitions of e-Government, and new technologies in general. An analysis of the materials published over twenty years showed that over time, and with the actual implementation of the concepts of «e-Government» in life, this concept has constantly evolved and deepened. It has gone from a «simple Internet resource» to the concept of a global transformation of the entire public administration system.

At the same time, there is a versatile view of researchers on the semantic content of the E-Government. The use of the term «Digital Government» causes controversy on the one hand, at the same time, it allows you to see the potential and prospects for the development of e-government and directions for scientific research.

Since the appearance of the term «E-Government» in the scientific literature, scientists have approached its definition in different ways and have used different principles. Some authors have descriptive definitions that reveal the transformations that take place in society and its individual structures during the introduction of e-government. Others consider the applied nature of e-government, and the possibility of using some of its tools.

There are definitions that are technical in nature and focus only on the applied technological solutions and specific software products. In addition to the above interpretations and understandings, there are economic definitions that are focused on the concept of quality management and the maximum efficiency of government administration. All these approaches reproduce only certain aspects of the e-

government activity.

The goal of the research is to improve the model of public administration in the social sphere through the introduction of proactive services and the development of the model of the Digital Proactive Government in Kazakhstan.

*To achieve the goal of the research, **the identifying tasks are following***:

1. Study the theoretical aspects of public administration, e-Government and to study the international experience of the digitalization of public administration.
2. Study international methodologies and technologies for assessing the maturity of e-Government to identify adaptive models.
3. Analyze the current situation on the implementation of state policy in the social sphere with the identification of problem areas, opportunities, weaknesses, and strengths in the field of digitalization.
4. Analyze the process of digitalization of the public sector in Kazakhstan, including in the social sphere, through the prism of «The Citizen-Centric Approach».
5. Systematize the conceptual framework of the Electronic and Digital Government as part of the transformation to proactive services.
6. Develop practical recommendations for improving policies in the field of digitalization of public administration, including the functioning of proactive services in the social sphere.
7. Design the proposals for improving the model of information interaction between social facilities based on the introduction of an expanded functionality of services for citizens: «Government as a Digital Platform».

The object of research is a public administration in the social sphere of the Republic of Kazakhstan as a unified digital system for providing social services to the citizens.

The subject of research is principles and mechanisms of e-Government as an instrument of optimization, efficiency, and quality of providing social services to citizens through proactive services.

Theoretical and methodological basis. The research has based on generalized world achievements in the development of information and communication technologies, electronic platforms for public administration, social services, as well as international experience in developing strategies for implementing effective governments.

A significant source base of work is the theoretical and applied developments of modern foreign and domestic scientists, researchers, as well as practitioners associated with studies of government policies in the social sphere, the development of modern government management tools, and the functioning of electronic platforms.

The dissertation used qualitative and quantitative analytical methods, research analysis methods, including analytical (Literature Review, Case-Study, Evaluation in Practice, Policy-Analysis methods, etc.), monographic, economic and statistical (SWOT-Analyze), sociological and expert (Survey, Interview), the design method of logical models (Kellogg Method), the ranking methods and comparative analysis. In addition, elements of the classical methods of abstraction and generalization have used.

For comparative analysis, the study used data from World Bank, UNESCO, IBM, EU, World Employment & Social Outlook, the Eurasian Electronic Labour Exchange, UNDP, Global Center for Public Service Excellence, as well as data on the implementation of the e-Government of the USA, China, Korea, Singapore, Canada, France, UK, Germany, Estonia, Mordovia, Russia, and Azerbaijan.

The data of the Ministry of Education and Science of the Republic of Kazakhstan, the Ministry of Health and Social Protection of the Republic of Kazakhstan, the Ministry of Health of the Republic of Kazakhstan, the Ministry of Finance of the Republic of Kazakhstan, the Government for Citizens State Corporation, and the Statistics Agency have used as an information base.

The methods of research. In the dissertation, combined qualitative and quantitative research methods have used the follow analytical methods:

1. Case-Study.
2. Policy-Analysis.
3. SWOT-Analyze.
4. Sociological Survey.
5. Expert Interview.
6. Design Method of Logical Models (Kellogg Method).
7. Ranking methods.
8. Comparative analysis.
9. Classical methods of abstraction and generalization.

Scientific novelty. The scientific novelty of the dissertation work consists in the fact that for the first time public administration in the social sphere has been comprehensively studied *from the standpoint of a citizen and his social needs*, the creation of a unified system for providing proactive digital services to citizens of the country on the basis of an improved Digital Government platform.

The most significant results of research, which characterized by **scientific novelty**, *are follows*:

1) it is analyzed the main strategies of public administration, models for assessing the maturity of e-Government and identified an adaptive model for assessing the maturity of the e-Government of Kazakhstan;

2) it is developed for the first time the conceptual apparatus and proposed the author's interpretation of the definition of the Digital Proactive Government and its basic principles;

3) for the first time the concept of public administration in the social sphere was developed based on the social identification of the citizen, which is aimed at the citizen and his social needs;

4) for the first time, the categorization of the population by social status has proposed. This categorization is proposed as a draft for the development of the new Law of the Republic of Kazakhstan «On the social status of a citizen»;

5) for the first time it is designed the conceptual and graphic model of the "Digital Proactive Government", the fundamental principle of which is the orientation to the social needs of the citizen;

6) it has developed proposals the effectiveness of public administration in the social sphere based on the introduction of digital proactive services with an emphasis

on observing the interests of citizens and their satisfaction of providing services;

7) it has offered practical recommendations for improving the functionality of the e-Government portal in the point of view of the needs of a citizen and his social status;

8) it has developed proposals to optimize and reduce public services, taking into account the implementation of the proposed Digital Proactive Government model.

The key findings of the Dissertation:

1. The conceptual apparatus of the Digital Proactive Government as a new stage in the evolutionary development of the E-Government has been defined and formed.

The Digital Proactive Government is the next stage of the development of the Digital Government, which provides the creation of a unified digital analytical platform. It is including «seamless» integration of state, non-state information systems, and databases, for the provision of proactive services, predictive analysis and forecasting of socio-economic development, providing effective information interaction between government and citizens (G2C), business (G2B), interagency vertical and horizontal interaction (G2G), government and employees (G2E), as well as business with business (B2B) and business with citizens (B2C).

The concept of public administration in the social sphere has developed, based on the social identity of a citizen of the Republic of Kazakhstan in the context of digitalization.

The basic principles of the conceptual model of the Digital Proactive Government have formed and proposed:

- *citizen-centric approach* - focusing on the needs of citizens;
- openness and transparency;
- trustable data and resource efficiency - data reliability and efficient use of information in all spheres of human life;
- build once, use many times - single entry of information, multiple-use in all information systems;
- flexibility and interoperability - flexibility and data compatibility of different information systems;
- security and privacy;
- shared digital platform - a platform approach where simplifies the procedure of «seamless» integration of state and non-state information databases by creating new services.

3. The modern model for assessing the maturity of the Digital Government of Kazakhstan has been studying and proposed. To date, about 25 models for assessing the e-government maturity have been developing. In 2017, Gartner presented a new vision for the 5-Step Digital Government maturity assessment: initial (e-Government), developing (Open Government), defined (Data-Centric), managed (Fully Digital), optimized (Smartizing). Based on the chronological analysis of the implementation of the e-Government of the Republic of Kazakhstan using this model, we can conclude that the Kazakhstan Digital Government is at third stages out of five possible. To complete this stage of development, it is necessary to implement the

concept of the Digital Proactive Government.

4. It is improved and proposed *practical model of a Digital Proactive Government based on the social identity of a citizen of the Republic of Kazakhstan*. This model is basing on the integration of information systems of the public and private sectors. It is based on the optimization of information interaction between government bodies. This optimization is including the following mechanisms: single categorization of the population by social status; determination of the responsible executor for updating information of social identification; integration with state and non-state information systems in the social sphere; analysis and formation of trends in the development of the social sphere; proactive governance; providing an opportunity to update social status for the population.

The practical significance. The practical significance of the results obtained in the course of the study is determining by the possibility of using them to improve state social policy, increase the effectiveness of state reforms and the degree of satisfaction of citizens from digitalization processes.

The developed conceptual apparatus will make it possible to systematize the use of the terminology of the Electronic, Digital and Digital Proactive Governments. It is also important for the synchronization and harmonization of the regulatory legal acts of the Republic of Kazakhstan.

The presented model for assessing the maturity of the Gartner Digital Government can be using as a practical tool for analyzing the current situation of the implementation of the E-Government in the Republic of Kazakhstan and determine the strategic stages of the Digital State development.

The proposed conceptual and practical model of information interaction between citizens and the government will contribute to the revision of the integration processes of state and non-state information systems, optimization of the processes of rendering state social services, high-quality implementation of social projects and, most importantly, satisfaction of the country's population.

The practical value of this model lies in the possibility of expanding and replicating the model of information interaction in other areas. In this study, an analysis of 694 public services performed, where: 223 services need to be reworked, 47 services are proposed to reduce, and 23 ones can be optimized because of the implementation of the proposed model.

In addition, the practical significance of the work is justified by the acts of implementation of the research results.

Authenticity and validation. The results of this study are comprehensive analysis of global strategies and instruments of public administration in the social sphere. It takes the digitalization of services and processes of government interaction with citizens, as well as the use of a set of modern theoretical and scientific methods that are adequate to the object, subject, goals, and objectives of the dissertation, representativeness of the research source publication of conclusions and presentation of results on reputable sites of the scientific community.

Approbation and presentation of the research results. Several main results of the work have been being reporting and discussed at the following international scientific and practical conferences:

- international conference «Great capitals - smart cities» dedicated to the 20th anniversary of Astana - the capital of the great steppe «, ENU named after L.N. Gumilyov, Astana, June 2018;

- international conference «State of the future: new technologies and public administration», Academy of Public Administration, Astana, November 2018;

- international conference on social issues «18th International conference of social science», Lisbon, Portugal, May 2019;

- international conference on e-Government «3rd International conference on e-Commerce, e-Business, and e-Government», Lyon, France, 2019 (SCOPUS).

Publications. The main results of the dissertation work have been publishing:

- in 2 articles in the scientific journal «Opcion», with a non-zero impact-factor included in the Scopus Database with percentile 63;

- in 4 articles in scientific journals recommended by the Committee for control in the field of education and science of the Ministry of Education and Science of the Republic of Kazakhstan

- in 4 articles, in collections of the above international conferences.

The main results of the research reflected in the following publications:

I. In scientific publications recommended by the Committee for control in the field of education and science of the Ministry of Education and Science of the Republic of Kazakhstan:

1. Leadership competencies in the digital transformation of public administration, Pavlodar: Vestnik PSU Journal, No. 1, 2020.

2. A comparative analysis of the rating of countries on digitalization and cybersecurity: problems and opportunities, Kazakhstan-Spectrum Magazine of the Kazakhstan Institute for Strategic Studies, KISI, 2018, No. 3.

3. Comparative analysis of the state approach to the digitalization of Kazakhstan and Russia, Journal of Bulletin of the University «Turan», 2018, No. 3.

4. Assessment of the current state of the e-Government of Kazakhstan, International scientific and analytical journal «Public administration and Public service», 2018, No. 2. - P. 15-22.

II. In international scientific journals having, according to the information base of the Thomson Reuters company (ISI Web of Knowledge, Thomson Reuters), a non-zero impact- factor or included in the Scopus database:

1. Development of information and communication services in the countries of the EAEU, Opcion. - 2020. - V.36. - Iss. Special Edition 27. - P. 809-827.

2. Models of effective public administration in digitalization, Opción - 2019, Año 35, Regular No.24: 1517-1531, ISSN 1012-1587 / ISSN: 2477-9385.

3. Digital Government maturity as a technologically new e-Government maturity model: Experience of Kazakhstan. / Proceedings book, 3rd International Conference on e-Commerce, e-Business, and e-Government, Lyon, France, 2019.

III. In the materials of international conferences, including 3 in the materials of foreign conferences:

1. Global challenges of social policy on the example of the labor market: the experience of Kazakhstan. / Proceedings book, 18th International conference of social science, Lisbon, Portugal, 2019.

2. Digital Government maturity as a technologically new e-Government maturity model: experience of Kazakhstan. / Proceedings book, 3rd International conference on e-Commerce, e-Business, and e-Government, Lyon, France, 2019.

3. Digital technologies and the future of employment, collection of articles of the International scientific and practical conference. State of the future: new technologies and public administration, Astana, Kazakhstan, 2018.

4. Social policy in the digital age: an analysis of the informatization of the education system of Kazakhstan. / Proceedings book of the International scientific conference «Great Capitals - Smart Cities» dedicated to the 20th anniversary of Astana - the Capital of the Great steppe, 2018. – P. 59-71.

Structure of thesis: Thesis consists of introduction, 3 chapters, conclusion, list of used literature, and 8 applications. The main text contains 108 pages, 24 tables, and 20 drawings. The bibliographic list consists of 153 sources.

Acknowledgements

It is hard to imagine how this dissertation could have been completed without the encouragement and support from my Academy, family, friends, and colleagues from the Ministry of education and science of the Republic of Kazakhstan.

Firstly, I wish to thank the National School of Public policy's professors for their time and efforts spent on this research. It is my honor to have had *Dr. Baurzhan Bokayev* as the advisor. He has spent countless hours reading and commenting on each chapter with great patience. His expertise and insights significantly improved the quality of this study.

I would like to thank *Dr. Martha A. Garcia-Murillo* for helping me with my research. Dr. Garcia-Murillo's provision of relevant journal articles and beneficial recommendations highly appreciated. I am deeply indebted to *Professor Martha A. Garcia-Murillo* as she agreed to become my advisor despite her busyness and workload on her leading and research work. It is a great honor for me to work with such experts in public administration and anti-corruption policy.

Thanks to Academy's support, especially *Abil E.K., Zhakypova F.N., Abdykalikova M.N., Bokayev B.N.*, I have had the opportunity to work on the 3rd International Conference on e-Commerce, e-Business and e-Government (ICEEG 2019), Lyon, France, and on the 18th International Conference on Social Sciences, Lisbon, Portugal, as well as to meet nice colleagues from different countries to make joint research projects.

I am deeply grateful to my family, who has provided me with unconditional support throughout the whole process. Over the last three years, my mother has taken the responsibility of taking care of my sons. I would like to express my big gratitude to my husband, *Dauletbay Zhussip*, for getting the opportunity to study, to have an internship, and to do my research overseas.

I want to say special gratitude to the Academy of Public Administration under the President of the Republic of Kazakhstan, for the received of knowledge, modern competencies, and awarding of the research grant. Thanks to the support of the Academy I have had studied at universities of the USA, France, Singapore, and Estonia.

In the framework the Internship in the USA, I have had the opportunity: to work at the Davis Center for Russian and Eurasian Studies, Harvard University; to participate to the International Conference on Cybersecurity in Public Administration, Massachusetts Institute of Technology, to take part on the Round Table «China's Bett Road Initiative in Eurasia: The Challenge of Fostering Sustainable Connectivity». I have got lucky Meeting with Distinguished Guest (New York) - *Dr. Herb Gretz*, Board Member Emeritus of the New York City Health and Hospitals Corp, and with *Edward Sweeny*, the Leadership of Morgan Stanley, USA.

At the same time, I had a discussion on my research with *Kanat Tumush*, Deputy Ambassador of Permanent Mission of Kazakhstan to the UN, and with *Akshaya Kumar*, Deputy Director of Human Rights Watch, on the Working Meetings.

My best gratitude is expressing to the colleagues from Maxwell School of Citizenship and Public Affairs, Syracuse University: *Steven J. Lux*, *Margaret Lane*, and *Daniel Nelson* for giving me the opportunity to work at Bird Library and collect data.

I would like to express my special thanks to the: *Dr. Bigari R.* (Vice-Minister of Education and Science of the Republic of Kazakhstan), to the *Mr. Mukushev N.* (Vice-Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan), to the *Dr. Abishev O.A.* (Vice-Minister of Health of the Republic of Kazakhstan), to the *Mr. Ensebaev R.S.* (Vice-Minister of Finance of the Republic of Kazakhstan). They have given time to make the interview, and to organize the survey of the civil servants.

I would like to say my appreciation to *Mrs. Baltasheva A.*, President of State Corporation «Government for Citizens», and JSC for the help with statistical data provided of the public survey of the people on the topic «Quality of the provision of public services in Kazakhstan in 2016-2019».

Finally, I would like to thank my friends in Estonia and Kazakhstan who allowed me to have access to the research data. Although they asked their names not to be disclosing, they deserve the credit for the completion of this study. I look forward to working with them in the future.

I appreciate all people who helped me to make the good research and hope for fruitful cooperation further.

1 THEORETICAL AND METHODOLOGICAL BASES OF E-GOVERNMENT AND DIGITAL GOVERNMENT

1.1 The improving of the public administration system in the context of globalization

Public administration is considering the activity of public authorities to ensure the socio-economic development of the country and the welfare of the people. Accordingly, the attitude of society to public policy is one of the key factors of public administration, which determines the stability of the public system and the effectiveness of the public administration system. Public support is the most important resource of power, which ensures the successful implementation of state social policy. If there is a lack of support for state policy by society, opposition, social tension and instability arise. As a result, the government seeks to ensure a positive public perception of government decisions and mechanisms for its implementation. Obviously, the question is considering the study of the mechanisms and methods of such a public assessment of measures taken by the state and governance in general, as well as the determination of technologies for the timely identification of the needs and interests of civil society to develop or adjust government policy directions, in particular, in the country's social sphere.

1.1.1 Historical background to the development of public administration in the face of global challenges and digitalization

Historically, the public administration system has represented two levels of organizational impact on society:

1. Political management: the formulation of a development strategy in the political course and the mechanism for making political decisions, as well as the development of state policy and state programs in all priority areas of state development.

2. Administrative state management: the implementation of public policy and the solution of current, tasks that carried out by state structures [15, p. 283-289].

The evolution of the development of any system leaves its imprint on changing directions and goals, as well as on obtaining results. At the same time, the development of the public consciousness of the state dictates, in turn, its laws and requirements for the functioning of a particular system of managing the social system and identifies the corresponding shortcomings or problems in the system of public administration. In particular, the historically widespread top-down administrative and public administration system causes a decrease in the efficiency and effectiveness of the applied policy. However, society does not remain involved in public administration.

In this part of the work, there have considering the most common practices in public administration. These practices have developed over the entire historical period of development of the system of public administration in society and have gained the most popularity and recognition in the world. The most studied and analyzed research and practice work within this dissertation have presented below.

New Public Management

New public management (NPM) is a new public administration system based on the public interest, ideals of democratic governance, and renewed civic engagement.

For the first time, ideas for a new public management (NPM) have been developing in the United States of America. Based on the experience of other countries (New Zealand, Australia, and the UK), journalist David Osborne, as well as former city manager Ted Gebler, introduced a several new principles that changed the established system of government and formed the basis for the new government [16, p. 179-184]:

1. Government is the catalyst. Civil servants, going beyond traditional functions, act as catalysts, motivators for developing alternative solutions, use a wide range of opportunities, and find a compromise between resources and needs, not focusing only on goals.

2. Government owned by the company. Public servants, serving the population, were addictive, not economic and social independence. They provide an opportunity for citizens and public organizations to take an active part in the development of managerial decisions.

3. Competitive Government. Civil servants' acknowledgement: the provision of services only by the state leads to the depletion of public resources; monopoly causes a decrease in the quality and efficiency of services. The ability to provide services by the state and private organizations stimulates competition, increasing efficiency, efficiency, and creating an environment that encourages innovation.

4. Mission Led Government. Civil servants have been focusing on the development of regulatory documents, bureaucratic rules, and regulations. In the new format, civil servants concentrate not on norm setting, but on the mission of the state body and the Government as a whole, under which the budget and resources have been forming.

5. Results Based Government. Civil servants should be focusing on achieving basic public goals and results, and not focus on monitoring public resources spent on the work.

6. Customer Oriented Government. Civil servants mainly work with government agencies and practically do not contact directly with customers - recipients of these public services. Government bodies operate under their priorities and those that require sources of financing from them, and not in the interests of clients. In a new format, customer service and customer satisfaction is a priority.

7. Entrepreneurial Government. Civil servants face resource constraints, but instead of raising taxes or cutting government programs, they are finding new ways to achieve greater results at a lower cost.

8. Anticipatory Government. Civil servants should not solve problems but prevent their occurrence. The government should be engaged in prevention, determine problems using preventive measures, and not eliminate the consequences of public ills.

9. Decentralized Government. The Government should allocate the responsibilities and functions of government to improve the quality of local execution, participation, and teamwork. The transfer of functions and the transition

from centered execution to distributed management made it possible to concentrate decision-making on people who own the situation and can determine high-performance management.

10. Market Oriented Government. Civil servants should apply innovative strategies aimed at creating free market relations, ensuring performance, quality of life, and economic opportunities. The government should minimize government intervention and provide freedom.

According to American researchers, the public administration system should focus not only on state power but also involve the private sector, actively applying market-based governance mechanisms. They believed that market relations would improve the efficiency of public administration.

New Public Governance (NPG)

The implementation of the model of the new public administration of the 90s (NPM) was held with varying success in different countries of the world. NPM reforms have been criticizing for their particular emphasis on the principles of private sector governance, the weakening of democracy, and the failure to realize the main priority of public sector reform – citizen needs. Besides, the NPM contained principles and approaches that were inconsistent with each other, without conceptual rigor, with the presence of common characteristics and attributes, which raised many controversial issues [17, p. 378-379].

Accordingly, in the first decade of the new millennium, new approaches began to appear, in which the interests of citizens were prioritized, and market mechanisms were not given preference as the main engine of state reform. In particular, the New Public Governance (NPG) approach proposed by Osborne in the 2006 year, he took into account the development of public consciousness and put at the head, not the government, but the interests of citizens. NPG does not consider public administration as a system of internal organizational processes, but the interaction of the government, private, and non-profit organizations.

New Public Service (NPS)

The UNDP analytical report «From Old Public Administration to the New Public Service» describes a model of the new public service (NPS), where public administration is considering from the point of view of creating a democratic society based on the concept of an active and involved society. The actions of citizens are aiming not at satisfying their interests, but at taking an active part in the public and political life of the country. The role of public servants is to simplify, facilitate the opportunity to increase citizen participation in the search for solutions to social problems. The government should not control society in search of political solutions but should be open and accessible, responsive, and serve citizens and public interest. These relationships should be building on partnerships [18, p. 14-15; 19].

Digital Governance (DG)

The accelerated development of innovative and digital technologies dictates its own rules in the activities of the society and the state. The rapid development of digital technology has changed a look at the public administration system, creating a new scientific direction - digital public administration - as a close tandem of public administration and e-Government for *good governance* [20; 21, p. 132-135].

According to professor of political science and International Cooperation, University of Florida M.E. Milakovich, the author of the monograph "Digital Governance", the rapid development of digital technology, social media has changed the traditional classical system of government and allowed the concept of digital freedom and e-democracy to be implemented. If in the New Public Service (NPS) and New Public Governance (NPG) we talk about the need to create a democratic state focused on meeting the social needs of citizens, ensuring the freedoms and rights of civil society, then Digital Government - Digital Governance (DG) is an implementation this concept using digital technology and innovative tools. The main idea of the American scientist is that public administration will not be able to remain the same, the influence of social media will oblige the governments of countries to become open and accessible (figure 1.1) [22, p. 324-328].

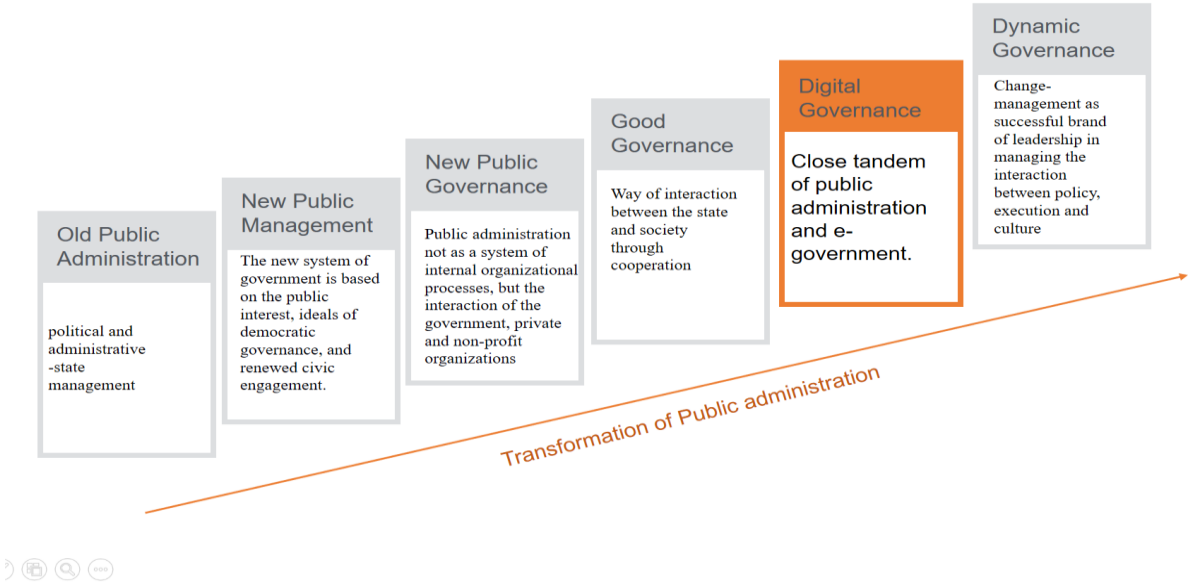


Figure 1.1 – Transformation of public administration
from classical to digital governance

Note – Complied by the author

The full use of digital technology reveals social diversity, a wide range of opinions that existed before but did not have voting rights in making public decisions. This is partially because digitalization contributes to the dispersal of state power and the transition from centralized methods of government to an open and accessible state, where each citizen can participate in management processes or at least express his point of view. The development of e-democracy, e-participation of the population is a new trend in the public administration system of the 21st century.

Digital Governance (DG) as a new stage in the transformation of the public administration system opens up new frontiers for improving the interaction of the state, business, and society. Digital participation, e-democracy, electronic elections, digital freedom, and digital society are changing the very purpose of public policy, creating new values - the knowledge economy.

When constructing the investigated model of the Digital Proactive Government as an effective model of public administration, the basic principles has taken into account. There are focusing on the needs of citizens, proactive services, integration with public and private information systems, and the above rules of new approaches to public administration. In particular, 5 out of 10 fundamental principles have been using: a competitive, anticipating, decentralized government owned by the company and customer-oriented. The concept of Digital Public Administration (DPG) formed the basis of proposed the model of Digital Proactive Government.

1.1.2 Features of public administration in the social sphere

Social state is the state oriented towards improving the welfare of the majority and the realization of the interests of the majority. Democracy involves not only actions in the interests of the majority but also the direct participation of this majority in this process. Most of the population does not even try to use the state to improve the quality of life, social conditions, but rather moves away, allowing the authorities to make managerial decisions on their own.

Social politics is a system of relationships and interactions between various social groups, in the center of which is a person, his social security, social security, and life. A broader concept of social policy is interpreting under the social labour sphere (SLS). At the same time, the social sphere understands as the sphere of society's life, which provides the opportunity to implement economic, political, educational, managerial, and organizational practice aimed at realizing the rights of citizens to meet their needs [23, c. 678-684].

The complexity of the social sphere is considering in the interconnection and dependence of all these components. As part of this study, issues of social protection of the population, education, and health will be considering. The implementation of social reforms and social initiatives provides a solution to the problems of unemployment and employment. One of the pressing issues is compulsory health insurance. Each country chooses its course in addressing the issue of social issues, in particular employment and unemployment. For example, Russia, after the collapse of the Soviet Union, chose a policy of promoting employment, since there were problems with state financing, and there was a transition in the formation of a new form of statehood [24, p. 271-279].

Subsequently, due to the need for an integrated approach to solving the above complex problems, the need has arisen for the integration of national labor markets and the creation of a national labor exchange so that it is possible to solve the issues of employment, and unemployment in a complex. In particular, the World Bank [25], the International Labour Organization, the employment issues and has created a Unified Integrated Eurasian Electronic Labor Exchange.

One of the main social obligations of the state to society is social insurance. The subject of social insurance is the legal and economic relations of entities for the organization and expenditure of financial resources intended to protect the population from emerging social risks, as well as the provision of medical and social assistance. State management of the social sphere includes the functions of social insurance (table 1.1), which are expressing in maintaining the existing standard of living of the

population through various mechanisms of compensation, benefits, and subsidies for lost earnings. These functions have determined the models and roles of public administration in the social sphere of countries [28].

Table 1.1 – Functions of social insurance in public administration

Name of function	Description of function
– retirement insurance;	– by age, disability, and breadwinner;
– health insurance;	– payment of medical care, including payment of temporary disability;
– industrial accident insurance;	– occupational diseases, occupational injuries, compensation for dependents of those killed in the workplace;
– unemployment insurance	– retraining, unemployment benefits
Note – Complied by the author based on the source [28]	

A clear confirmation of the implementation of the social insurance policy is the current situation with the COVID19 Pandemic, as the result of which over 30 million people in the United States left without work and livelihoods. The state, using the system of social support and insurance, paid social subsidies from the state budget to everyone who was at risk. European countries provided support from the reserve fund to citizens who left without work in connection with the introduction of quarantine coercive measures and a regime of social exclusion.

The formation of a specific model of social insurance includes the distribution of contributions between employers, workers, and the state, as well as the issues of responsibility of all participants in this process, the redistribution of the size of payments, contributions, and compensations. There are several models of social insurance: equivalence (between contributions and payments), joint redistribution of resources (between insured with high and low incomes, sick and healthy, unemployed and working), actuarial justification with a long and medium-term. Models for the implementation of the functions of social insurance determine the appropriate role of the state in matters of state management (table 1.2) [29].

Table 1.2 – The role of the state in matters of social insurance

Name of role of the state functions
– building relationships between employers, insurance organizations and government bodies;
– in the collection and distribution of social insurance funds among socially needy citizens;
– definition of social distribution policy, accrual rules and other legal aspects of insurance;
– procedural and procedural regulatory rules for establishing the rights and obligations of subjects of social insurance;
– issues of further development and planning for social insurance
Note – Compiled by the author based on the source [29]

The development of the social sphere and modern society is characterizing by global challenges and problems. Finally, of post-industrialization, the implementation of the concept of the fourth industrial revolution, the problem is growing in the field

of reproduction of labor and human potentials, health care, education, and the housing and communal sector. The key factors in the development of such a society are education, science, and high technology.

The main criterion for the development of society is knowledge and information. In the 1960s, for the first time, a professor at the Tokyo Institute of Technology Yu Hayashi introduced a new approach to the definition of a knowledge society - the *information society*. This is a society that has high-quality information and all the necessary means of disseminating it, allowing people to get rid of routine work due to the high level of automation of production processes [30].

In Western sources in the early 1970s, the foundation of the information society is the introduction of computing technology, information systems, communications, and information technology. The level of public administration is already determined based on the signs of the information society (table 1.3), which show the degree of technologization and informatization of the system, as well as the compliance of public administration with the requirements of the time [31, p. 331].

Table 1.3 – Key features of the information society

The list of the main features of the information society
– global nature of information, where the concept of state borders is erased;
– the ability to collect, process, store, transmit data and disseminate it;
– increasing the impact of information, the possibility of its presentation on the development of various spheres of human life.
Note – Compiled by the author based on the source [31, p. 332]

Because of the analysis features of public administration in the social sphere, we can conclude that in an information society based on technology and knowledge, the problems of the social sphere should be solve by digitalizing public administration, taking into account the social identification, a model of which is proposed in this study (figure 1.2).

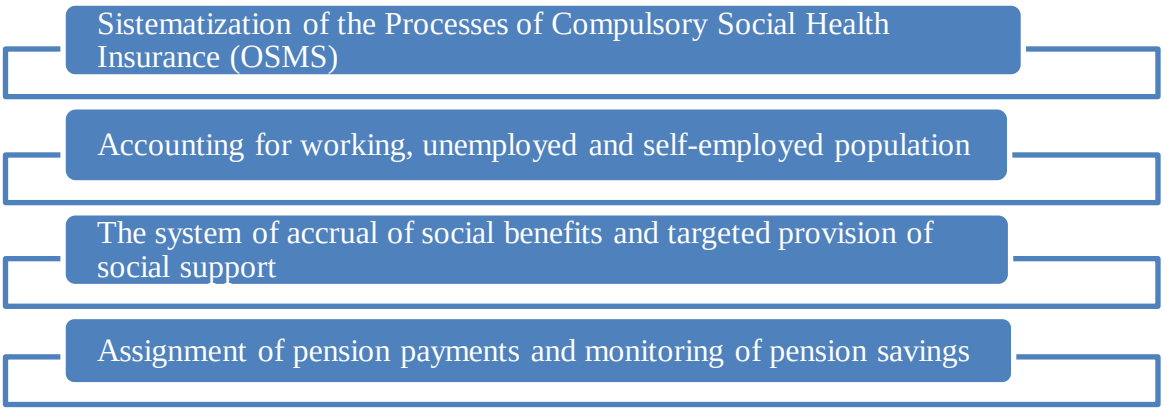


Figure 1.2 – Model of digitalization of public administration taking into account social identification

Note – Created by the author based on the source [31, p. 333]

The proposed model will solve the problems of the effectiveness of social policy systematically. These problems of the social sphere can be solving through the processes of the digitalization of public administration and the proposed model of social identification.

One of the obvious reasons for the low efficiency of social policy implementation is the lack of targeted provision of social support, inaccuracy in calculating social benefits, data conflicts in determining the social status of citizens in a state. In addition, there are private and non-commercial databases, lack of integration of information systems, and lack of automation of business processes at the level of input of primary information. Reengineering and automation of these business processes will ensure the principles of transparency, objectivity, and increase the level of public confidence.

The transformation of the public administration system in the context of globalization and digitalization is inevitable due to the development of public consciousness, management tools, and the transition to the information society. It is necessary to understand how the state social policy is effective, dynamic, and able to quick respond to new emerging social risks. The effectiveness of public administration allows you to see and evaluate the effect of introducing new approaches and tools in the public administration system.

1.1.3 Public administration efficiency: approaches and measurable indicators

In modern conditions, the state can be considering as a developed information system, since the entire process of public administration is basing on the collection, analysis, processing, storage, and dissemination of information. In the information society, the main goals of the new public administration system are following: to satisfy the social needs of citizens, to involve society in public administration processes, and to ensure effective interaction between the state and citizens of the country.

The objective form of government has a variety of manifestations, which in total give an objective-volumetric idea of the results of management and its effectiveness. However, to determine the result of management and evaluate the effect, appropriate criteria, indicators need.

For example, in some Western countries, the development of such criteria is carrying out by special research centers. In the USA, for example, as early as 1913, a management effectiveness bureau was established. Since 1949, a Special Commission for the Evaluation of the Performance of Public Service has been operating under the Presidential Administration. Until 1978, there was a National Center for the Study of Management Performance in the Public Sector. To date, there are several such centers in the USA [32, c. 120-128].

The science has accumulated a wealth of experience in studying the effectiveness of public administration and its criteria. Expert scientists made a great contribution to such research from leading universities in the world and international organizations. There are various methods, studies, international ratings that regularly have evaluate the quality of public administration. The most important advantage of international ratings is their independence, the ability to track the dynamics of a

particular indicator within one country, and the ability to compare the performance of different countries.

In particular, the World Bank Institute has developed the GRICS (Governance Research Indicator Country Snapshot) system (table 1.4). The system has to develop based on parameters taken from 25 different sources of 18 organizations and consists of 6 indices reflecting the parameters of public administration. These parameters have been identifying based on a general definition, according to which «Government» (Governance) understands as a combination of traditions and institutional formations with which the authorities governance. The World Bank calculates this Worldwide Governance Indicator from 212 countries. It is calculating annually by the World Bank based on a comparison of 25 different indicators of public administration performance, prepared using surveys of experts, citizens, and independent organizations [33].

Table 1.4 – GRICS System (Governance Research Indicator Country Snapshot)

Feature list	Feature contents
– Voice & Accountability	– voting rights and accountability
– Stability and Absence of Violence	– political stability and lack of violence
– Government Effectiveness	– government effectiveness
– Regulatory Quality	– quality of legislation
– Rule of Law	– law supremacy
– Control of Corruption	– corruption control
Note – Complied by the author based on the source [33]	

According to the World Bank methodology, the effectiveness of government is determines by several parameters, including the assessment of the quality of public services, where digitalization is a providing tool for the provision of public services. Besides, the use of digital technologies, the provision of public services in electronic format reduces the possibility of corruption, simplifies the process of obtaining public services, and ensures the openness and accessibility of these services.

According to another international methodology, under the quality of public services understand the totality of the characteristics of the service, determining its ability to satisfy the needs of the recipient with the content (result) of the service. The quality of public services includes a combination of process characteristics and conditions for the provision of services that ensure the satisfaction of the recipient's needs concerning the process of providing services [34, c. 16].

The other American scientist Garcia-Murillo M. is considering the digital public administration provides the opportunity for electronic participation in the implementation of public policy, elections, ensures the implementation of civil rights and freedoms of citizens, which are key factors in assessing the effectiveness of public administration [35, p. 162-168].

Nowadays, improving the quality of public services depends on the optimization of business processes for the provision of public services and the form of public services. Therefore, further digitalization processes are need to increase the efficiency of public administration in the social sphere, and the transition from a

declarative to a proactive approach is to minimize the efforts of society in obtaining public services, optimize business processes for providing services and improve the quality and targeting of public services.

The use of e-Government will simplify many bureaucratic procedures, significantly reduce the time required for paperwork, make easily verifiable, strict tax accountability of legal entities and individuals through the introduction of a unified electronic accounting system, increase the level of budget revenues, reduce the scale of corruption and, consequently, increase trust, citizens to institutions of power.

Greater openness and transparency of the activities of authorities, achieved using the latest information and communication technologies, helps to simplify the interaction between the population and government and opens up the possibility of more complete access of citizens to the state information they need.

1.2 The digital transformation of public administration: from e-Government to Intelligent Government

1.2.1 Theoretical foundations of e-Government

In the late 90s, a new information age began, computerization, the development of the Internet has changed the presentation and perception of information. The main task of that time was to post information online. Developed Western countries, which are the founders of the first personal computers, Internet technologies, began to study the impact of the new presentation of information on the public administration system.

In February 1993, in San Jose, California, US President Bill Clinton and Vice President Al Gore launched a special program initiative aimed at encouraging the use of new information technologies at all levels of the federal government and national economy called «Technology for America's Economic Growth,» a new direction for building economic power: the executive office of the president. «The initiative aimed to create a government that would be more effective and meets the needs of people through the introduction of information and communication technologies in the public administration system [36, p. 90-91].

This initiative gave impetus to the use of ICT at the federal level of USA, each state, together with the scientific community, competing among themselves, presented new projects and ideas for improving the public administration system. The USA is an ambitious country and the task was not just to collect ideas for improving the state apparatus. However, the main task is to ensure the country's further world leadership in the field of applied sciences, mathematics and technology [37].

The first stage of the use of ICT in public administration has traditionally begun with a reduction in paper and the introduction of electronic document management. The Law on the reduction of paperwork has adopted back in 1980 when the creation of the first computers had just begun, but the mass introduction in the government began in the 90s. The leader in computerization, IBM created the Lotus electronic document management system, which has been subsequently implementing not only at the federal level of the US Government but throughout the world. In 2000, a portal has been creating with open access to all types of information of the US Federal Government – FirstGov [38, p. 20-23].

Traditionally, scientists are engaged in the study of innovations, but in the development of computerization, practices were the first founders of new discoveries. Since the 90s, large consulting companies have been working on the issues of influence and prospects for the development of computerization in all areas of human life. In 2000, Gartner Group has presented the first presentation of the e-Government development model [39, p. 8-10].

Attempts to create e-Government were discussing at world conferences by Russian scientists Dyatlov S.A. and Khramtsovskaya N.A., practitioners, and representatives of the public sector. The Russian scientist Smorgunov L.V. attempted to single out the «narrow» and «wide» understanding of the E-Government. In a «narrow» sense, e-Government reflects the improvement of public administration using new IT, which ultimately allows increasing the efficiency in the provision of services to the public. In a «wide» sense, it expresses not only the new character of inter-organizational relations but also the transformation of the whole complex of relations between public administration and society [42, p. 27-35].

According to the American scientist Darell West, e-Government is an opportunity to provide information in the public domain on government sites. The creation of e-Government and the provision of public services in electronic format in the US began later, in 2002 when a document called the «e-Government Act» was developed.

It was from this moment that a new stage in the development of the scientific direction for the study of E-Government began. Over the past 20 years, scientists have been studying the implementation of information and communication technologies in public administration, trying to create unified approaches to the development of e-Government to conduct a comparative analysis of the implementation of e-Government around the world [44, p. 685-689].

In parallel, this issue was studied by practitioners and IT specialists who have directly involved in the implementation of the digitalization of the public sector. Besides, these studies were carried out by analytical companies providing consulting services, country development reports, such as World Bank, OECD, World Economic Forum, BCG, Gartner Group, UNESCO, European Union, and others.

Over the past decades, there are a huge number of publications, reports, recommendations, books, and studies have been conducting on the evolution of e-government. In the scientific community, the term e-Government has appeared as a response to the awareness of the importance of exploring the possibilities of using information and communication technologies to solve public administration problems.

Since the term appeared in the scientific literature, scientists come to its definition in different ways and use different principles. For some authors, we find descriptive definitions that reveal the transformations in society and its structures when introducing e-Government.

Others consider the applied nature of e-Government and the possibilities of using its tools. There are definitions, which are technical in nature and focus only on the applied technological solutions and specific software products. In addition to the above, there are economic definitions that focus on the concept of quality

management and the maximum efficiency of state management. All these approaches reproduce certain aspects of the activity of e-Government.

In the investigation of the World Bank, e-Government is interpreting as the process of use by state bodies of information technologies that can transform relations with citizens, businesses, and other branches of government.

UNESCO International Organization uses the concept of «Electronic Authority (Leadership)». According to UNESCO's methodology, Electronic Authority is the process of using the ICT by the public sector to improve the process of information exchange in society and improve the quality of services provided. It provides stimulate citizen participation in decision-making, ensures accountability, and openness of public authorities.

The definition of e-Government is giving in US Law. In according the US law, e-Government is defining as «the activity of authorities to use Internet applications and other information technologies integrated with processes. These processes use these technologies to improve the access and dissemination of state information and services to citizens, other government organizations or to improve the activities of authorities, in particular in the effectiveness, quality of services and transformations. The Commission of European Union defines e-Government in a slightly different way: «the use of ICT in public administration, combined with organizational changes and new skills to improve services and democratic processes, and strengthen support for public policy».

An analysis of scientific and practical materials published over twenty years has shown that over time, and as the concepts of «E-Government» putting into practice, this concept has constantly evolved and expanded. It has gone from a «simple Internet resource» to the concept of a global transformation of the entire public administration system.

An important result of the study of e-Government, which perceives differently by different countries, is the systematization and identification of the main purpose of its appearance. This goal is to provide information interaction between all interested parties of e-Government. As a result, the 4 main types of relationships are distinguished (table 1.5) in the activities of the E-Government [45].

E-Government understood as the using of ICTs to provide access to public services to citizens (G2C), business (G2B), employees (G2E), and agencies or government (G2G).

This approach allowed us to structure the tasks of the E-Government and expand the opportunities for its development. The main goal of the formation of the e-Government is to improve the quality of public services to citizens, organizations, and business representatives, as well as to improve the quality of government functions.

The diversified view of researchers on the semantic content of electronic information, the use of the term Digital Government is controversial on the one hand. However, it allows you to see the potential and prospects for the development of the EG from the second side.

Table 1.5 – The main types of relationships in e-Government

Relationship types	Relationship explanations
– government and citizen (Government-to-Citizen - G2C):	– citizens' rights to free exchange (search, receipt, transfer, production, and distribution) of state public information;
– government and business (Government-to-Business - G2B):	– interaction between government bodies and commercial organizations, leading to the development of electronic commerce mechanisms, the competitive production of goods and services in the field of information and communication technologies, the improvement of supply management for state needs, supervision, procurement, and regulatory compliance;
– intergovernmental interaction (Government-to-Government - G2G):	– the interaction of government bodies at various levels, suggesting the compatibility of standards for storing information and workflows, connecting to unified networks of government bodies and government at various levels, implementing a program to inform various industries, creating inter-departmental, regional and local information systems, and databases;
– government and employee (Government-to-Employees - G2E):	– interaction between the state and civil servants, which allows you to: reduce paper workflow through the use of electronic document manage ment and information interaction; reduce time costs by automating and optimizing business processes; reduce costs; ensure interaction with other state institutions and non-governmental organizations
Note – Compiled by the author based on the source [45]	

Converting E-Government (EG) to Digital Government (DG)

Researcher Moon non-standard view is that e-Government should be dividing into four distinct areas. Namely, these areas include e-democracy, e-service, e-management and digital governance [46, p. 424-428].

E-democracy carries out not just the actions of online voting and conducting polls, but the realization of rights and civil liberties by obtaining tools of effective feedback on various issues.

The provision of electronic services is associated with the provision of public services to individuals and organizations via the Internet and the media by Government bodies or private organizations under a contract or license.

*E-Governm*ent is the sphere of activity that concerns the functioning of the Government, the automation of business processes of the work of state bodies, office work, the interaction of state structures with each other, etc.

The term «*Digital Public Administration*» means a broader concept where digitalization encompasses all management functions from collecting information to make management decisions, including important stages of performance analysis, efficiency, and assessment of tasks, control, and monitoring. This includes formal modeling of policy problems, the use of meeting management tools, the creation of a repository of politically significant materials in knowledge management systems designed to support government managers, and includes strategic management [45].

These 4 areas of activity, of course, cannot be designed or function effectively in complete isolation from each other, but share the concept of relations between the government, citizens, employees, and business. This concept has reflected in the

developed conceptual apparatus of the Electronic, Digital, and Digital Proactive Government.

E-Government, according to Moon, includes 4 main aspects [46, p.429-433]:

- creating a secure internal network and central government database for more efficient and cooperative interaction between government agencies;
- the provision of electronic services;
- the use of e-commerce for more effective activities of government agencies, such as procurement and contracts;
- digital democracy to increase government transparency and accountability.

According to foreign researcher Michael E. Milakovich, e-Government can be dividing into several categories, where the final level in the opinion of this scientist is Digital Governance, which provides for deeper electronic participation of the population, the widespread use of the Internet and social networks. The concept of electronic participation (e-Participant) provides that virtually every citizen will have the opportunity to express their opinion, influence public policy, propose effective measures to improve it, and take an active part in the public life of their country [22, p. 13].

OECD experts share the concept of Electronic and Digital Governments in the developed recommendations on the Digital Government Strategy. E-Government is a tool to improve the functioning of the Government using ICT, in particular the Internet. Digital Government is seeing as a Government that uses digital technology to create a single integrated space, to implement the concept of a single sign-on (Single Sign-On), and to create public value [47].

Digital Government gas built as a digital ecosystem of government actors, nongovernmental organizations, enterprises, public associations, and individuals, which supports the production and access to data, services, and content through interaction with the government.

American scientists consider it necessary to separate the concepts of electronic and digital government as different evolutionary stages of digitalization of the public sector and public relations. Darren West believes that Digital Government is the next stage in the development of E-Government, which uses all kinds of means of access and collection of information [48, p. 148-159].

Digital Proactive Government (DPG)

Based on the Digital Proactive Government (DPG) concept there has considered the generalizing points to the concept of Electronic and Digital Government. Those investigations have based on the results of an analytical review of scientific and applied sources. These studies have UN, WB, OECD, IDC, WEF, BCG, UNESCO, Gartner, Perry, Layne & Lee, Kim Viborg Andersen, Helle Zinner Henriksen, Moon, Darrell West, Michael Milkovich, Agron Chaushi, Blerta Abazi Chaushi, Florije Ismaili, Smorgunov L.V., Dyatlov S.A., Khramtsovskaya N.A. et al.

The first definitions of e-Government included the stages of its development, where the distinctive features of each stage are visible. When creating maturity assessment models, which will be presenting in the next section, the researchers also provide for the separation of e-Government at the stage.

E-Government is a Government that uses information and communication technologies to provide public services in electronic format (via the Internet) and to ensure government interaction with citizens (G2C) and business (G2B). Like all other electronic services, electronic commerce, electronic elections are an online representation of the Government.

Digital Government (DG) is the Government used digital technologies to create a single ecosystem that provides reengineering of business processes to the functioning of the Government. It provides creation and integration of state information systems, databases to ensure effective information interaction between the government and citizens (G2C), business (G2B), interagency vertical and horizontal interaction (G2G), as well as government and office workers (G2E). The purpose of the DG is to optimize the processes of interaction between the information systems and the database using complex mechanisms for searching and presenting the information. Because of the functioning of information systems, database management systems, the integration of information resources and databases, a huge pool of structured information has formed. The processing and analysis of those allow you to build complex analytical forecasting systems using big data analysis technologies.

Digital Proactive Government (DPG) is the next stage in the development of the Digital Government, which provides for the creation of a unified digital analytical platform. It includes «seamless» integration of state, non-state IS, and databases for the provision of proactive services, predictive analysis, and forecasting of ERA.

It is providing effective information interaction between the government and citizens (G2C), government and business (G2B), interagency vertical and horizontal interaction (G2G), government, and employees (G2E), as well as business with business (B2B) and business with citizens (B2C). The main goal of the DPG is to meet the social needs of citizens through the use and analysis of available data, information, and the implementation of preventive measures of public administration, the formation of forward-looking reports, and the effective involvement of the society.

Analyzing, we note that e-Government has undergone certain changes in approaches and implementation methods. E-Government at the dawn of the advent of computers had a simple meaning - providing access to government information through the Internet using ICT. Digital Government provides for the reengineering of government business processes, the creation, and integration of information systems, databases, the effective interaction of government, citizens, businesses, as well as the reduction and optimization of government functions, and accordingly, public services.

1.2.2 E-Government maturity models

Each state, implementing a digital transformation of the economy, has chosen its model for the implementation of e-Government. Since 2000, researchers have been working on determining the level of implementation of e-Government. To systematize the development of e-Government and to conduct a comparative analysis of the stages of implementation of EG, the Concept of Digital Government maturity

assessment model has been creating. Maturity understands as to the level of implementation of the EG, which is evaluates by indicators, principles, and characteristics developed in each model.

In 2014, researchers from Morocco and Canada examined existing models and conducted a comparative analysis of 25 e-Government maturity models [49, p.75-80]. At the same time, according to the opinion of the group of foreign scientists Agron Chaushi, Blerta Abazi Chaushi, Florije Ismaili, similar signs can group higher models and characteristics and the main groups of models for evaluating the maturity of e-Government can be determined [50]. The analysis of the maturity assessment models of e-Government made it possible to identify several main models that formed the basis of the methodology for assessing the digitalization of public administration in most countries (table 1.6).

Table 1.6 – The main models for assessing the maturity of EG

Name of model	Assessment content
Layne & Lee's Model	- consists of 4 stages;
Public Sector Process Rebuilding (PPR) Model	- model changes in public sector processes;
World Bank Model	- allocates 3 levels of EG development;
United Nations' Five Stages Model	- divides the process of introducing EG into 5 levels;
Hiller and Belanger E-Government Framework/Model	- the structure of the E-Government, which also includes 5 stages of implementation of the EG;
Gartner Model	- consists of 5 stages of DPG maturity and takes into account the latest trends in the development of digitalization of the IS
Note – Created by the author based on the source [50]	

In particular, the Layne & Lee's e-Government maturity assessment model, developed in 2001, allowed to systematize the e-Government maturity assessment parameters, and formed the basis of many subsequently developed models. It includes 4 stages of EG development, which are presents in table 1.7.

Table 1.7 – Layne & Lee's EG maturity assessment model

Name	Stage content
Catalog	– the stage of creating EG portals, representing a repository of information, data to provide access to government information. The portal is more informative;
Transaction	– the e-Government portal, which provides electronic services to users, allows to generate requests, fill out forms and ensure the exchange of information with e-Government users (online payments, request for licenses, etc.);
Vertical integration	– the stage of development of the EG, combining information systems of different levels of government (local, state and federal level), which allows to simplify information interaction between government agencies;
Horizontal integration	– the stage of development of EG, where the integration of IS of various public services has implemented, data transfer of information systems with different functionality, the implementation of «seamless» integration.
Note – Created by the author based on the source [50]	

Danish researchers K.V. Andersen, H. Z. Henriksen present theory of extension of the Layne & Lee model - the Public Sector Process Rebuilding (PSPR) maturity model. The main idea is to use the functionality of the EG from the point of view of users: citizens, business, and government. This maturity assessment model divided into 3 stages in terms of user opportunities (figure 1.3).

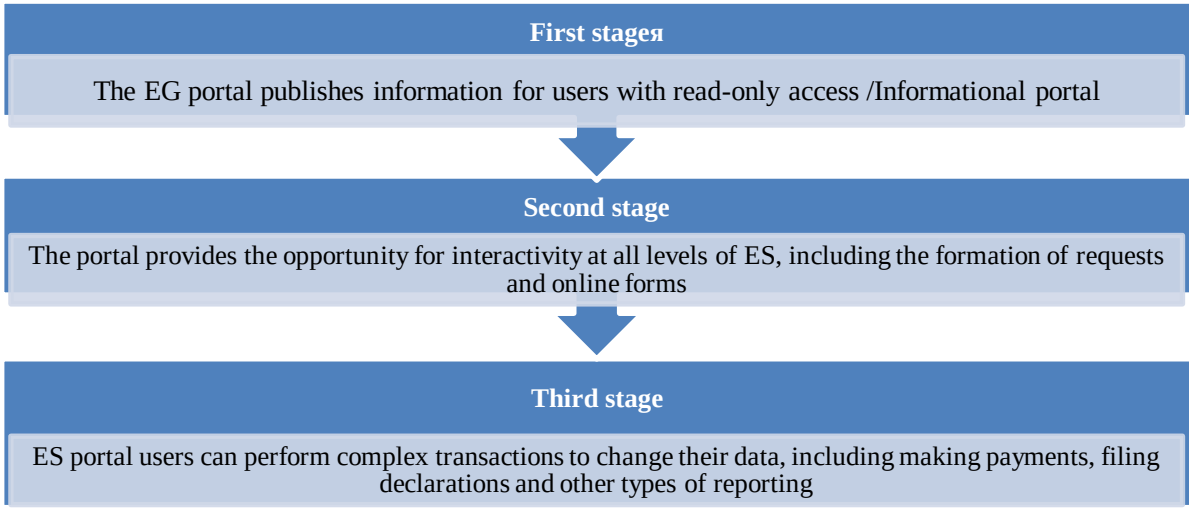


Figure 1.3 – The stages of the model for evaluating the maturity of EG

Note – Created by the author based on the source [51, p. 239-244]

UN experts identified 4 (four) stages of maturity for EG. This approach is universally recognized and cited in almost all sources devoted to the formation and development of EG in the world [52] (figure 1.4).

First stage
Initial presence. At this stage, basic government information should be available on the web
Second stage
Expanded Presence. At this stage, not only separate archival documents but also current operational documents should be accessible through a web interface
Third stage
Transactional presence. At this stage, bilateral interaction between citizens and the state should already be implemented
Fourth stage
Network presence. This stage is characterizing by the integration of interactions at the G2G, G2C, and C2G levels

Figure 1.4 – Four stages of maturity for EG

Note – Created by the author based on the source [52]

Based on the results of the studies, the European Commission, Consulting Company International Data Corporation (IDC), Sogeti, and the Milan Research Institute Politecnico di Milano have developed their own principles and indicators for evaluating the maturity of e-Government.

This approach consists of 4 (four) basic principles, such as User Centricity, Transparency, Cross Border Mobility, and Key Enablers. Each principle includes indicators of its assessment.

Table 1.8 below shows the main indicators for assessing the maturity of EG, developed by a group of experts of a methodology for conducting an analytical review and assessing the maturity of EG [53].

Table 1.8 – e-Government maturity assessment indicators

Classification	e-Government maturity assessment indicators		
USER CENTRICITY INDICATORS (indicators that measure orientation to user needs)	Online availability of basic services *(online availability of basic services)*	Online availability of extended services *(online availability of additional services)*	Usability of services- support & feedback *(ease of use of services, feedback)*
TRANSPARENCY INDICATORS *(transparency indicators)*	Transparency of service delivery *(service delivery transparency)*	Transparency of personal data *(transparency of the use of personal data)*	Transparency of public administrations *(Public administration transparency)*
CROSS-BORDER INDICATORS (indicators measuring user mobility)	Online availability of services *(online service availability)*	Usability of services- support & Feedback *(ease of use of services, feedback)*	Cross-border e-ID and e-Documents *(use of electronic unique identification and electronic documents)*
KEY ENABLERS INDICATORS *(indicators evaluating technical capabilities)*	e-ID, e-Documents *(Electronic unique identification, electronic documents)*	Single sign-on (single sign-on - single account principle)	online availability, e-Safe *(online availability, information security)*
Note – Created by the author based on the source [53]			

EU countries use a similar unified methodology for assessing the maturity of e-Government based on a system of composite and synthetic indicators to determine the level of development of digitalization of public administration. This allows you to see the progress in the development of electronic services, increase the efficiency of public services in electronic format and evaluate the effectiveness of the use of financial resources for the development of the E-Government of the EU countries.

The last decade marked by the revolutionary development of innovative technologies and approaches, such as Big Data analysis, robotics, artificial intelligence, the Internet of things. In November 2017, a representative of Gartner, Andrea Di Maio presented a new form of e-Government - Digital Government and the vision of evaluating the maturity of the Digital Government [54]. According to

this model, the stages of development of the Digital Government include 5 (five) levels (figure 1.5).

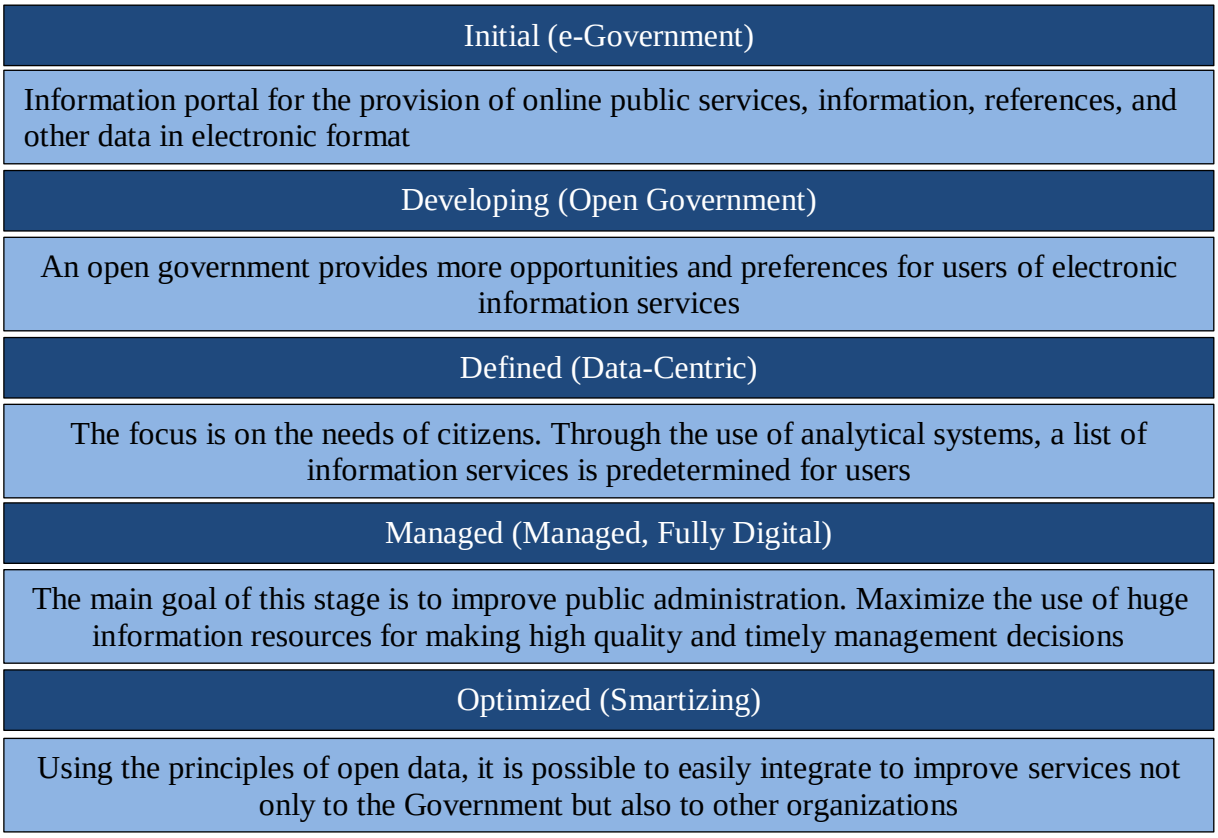


Figure 1.5 – Five stages of development of the Digital Government

Note – Created by the author based on the source [54]

This model is relevant for assessing the current state of e-Government. It also allows us to assess the complexity of integrating not only vertical and horizontal interactions. Nevertheless, it provides the depth of information interaction and the stage of data analysis, building analytical systems for generating predictive solutions and generating automatic prompt answers to incoming requests from users of EG. Gartner experts believe that with the introduction of new technological solutions, EG does not meet already the general trends of digitalization, complicated mechanisms for searching, processing, and presenting the information. Therefore, it is necessary to assess the maturity of the Digital Government and not the E-Government.

The advantage of this model lies in the prospects for the development of the Digital Government. Developed countries such as Singapore, Korea, have advanced in the implementation of e-Government, and are working on the implementation of the concept of Smart and Intelligent Government. Estonia introduced its concept of the Agile Government. The Gartner model leaves the groundwork for the development of the Digital Government and provides for the existence of innovative approaches to the digitalization of the public and private sectors.

1.3 Digital transformation of the public sector: the international experience

Kazakhstan is at the crossroads of many cultural associations, that is considering the Asian region. Therefore, the experience of Asian countries (Korea, China, and Singapore) is interesting for researchers and practitioners of the country. At the same, it is part of the Eurasian region, culturally and traditionally close to all countries of the former Soviet Union. Therefore, the experience of Russia, Azerbaijan is interesting for comparison, Estonia and France. Due to the leading US development in the field of digital and innovative technologies, the experience of the development of digitalization of the US public sector is important too.

Many countries understand the importance and need for digitalization of the public sector. However, the targets, objectives, and principles of the implementation of e-Government are differing in different countries. In particular, Santos, J., Rodrigues, F., and Oliveira, L. believes that the introduction of e-Government will reduce the level of corruption and ensure the transparency in the work of the Government [55, p. 230-234].

According to another author, the result of the introduction of digital technologies and digital signatures is the country's sustainable development [56, p. 86-91]. Authors such as Kiril Vassil, Mikhail Solvak, and Rozgonjuk D. believe that digitalization reduces the time spent by the population on receiving electronic services. It greatly simplifies the life of the population, which is the value of the E-Government [57, p. 455-459; 58, p. 40-44].

To study the principles of building an E-Government and developing an effective model of public administration, the experience of the USA, France, Germany, Canada, Estonia, Russia, Azerbaijan, and Kazakhstan have analyzed in the work.

The United States developed a Digital Strategy back in 2001. The basic principles of the USA were to improve the quality of life of the American people. However, due to the distributed state structure of the country and the independence of each state, this initiative has just partially implemented [59].

Over 20 years, Estonia has been implementing digitalization programs in all areas of the economy. It starts with second-tier banks, ending with the creation of a digital residence that opens the borders of Estonia to everyone, from any country in the world. They made the main emphasis on the socio-economic development of the country, obtaining the maximum benefits from foreign participation (e-residency) [60].

Russia, developing the national program «Digital Economy of the Russian Federation», has taken as its basis the principles of openness, accessibility, and production. The implementation of the principle of orientation to the needs of citizens has not considered in the last strategic document [61]. Azerbaijan considers the development of e-Government as a tool to increase the efficiency of the state apparatus and the interaction of business and the state [62].

According to *The Global Competitiveness Index 4.0 2018: Enabling Environment,* a comparative table has been compiling for indicators that determine

the functioning of public administration, the development of innovations and information and communication technologies (table 1.9) [63].

Table 1.9 – The Global Competitiveness Index 4.0 2018: enabling environment

Country	Institutions	Infrastructure	ICT adoption	Business dynamism	Innovation capability
USA	13 (74.6)	9 (89.5)	27 (71.2)	1 (86.5)	2 (86.5)
Estonia	22 (69.5)	42 (75.2)	14 (77.4)	29 (69.3)	33 (52.5)
Russia	72 (52.7)	51 (72.2)	25 (72.1)	51 (62.9)	36 (50.7)
Kazakhstan	61 (54.9)	69 (67.3)	44 (64.9)	37 (66.0)	87 (32.1)
Azerbaijan	58 (55.8)	46 (53.6)	69 (54.0)	31 (68.8)	71 (36)
Note – Created by the author based on the source [63]					

According to the results of 2018, of the five above countries, the United States occupies a leading position. Estonia leads ICTs. Kazakhstan has shown positive dynamics over the past few years on 5 factors for EG.

In different countries, the level of development of EG varies significantly. In addition to the rating of the World Bank, the World Economic Forum, there are international studies dedicated to assessing the development of e-Government in a particular country. One of them is a large-scale study conducted by UN experts - United Nations e-Government Survey 2012 [64].

According to this methodology, the main index is an indicator of the development of EG (e-Government Development Index). This comprehensive index has based on the following three components, shown in table 1.10.

Table 1.10 – E-Government Development Index of United Nations

Index	Explanation
Web Service Index (Online Service)	- determines the degree of development of web services by e-government
Telecommunication Infrastructure Component Index	- assesses the degree of equipping citizens with ICT
Human Capital Component Index	- shows how educated citizens are and are they ready to use information services
Note – Created by the author based on the source [64]	

The index of development of government websites is compiling from a survey of government websites and five major ministries (education, health, social protection, labor, and finance). The Telecommunications Infrastructure Development Index assesses the integrated accessibility of basic telecommunication services to the country's population (fixed and mobile telephone penetration, the Internet, and television). The Human Capital Development Index has calculated based on data from UNESCO and the United Nations Development Program.

These indicators provide a generalized analysis of the use of ICT and innovation. The implementation of e-Government more deeply reveals the problems and prospects of the development of public administration.

Let us consider examples of data from five countries for introducing e-Government and implementing the principles of orientation to the needs of citizens, proactivity, and security.

Digitalization of public administration in USA

Since the 1970s, America has been discussing the application of new technologies, but the real project has initiated only in 1993. President Bill Clinton and his team launched a special program to introduce information technology at all levels of government. The name of this program is «Technology for America's Economic Growth, a New Direction to Build Economic Strength: Executive Office of the President.» One of the tasks of which was to create the Government that would work more efficiently and respond to the needs of citizens [36, p. 88-90].

Because of this initiative, many bureaucratic procedures have reduced, electronic document management has introduced, and the approach to reduce the government and outsource many public services to the private sector became widespread. This project was a more pronounced success at the federal level. In the context of the development and implementation of information and innovative technologies, the United States has always been and remains a leader. Large companies such as Apple, Microsoft, Google, Oracle, and IBM provide huge funds for the development of both the private and public sectors.

Moreover, research in research institutes and universities is common in America. Leading universities conduct research, economic feasibility studies, and make a significant contribution to public sector reform. In addition, the National Science Foundation allocates huge funds for research, discovery, and development of the potential of the country. The special contribution of Silicon Valley to the development of digital technology is indicative of many countries [65, p. 35-40].

Regarding the development of electronic services, the United States created a portal already in 2000, where it provided open access to all types of information of the federal government. In addition, electronic services have provided to the population both free of charge and on a paid basis. Services have provided to both the public and private sectors.

Since the administration of Bill Clinton, in the subsequent team of Barack Obama, much attention has been paying to the development of e-Government. E-Government is seems not only as a tool to reduce bureaucratic procedures, increase the efficiency of public administration, but also to develop democratic institutions. In 2002, the e-Government Law adopted. In 2003, the e-Government Strategy has developed and adopted.

A new stage in the development of e-Government as an open and transparent Government began with the advent of Barack Obama, who paid special attention to this issue in his program. Since 2009, the period of reforming public administration began. Here the decision-making system built on the position of civil society; on a new look at e-Government, on the development of technological infrastructure and the development of democratic institutions [66].

One of the interesting projects of the «The City Sourced» has allowed the municipalities to integrate with the applications of private companies of the population and receive directly information about the problems of this region. This

allowed saving money on the creation of similar platforms and ensuring the involvement of the population. In addition, they received first-hand information and ensured the speed of decision-making [67].

Another interesting project implementing the principles of Open Data-driven and Citizen-driven approaches is the use of Chicago's Electronic Open Data portal. Citizens and private companies initiated the creation of several information systems (ChicagoLobbyists.org, Mi Parque, SweepAround.us, iFindIt, Techno Finder, and many others), which allowed to increase the level of involvement and information of citizens.

The first project publishes information about lobbyists, their budgets, firms, projects, interactions with the political forces of the city, and the impact on the development of the city. Another project MiParque allows residents to participate in urban development. In particular, the parking zone, where citizens are developing various modules for the provision of urban services, design services, infrastructure development, and security.

These projects have become so popular and relevant on the territory of the city that is allowed to use this system as an alert in cases of emergency and to conduct free courses on the elimination of computer illiteracy. The concept of using open data and focusing on the needs of citizens caused a special interest of the population in the use of e-Government services and an increase in the involvement of the population in the decision-making process, which, subsequently, was successfully used in other states [68, p. 510-513].

Digitalization of public administration in Estonia

The case of Estonia in terms of the development of e-Government is exemplary and indicative. Estonia has started the implementation of e-Government since 1997. The country had its difficult situations (2007) when a hacker attack was carried out on the electronic voting information system. As a result, the Government completely revised the concept of information security of the E-Government. At present, the decision of the Estonian EG is one example of building a secure and sustainable e-Government platform. The initiation of the automation of electronic services came from the private sector, and this was one of the key advantages of successfully implementing the digitalization of public services and public services in Estonia.

In addition, the experience of Estonia has taken into account in countries such as Japan, Azerbaijan, Namibia, and Finland [69, p. 218-224]. Since 2018, Kazakhstan has been intensively studying the successful experience of Estonia to adapt to the digitalization of public services.

As a result, the population of Estonia was able to receive over 91% of public services online, except for marriage and real estate transactions, which require the direct participation of citizens [70]. Electronic services like digital identification, e-health, tax returns, electronic voting, business services, etc. Filing the tax return takes on average no more than five minutes [71, p. 172].

The second advantage of Estonian experience was a single digital identity card issued in 2002. This card was multifunctional and made it possible to exclude identity documents throughout Europe, travel certificates, digital signatures, as well as for banking operations.

Another advantage of the Estonian experience was the creation of the X-Road integration bus, which enabled the implementation of the single entry concept, decentralization of information storage, connection of private-sector databases. X-ROAD connects over 360 databases, 500 different organizations [74].

The fourth advantage of Estonia is a unified and consistent policy for the implementation of e-Government: preparation of regulatory documents, a common position on the integration and information interaction of state and non-state databases, as well as ensuring the implementation of this policy by both public and private entities and the public.

The number of e-services has increased to 2000, but the service providers of these services are both public and private organizations. The Estonian Government has not considered the issue of proactive public services. The main argument is that citizens have a sufficiently high level of ICT competencies to find the necessary information on the e-Government portal [75].

In 2014, Estonia launched an unprecedented project - e-Residency, which provides the opportunity to use e-Government for foreign citizens. This is one of the opportunities to attract foreign investment, develop the country's economy, start a business in Estonia, living in another country. Currently, over 1.3 million foreign citizens are registered, launched their business at Estonia [76]. This fact speaks of the digital maturity of not only the E-Government of Estonia but also society itself.

The digitalization of public administration in Russia

Compared to Kazakhstan, which launched the first e-Government portal in 2006, Russia in 2009 created the Unified Portal of State and Municipal Services. From 2009 to 2011, the number of state services of the Russian Federation increased by several orders of magnitude and amounted to 34,319 services. It includes 945 federal, 11,739 regional, 21,608 municipal services. In addition, 511 services have provided in electronic form, of which 371 were regional services and 140 services were federal. The number of users in 2011 was just over 1 million. In November 2019, the number of users reached a record 86,5 million [77].

In 2011, the implementation of the State program «Information Society (2011-2020)» has begun in Russia. As part of this program, 70% of public services are planning in electronic format, and public services covered under this program should be slightly less than 100% (97.5%) [78]. Kazakhstan in 2013 adopted the similar State program «Information Kazakhstan 2020». The first stage of this program is from 2013 to 2017, the final stage is from 2018 to 2020.

Due to the accelerated development of digital technologies and the impact on socio-economic development, in 2017 the National Program «Digital Economy of the Russian Federation» for 2018-2024 has adopted [79]. In the same year, Kazakhstan adopts the new State program «Digital Kazakhstan», the implementation deadlines of which has provided for until 2030.

The Program «Digital Economy of the Russian Federation» is more specific and has wider international horizons. The Russians set themselves tasks such as: increasing the number of organizations participating in the implementation of large projects of international scientific and technical cooperation in the field of the digital

economy, as well as the successful functioning of leading companies that are competitive in global markets.

Digitalization of public administration in Azerbaijan

The process of informatization of Azerbaijan began with the adoption of the National ICT Strategy in 2003. E-Government launched in May 2011 within the framework of the State Program «Electronic Azerbaijan». In September 2011, the issuance of electronic signatures to state bodies, citizens and business entities began. In total, 425 public services are provides within the framework of the e-Government portal; 39 state bodies of Azerbaijan provide more than 200 electronic services to citizens [80].

Azerbaijan was one of the first to implement the principle of a single-window (non-stop shop). In 2012, by decree of the President of the country, the ASAN service created, which is a state agency for the provision of services to citizens. In 2015, ASAN awarded the UN Prize in the category of «Improving the provision of public services» [81].

The e-Government of Azerbaijan has increased the efficiency of public administration by cutting budget expenditures on the provision of public services, creating a unified, secure information space for government bodies.

For citizens, the e-Government of Azerbaijan has brought benefits, such as the ability to use open data, simplifying the procedure for obtaining public services, and developing digital infrastructure.

For business, digitalization has made it possible to ensure the efficiency of interaction with government bodies, to increase economic activity, competitiveness, and the ability to access foreign markets.

To strengthen the work of the EG in 2015, the State Program for the 2016-2020, on the implementation of the National Strategy for the Development of the Information Society in the Republic of Azerbaijan has been adopting.

Besides, in 2018, a separate center for the development of e-Government created, which will deal with issues of training, the development of educational technologies, and the introduction of EG. In the same year, the country made the transition to the Digital Government of the country.

Summing up the analysis of the international experience of digital transformations in the USA, Estonia, Russia, and Azerbaijan, we can conclude that these states have deliberately advanced in this direction. However, each country has its advantages and disadvantages.

The state structure and political characteristics of each country have a corresponding impact on the implementation of state initiatives, including on the digitalization process. In addition, public consciousness, values, social needs, the level of democratic maturity of the society, literacy of the population determine the success of the introduction of digital technologies and the use of the capabilities of e-Government.

The studied international experience is useful for analyzing the positive and negative aspects of the implementation of e-Government. At the same time, this experience is useful to save money and time for making similar mistakes in the implementation of the digital transformation of the economy and society. The use of

the results of scientific and practical works in the development, adjustment, and creation of state programs is an effective tool for optimizing public administration.

Conclusions to the first chapter:

The first chapter examines the trends in the development of public administration, assessing the effectiveness of public administration in the context of digitalization, the transformation of digital signatures, and models for assessing the maturity of EG, as well as the best international practices. This experience is appropriate in designing the ideal model of the Digital Government.

As a result of the analytical studies carried out in the first chapter, the concept of an ideal Digital Proactive Government model for public administration in the social sphere is defined.

At the same time, the main components of the social sphere are considered issues of education, health, social protection, and employment, as well as the level of state social support for the population based on determining the social status of a citizen of the country.

Summarizing the results of the analysis, the e-Government is understands the Government that uses ICT to provide services in electronic format and to ensure informational interaction of the government with citizens (G2C) and business (G2B).

Digital Government means a Government that uses digital technologies to create a single ecosystem that provides for the reengineering of Government business processes, the creation, and integration of state information systems, databases, to ensure effective information interaction between the government and citizens (G2C), business (G2B), interagency vertical and horizontal interaction (G2G), as well as government and employees (G2E).

Digital Proactive Government is the next stage in the development of the EG. The developed model of information interaction - Digital Proactive Government - should be basing on the concept of determining the social status of a citizen of the Republic of Kazakhstan. The fundamental principle of this model is Orientation to the needs of citizens since all social policy is focuses on meeting the social needs of a citizen.

2 ANALYSIS OF THE CURRENT SITUATION OF DIGITALIZATION OF PUBLIC ADMINISTRATION OF THE REPUBLIC OF KAZAKHSTAN

2.1 Analysis of the state social policy of Kazakhstan in the context of digitalization

The process of reforming the state system of Kazakhstan began during the economic crisis of the late 90s. In 1997, a long-term development program for the country adopted the Strategy «Kazakhstan – 2030» [82]. In accordance with this Strategy, the definition and implementation of the state social policy of Kazakhstan have assigned to the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan, the Ministry of Healthcare of the Republic of Kazakhstan and the Ministry of Education and Science of the Republic of Kazakhstan [83].

Because of large-scale reforms in Kazakhstan, a public administration system formed, which transformed the future, according to the adopted strategic documents. In 2012, the Head of State introduced the Development Strategy of the Republic of Kazakhstan until 2050, the idea of which was to create a universal labor society based on a strong state, a developed economy, Kazakhstan joining the thirty most developed countries of the world [84]. This strategic course highlighted the importance and priority of implementing social policy in our country.

2.1.1 Analysis of the regulatory system of public administration in the social sector in the framework of digitalization

The implementation of the state social policy is determined by strategic and program documents, as well as regulatory legal acts of the Republic of Kazakhstan. Under the OECD analytical review of the state system of Kazakhstan, the public service model goes through the stages of transformation from professional to strategic, and, subsequently, to innovative management. System Kazakhstan's public administration is a combination of a professional and strategic model of public administration [85].

By the point of the researcher A. Amirova (OECD), public administration is carrying out in a hierarchy from strategic documents to operational plans of state bodies [86]. There are several the program documents of the state management in the social sphere. It is includes the following programs: Development Strategy “Kazakhstan-2050” and the Strategic Plan for Socio-Economic Development until 2025 [87].

There are the State Program to the development of education and science of the Republic of Kazakhstan to 2020-2025 [88], the State program to healthcare development of the Republic of Kazakhstan for 2020-2025 [89], and the State program for the development of productive employment and mass entrepreneurship for 2017-2021 [90].

The state course of socio-economic development of Kazakhstan has adopted in the Development Strategy until 2050 and is dividing into seven long-term priorities, of which two priorities are devoted to the social sphere in terms of ensuring social guarantees and developing human capital.

According to researcher R.K. Arzikulova, the state social policy of Kazakhstan is effective and includes many projects and programs that support the well-being of the people and provide new opportunities for improving the quality of life of citizens of Kazakhstan. The introduction of minimum social standards, the implementation of the Affordable Housing 2020, and Employment - 2020 programs allow for equilibrium and reduce social tension [91].

Social policy, as one of the most important strategic areas of public administration, should be reflecting in all program documents of the country. At the same time, in the Strategic Plan (SP) of the country until 2025 social policy issues is not in the highest priority.

According to another Kazakhstani researcher, social policy is isolated and considered not in strategic documents, but in a separate document - the Concept of social development of the Republic of Kazakhstan until 2030. This document assumes state support for all socially vulnerable segments of the population: children, the working-ages population, and pensioners [92].

Following the technological boom, the global labor market is already experiencing a global «skills gap». Automation and digitalization of work processes are eliminating the need for mid-skilled and low-skilled labor in enterprises, while the demand for highly skilled workers is growing rapidly. The emergence of technological unemployment and the risk of disappearance from 9% to 50% of all currently existing professions have predicted by the International Labor Organization [93].

Policy Analyses of State program for the development of education and science of the Republic of Kazakhstan in the context of digitalization

The State program for the development of education and science of the Republic of Kazakhstan for 2016-2019 was completed in 2019, the assessment of the quality performance and achievement of the target indicators is carried out from a financial point of view on the subject of targeted and efficient use of the state budget.

According to the British Government's methodology “The Green Book”, it is necessary to evaluate the effectiveness of programs at the stage of development, planning, and execution [94]. This methodology provides for the evaluation of government programs at the development stage when describing the goals and objectives of the program, describing the output parameters and the impact of these indicators on improving the quality of life of society.

In December 2019, the new State program for the development of the education and science of the Republic of Kazakhstan for 2020-2025 (SPDESS RK on 2020-2025) has adopted and the Report on the implementation of the target indicators of the previous program has presented [88].

The goal of the previous the State program for the development of education and science of the Republic of Kazakhstan for 2016-2019 was to increase the competitiveness of education and science, the development of human capital for sustainable economic growth. For achieving, this goal has divided by educational level: pre-school education, secondary education, technical and vocational education (TVE), higher and postgraduate education, science [95].

Preschool education

According to the Ministry's Report, the task was to expand the network of preschool organizations through the private sector, public-private partnership (PPP) and the state budget. The network of preschool organizations in 2019 increased by 1,749 units and amounted to 10,583 units (in 2015 - 8 834 units). Of these, over 50% of preschool institutions have built with private investment. As a result, the coverage of children 1-6 years old is 78,3% in 2019 (in 2015 - 53,8%) [96].

Accordingly, the construction of preschool institutions at the expense of the state does not affect the overall situation in the coverage of preschool education. The general trend of Kazakhstan's state policy on the privatization of state-owned facilities remains, according to the implementation of the fifth stage of privatization of public and quasi-public sector [97].

The implementation of the idea of per capital financing and targeted provision of state support provides for a reduction in the allocation of funds for the construction of new facilities, an increase in the cost of maintaining public facilities. International experience shows that the solution to the problem of enrollment in preschool education is possible using private investment without state participation. In the UK, monthly benefits have allocated at birth [98].

In accordance with SPDESS RK on 2020-2025, the state allocates funds for the construction of kindergartens, schools, subsidies for private kindergartens, and the development of standards for pre-school and school education. The introduction of normative regulation of the content of education at an early stage of development in kindergartens has created new costs for the development of teaching aids, retraining of teachers and equipping kindergartens with textbooks.

The allocation of differentiated state support always causes corruption risks and the creation of favorable conditions for the abuse of official powers by public servants, since the allocation of subsidies for kindergartens and monitoring activities have does not have transparent regulated procedures. This causes obstacles when opening kindergartens for the private sector and creates unequal conditions for their functioning since not all private kindergartens have the opportunity to receive subsidized state support. Implementation of public-private partnership mechanisms in the construction of public facilities is not effective since the legal acts on the implementation of these mechanisms are long-term (1-2 years) of approval [99].

In view of this, SPDESS RK on 2020-2025 provides for the introduction of digitalization and electronic platforms as effective mechanisms for comprehensive analysis, monitoring, and control of the provision of pre-school, school, and general education for the population of the country. For example, through online registration of a license for educational activities, it is possible to display preschool, school institutions on an interactive/digital map of social facilities in Kazakhstan. In particular, an interactive map of educational institutions of the city of Nur-Sultan has created, which has integrated with information systems of «Kundelik», «Smart Astana», «Astana LRT» LLP to monitor coverage of social facilities, as well as determine the real need for the construction of educational facilities [88].

Secondary education

According to the State program for the development of education and science of the Republic of Kazakhstan in the field of secondary education, the main task was to expand the network of schools, improve the material and technical base, update the content and increase the status of the teacher [88].

Based on the data of the Report of the Ministry for the implementation of the program, there is a positive trend in improving the qualifications of the teaching staff of schools. Thanks to the updated content, 273 thousand teachers (94%) have trained. Tutorials for grades 1-10 have been updated [96].

The provision of compulsory free secondary education has enshrined in the Law of the Republic of Kazakhstan «On Education» and provided for the financing of secondary education by the State. On average, the education of one schoolchild has costs 500 thousand tenge for the state, which takes into account the costs of training and maintenance of educational facilities [100].

In the same time, the main goal of SPDESS RK on 2020-2025 is the improving the quality of education - is achieves through the development of digital educational infrastructure, as well as through the widespread use of digital content in the educational process. In this regard, on the instructions of the Head of the State, as part of the State program for the development of education, in 2011, a project launched to implement the electronic learning system «e-Learning». This project is bases on an integrated digitalization approach: creating a digital infrastructure (educational process management system, school management system), distance learning, teacher training, and the creation of digital educational resources [101].

In 2016, the Program of targeted transfers of the education system of the Republic of Kazakhstan created, aimed at the development of digital educational infrastructure. This program includes social support measures such as connecting public schools to the Internet, including remote rural schools (200 schools); a supply of computer equipment (2 sets to small schools and 5 sets to full schools).

These measures provided an opportunity to use equipment to improve the educational process using digital content, providing online and offline access to digital content, electronic textbooks, and video lessons.

Technical and vocational education (TVE)

According to the report of the authorized state body for the implementation of the State program for the development of education and science of the Republic of Kazakhstan for 2016-2019, the attractiveness of TVE has increased because of the implementation of the project “Free TVE for everyone”. In 2019, the reception on state order has amounted to 94,628 people, approximately as the number of applicants’ higher education institutions (universities). The 246 standard curricula have been updating, but the issue of updating educational programs remains open [95].

Higher and postgraduate education

According to the State program for the development of education and science for 2016-2019, the tasks have aimed at solving urgent issues of higher education in preparing competitive personnel, taking into account the requirements of employers, improving the quality indicators of higher education in Kazakhstan.

Here are representing higher education institutions of Kazakhstan in international ratings, forming a state general education order, and the share of foreign students creating new educational programs [95]. According to the Report on the implementation of the Program, there is a tendency to increase the number of state educational grants, including for technical specialties. Multiple unified national testing was introduced (4 times a year), which allowed in 2019 to enroll in universities 97.5 thousand school graduates on a fee basis. The 8667 educational programs of higher and postgraduate education have updated, of which 2297 were new, 192 were innovative and in technical specialties [96].

To structure the education system and the development of digitalization, in SPDESS RK on 2020-2025, measures are planned to systematize the issuance of educational licenses, measures to extend, suspend, control, and monitor educational licenses through the e-Licensing system. In particular, it has envisaged providing of information on issued licenses in the public domain to exclude cases of student training on expired and suspended licenses.

Besides, the program provides an online system for accounting for the general profile of a higher educational institution when issuing educational licenses. In program, measures are also enshrined to reduce the issuance of educational licenses in specialized areas (medicine, agriculture, information security) in an online format. Program provides for online data synchronization between universities and information systems of MES RK for monitoring and transferring students from paid tuition to a state educational grant.

The concept of «Long Life Learning», obtaining a second profession, a new qualification, and short-term, long-term continuing education courses gave a new impetus to the development of distance learning technologies. It has based on the digitization of training programs and the creation of electronic platforms. Distance learning erases the boundaries between Kazakh and foreign universities and sets new challenges to improve the quality of the system of higher and postgraduate education.

At the same time, it provides an opportunity for universities to receive additional income from educational services. SPDESS RK on 2020-2025 also enshrines measures for the development of distance learning technologies through the introduction of a comprehensive digitalization of the country's education system [96].

Policy Analyse of the State program for the development of productive employment and mass entrepreneurship for 2017-2021 «Enbek» in the context of digitalization

More than 192 million people are unemployed globally, according to the International Labour Organization (ILO), with the unemployment rate averaging 5.6 percent in 2018. However, significant growth is expecting in 2020 due to the economic crisis associated with the spread of the COVID 19 Pandemic. More than 700 million people in the world live in poverty. This causes serious problems of social insecurity of the population and an increase in migration processes [102].

Due to military conflicts, migration has critically affected the labor market in Europe. The economic impact is a new problem in the rise in unemployment in 2020.

According to preliminary data, over 30 million people in the United States have lost their jobs [103].

One of the global challenges of the labor market is the fourth industrial revolution (robotics, digital technology, process automation, nanotechnology, 3D printing, biotechnology, etc.). On the one hand, innovations contribute to increasing the productivity and efficiency of enterprises, lowering product prices, increasing demand, expanding production, and creating jobs. On the other hand, it reduces the demand for labor resources, causes a reduction in the number of enterprises in subsequent automation, and, in general, the growth of the so-called «technological» unemployment [104].

In response to global challenges, in Kazakhstan, since 2017, the State Program «Digital Kazakhstan» has been implementing, which provides for the digital transformation of the country's economy, the development, and creation of new modern automated industries, the creation of a digital society and the implementation of the next stage of the E-Government - Digital Government [105].

To develop the Digital Government and solve social issues in the country that arise because of technological unemployment and automation of production, in 2017 the new State program for the development of productive employment and mass entrepreneurship for 2017-2021 «Enbek» (SP «Enbek»), has been adopted. According to this program, 12 tasks in the social sphere are envisaging [90].

According to the forecasts of the World Economic Forum, it is expecting that about 30% of jobs in the world can disappear because of a new wave of automation. Most at risk are low- and mid-level professions (such as drivers, cashiers, maintenance staff) since they concentrate most of the routine functions [106].

Globalization and technological change have contributed to the growth transition from «traditional» to «non-standard» employment (partial, temporary, and self-employment). The number of part-time workers is increasing by about 11 million per year. This has facilitated by both initiatives by employers to reduce costs, and the very desire of workers to pay fewer taxes, to be more mobile and independent freelancers [107].

This type of employment is attractive because there is no tight work schedule, you can find a family-work balance, as well as gets several sources of income from the implementation of various projects in different countries. In addition, the increase in part-time employment casts doubt on the existing system of social and health insurance, which provides for only two types of employment (working and unemployed).

In Kazakhstan, this type of employment has not received sufficient distribution, but a growing trend is observing, especially at present in conditions of quarantine and social isolation. In 2018, less than 5% of workers in Kazakhstan have hired based on fixed-term contracts, and only 2.7% of employee’s work less than 30 hours a week, which is the lowest compared to OECD countries [108].

This is due to the legal regulation of labor relations of the Republic of Kazakhstan and the unworked legislation in respect of fixed-term contracts and part-time employment.

According to the State program for the development of productive employment and mass entrepreneurship for 2017 - 2021 «Enbek», 12 tasks have envisaged. Of these, 7 tasks have aimed at ensuring employment of the population, improving the quality of education and employment.

The analysis of the problems of the labor market in Kazakhstan against the background of global trends in theological unemployment and informal employment is presenting below (table 2.1.).

Table 2.1 – The main problems of the labor market and employment of the population of Kazakhstan

Problems	Explanations
28% (about 589 thousand people) of self-employed work “in the shade”, without an official social status	Missing: separate legal form for the self-employed; regulatory framework for identifying the social status of a citizen; IS and DB to identify the social status of the population of the Republic of Kazakhstan
Relatively low level of labor productivity of the economy	The growth of labor productivity is restrained due to the insufficient use and development of modern technologies in the country's economy
Low level of competence of labor resources	The quality of education and the system of training labor personnel do not correspond to real market requirements; there is no system of flexible analysis of the labor market and the formation of state orders taking into account the needs of the labor market
Lack of a system for categorizing the social status of citizens of Kazakhstan	A manual change of social status is carried out, from the category of working to the category of unemployed; there is no targeted social assistance to the population
The need for digitalization of the infrastructure of the entire labor market	None: consistency in approaches to the development of the labor market and its digitalization; unified electronic labor exchange integrated with all IS
Note – Compiled by the author based on the source [109]	

This analysis allows us to conclude require the involvement of all interested parties and the development of joint solutions. These measures for taken to modernize employment services, create an electronic labor exchange, and involve private employment agencies in the employment processes.

2.1.2 SWOT-Analyze of the digitalization of the social sphere, taking into account the Digital Proactive Government model

The ideal model of the Digital Proactive Government, considered and studied in the first chapter, implies the implementation of 7 fundamental principles, where 5 principles relate to the technological part of the model (digitalization and automation of business processes), and the remaining 2 principles relate to the organizational part of the model (introduction of legal rules, standards, and regulations).

The technological part of the Digital Proactive Government (DPG) model has based on the main 5 principles that given in table 2.2 [33].

Table 2.2 – Five principles of the technological model of the DPG

Principles of the Model	Principles
Citizen-Centric approach	Orientation to the needs of citizens
Trustable data, build once, use many times	Reliability of data, single entry of information
Flexibility and interoperability	Flexibility and compatibility of data from different information systems and databases
Privacy and security	Security and privacy
Shared digital platform and resource efficiency	A platform approach to ensure integration and efficient use of information resources
Note – Compiled by the author based on the source [33]	

A brief explanation of the above principles:

1. The platform approach and data efficiency (*Shared Digital Platform* and *Resource Efficien*cy) is implementing through the construction of a single platform based on the e-Government infrastructure. The main essence of this principle is the integration of existing IS of the public and private sectors to ensure the most efficient use of available resources and databases.

2. The implementation of the platform approach, the integration of state and non-state information systems will allow one-time data entry and, as a result, ensure their reliability (*Trustable Data, Build Once, and Use Many Times*). A fundamental condition for optimizing this process is a one-time input of information from the source.

3. *Flexibility and Interoperability* is a technology-software solution and is provided by providing open services for the integration of the Open API to receive and provide data from public IS / DB to private ISs and from private IS/DB to government systems.

4. Issues of security and confidentiality (*Privacy and Security*) should be ensured by compliance with regulatory documents (regulations, standards, requirements) of integrated information systems and databases.

5. The fundamental principle of the Digital Proactive Government (*Citizen-Centric Approach*) is to centralize the provision of state social services in a proactive mode, depending on its social status. Social status determines its social needs, which consist of information, educational and medical services, as well as social support and employment.

Let us consider the current state of digitalization of the education system, health care, and social protection in terms of compliance with these five principles as well as analyze the strengths and weaknesses, advantages. In addition, we can study the disadvantages of information systems in the social sphere in the framework of ongoing programs.

Since the creation of the e-Government portal, the process of automating business processes in the social sphere has begun. The adoption of the State program «Information Kazakhstan - 2020» [110], the Law of the Republic of Kazakhstan «On Informatization» [111] ensured centralized coordination and financing of the creation and development of public sector information systems.

According to the researcher's conclusion, in the field of political sciences, Maksat Kassen, the period of implementation the State program «Information Kazakhstan 2020» marked the rapid development of the E-Government of Kazakhstan and the creation of key state information systems and databases. In addition, during this period, the basic regulatory acts governing the functioning of state information systems were developed. The course of this program was taken to improve the efficiency of public administration and the creation of innovative and information and communication infrastructure [112-114].

Conducting a retrospective analysis of the implementation of the State program «Information Kazakhstan 2020», we can conclude that the program covered almost all spheres of human activity: education, science, healthcare, the media, financial sector, trade, transport, housing and communal services, sports, culture, statistics, energy, tourism, ecology, emergency life support services and more. The main priority of the program is the creation of a unified architecture of the E-Government. Based on the analysis of the implementation of the first stage of the program, it can be saying that many state information systems have been improving. There were developed projects such as the issuance of electronic licenses, public service centers (PSC), electronic payment of taxes and fines, electronic notary, electronic customs. Automated basic E-Government services and the Call Center of the «E-Government» have been creating.

To increase the efficiency of the Government of the Republic of Kazakhstan, such projects as electronic document management, e-Government procurement, and information portals of government agencies have been implementing. The e-Health project has partially implemented, covering all medical institutions and the entire medical management system of Kazakhstan. The implementation of the e-Ministry of Finance and e-Statistics projects has begun [115]. The e-Government payment gateway has launched, which made it possible to make payments worth over 20 billion tenge. Tax deductions, payment of fines, customs duties made it possible to provide the possibility of prompt payment, as well as instant monitoring of payments in the personal account of registered Kazakhstanis.

Such projects as electronic treasury, electronic document management, e-Government procurement, portals of government agencies, and the portal of open and mobile government have been implementing. The Intranet portal of government agencies has been introducing, within the framework of which the following have been launching Unified Postal Service of Civil Defense, knowledgebase, approving of regulatory legal acts. The e-Licensing information system has been implementing in all state bodies of licensors, in the 79 territorial licensors, and 8 out of 16 local executive bodies [116].

In 2013-2014, an automated information system of local executive proceedings has developed which helps to resolve the tasks of the operational execution of enforcement documents reduce the burden on judicial executors, reduce the workflow have associated with the execution of judicial acts, and generally automates the enforcement proceedings.

The information system of enforcement agencies has integrated with several information systems of interested state bodies from the view of the openness and

transparency of the work of the judiciary. It needs to expand the capacity of the bailiff to receive executive documents in electronic format, information on the property status of debtors and take measures to ensure them. In addition, it has integrated with the Committee on Legal Statistics and Special Accounts of the General Prosecutor's Office of the Republic of Kazakhstan, the Supreme Court of the Republic of Kazakhstan. In addition, it connected with the Committee for National Security of the Republic of Kazakhstan, the Administrative Police Committee of the Ministry of Internal Affairs of the Republic, the Ministry of Information and Communication of the Republic of Kazakhstan, the Ministry of Finance of the Republic of Kazakhstan [117].

In the State program «Information Kazakhstan 2020», all efforts aimed at creating an information society, developing infrastructure, improving the efficiency of public administration, ICT literacy of the population. At the same time, the State program «Digital Kazakhstan» is aiming to transforming the economy by introducing digital and innovative technologies at all levels [118, 119].

The program provides for the transition to the Digital State in terms of optimization and automation of internal processes of state bodies, as well as the transfer of public services to electronic format. The digitalization of the social sphere, as a unified system of state social policy, was out of the scope of this program.

Digitalization of the education system

In the education system, 82 information systems have allocated (Appendix A) based on the results of a project survey of the functional structure of the Ministry of Education and Science of the Republic of Kazakhstan (MES RK) and a Report prepared by the Design Office of Digital Transformation of the «Zerde» JSC [120].

Automation of business processes of the education system is carried out through the use of 82 information systems (IS) and information resources (IR), where 45 IS of MES RK and its subordinate organizations, 16 the external information systems, 10 software products of commercial organizations and 11 information systems at the initiative level, are in the development project.

Based on the results of a content analysis of joint orders for the provision of public services in electronic format, the list of functioning information systems has compiled that can be used to automate the provision of public services (Appendix A).

According to the Report of the Ministry of Education and Science of the Republic of Kazakhstan dated May 31, 2020, the National Educational Database (NEBD) provides statistical information to 20,000 educational organizations. In 6717 schools, electronic journals, and diaries of the IS «Kundelik» have introduced (5,3 million users: 336 thousand teachers, 2,9 million students, and 2,1 million parents) [121].

Colleges and universities are actively implementing information systems, the integration of which must be working out with the MES RK using open interaction services. Integration with educational organizations is planning through the NEBD, which is impossible in principle and will complicate the interaction of ready-made solutions, such as IS «Platonus» that works at 70% universities. These universities have the other information system «ESUVO» for higher education.

Digitalization of the healthcare system

According to the official information of the Ministry of Healthcare of the Republic of Kazakhstan in 2004, the National Telemedical Network has created in Kazakhstan. By the end of 2016, it combined 204 healthcare facilities. With its help, employees of district-level medical organizations (144 district and city hospitals) can get advice from colleagues from regional and republican hospitals and centers. In 2016, 28,060 telemedicine consultations have held; consultations on cardiology - 4674 sessions, pulmonology - 3666 sessions, neurology - 2720 sessions. In total, from 2004 to 2016, patients of medical organizations received more than 133 thousand telemedicine consultations [122].

By creating a unified healthcare system, acting as the Central hub of medical information, electronic health passports, a register of medicines, information on medical care and treatment, it was planned to integrate by creating healthcare informatization standards to provide timely and reliable information to both patients and medical workers, private companies, and health management and financing bodies [123].

According to the Law of the Republic of Kazakhstan «On Compulsory Social Health Insurance», the state pays insurance premiums to 15 categories of the population, including students, pensioners, and others [124]. In fact, the implementation of compulsory social health insurance depends on the categorization of the population by social status and the actualization of this status in real-time.

A solution to this problem is proposing in the third chapter, where a draft categorization of the social status of the population is developed. Besides, the proposed model of information interaction will optimize the procedures for the provision of this public service. The described procedures for interaction between state bodies to update data on social status have carried out manually and from several state bodies, according to the approved joint order [125]. Automation of the identification of social status will eliminate inconsistency and update information (insured and not insured) in the IS «Saktandyru» automatically, eliminating unnecessary social risks.

At the same time, the integration of information systems of the Social Health Insurance Fund with the Electronic Health Passport will increase the validity and efficiency of spending. It provides introduces new financial incentive mechanisms to improve the quality of medical care.

Digitalization of the social-labor sphere

According to the official information of the Ministry of Labor and Social Protection of the Republic of Kazakhstan, today the Unified Information System of the Social and Labor Sphere is functioning. These include 11 information subsystems in all areas of the ministry's activities, such as labor, employment, social insurance, pension, and social security, social support, special social services, and migration. The relevance of the database is providing online through integration with national reference databases, department systems of government bodies [126].

In the social and labor sphere, new projects have been implementing to digitalize targeted social assistance, to obtain special equipment for people with special needs, the electronic labor exchange, and electronic labor contracts.

The fragmentation and the huge number of portals of the social and labor sphere cause difficulties when using the information on social issues of interest to citizens, businesses, and government organizations. It is necessary to study the issues of integration of IS of Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan with IS of Ministry of Health Care of Kazakhstan in terms of receipt and the conclusion of medical commissions (automatically) for registration of disability.

According to the Report on the implementation of the State program for the development of productive employment and mass entrepreneurship of the Republic of Kazakhstan «Enbek», since July 2018, the pilot project on the introduction of electronic labor contracts has been launching. This project greatly simplifies the employment process and reduces the risks of providing inaccurate information, and also saves employers from the need to keep paper files of employees. Currently, 11 thousand organizations have connected to the system, and 554 thousand employment contracts have registered.

Thus, the automation of personnel clerical work of enterprises will provide a complete picture of the labor market in the country and conduct effective monitoring of the observance of labour rights of citizens [127]. At the same time, the integration of enterprise IS with the State Center for Pension Payment will automatically monitor the social status of the employment of workers in real-time.

In 2019, the Ministry launched new initiatives to digitalize the social and labour sphere, as more than 50% of public services have mainly provided in paper form [128]:

- creation of a situational center for the social and labor sphere;
- scaling IS «E-Halyk»;
- monitoring of created jobs based on AIS «Labor Market»;
- digital social map;
- social services portal.

SWOT-Analyze of digital public administration in the social sphere of Kazakhstan

The study of the social sphere must be carried out in a complex and considered as a single system of public administration. The issue of providing state social support to the population, from the DPG model, has a centralized systematic approach and is based on the identification of the social status of a citizen.

Based on this interpretation, the analysis of the advantages, problems, opportunities, and threats of public administration of the country in the social sector in terms of the Digital Proactive Government model is carry out. The results of the analysis are presenting in the form of SWOT-Analyze (table 2.3).

Thus, to solve existing problems it is necessary to introduce a model of the Digital Proactive Government. The implementation of a proactive approach by the state will be an important aspect of the provision of social assistance. Supporting bodies, in addition to servicing citizens, will independently identify needy categories of the population with an emphasis on the countryside, identifying low-income people through information systems.

Table 2.3 – SWOT-Analyze of digitalization in social sphere of Kazakhstan

Strengths	Weaknesses
The presence of GIS and GDB and NIS and PDB: - GDB of individuals; - GIS «Registration of acts of civil status»; - State Property Register «Real Estate Register»; - DAC UIS; - GIS «State Center for the Payment of Pensions (SCVP)»; - State portal of social services; - GIS «Labor Market» - Electronic Labor Exchange; - GIS «Electronic Employment Contracts»; - GIS «Disabled»; - GIS «Saktandyru»; - GIS «Register of pregnant and women of childbearing age»; - GIS «National DB (NEDB)»; - NIS «Kundelik», 6020 schools; - ChIS «Bilimal», 507 schools; - Numbers «Mektep.edu.kz», 145 schools; - GIS «e-Learning», 1075 schools; - GIS "UMS ESUVO; - Numbers «Platonus», 70% of universities; - CHIS «Sirius», medical universities; - CHIS «Univer»	*Absence / Availability:* – access to public information of GIS and NIS for social organizations; – vertical and horizontal GIS integration; – access to your personal information in GIS and GDB from the personal account of the EG portal; – a platform approach for «seamless» information interaction between GIS and NIS; – integration of GIS «Disabled» and GIS «VKK»; – unity in data in GIS and GDB; – several portals of the provision of social services; – a single point of entry into all ISs through EG; – a greater number of registered users of the EG portal (more than 50% of the population); – a centralized database of social status; – automation of business processes in primary sources; – a unified approach to the integration of electronic health passports into other IS; – update information about students for the deduction of insurance premiums by the state
Opportunities	Threats
– ensuring the integration of IS and providing access to all civil society; – creation of a single digital interactive map of social objects of Kazakhstan; – single entry point - a personal account of the EG portal; – centralized provision of personal information in the personal account of the electronic signature; – providing information with NIS; – the implementation of social services is proactive; - integration with GIS GVCVP on pension contributions and status of unemployed	– increased social tension due to lack of transparency in the social sector; – constant reform of the social sphere; – global trends: informal employment, cybercrime, technological unemployment, labor migration; – exclusion of inputting information from several sources; – low level of public satisfaction with the quality of medical care (48.13%); – the presence of a city without social status (12%); The presence of corruption in the calculation of social, payments, construction of facilities.
Note – Compiled by the author based on SWOT-Analyze	

Strengthening targeting will be achieving through the transition from a declarative to a proactive approach to public administration. Private and non-profit sector organizations will determine the target population with the formation of a database of social identification of the population, including those in need. They will be categorizing as recipients based on age, degree of restriction of life, life situation,

individual needs. Based on this information, the need for services and the amount of financing will be determined, targeted social services will be providing. Besides, as a practical recommendation, this study proposes a categorization of the population by social status.

2.2 Empirical data analysis

2.2.1 Orientation to the needs of the citizen as the basis of digital public administration in the social sector of Kazakhstan

According to the methodology for assessing the effectiveness of public administration of the World Bank, the provision of state social support is expresses, in the provision of social services [129]. There is a tendency to significantly increasing the number of public services, while the provision of electronic services is developing much more slowly.

This means that government bodies during this period did not carry out effective work to optimize and automate business processes for the provision of public services (figure 2.1). Between 2007 and 2015, the number of services in the registry has increased significantly (from 132 services in 2007 to 740 in 2018). Here 532 services (71.9%) have provided in combined form and pure electronic form (71.9%), form – 208 (28%).

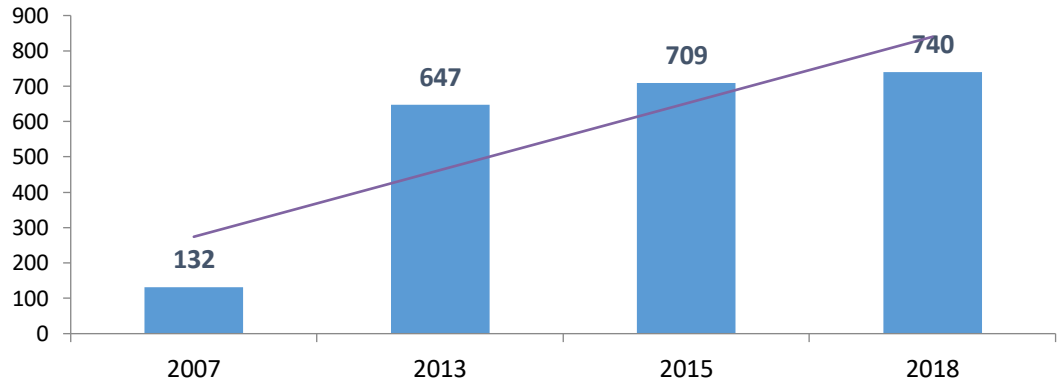


Figure 2.1 – Dynamics of the expansion of the register for 2007-2018

Note – Created based on the source [129, p. 116-128]

Based on the principle of Citizen-Centric Approach, it is necessary to reduce the number of public services in the register by optimizing and automating interagency (horizontal) and vertical business processes. To date, public services in the Republic of Kazakhstan are provided through the portal of the E-Government, state bodies and Public Service Centers (hereinafter - PSC), which is part of the Government for Citizens State Corporation.

According to official statistics, in 2015 the majority of public services in the Kazakhstan rendered in the traditional form directly by state bodies, their structural divisions and subordinate organizations (70% or 104,6 million public services).

Using the portal of the E-Government, 21% of public services rendered in electronic format, and 9% of public services provided through PSCs. In 2018, the

dynamics of the provision of public services has changed dramatically due to the expansion of the functionality of the e-Government, the development of digital infrastructure in rural areas and increased ICT literacy of the population [130]. As a result of all the changes, the number of services in electronic format has increased 7 times (up to 60%), through PSCs - 11 times (up to 40%) (figure 2.2).

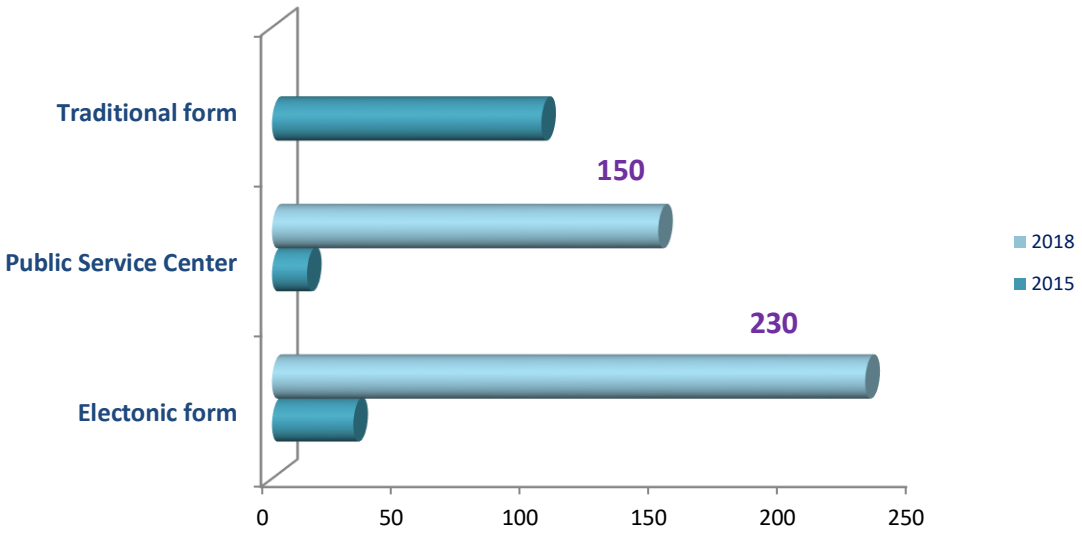


Figure 2.2 – The dynamics of the growth of public services through the EG

Note – Compiled by the author based on the source [130, p. 240-249]

In the framework of EG portal, more than 97 million electronic services have been providing. The number of registered users of the web portal amounted to more than 3,7 million people in 2015, over 8 million people in 2018, which is less than 50% of the country's population [131]. This indicates the lack of popularity and relevance of the EG portal and the need to review the portal functionality. The most popular services among the population on the EG portal are the issuance of address certificates from the place of residence: in 2015 over 12 million times, and in 2018 - over 16 million times this certificate has provided.

Since May 2019, the Government launched the provision of four state services for obtaining inquiries through the mobile application - Telegram-bot [132]. This process has reduced the number of submissions of this certificate through EG, but the need to print and provide local requirements remains the same. In order to implement the Citizen-Centric Approach in e-Government, it is propose that public information services be exclude from the register of public services.

Analyzing the Report of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan in 2018 on the provision of public services, we can see that out of 38 services, only one service has completely in electronic format. The 16 government services are in a combined version in electronic/paper form, and 21 services in paper form (figure 2.3) [133].

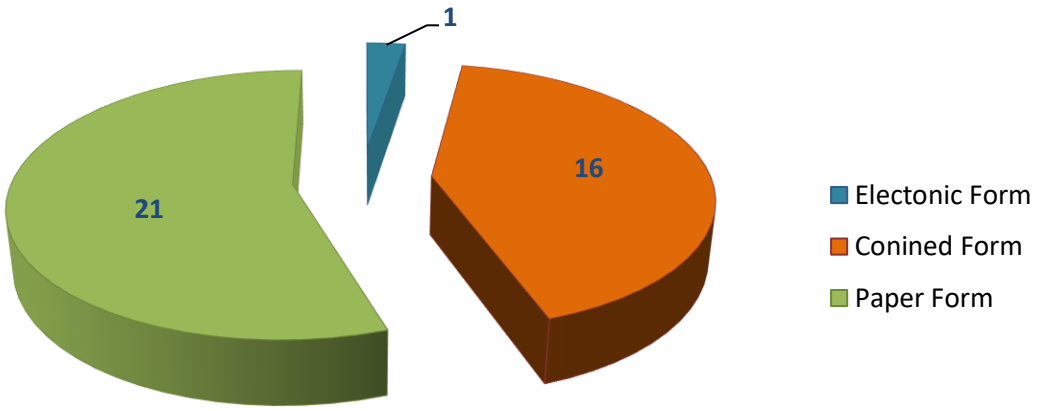


Figure 2.3 – The Provision of services Ministry of Labor and Social Protection of Population of the Republic of Kazakhstan

Note – Compiled by the author based on the source [133]

Analyzing another tool, it can be note that not all services are provides using the One-Stop Shops Single Window, the data for which are given in table 2.4.

Table 2.4 – Statistical data on the analysis of the use of a Single window «One-Stop-Shops»

Service mechanisms and bodies	Number of services
Through the PSC NAO GK «Government for citizens»	4
Combined, through CSCLEO, GO, EG portal, GFSS and UAPF	14
Community service center of local executive organizations	20
Note – Compiled by the author based on the source [134]	

Statistics of the provision of the public service «Issuance of information on the receipt and movement of funds of UAPF investors» for 2018 shows 7,444,227 given services, which confirms its demand among the population. This service can be excluded and displayed as information in the personal account of the EG portal [134, p. 16-21].

The problems of providing public services, as well as optimization and automation processes, have confirmed by the works of Kazakhstani scientists [135-137].

In January 2020, an updated register of 694 public services has approved [138]. This registry is groups by direction. However, the complexity of the analysis and search for social services remains because the executors of services are several government bodies. Based on the results of the registry analysis, it is proposing to revise 223 public services. There are 47 informational services in the form of references, conclusions, directions, notifications, and information. There are 17 services in this list on social issues. In particular, there are seven services on the

provision of medical services, 6 services on education, and four services on social protection issues (Appendix B).

The provision of public services is carry out based on approved standards and regulations for the provision of services, as well as the rules of the organizations providing special social services. The mechanisms of integration are describing and approves in joint rules of information interaction of the relevant state bodies with the consolidation of responsibility for the provision of data.

Using the concept of the Digital Proactive Government model and the results of a content analysis of joint orders, it is proposing to optimize 23 public social services in the Register of Public Services of the Republic of Kazakhstan (Appendix B).

Business process reengineering is possible by creating a unified database of social identification using the central database of the Ministry of Social Protection and Health of the Republic of Kazakhstan. An example of using the method of optimizing business processes based on the Digital Proactive Government model described in the first chapter have presented in figure 2.4.

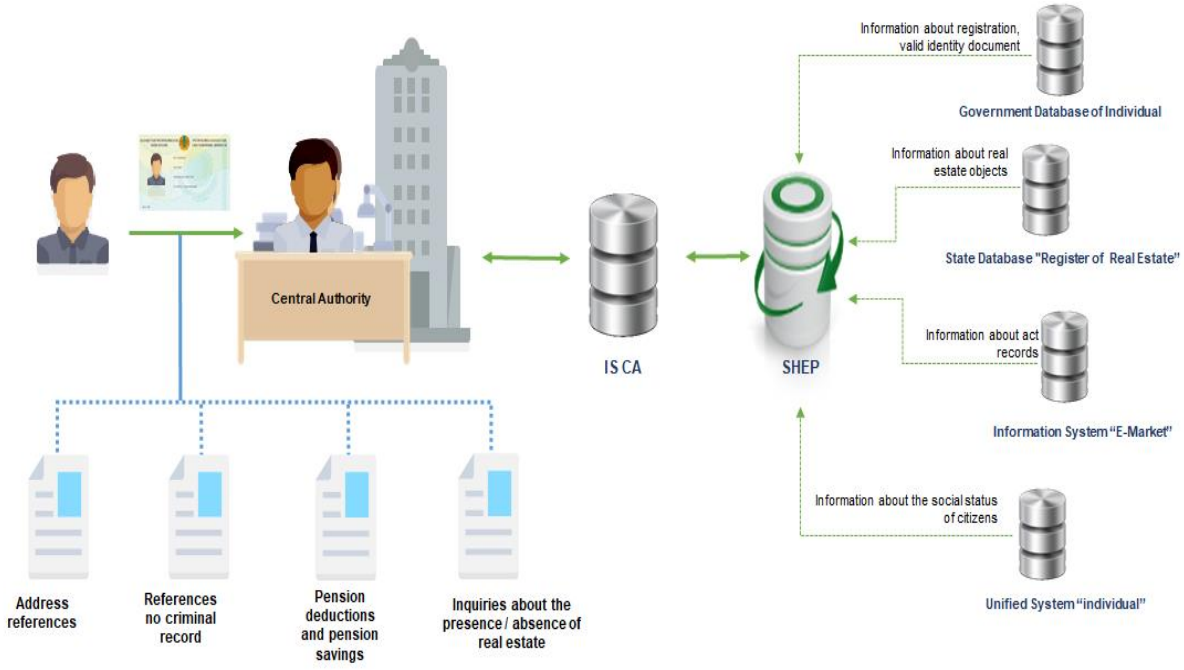


Figure 2.4 – The processes of obtaining public services informational nature «How it is» (4 state services)

Note – Compiled by the author based on the source [138, p. 1517-1527]

This example uses four services for issuing an address certificate, certificate of no criminal record, certificate of pension deductions and pension savings, as well as the certificate of presence/absence real estate.

Based on analyzing the current processes of providing these public services using the principles of the Digital Proactive Government model, *recommendations on optimizing the processes* for obtaining the above information have been preparing (table 2.5).

Table 2.5 – Recommendations for the optimization of business processes to 4 services

Proposed measures to optimize the state services
the receipt of these certificates should take place automatically from the GDB at the request of state bodies without citizen participation proactively (the principle of flexibility, proactivity and resource efficiency)
requests should be carried out by the GO through the Digital Proactive Government platform using the Open API services (open architecture platform principle and compatibility)
integrate IS and DB to eliminate bureaucratic procedures, the so-called “seamless” horizontal and vertical integration (Citizen-Centric Approach principle)
to exclude a part of the above-mentioned public services from the registry, as it does not require a request from the user (Citizen-Centric Approach principle)
ensuring the security and confidentiality of data should be ensured by legal regulation (principle of security and confidentiality)
Note – Compiled by the author

At the same time, confirmation of the use of personal data can be implementing through mobile applications, as well as in the personal account of the E-Government portal (figure 2.5). Functional solutions for implementing this concept and model of the Digital Proactive Government are describing in chapter 3.

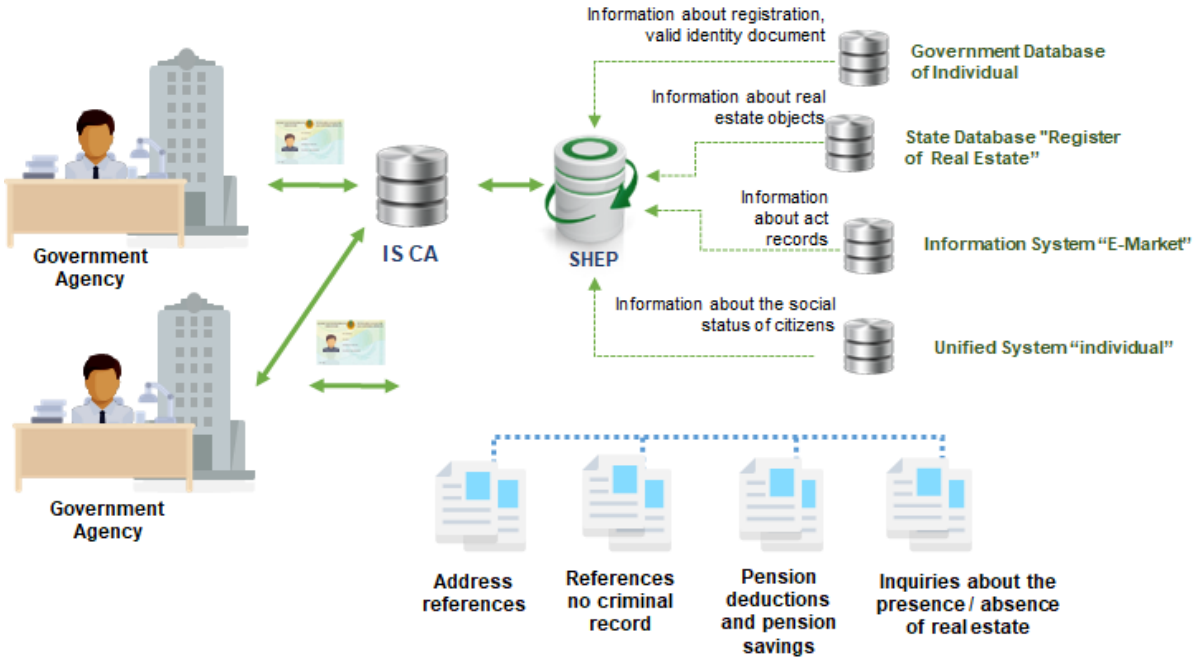


Figure 2.5 – The processes of obtaining references directly from the GIS «How it should be» (based on 4 services)

Note – Compiled by the author

2.2.2 Analysis of the level of public satisfaction with the quality of the provision of state social services

In accordance with the legislative Republic of Kazakhstan, annual monitoring of the provision of public services is carrying out. In addition there are sociological

studies are conducting to assess the level of satisfaction of the population with the quality of the provision of public services. In 2018, the Sage Research Center conducted public monitoring of the quality of public services, interviewed 10,000 service recipients in all regions of Kazakhstan for 60 public services.

When conducting public monitoring, the following data collection methods used:

– a questionnaire survey of service recipients from the population (individuals) in accordance with a selection of public services;

– the mystery shopper method aimed at identifying the level of accessibility, comprehensibility, simplicity of information about a public service;

– focus group discussions;

– in-depth interviews.

To assess the quality of public services, 25 studies have conducted using the «mystery shopper» method. There 60 focus group discussions held with the participation of recipients of services. Here has needed to identify the problems of providing the service, their causes, and formulating specific proposals for improving the procedure for their provision. At the same time, here have using qualitative methods (in-depth interviews). Because not all services can, hold focus group discussions. In addition, the 28 in-depth interviews have been conducting in order to obtain the opinions of representatives of the target audience, industry experts from the recipients of services, and service providers [139].

According to the above quality assessment methodology, public services evaluated based on the following indicators:

1) the quality and availability of information - satisfaction with the service as a whole, as well as its components: the timing of the service, the number of required documents and the technical complexity of the service;

2) the rendering procedures (electronic form of rendering): ease of site navigation (orientation system on the site), ease of filling out and submitting documents, service languages;

3) the result of the service: satisfaction with the result of the service, compliance with the standards of public services [140].

Analysis of the results of public monitoring of the quality of the provision of public services on social issues

Our recommendations and suggestions have been forming to improve the standards and regulations for the provision of these services. These proposals have based on the results of the analyses using the method of optimizing business processes. For conducting an analytical survey, two social institutions have selected, which appear in electronic and combined formats. These services include the appointment of pension payments by age, assignment of benefits for childbirth and childcare. The results of these analyses of the data of the two services have given below.

Public service – Assigning of pension payments by age

In total, 208 respondents have been interviewing, of which 78% applied to the public service centers and 27% to the state agency. The application has received on the EG. The result of the provision of public services has issued through the

Government for Citizens State Corporation, the web portal www.egov.kz within 10 business days. Form of service: electronic (partially automated) and (or) paper. The result of the provision of EG is the notification of the appointment/refusal of pension payments by age [141].

In accordance with the results of the Sage Center study [139, p.107], the satisfaction with the quality of this service has 4,68 points. The share of completely satisfied with the service individuals was 73,1% of respondents. Another 73,2% of respondents were completely satisfied with the clarity and reliability of the information. Here the evaluation has 4,67 points. Based on the study, the other 72,8% of the respondents were not satisfied with the terms of service provision by 4,65 point (figure 2.6) [142].

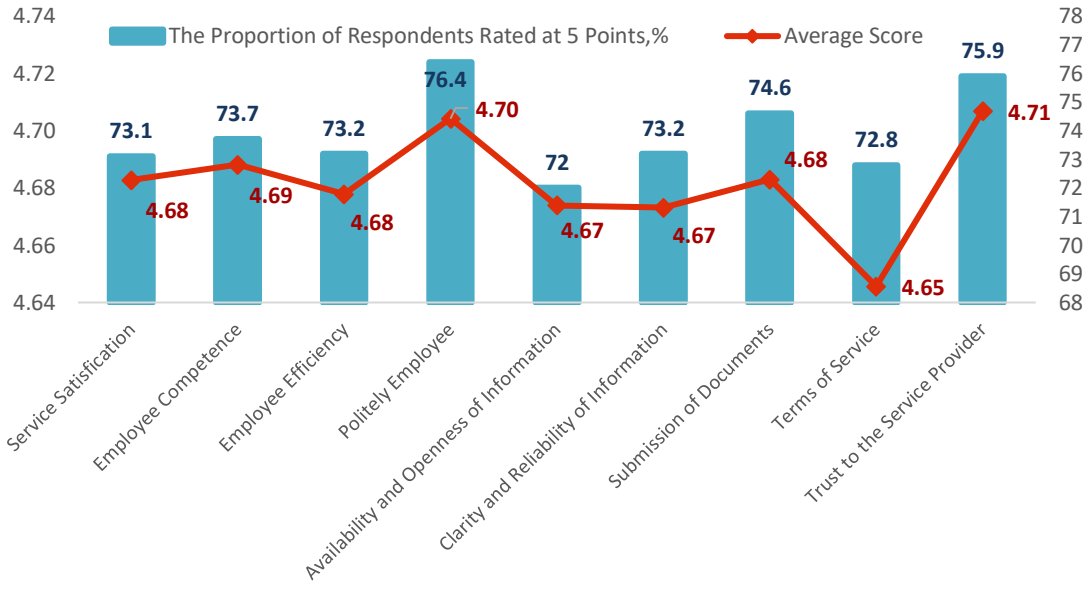


Figure 2.6 – Key satisfaction indicators for a service «Appointment of retirement benefits by age»

Note – Compiled by the author based on the source [142, p. 261-263]

As part of the study, Center staff conducted a series of focus group discussions with respondents who received service in the public service center. Overall, satisfaction is over 70%.

The Research Center has developed the following recommendations [143]:

1. Firstly, work is needs to improve the literacy of the population near retirement age.

2. Secondly, it is necessary to provide assistance for obtaining documents in the presence of seniority in other regions of the country and in states.

3. Thirdly, it is necessary to ensure transparency in calculating the accrued amount of pension payments and the interest of the service provider in improving the quality of public services.

According to the analysis of the approved standard and the regulations of the State Institution, it is possible to present in a graphical form the business processes «As is» (figure 2.7).

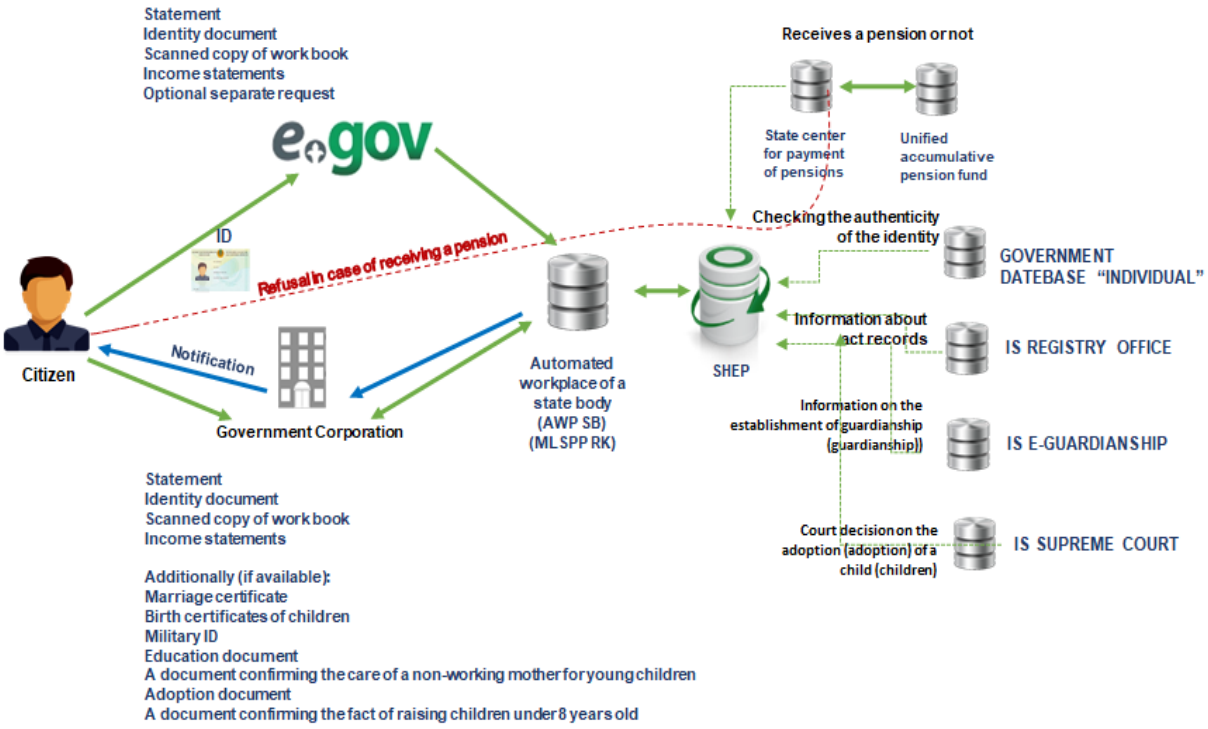


Figure 2.7 – The procedure for the provision of «the appointment of pension payments by age» – «As is»

Note - Compiled by the author

In finally according to the results of the analysis of the standards, the regulations of public services, as well as secondary data of the Survey there have identified problems of the provision of services that presents in table 2.6.

Table 2.6 – The problems of the provision of services according to the Survey

Identified problems in providing services
It needs to present all documents that are in the GIS and DB (marriage certificate, birth certificates of children, and court decision on adoption, document on the establishment of guardianship, guardianship information, acts of registration, and other additional documents).
It needs to confirm the length of service. Service recipients bring workbooks, paper-supporting documents. It is possible to have corruption risks arise when calculating pension payments.
It is necessary to submit a statement of income that provides for a recount of accrual of pension. It is presenting in a scanned version.
There is a lack of transparency in calculating pension accruals. The legal regulation of the calculation of pension payments is changing very often.
There is no instruction on the rules and procedures for calculating pensions, using correction factors, centralized regulatory information on this issue. As a result, citizens with the same length of service and pension contributions receive different pensions.
There is human factor, lack of employee interest in the quality of service, low legal literacy of the population. When providing this service in paper format, many additional documents are request. These documents are not in the standards of public services. Often due to employee errors, the pension is incorrectly calculated.
Note – Compiled by the author

Practical recommendations on the Digital Proactive Government model and on the basis of the principles of orientation on the needs of citizens, proactivity, social justice, flexibility, reliability and openness, as well as a graphic model of the service «As it should be» are presented in the third chapter.

Public service - assignment of benefits for childbirth and childcare

In total, 203 service recipients have surveyed for this service. State bodies are the territorial division of MLSPP RK.

The main results of the study on this service are the following. The 73.4% of respondents praised the quality of the service. The satisfaction level of service recipients of this service has amounted to 4.68 points out of the maximum five.

At the same time, only 59.4% rated the clarity and reliability of the information on this service as “excellent”, and the availability and transparency of information 62.7% (figure 2.8) [144].

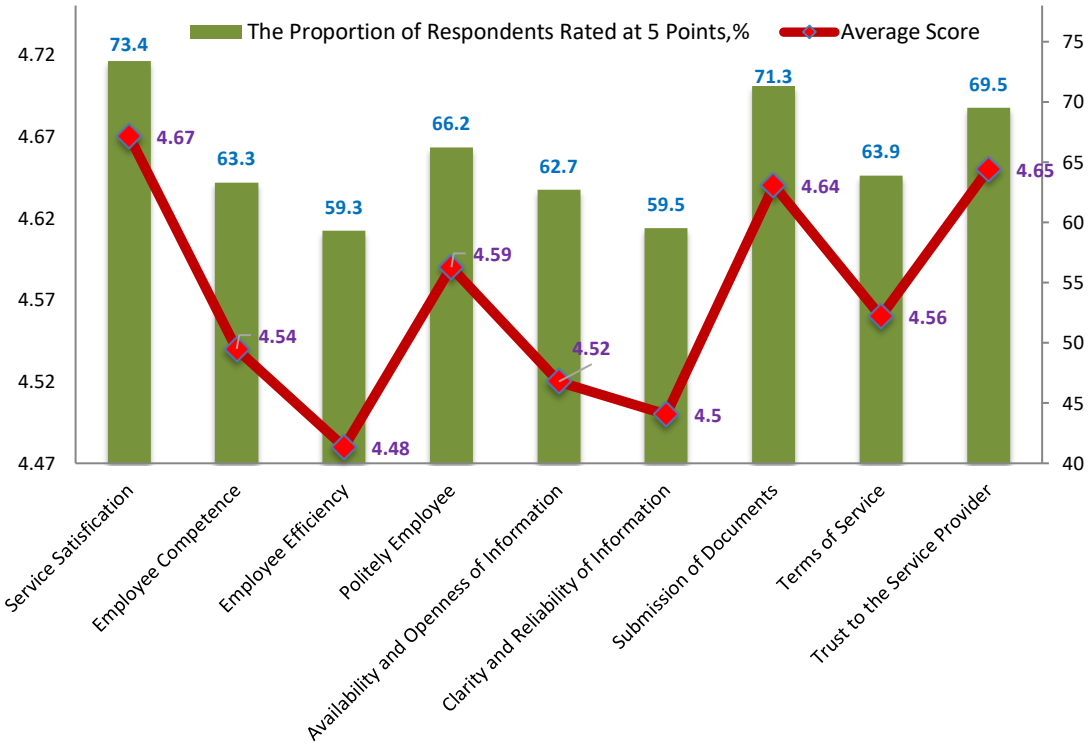


Figure 2.8 – The main indicators of satisfaction with the service «Assignment of benefits for childbirth and childcare»

Note – Compiled by the author based on the source [144, p. 10-13]

Most recipients of benefits apply for services through the State Corporation (94.6%). The application process is facilitating by the ability to apply online. The service is automates. However, only less than 10% applied online. It is most likely due to the lack of awareness of service recipients on how to get it without leaving their home.

The Research Center has developed the following recommendations:

– firstly, it is necessary to create conditions for greater public awareness of this service in terms of where to go, what documents to provide. As well as recipients of the service should be able to get advice on the size of the allowance and the accrual scheme. Poor public awareness is the reason for the poor use of this service online. The lack of information on the results of a survey among service recipients about the availability of the opportunity to receive the service in a composite manner (together with other services, such as obtaining a birth certificate) confirms the insufficient level of informing the population;

– secondly, there is a need to create a separate window for mother and child or to provide this service out of turn. Given the fact that this allowance is issue by a mother with a baby, her personal presence is required to apply for the allowance.

For this service, the results of the study show a good level of satisfaction. Many respondents note that with the transfer of services to the State Corporation "Government for Citizens", the process of processing childbirth and childcare benefits has been simplified [145].

Below is a simplified graphical diagram of the provision of this public service, the construction of which was carried out based on regulatory documents (figure 2.9).

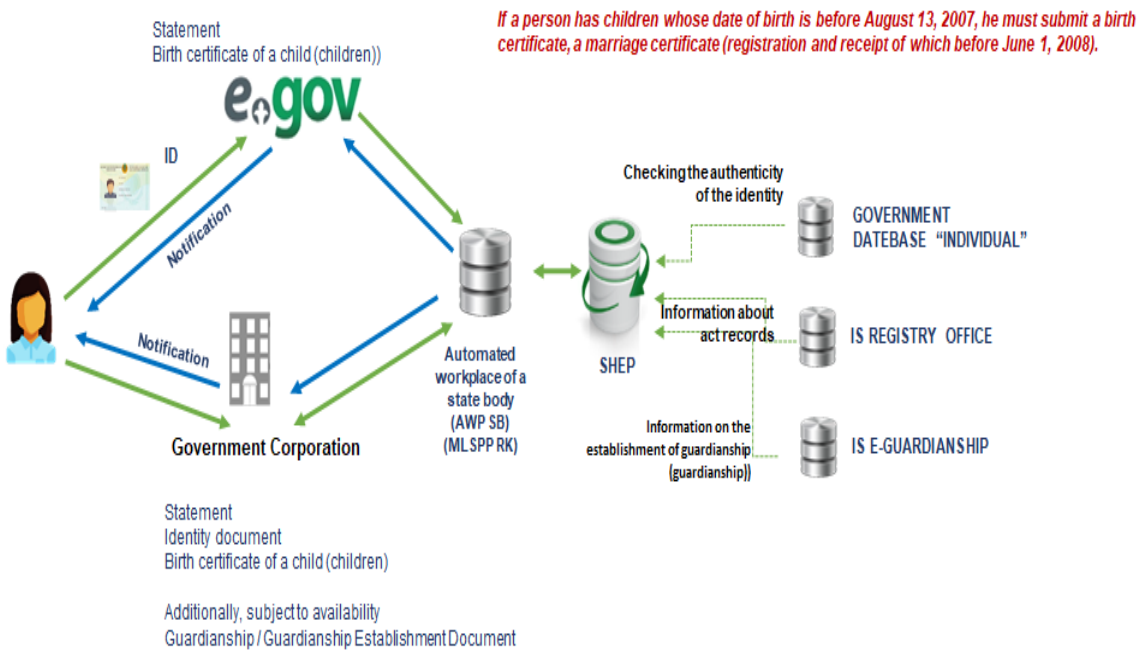


Figure 2.9 – The Procedure for providing SS Assignment of benefits to the birth of a child and child care «as is»

Note – Compiled by the author

According to the results of the analysis of the standards, regulations of the public service, as well as secondary data on the quality of the provision of this service, several problems have been identifying in the provision of the service indicating in table 2.7.

Table 2.7 – The problems of the provision of services according to the Survey

Identified problems in providing services
The ambiguity of the provision of this service, the process of submitting documents is simple; the standard does not describe the procedures for calculating the allowance itself and the parameters for calculating it
Poor public awareness and awareness causes the inefficient use of this service, only 10% of respondents received online
The stages of the provision of this service are not described in the GU standard; indicated the requirement to open accounts in Kazpost JSC and Halyk Bank JSC
Information about the presence of children who received birth certificates before August 13, 2007 and marriage certificates before August 1, 2008 is not clear; as a result, users traditionally turn to PSCs of the State Corporation
Note – Compiled by the author

Practical recommendations for optimizing the procedure for the provision the this service, as well as a graphical model of a simplified scheme for the provision of this service has indicated in chapter 3.

2.3 Assessment of maturity of the E-Government of Kazakhstan

The situation that has developed because of the Coronavirus Pandemic has shown a real need for the development of digitalization not only in the public sector but also in the whole process of society. According to political scientist D. Satpayev, the situation with Coronavirus has revealed the main problem of public administration. It is a lack of qualitative analysis and forecasts. The scientist also described the problems of digitalization of social issues, in particular, the lack of a systematic approach to the digitalization of state functions [146].

The opinion of expert practitioners is inclined to the need to develop and improve the processes of the digital transformation of society and the economy. It can give the rapid response of the government to emergencies in the country [147].

The formal execution of program documents, the use of inaccurate reporting data, and the failure to achieve the planned target indicators showed the real situation of digitalization in the country. There is a lack of preparedness of using the electronic signature for the provision of services in full electronic format. There is an inconsistency of the reported data and false information. The same time is the low ICT literacy of the population.

Another problem is connecting with the underdevelopment of Internet services, online stores, and online services for the delivery of works, goods, and services. The insufficient digitalization of state functions and other shortcomings of the digital transformation of society is a fact.

To assess the maturity of e-Government, the Digital Government Maturity Assessment Model of Gartner Group has been using. This model consists of five (5) stages of maturity of the Digital Government, presented below in table 2.8. It takes into account the latest trends in the development of digitalization of the public sector [148].

Table 2.8 – Five (5) maturity stages of the Digital Government

Stage table of contents	Stage table of contents
Initial, e-Government	Informational portal
Developing, Open Government	Providing open data to expand information services and providing public services in electronic format
Defined, Data-Centric	The main attention is paid to data, observance of reliability, elimination of duplication, integration of information databases
Managed, Fully Digital	It provides for the optimization and full digitalization of business processes, vertical and horizontal integration, the use of BigData technologies for building analytical systems
Optimising, Smart	Using digital innovations, build deeper analytical systems based on integrated databases and open resources
Note – Compiled by the author based on the source [148, p. 600-611]	

According to this assessment model, the development of EG and its implementation in Kazakhstan can be dividing into 3 (three) stages, which determine the maturity stages of the E-Government:

– 2006-2011: It is the first stage (first stage) of creating an information portal for the E-Government, electronic infrastructure, state databases for the registration of individuals and legal entities, a list of state IS, the legal framework for informatization (The Law of the Republic of Kazakhstan «On Informatization» dated January 11, 2007 year number 217-III);

– 2012-2016: It is the second stage (second stage). There is the transformation of the E-Government portal, the creation of a transaction portal, automation of the functions and processes of state bodies. In addition, here is the Intranet of the portal of government bodies, the Unified Postal Service, the Reference model of government bodies, State Corporation «Government for Citizens». It is improving the legislative framework for Informatization;

– 2017-2020: It is the third stage (third stage). There are the deep integration of IP (vertical and horizontal integration), data analysis, building systems of interaction and data verification, digitization of historical data until 2006.

Thus, the development of EG is based on the three stages of maturity of EG. Within the framework of this work, the Digital Proactive Government model has studied focusing on meeting the needs of citizens and businesses (it is the next stage of maturity).

2.3.1 Advantages and disadvantages of digitalization of public administration in the social sector based on expert interviewing

Digital transformation in the public sector means new ways of working with stakeholders, the creation of new forms of service delivery, and the implementation of new forms of interagency relations between government and citizens [149]. The purpose of the expert interview is to determine the vision of the digital transformation of the social sphere, the problematic issues of digitalization of public administration in the social sphere, the prospects for the development of digitalization to increase the efficiency of the Government.

To explore expert opinions on the issues of digitalization of the social sector, the interpretative approach of expert interviewing used, which is different from the descriptive approach. The interpretive (naturalistic) approach to the problem under study is focusing on the qualities of the objects studied, the processes and values that occur in the activities of the interviewed experts. This allows us to present the opinion of experts on the implementation of state social policy from within, get an assessment of real processes. In addition, it can us explanation of possible inconsistencies in the implementation of digitalization programs. At the same time, it indicates to the problems of the strategic course of digitalization, provides conceptual solutions to these problems from a practical point of view [150].

The experts at the national and regional levels of Government see that internal pressure and resistance is due to changing environmental technologies and requirements. Therefore, it becomes clear that citizens' requirements play a much more important role.

Digital public administration provides for the direct participation of the Government in the implementation of digital transformation. It provides ensures the effective and efficient implementation of the digitalization of state functions. Therefore, according to the adopted policy of digital transformation of the state at the government level, the CDO positions have created. Government offices have created the digitalization offices led by CDO. Digitalization offices carry out methodological, regulatory, technological functions. These functions related to the creation, integration of information systems, automation of internal business processes of the ministry. As well as they regulate the digitalization of government functions and services in the relevant industry. In addition, they ensure the harmonization of digital initiatives between government agencies, the business community, IT companies, technology parks, universities, and the scientific society [151].

In 2018, CDO posts created in five ministries of the Government of Kazakhstan. There are the vice-ministers leading the digitalization offices and responsible for the digital transformation of the industry. First, the processes of digital transformation have been focusing to the digitalization of public administration in the social sector. Therefore, several vice-ministers have been appointing for digitalization in the Ministry of Education and Science of the Republic of Kazakhstan, Ministry of Healthcare of the Republic of Kazakhstan, Ministry of Labor and Social Protection of Population of the Republic of Kazakhstan, and in the Ministry of Finance of the Republic of Kazakhstan [152].

Data collection procedure for expert interviews

Expert interviews conducted individually, in person, as well as using online video tools (for example, Skype, WhatsApp) or using phone calls. Each of these methods of conducting interviews has provided for simultaneous communication and an instant response without prior familiarization in order to obtain an expert’s operational opinion based on his knowledge, competencies, and experience. The survey in the interview format gives the advantage that the results of the interview can be use in research activities. As well as it can be used in the development of strategic documents of public administration.

The script for the interview has included information about the research project, the interviewer, as well as information about the location and duration of the interview. The protocol of the interview, research questions have agreed on for correctness and ethical standards. At the end of the interview, the experts have asked to add any comments, ideas, suggestions, and initiatives regarding the topic of the questions. The average interview takes from 15 to 60 minutes.

In the framework of the study, the expert interview has conducted on the leadership of the ministries in charge of the digitalization of the social sector. To assess the problems and prospects for the development of digitalization of the social sphere and the implementation of the Digital Proactive Government model, 9 senior managers of the ministries were interviewed (Appendix C).

Scenario for conducting an expert interview

The purpose of the expert interview is to obtain expert opinion on the formation and implementation of state policy in the field of digitalization, the introduction of digital/e-Government in the Republic of Kazakhstan. As well as it is possible to get information on the opportunities and risks of the digitalization process in the social sphere of the country. The interview scenario (Appendix C) consists of 24 open-ended questions that have grouped into seven sections (table 2.9).

Table 2.9 –Interview scenario - Interview question groups

Interview Questions
1
History of state policy in the field of digitalization and implementation of E-Government in Kazakhstan
History of state policy in the field of digitalization and implementation of E-Government in Kazakhstan
Problems of implementation of the Electronic, Digital Government in Kazakhstan
Prospects for digitalization of the public sector in Kazakhstan
Digitalization of the social sphere
Involving citizens in the digitalization process
Socio-demographic characteristics and competencies of the expert
Note – Compiled by the author

In this case, the main questions, the answers to which planned to be obtaining by summarizing the answers received. In the expert interview were the following:

1. What problems exist with the digitalization of public administration in general and in particular in the social sphere?

2. What solutions can improve the implementation of the Digital Government?

3. What are the prospects for the development of the Digital Government in Kazakhstan?

4. How can the involvement of the population affect the process of digital transformation of the state?

Analysis of the results of expert interviews

The age of the interviewees is from 25 to 50 years, the education of the interviewed is higher, mainly technical (78%). Of all the respondents, only 22% are female:

1. Existing problems of digitalization of public administration in general and in particular in the social sphere

The majority of respondents noted that the main reasons that impede digitalization in the social sphere are the lack of a material and technical base, the lack of readiness for digital infrastructure, poor Internet in rural areas. They indicated the low ICT literacy of the population and the lack of interest of the population in using public services in electronic format. Only one respondent replied that the reason is the poor participation of the population in social processes. He mentioned the need to involve citizens in the processes of digital transformation.

According to one of the respondents, the big challenge to the digitalization of the public sector is the reluctance of civil servants to use digital technologies in their work, to develop themselves. However, civil servants continue to use paperwork and work as before, although there are all the necessary tools and working conditions in digital format. It is mentioned the weak motivation and interest of public servants in the optimization and digital transformation of public administration;

2. Decisions/proposals for improving the implementation of the Digital Government

In general, respondents (Appendix D) believe that the Government's actions are correct, positive progress has been observing. It is necessary to continue the implementation of the state program «Digital Kazakhstan» and digitalization projects of the relevant industries. They think that need to conduct informational and explanatory work with the population, develop digital infrastructure, strengthen Internet coverage in rural areas, and increase the computer literacy of the population. In addition, several respondents noted that improving the digitalization of public administration is possible by increasing funding, creating state information systems, and integrating information systems;

3. Prospects for the development of the Digital Government in Kazakhstan

According to interviewed experts, the prospects for the development of the digital transformation of the state are to digitalize all sectors of the economy, the social sector to ensure transparency and reduce the possible risks of corruption. It is also necessary to ensure the translation of all public services into electronic format, to automate the internal business processes of state bodies. One respondent believes that it is necessary to structure and optimize the business processes of the social sphere since there is chaos in the performance of state functions. Openness and transparency can be realizing using the more effective interaction between the government and citizens, and between state bodies. They will be to work as a single mechanism.

Three respondents believe that it is necessary to use data from government agencies to build analytical systems and formulate forecasts in the social sphere. In addition, a public servant should receive information with the click of a button. It will exclude manual data entry, ensuring the total digitalization of all business processes.

It is also necessary to develop your Kazakhstani software solutions, work on the development of human capital, and the quality of education;

4. The impact on the process of digital transformation of the state in terms of population involvement

According to the majority of respondents, the involvement of citizens in digitalization processes is cause by a low activity of the society and ICT literacy of the population. According to two respondents, the low involvement of the population is associated with a lack of confidence in state social initiatives and an unwillingness to explore new digital opportunities. According to one respondent, some government projects are quite convenient to use, such as the e-Government portal for filing a tax return. However, not all public servants are renting online, because they do not study and are not interested in new tools. Similarly, people are not interested in using digital technology in everyday life.

Experts describe a series of results that can be achieving through digital conversion. Our analysis is dividing into outputs, results, and impacts, that provide represent the long-term effects of digital transformation on an organization or its ecosystem as a whole. The results of an expert survey show that government managers are striving to show that government policy in the field of digitalization is strategically structuring correctly. There are analyzing mistakes of the past and unsuccessful experience in implementing previous government programs and projects. Many respondents understand that the target group of state social reforms is the population. Most civil servants believe that digitalization is the provision of public services in electronic format. However, local state units are more effectively considering deep integration, optimizing data collection, and using resources.

Conclusions from the analysis of expert interviews

Because of the analysis of the above interviews, we can draw the *following conclusions:*

Firstly, not all government leaders are interested in the historical background of government programs and projects, the analysis of problematic issues of previous government projects, and the history of the emergence and initiation of government projects. As a result, the government often repeats the mistakes made in implementing IT projects. The new government managers start new initiatives. There is no continuity in the development of already developed solutions.

Secondly, the majority of respondents interviewed are limited to considering issues of their industry alone, not using a comprehensive and systematic approach to public administration. The social sphere is distributing among several state bodies. Considering them individually causes too much problems in the digitalization of the social sector.

Thirdly, the analysis of the data showed that government managers (below the level of the vice-minister) are more concerned with the current issues of implementing the already adopted documents. They do not study the strategic directions of digitalization and without analyzing the current situation of digitalization of public administration as a whole. Almost 90% of respondents can evaluate the level of development of e-Government. It is necessary to develop digital

leadership competencies among state managers in order to increase the efficiency and effectiveness of their activities.

Fourth, the majority of public servants see the problems of implementing the Digital Government, low ICT literacy of the population. Although more than 50% of the population is register on the e-Government portal. It is necessary to revise state digitalization projects in terms of optimizing the processes of obtaining state support for the population. Here, as a solution, the model of a Digital Proactive Government is proposed. The fundamental principle of that is the orientation to the needs of citizens.

Fifthly, it can be concluded that not all public managers participate in conferences, develop their knowledge for the evaluating the suggestions of the respondents regarding the digitalization of public administration. Many of them do not know the state's mission, the prospects of creating Smart, Agile, and Intelligent Government [153].

2.3.2 Content analysis of the functionality of e-Government portal from the point of view of the Citizen-Centric Approach

The main principle of reforming the public sector and creating the "The Hearing State" is customer focus increasing the satisfaction of the population and business with public services. They began to use the EG portal during the 15 years of the functioning of the E-Government. Due to its conservatism, it is difficult for the population to use many portal solutions, allocate time to search for resources on the Internet, register, and remember the username and password for entering various government resources of the government. It is necessary to use a single entry point - the EG portal. The concept of expanding the e-Government portal is to centralize all the necessary information based on the social status of the user (citizen) and the dynamic formation of his personal account. Based on the results of the content analysis of the EG portal, shortcomings in the implementation and development of electronic and IS having identified (table. 2.10).

Table 2.10 – Shortcomings in the implementation of the EG

Identified defects of realization of EG
Services are sorted by areas: education, social protection, healthcare, etc., although education also refers to the social protection of the population; The public disability benefit assignment service refers to social protection, not health care
It is necessary to integrate the «payments» section into your personal account with automatic generation of accounts for payment: tax deductions, fines, penalties, utilities, commissions, transfers and other types of payments
There is no news block on the first page on the portal; placement of personalized news relevant to his social needs should be displayed in your account
Creation of new applications: electronic labor exchange, electronic labor contracts, atlas of professions, social services portal, social map - should be synchronized with the general concept of single sign-on and displayed in your account
Note – Compiled by the author

Conclusions to the second chapter

In the second chapter, because of the analysis of the current situation of the public administration digitalization in Kazakhstan, it has been carrying out the following works:

1. The analysis of the current situation of the digitalization of public administration in the social sector has made. It consists of the analysis of the state social policy of Kazakhstan in the context of digitalization.

2. There have SWOT-Analyze the digitalization of the social sector in terms of the ideal model of a Digital Proactive Government.

3. The analysis of empirical data has performed (taking into account the methodology for assessing the effectiveness of public administration of the World Bank).

4. There was an analysis of secondary data of public monitoring of the quality assessment of the State Institution based on the Report of the Sage Research Center.

5. There was a retrospective analysis of the maturity of the E-Government of Kazakhstan was performed using the Gartner model.

6. There was an analysis of the results of expert interviews of civil servants in senior positions and overseeing the digitalization of the social sphere.

7. The content analysis of the business processes of the provision of two-state social services and the functionality of the e-government portal has carried out. As well as it was identified shortcomings in the implementation of e-Government.

3 IMPROVING THE PROCESS OF DIGITALIZATION OF PUBLIC ADMINISTRATION IN THE SOCIAL SPHERE OF THE REPUBLIC OF KAZAKHSTAN

3.1 The mission and goal of digitalization of public administration in the social sphere

Digitalization Mission of the government services is to improve the quality of life of the population of the Republic of Kazakhstan through the digitalization of public administration. The goal of the digitalization of government services is transformation e-Government into a Digital Proactive Government. It wills a platform of the 21century to improve the quality of service for citizens of the country.

The main idea of the digitalization of public administration is to improve the quality of public services to society and reduce the number of services through the integration of databases. All necessary services should be proactively present in the personal account of citizens of the Republic of Kazakhstan. The government should be ready to deliver and receive information, digital services at anytime, anywhere and from any device. The provision of transactional services should reduce the input of information. In this case, the providing of service must select its information from existing databases. Otherwise, it will cause a huge pool of unnecessary requests and unnecessary efforts.

From the analysis above (the first and second chapters), it is obvious that is a lack of coordination in the implementation of state programs and joint interest. It is the reason for incorrect results, isolation, individual databases, duplication of functions, and a loss of meaning in the idea of digitalization. In order to keep up with the speed of technological changes, it is necessary to design ICs to ensure compatibility, openness, and accessibility.

The results of the analysis of the international level and the study of the current state of digitalization in the country summarized that in order to complete the process of digitalization of the public administration, it is necessary to develop legal regulations, joint standards of interaction, and respond in a timely manner to the lessons of the past. It is necessary to create high-quality structured data. It needs to provide maximum multi-channel access to this data using the basic principles and a coordinated approach to the confidentiality and security of user information.

The study, based on the obtained analytical and empirical results, presents practical recommendations. These recommendations include the development of a separate Law of the Republic of Kazakhstan on the categorization of the social status of citizens of the country. It needs to make changes to the State Register of State Institutions and to joint orders of the approved rules for the information interaction of civil society and there IS. There are includes change in the procedures for the provision of two services in the social sphere.

Recommendations include proposals on expanding the functionality of the personal account of the E-Government Portal, based on meeting the social needs of the citizen. All these changes will simplify and improve the lives of citizens, interest users in using the electronic portal, provide them with guarantees, benefits from the effective use of their information.

In this regard, the main tasks in terms of improving the process of digitalization of public administration in the social sphere are as follows:

– develop a model of informational interaction of the government database to actualize the social status of a citizen of the Republic of Kazakhstan;

– provide quality structured data;

– provide access to government bodies and users at anytime, anywhere and from any device to this information to reduce time, costs of collecting information, as well as use relevant data for making proactive management decisions;

– provide the possibility of transactional requests for updating data directly to users to ensure the speed of data updates;

– provide access to private owners of information system to expand the use and provision of quality information in order to update the social status of a citizen of the Republic of Kazakhstan.

The key direction for the transformation of approaches to the provision of services and the interaction of the state with citizens and businesses will be the transition to the principles of open architecture (Platform Approach - Open API). Here, it will be building a qualitatively new level of cooperation with the commercial sector. This allows you to implement a new management model. In this model, the citizen not applies to government agencies for services. Opposite to it, the state, understanding the needs of citizens, contact him to provide services without the need for a physical visit to institutions.

This model provides for the formation of a central single database of social identification (Platform Approach). The updating of information is planning to be carrying out from state and non-state sources of information. In addition, the platform approach involves reducing the number of portals, applications, and having multiple usernames and passwords. The principle of single sign-on through the EG portal and the provision of access to all IS, applications, and data will be applied.

The improved model of information interaction, the DPG, has based on the concepts of determining the social status of a citizen. It has based on seven fundamental principles, studied earlier, and are showing below in table 3.1.

Table 3.1 – The seven principles of forming a Digital Proactive Government model

Principles	Explanation
Citizen-Centric Approach	- orientation to the needs of citizens;
Open and Transparency	- openness and transparency;
Trustable Data and Proactively	- data reliability and efficient use of information in all spheres of human life;
Build Once, Use Many Times, Resource Efficiency	- single entry of information, multiple use in all IS;
Flexibility and Interoperability	- flexibility and compatibility of data of different IS;
Privacy and Security	- security and privacy;
Shared Digital Platform	- platform approach: simplification of the “seamless” integration of GDB and OGBD, and the creation of new services
Note – Compiled by the author based on the source [33; 153, p. 197]	

As previously indicated, one of the basic principles is the *«Shared Digital Platform»* (SDP), which defines the key direction of the transformation of the digitalization of GS. This principle (SDP) is to create a single infrastructure (architecture), integrate state databases, determine the owner, and responsible person for updating the data. The platform approach provides for the development of four types of architectures in the DPG model that indicated below:

– it is the architecture of information and communication infrastructure (equipment, end devices, Internet, cloud solutions);

– the architecture of information systems provides for the deep integration of public, private, and non-profit information systems through data exchange buses (Open API);

– data architecture is especially important in terms of resource efficiency of their use, systematization, and structuring of this information, elimination of duplication, conflict, the use of information in the education system, retraining and advancing training;

– it is the architecture of activities regarding the optimization of business processes of public administration, access to information of other government agencies, reengineering of government bodies.

In accordance with these types of architectures and based on a platform approach, an architectural platform approach has applied in the design and development of a model of the Digital Proactive Government of the Ministry of Education and Science of the Republic of Kazakhstan (figure 3.1).

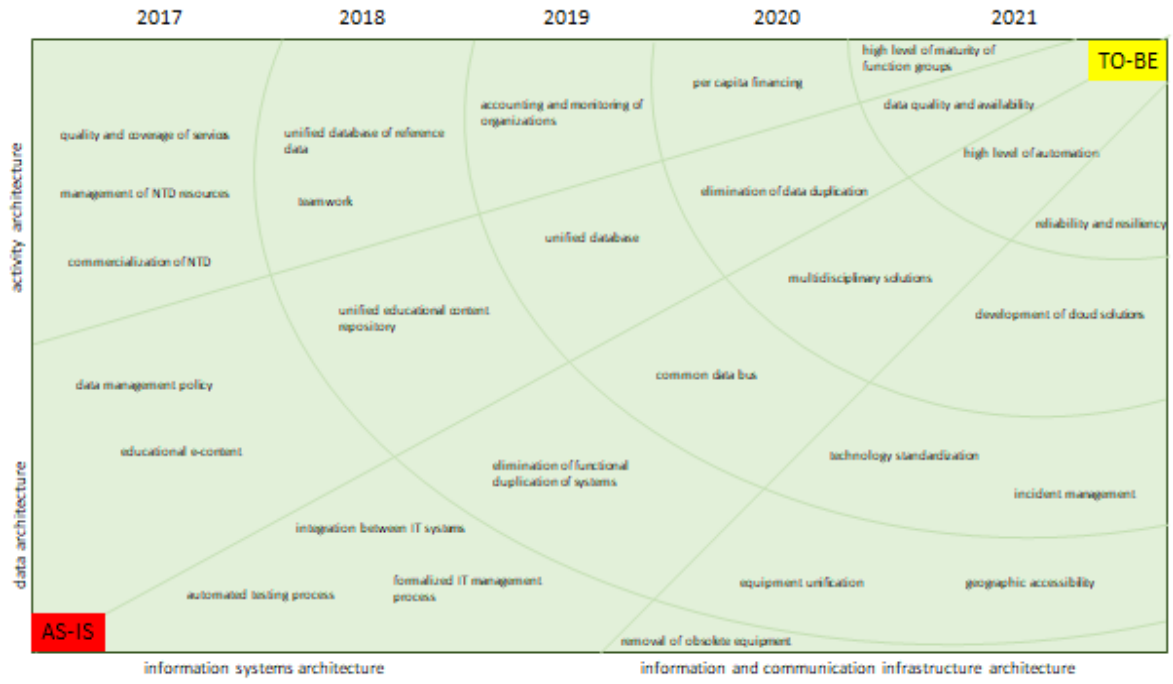


Figure 3.1 – Architectural approach in the model of
Digital Proactive Government of the education system of the Kazakhstan

Note – Compiled by the author

This approach in the activities of the DPG, in most cases, provides for regulation with the help of legal acts, joint orders, and PPP agreements for private companies. It will also allow the ministry to enlist the support of the Chamber of Entrepreneurs «Atameken» to eliminate duplication and create similar digital initiatives at the expense of state funds. It is the fourth principle is *«Build Once, Use Many Times»*. In addition, it will help to establish regulatory optimized requirements and standards for the development of new services, that is, to simplify the PPP procedure. These procedures are employment, lists of employers, and the practice base, electronic labor exchange and private employment agencies, advanced training and retraining courses.

The next principle is *Data Accuracy*. This is the provision of a single input of information, the formation of structured data, the introduction of uniform requirements and standards for interaction. This approach not only helps accelerate the adoption of new technologies, but also reduces costs and reduces duplication.

Another principle is *Openness, Accessibility and Transparency*. It is providing access to all information to reduce the time for collecting data. This is the provision of API services for creating processes and systems, new tools, applications, websites and domains.

The next, fundamental principle is the principle of orientation to the needs of citizens (*Citizen-Centric Approach*). Here the focus is on the citizen of the country as the main customer of the services. This principle involves the provision of access to personal information and services for the user at any time of the day. At the same time, it is provided to receive simple feedback and obtain up-to-date operational information, taking into account the needs and desires of citizens of the republic, as users of the Digital Government.

Based on the principle of focusing on the needs of citizens, recommendations have developed on transforming the DPG and optimizing digital services. In particular, recommendations have developed and prepared on the provision of aggregated information about the user, on the provision of the possibility of updating data about oneself and social status in the individual account. These recommendations include informing the population on the electronic portal about ongoing social programs and projects, on the constant updating of tools and technologies for providing services. There are measures performance and customer satisfaction of the provision of services through the portal of the EG in that recommendation (table 3.2).

For the correct implementation of the proposed DPG model, it is necessary to adhere to the sixth principle *«Security and Confidentiality»* (Privacy and Security). It is necessary to use new solutions for identification, authentication, account management, and cryptography. These solutions support the transition from device protection to data protection and provide data exchange only with authorized users.
As information and devices become increasingly mobile, privacy, integrity, and accessibility must be ensure by embedding security in digital government services. In particular, it is propose to apply modern requirements in the field of information security, privacy, and data protection, such as *«Trusted Internet Connection»* (TIC).

Table 3.2 – Recommendations on the transformation of the DPG and optimization of digital services, taking into account the principle of orientation to the needs of citizens of the Republic of Kazakhstan.

Table 3.2 – Recommendations for optimizing digital services taking into account the principle of focusing on the needs of citizens

<table>
<tr><td colspan="2">Recommendations for optimizing digital services
taking into account the principle of focusing on the needs of citizens</td></tr>
<tr><td>Providing aggregated user information:</td><td>Providing the ability to update data about yourself and the social status of personal information:</td></tr>
<tr><td>It is proposed to provide the user with the following information in the personal account: about his health, employment status, marital status, education (diplomas, certificates, and awards), about credit and tax obligations, about the availability of property and encumbrances, about the existence of dependents and social benefits, about available vacancies on the electronic labor exchange, on social and pension contributions;</td><td>It is proposes to implement the request, the user to update their data in the personal account, and fill out their status, excluding the filling out of other electronic forms. For example, within the framework of the new social initiative of the Ministry of Healthcare of the Republic of Kazakhstan on free treatment of children with medicines, it has proposed to confirm the status of the child, and appropriate confirmation of treatment in the system of clinics of the Ministry of Health of the Republic of Kazakhstan.</td></tr>
<tr><td>Informing the population on the Electronic portal about ongoing social programs and projects:</td><td>Continuous updating of tools and technologies for providing digital services without complicating their use:</td></tr>
<tr><td>It is proposes that information on social projects being implemented be introduced into the EG to ensure public awareness and avoid any discrimination.
It is also proposes to conduct surveys of the population on the quality of the provision of PA, on pilot projects, on new proposals, and recommendations for improving the work of the CPU and the provision of PA</td><td>The implementation of the concept of providing digital services at anytime, anywhere, and from any device is proposed. Introduce new content delivery capabilities, such as responsive web design, search engine optimization, visualization, infographics, etc., as well as creating a simple and creative design</td></tr>
<tr><td colspan="2">Measurement of productivity and customer satisfaction to improve the provision of services through the Kazakhstan EG portal:</td></tr>
<tr><td colspan="2">It is proposes to evaluate the functioning of the EG portal, its content, information content, speed of processing requests, providing information, a user interface, providing access to personal data, the correctness of the information provided, and the possibility of proactivity in the provision of public services</td></tr>
<tr><td colspan="2">Note – Compiled by the author</td></tr>
</table>

Promotion of the safe and reliable implementation of new technologies

At the same time, it is necessary to update the approved IS requirements (basic security level) for the introduction of mobile applications and wireless technologies on an ongoing basis. For example, it is using cloud solutions and transfer applications to the cloud. However, it is necessary to evaluate these processes.

Evaluation of security and privacy processes

Restrictions on the provision of access to confidential information, a ban on the use of mobile applications, and wireless networks will not exclude the possibility of violating the security and confidentiality of data.

It is necessary to systematically develop and study this issue, taking into account international experience, regularly review and update it as necessary.

Digital technologies and innovations fundamentally change the traditional approaches of doing business, organizing everyday processes. This became especially noticeable in conditions of social isolation, where almost the entire population of the society used the means of digital communication, online services. It became a new impetus for the development of the ICT sector. In accordance with this, the President of the Country instructed to use technological capabilities to create the Digital Government of the 21century as an effective government and focused on improving the provision of services to the people.

The model of the Digital Proactive Government proposed in the study includes a number of important steps for building an innovative Government of the 21 century. This model can applied to developing a new development strategy for the Digital Government of Kazakhstan. These steps are bases on the above recommendations (table 3.2) for transforming the EG and optimizing digital services, taking into account the principle of focusing on the needs of citizens of the Republic of Kazakhstan.

Thus, in accordance with the Digital Proactive Government model, a conceptual model of interaction between state bodies of the social sphere based on the identification of the social status of a citizen of the Republic of Kazakhstan has been developed (figure 3.2.).

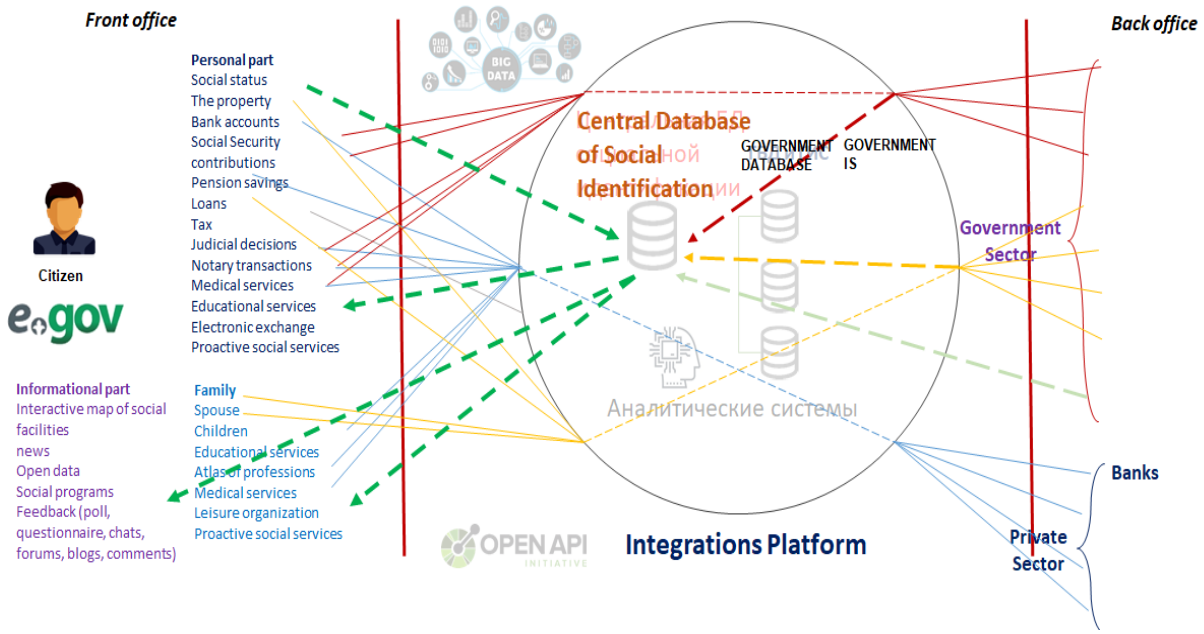


Figure 3.2 – Conceptual model of the Digital Proactive Government of the Republic of Kazakhstan

Note – Compiled by the author

3.2 The interaction of the state and the citizen in the digital age: the conceptual idea of social identification

The implementation of state social policy has based on meeting the social needs of citizens. Moreover, human needs are determining by his social status. The laws of the Republic of Kazakhstan "On compulsory social insurance" and "On compulsory social health insurance" have introduced descriptions of 15 preferential categories of citizens whose social contributions made from the state budget. At the same time, there is no complete categorization of the social status of citizens in Kazakhstan.

In view of this, taking into account the above analysis of the regulatory and legal part of the republic, the types of social statuses have systematized into a single categorization system. When creating such a system of social status categories, the experience of studying the regulatory rules for social identification of Estonia taken into account. At the same time, today the concept of «citizen» and «person entitled to receive state social support» has remained an open question since in our social policy these concepts do not differ.

However, In Estonia, this is fundamentally important, as the provision of social support to the state is aiming at citizens of the country. In our country, anyone who applies for social insurance contributions can also apply for medical care and education. At the same time, for the provision of social support, there are verification procedures for payments, charges, registration, and attachment. These procedures are carrying out only according to individual identification number (IIN), which, in turn, is issue only to citizens of the Republic of Kazakhstan.

Therefore, it is necessary to regulate and normatively consolidate the social status of foreign citizens, migrants, and refugees. In addition, the legislative system of the country does not have a normative legal act describing the types, categories, and signs of the social status of citizens of the republic. It causes different interpretations and difficulties in the implementation of the social policy of the state and the provision of social support.

In this regard, according to the analysis of the regulatory framework of the Republic of Kazakhstan, as well as the analysis of international experience in the field of social policy and the development of digitalization, to improve management in the social sphere, the system for categorizing of the population by social status has designed. This system consists of 44- x categories (table 3.3).

Table 3.3 – The developed system of categorization of the population by social status

Social status of the representative of the republic of society
1
A person under the age of 1 year (Child under 1 year)
A person from 1 year to 3 years of age who does not attend preschool organizations
A person from 1 to 3 years old attending preschool organizations
A person aged 3 to 5 years attending preschool organizations

Continuation of table 3.3

1
A person aged 6 to 15 years attending secondary education organizations
A person aged 6 to 15 years attending secondary education organizations
A person who does not have parents (orphan) aged 1 year to 16 years
A person who does not have one of the parents (a child with an incomplete family) aged 1year to 16 year
Adult person (16-17 years old) attending secondary education organizations
Adult student (16-17 years old) visiting technical and vocational education organizations
Military Person (Duty)
Technical and vocational education student
Student of a higher educational institution, bachelor of full-time education
University student Bachelor of correspondence education
Student of a higher educational institution - Master of full-time education
University Student - Master of Correspondence Studies
University Student - Doctoral Student
Group 1 disabled person
Disabled person 2 groups
A person with special needs from 1 year to 16 years old (Child with disabilities)
Persons on maternity leave
A non-working person (one of the legal representatives of the child) caring for the child (s) until they (they) reach 1 year
A non-working person (one of the legal representatives of the child) caring for the child (s) until he (they) reaches the age of three years
A non-working person (one of the legal representatives of the child) caring for the adopted child (s) until he (they) reaches 1 year
A disabled person caring for a disabled child
The unemployed person due to loss of job
A non-working person receiving state social benefits (targeted social assistance and other social benefits)
Recipient of retirement benefits by age (Retired by age)
Recipient of pension payments by age and veteran of World War by the II degree
Recipient of pension payments for seniority (military and other categories) (Senior citizen for seniority)
The person earning income is below the subsistence level
A parent with many children, awarded with pendants “Altyn alka”, “Kumis alka”, or who received earlier the title “Mother Heroine”, and awarded the ordens of “Mother Glory” of I and II degrees
A person serving a sentence by a court sentence in institutions of the penal system (except institutions of minimal security)
A person receiving income from registered individual entrepreneurship

Continuation of table 3.3

1
A person living in areas with harmful living conditions
Oralman having income
Disabled oralman
Stateless Persons (Refugee)
Stateless Persons (Migrant)
A foreigner holding a residence permit in the Republic of Kazakhstan
A foreigner residing temporarily in the Republic of Kazakhstan and having the right to work
A foreigner living temporarily in the Republic of Kazakhstan and not having the right to work
Note – Compiled by the author

3.3 The structure of the Digital Government model: an ideal world for an ideal citizen

In the Era of globalization and the rapid development of digital technologies, the way of thinking, and the psychological behavior of society are changing. As a result, the requirements for the functioning of electronic information are changing too. Whereas previously it was enough, for the user have access to the portal and find the necessary information, to state services. Now, due to the excess of information, this process has become much more complicated. Today, the user prefers not to search for the necessary information. However, he receives the opportunity to select the most relevant information, necessary services from the entire huge data stream, according to his needs, social status, and capabilities. This situation fundamentally changes the approach in the implementation of the Digital and E-Government as a whole.

The idea of proactivity is automatically providing the final public services that a citizen can receive through the DPG/EG. Besides, proactivity provides for the exclusion of all intermediate stages of information collection, which should be carry out automatically from all state and non-state databases. An important issue in the implementation of this approach remains to ensure the principles of confidentiality and information security.

At the same time, due to the implementation of the Government as a Digital Platform approach, it is proposing to expand the potential of the E-Government of the Republic of Kazakhstan by creating an integration bus for connecting state and non-state information systems and databases. This will ensure information interaction between state and non-state databases provides information directly from primary sources. Thereby, it significantly reduces the amount of requested information. All certificates and supporting documents should be automatically retrieving from the GDB and NGBD.

Thus, in the improved DG model, it is proposing to implement the basic principles of a proactive approach to information interaction between the population and the Government. Here are focusing on the needs of citizens, a common digital

platform, proactivity, confidentiality, security, and transparency in the process of providing public services (5 principles).

As a result, the population will be self-interesting in updating their data, determining their current social status, and increasing the level of digital and legal literacy. Due to the active participation and awareness of the population, the level of public confidence in the Government and the implemented state strategy will increase. As well as transparency and openness of public administration will be ensured. Society will be involved in the implementation of the social policy of the state. As a result, it will improve the quality and standard of living of the population.

In this work, as part of the analysis and to improve the DG model, specific examples of optimizing business processes for the provision of public services and the implementation of the above principles on the example of 3 (three) public services of the country are developed.

The designed model of informational interaction of the DPG based on the identification of the social status of a citizen of the Republic of Kazakhstan is showing in figure 3.3. This model includes a new single database “Social Status”.

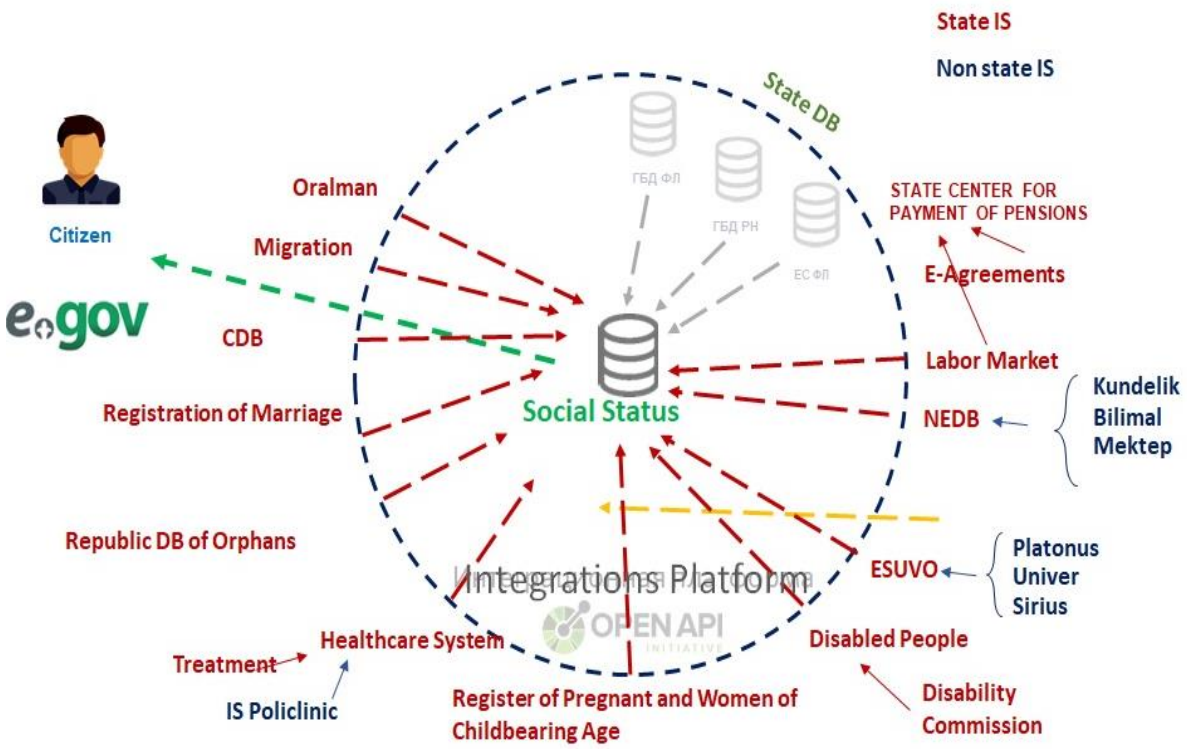


Figure 3.3 – The unified database of social identification of the population of the Republic of Kazakhstan

Note – Compiled by the author

Since the architecture of state bodies in the social sphere has several similar characteristics, it is proposing to use three motivational mechanisms for collecting data from the primary organization:

1. *The development of common information requirements for the implementation of data collection* is the implementation of the concept of an open type platform for IS it is the Open APIs. As information system is creating by private and state organizations, it provides the ability to provide data on the movement of the contingent indicating the ID number in the form of files. With the automation of business processes in organizations, it ensures the transition of information collection in automatic mode through the open interfaces of the Open API. In the case of full automation, IS provides the possibility of «seamless» integration with the possibility of obtaining analytical state anonymized data to expand the scope of operation and scaling of services.

2. *Per capita funding* when implementing this concept, the state, represented by representatives of the local state bodies, will allocate the appropriate funds from the state budget, from the budget of the State Social Insurance Fund and the State Social Insurance Fund. This funding is for secondary education, the state educational grant for higher education. At the same time, the State Public Health Insurance Fund provides social contributions categories of people. In this case, organizations, as users of services, will be interested in providing own high quality and reliable information to receive appropriate financing and state support.

3. *It is sectoral licensing of organizations* providing social services, with the provision of a simplified procedure for obtaining a license and the implementation of minimal quality control of the provision of social services. Licensing of the activities of organizations in the social sphere must be preserve. In case of violation of the rights and freedoms of citizens, the society applies for the resolution of situation to supervising state bodies. Those bodies bear consolidated responsibility for the quality of the provision of social services.

3.4 Practical recommendations for optimizing the registry of public services to implement the principles of orientation to the needs of citizens and proactivity

Based on the results of analytical and empirical studies, practical recommendations have been prepared on optimizing the registry of public services. These recommendations are aiming to implement the principles of focusing on citizens' needs and proactivity. According to these recommendations, the provision of public services must be dividing into 3 categories to build effective communications (table 3.4).

Because of the analysis of the Public Services Register dated January 31, 2020, consisting of 694 services, it is proposing to review the business processes of 223 public services. It is proposing to delete 47 information services from the register. There is recommending optimizing the business processes of 23 public services social services through the application of the Digital Government model (Appendix B).

Table 3.4 – Three categories of state social services

Category	Service Description
Government services for citizens	Social services (payments, benefits, the provision of preschool, secondary, vocational education and higher education), preschool organizations, employment, all types of employment, obtaining medical services, obtaining medicines, medical and social insurance;
Government services for business	Social services of individuals and legal entities;
Government services for state organizations and employees	Educational grants, state licenses, permits for the provision of public functions, access to information, analytical reporting, and other types of communications.
Note – Compiled by the author	

Practical recommendations for optimizing the business processes of providing the public service «Assigning retirement benefits by age» in accordance with the implementation of the new DPG model and its principles

Based on the results of the analysis of public monitoring and of the assessment of public satisfaction with the quality of the provision of public services, as well as an analysis of the regulatory documents of this service (the analysis is presented in chapter 2, paragraph 2.2.2), *the following recommendations* were developed to improve the process of providing public services:

- firstly, it is necessary to ensure transparency in the process of calculating pensions through the implementation of outreach to the population, provide instructions on calculating pension deductions, regulatory legal acts on calculating pensions on the e-Government Portal;

- secondly, according to the approved norms and rules, there is to automate the process of calculating and calculating pension payments;

- thirdly, the provision of the specified service shall be excluding from the Register. It is rendering proactively upon reaching retirement age (verification of attainment of age according to the Government Database of Individual) and due to the full automation of the process of calculating pension payments. It is necessary to ensure the integration of information systems and databases of the State Center for Payment of Pensions (SCPP), Unified Accumulative Pension Fund, Government Database of Individual, and Civil Registry Office for Marriage Status, IS e-Guardianship, IS Supreme Court for charging, and providing this service;

- fourthly, there is to provide extended information on the calculation of each pension in the user's account to check pension accrual. In case of disagreement and errors in calculating the pension, the service recipient can individually apply to the SCPP on an electronic application indicating the reasons for disagreement. He can submit additional documents in electronic form through his account of the E-Government Portal.

Developed based on the developed practical recommendations, the schematic model «As it should be» of the specified service is presenting below, in figure 3.4.

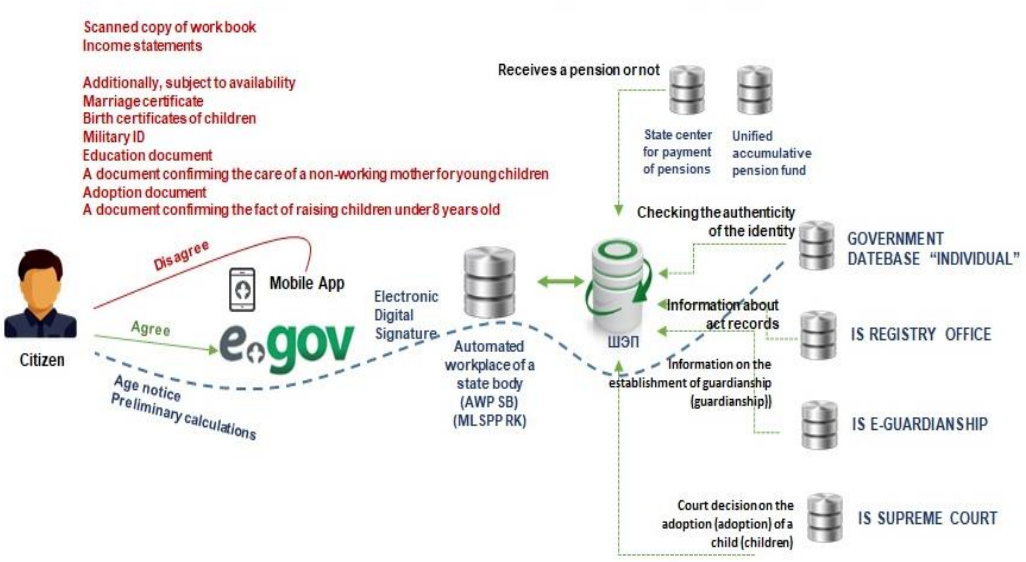


Figure 3.4 – Optimized procedure for the provision of public services «Assignment of pension payments by age» – «As it should be»

Note – Compiled by the author

Practical recommendations for optimizing the business processes of providing the public service «Assignment of benefits for childbirth and childcare» according to the implementation of the new model and its principles

Based on the results of the analysis of public monitoring of the Sage Research Center, as well as the standard and regulation of the specified service (the analysis is presented in chapter 2, paragraph 2.2.2.). The following recommendations have developed to improve the process of providing public services:

– *firstly*, it is necessary to provide outreach to the population on how to provide this service. There is a need to post all the necessary information, including instructions on calculating benefits, in the personal account of the e-Government portal;

– *secondly*, the provision of this service is completely excluding from the register of public services due to the full automation of the process of calculating benefits. There is to ensure the integration of information systems and databases of government bodies and state persons, registry office for charging, and providing this service. This service is providing to all citizens of the Republic of Kazakhstan at the birth of a child. There is no need to oblige mothers with young children to submit these documents in paper, electronic or composite format. This streamlined process facilitates the calculation of benefits in rural areas, where Internet problems and lack of digital infrastructure persist;

– *thirdly*, there is to provide extended information on the calculation of benefits in the user's account with links to regulatory legal acts. In case of disagreement with the calculation of benefits, the service recipient can individually apply by electronic application indicating the reasons for disagreeing on the calculation of benefits.

In addition, the service recipient may indicate additional supporting documents for the allocation of benefits in case of special conditions.

The «How it should be» schematic model of the simplified procedure for the provision of this service, developed based on practical recommendations, is presenting below, in in figure 3.5.

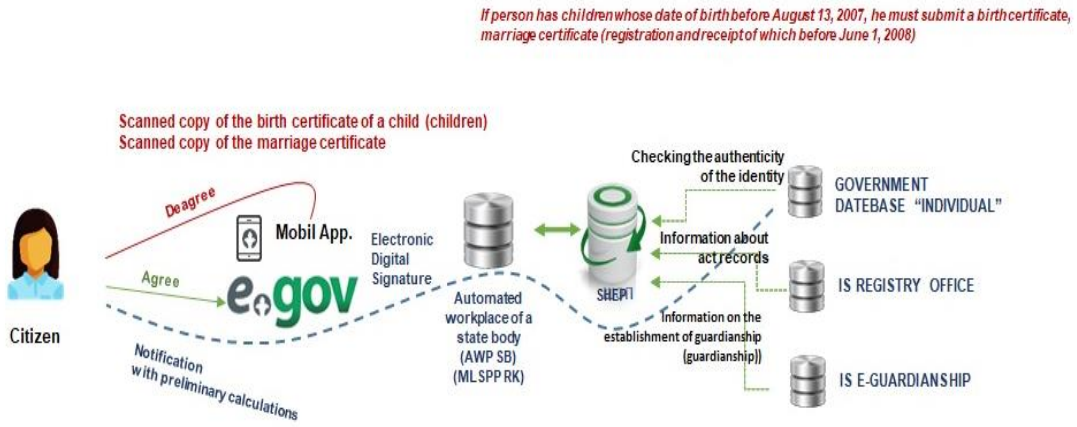


Figure 3.5 – Optimized procedure for the provision of the service «Assignment of benefits for childbirth and childcare» – «As it should be»

Note – Compiled by the author

3.5 Practical recommendations for the introduction of digital technology in the public sector in making managerial decisions

Given the pace of technological disruption, government agencies should give priority to investing in the development of scalable digital infrastructures. They can meet the needs of the explosive growth of the digital economy, while at the same time paying considerable attention to strengthening the non-digital foundations of digital transformation.

The future opportunities, strong digital leadership from the public and private sectors, and their cooperation are required to solve new problems, as they arise and create forecasting mechanisms.

A regulatory framework that is responsive to changes, interconnected and adaptive institutions, and a proactive approach are prerequisites for catalyzing digital innovation, developing talent, and providing targeted investments.

In particular, policymakers should consider *the following recommendations of the study*:

1. There is to develop a strategic foresight approach based on forecasting the future, by thinking through possible scenarios of future development and appropriate prioritization of technologies. It can provide significant opportunities, or entail significant risks.

2. There is to intensify cooperation between the public and private sectors to identify congestion, develop the most effective measures, periodically evaluate the results, and learn from mistakes made during the work. Some countries began experimenting by actively eliminating disparate government structures. They became to create innovative, collaborative, horizontal structures, appointing Chief Digital

Officers (CDO) across government departments to manage the growth of the data economy and the cross-industry «data environment».

3. There need to increase the response rate of the regulatory sector and government agencies. Government policy development is should be encouraged to translate strategic forecasting into practical programs and projects. Rapid response approaches (Agile approaches) are already being implemented as part of Digital Proactive Government initiatives.

4. There is to review outdated laws and regulations that impede the penetration of digital technologies, cross-border business, and the emergence of new digital technologies, new business models, and services. In particular, the Register of Public Services should be review and a new Law of the Republic of Kazakhstan «On Social Status» should be working out.

5. There need to update competition policy to support platform-oriented business models, multilateral markets, and network effects. Here is the particular emphasis on guaranteeing consumers choices, lower prices, and higher quality new services, Internet access, broadcasting, and data services.

6. There is strengthening information security by developing an appropriate ecosystem focused on the implementation of the Cyber shield Concept. It can to ensure mitigation of the effects of cyberattacks and increase the level of cybersecurity in critical industries. It is necessary to ensure effective coordination and response to cyber threats, as well as the creation of educational and awareness-raising programs. It needs to take an approach based on «knowingly safe» programming to ensuring information security.

7. There is a need to strengthen the ecosystem of digital innovation. Venture investments and crowdfunding of innovative start-ups should be stimulated, starting with universities based on IT parks, IT academies, business incubators, etc. It is necessary to create sandboxes that allow high-tech companies to experiment in a clearly defined space and in periods. Those companies will no fear of breaking laws and have guaranteed to reduce the consequences of failed experiments and maintain the stability of technological systems.

8. It needs to invest in personnel for the future digital economy. There is to develop a mechanism for determining the demand for new jobs and information about the development of new educational programs to meet the needs of future employers.

Today, digital platforms are becoming «online markets» or virtual venues for marketing, purchasing goods and services by connecting users and professional suppliers. They also offer contract and invoice management services to simplify administrative procedures. In addition, these platforms guarantee the quality of the goods distributed, since all logistics should also protect against data changes and forgery, using block chain and other technical solutions.

Thus, to develop the right mechanism to allow small players to reap the benefits, a coordinated ecosystem approach to the implementation of digital services is often required.

3.6 Proposals to expand the functionality of the personal account of the E-Government of Kazakhstan

The proposals presented in the work to expand the functionality of the personal account of the E-Government of Kazakhstan are based on the basic idea of the digital government. This base idea is to increase the effectiveness of interaction between the population and the Government through an improved digital platform as a dialogue platform between the population and the Government.

To increase public satisfaction with the work of the Government, due to reduction and optimization of services, transparency of information and timely feedback from the population, the function of the personal account of the user of the Republic of Kazakhstan is developed and proposed, which is presented below, in figure 3.6.

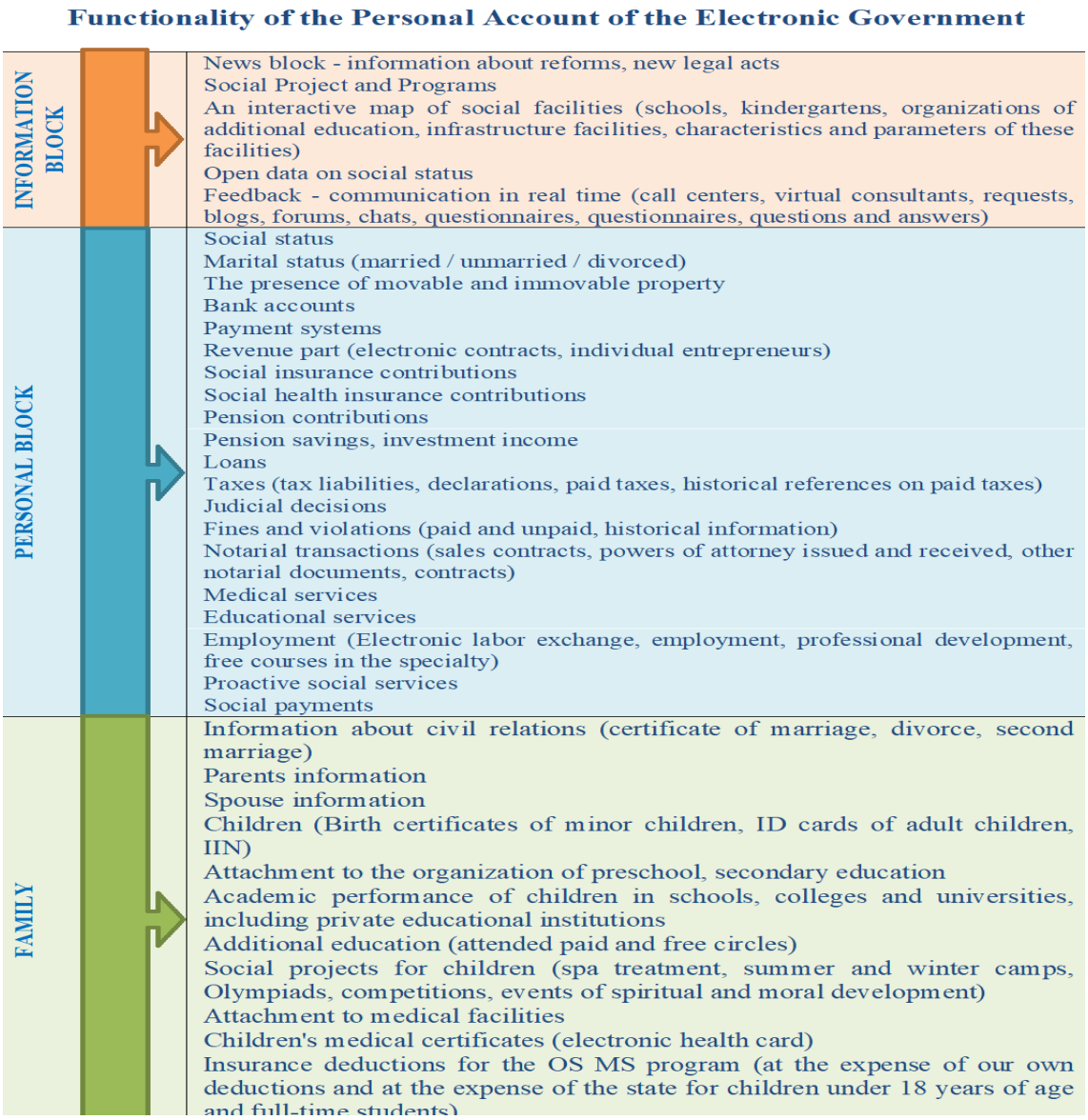


Figure 3.6 – The functionality of the personal account of the user of the e-Government of Kazakhstan

Note – Compiled by the author

Conclusion to the third chapter:

In the third chapter of the study, based on the obtained analytical and empirical results, have presents the following practical recommendations.

Practical recommendations for optimizing the registry of public services to implement the principles of orientation to the needs of citizens and proactivity

Based on the results of analytical and empirical studies, practical recommendations have been prepared on optimizing the registry of public services. These recommendations are aiming to implement the principles of focusing on citizens' needs and proactivity. According to these recommendations, the provision of public services must be dividing into 3 categories to build effective communications. Because of the analysis of the Public services register dated January 31, 2020, consisting of 694 services, it is proposing to review the business processes of 223 public services. It is proposing to delete 47 information services from the register. There is recommending optimizing the business processes of 23 public services social services through the application of the Digital Government model.

Practical recommendations for the introduction of digital technology in the public sector in making managerial decisions

Given the pace of technological disruption, government agencies should give priority to investing in the development of scalable digital infrastructures. They can meet the needs of the explosive growth of the digital economy, while at the same time paying considerable attention to strengthening the non-digital foundations of digital transformation. The future opportunities, strong digital leadership from the public and private sectors, and their cooperation are required to solve new problems, as they arise and create forecasting mechanisms. A regulatory framework that is responsive to changes, interconnected and adaptive institutions, and a proactive approach are prerequisites for catalyzing digital innovation, developing talent, and providing targeted investments.

Proposals to expand the functionality of the personal account of the E-Government of Kazakhstan

The proposals presented in the work to expand the functionality of the personal account of the E-Government of Kazakhstan are based on the basic idea of the digital government. This base idea is to increase the effectiveness of interaction between the population and the Government through an improved digital platform as a dialogue platform between the population and the Government. To increase public satisfaction with the work of the Government, due to reduction and optimization of services, transparency of information and timely feedback from the population, the function of the personal account of the user of the Republic of Kazakhstan has developed and proposed.

CONCLUSION

In the Era of universal digitalization and the rapid development of digital technologies and innovations, it is obvious that digital transformation is a requirement of the time. The influence of this factor cannot be changed in the life of society and the state structure. The fact of the need for the introduction of digital technologies in the state has confirmed by the current situation in the world related to the spread of the COVID 19 Pandemic.

Society has become a hostage to social exclusion and has to transfer all services and social requests online. The shortcomings of the implementation of digitalization of the public sector, the problems of the development of digital infrastructure, and the lack of online services for the social life of people under universal quarantine became clearly visible.

Universal isolation has raised the issue of providing the public with public social services online. In addition, society felt the lack of sufficient online stores, online services for the delivery, maintenance, and remote work of many services, both public and private.

Online education in secondary education organizations has faced with the problem of ICT teacher literacy, the quality of the Internet, the lack of online platforms for conducting online classes, insufficient digital content, electronic material, and an online assessment system.

There were questions about the differences between distance education and online learning, distance technologies, and «live» learning, digital content, electronic textbooks, and video lessons. It becomes obvious that this is the beginning of new social problems, the financial crisis, economic failures, the collapse of the national currency and financial institutions, the food «hunger», the lack of a social fund to support the population in conditions of total unemployment and social insecurity, and other serious consequences of the COVID-19 Pandemic.

The problems of the imperfection of the legal system of the social sphere of Kazakhstan also became apparent. For the whole world, the current difficult situation has become examples of testing the state's readiness to solve many social problems in the conditions of social isolation of society. State programs, strategic documents are developing without conducting scientific research and economic justification of the feasibility and profitability of decisions.

In the situation of a general pandemic, conducting a program of social support for the population and the payment of social benefits for temporary disability, the Government has faced with the problem of lack of data on the social status of Kazakhstanis, confirmation of the indicated data of citizens requesting this benefit. They have faced with lack of analytical information on the number of financial budget funds given social initiative.

As a result, there is the growth of social tension, the possibility of corruption schemes for the illegal accrual of social benefits, the occurrence of a state budget deficit, and the lack of forecasts for the development of this situation. Measures of state regulation in the current circumstances are in the nature of «first aid». There is a

lack of a systematic approach to solving these problems. This is a common problem in the country's public administration system.

At the same time, digitalization partially helped to ensure the process of training, the provision of medical services, and the provision of public services. The tasks that have originally lain down have not fully implemented in the framework of the electronic framework. From the studies conducted in the work, it became obvious that the effectiveness of public administration of the social sphere can be improving by digitalizing internal business processes and business processes in the social sphere.

There are systemic problems in managing social issues, in the presence of inaccurate data in state information systems of education, healthcare and social protection of the population, problems of manual input of information from primary sources. The problem of information interaction between state and non-state information systems of the social sphere has remained. Besides, there is an imperfection of the regulatory framework for digitalization of the public sector, in particular, the E-Government, the State program «Digital Kazakhstan», the education system.

Based on the results of the dissertation research there have done the following **conclusions:**

1. The public administration system has been studying for more than a dozen years. The scientific schools have been creating to study this issue. In this paper, we are considering the American school of public administration. It represents the evolution of the development of public administration in the context of digitalization from traditional administrative public administration to digital public administration (Old Public Administration, New Public Administration, New Public Governance, New Public Service, Digital and Dynamic Governance).

2. There was an analytical review of scientific papers, studies, monographs to systematize the processes of e-Government. In this review, the concept of the Digital Proactive Government has defined. In this work was the comparative analysis of scientific views on the definition of Electronic and Digital Governments is also carrying out. Such an understanding of these definitions is proposing the following:

- e-Government, like any other electronic service, provides for the representation of the Government online to ensure electronic interaction between the Government, citizens, and businesses, in particular, the provision of public services in electronic format (Information interaction G2C, G2B);
- digital Government provides a deeper concept of digitalization. Here are optimization and automation of internal business processes, processes of interaction between state structures, creation of information systems, databases, the digital transformation of public administration (Information interaction G2C, G2B, G2E, G2G);
- digital Proactive Government is the next evolutionary stage in the development of digital government. It is providing for not only integration processes between state information systems, databases, but information systems of private and non-profit organizations for the formation of a comprehensive and complete process of obtaining information. The peculiarity of this Government is the provision of

information to all interested parties, both citizens, businesses, state organizations, and private entities. Besides, the mandatory parameter of this stage is the availability of analytical information systems for generating forecasts, predictive analysis and implementing the principle of proactivity (information interaction - G2C, G2B, G2E, G2G, B2B, B2C).

3. Based on the results of the analysis of more than 25 maturity models of e-Government, an adaptive modern model of Gartner Digital Government maturity assessment has selected. This model consists of five stages: Initial, e-Government, Developing, Open Government, Defined, and Data-Centric), Managed, Digital, Optimized, and Smart. Using these models, the maturity of the E-Government of Kazakhstan is estimating. According to the selected assessment model, Kazakhstan is at the third stage of the development of the Digital Government. At the same time, it is not fully implementing the second stage of the E-Government.

4. The documents of the first and second levels of the hierarchy have analyzed. There is Development Strategy of Kazakhstan until 2050, Strategic plan for socio-economic development until 2025, the State program for the development of education and science of the Republic of Kazakhstan for 2016-2019, the State program the health development of the Republic of Kazakhstan «Densaulyk» for 2016 - 2019, as well as the priorities of new state programs for 2020-2025.

In addition, there was the chronological analysis of the State program for the development of productive employment and mass entrepreneurship for 2017–2021, the results of the implementation of the State program «Information Kazakhstan 2020», and the prospects for the development of digitalization of public administration in the social sector. The analysis has included the identification of weak and strong indicators (SWOT-Analyze). There have been preparing of their recommendations and suggestions based on the knowledge, professional competencies, and approaches getting during training at the Academy of Public Administration under the President of the Republic of Kazakhstan.

5. To design a model of the Digital Proactive Government and study the current situation of digitalization of the social sphere, several laws have analyzed. Here are the Laws of the Republic of Kazakhstan «On Compulsory Social Insurance», «On Compulsory Social Health Insurance», the Register of Public Services in 2020, and Joint Orders on the Approval of the Rules for the Information Interaction of state bodies for the provision of public services in the social sphere. In addition, here are the results of a survey of the population on the quality of the provision of public services for 2016, 2017, and 2018.

6. Based on the results of the analysis of the current situation, the regulatory database, systemic problems of the social sector, a draft categorization of the social status of the population of the Republic of Kazakhstan has developed. This draft consists of 44 categories and is proposing to be approving by a separate Law of the Republic of Kazakhstan «On social status».

7. The conceptual model of the Digital Proactive Government as an improved model of public administration in the social sector is developed. The main characteristics of this model are a platform approach, the implementation of a single

access point to all public services and information, the principle of proactivity, and the fundamental principle - focusing on the needs of citizens.

The idea of this model is to update the data and display them in the personal account of the e-Government portal. As well as this idea is in the information interaction of state bodies and private organizations.

8. To optimize, reengineer, and digitalize the business processes of the social sphere, a practical schematic model of the information interaction of the social sphere has been designing. This model has developed with a one-time input of information, elimination of duplication, and incorrect data filling.

9. As a result of the analysis of the Register of public services dated January 31, 2020, based on the developed model of the Digital Proactive Government, it has proposed the following recommendations. The 223 services should be reviewing from 694 public services. The 47 public information services should be deleting from the Register. The procedures for the provision of 23 social services should be reviewing too (by analogy with the two services «Assignment of pension payments by age» and «Assignment of benefits for the birth of a child and child care»).

10. Based on the results of the analysis of the functionality of the e-Government portal, as well as SWOT-Analyze of digitalization of public administration in the social sector, practical proposals have developed to expand the capabilities of the user of the e-Government portal personal account.

11. According to the analysis of the implementation of the Electronic (Digital) Government of five countries (USA, Estonia, Russia, Azerbaijan, and Kazakhstan), we can conclude that the main indicator of the effectiveness of the functioning of the E-Government in Russia, Azerbaijan and Kazakhstan is the number of services received by the population. The number of services provided should be reducing because of the integration of public and private databases, as well as increased effective information interaction.

12. Practical recommendations discussed at the international conference at the Eurasian National University in June 2018. Subsequently, the results of the implementation of e-Government reviewed at the international conference of the Academy of Public Administration in November 2018. In addition, the issue of the need for social identification of citizens of Kazakhstan discussed at the international conference on social issues in Portugal, Lisbon, in May 2019.

The results of studies on maturity assessment models of Electronic and Digital Government, as well as a comparative analysis of the concepts of Electronic and Digital Proactive Government, were presented at the international conference in France «2019 3rd International Conference on e-Business and Internet», in Lyon.

13. A collection of conference articles containing a scientific publication with research results of this work was included in the Scopus scientific database.

In addition, three scientific articles have published in journals recommended by the Committee for Control and Education and Science of the Republic of Kazakhstan. In addition, the results of the study have published in the foreign scientific journal «Opcion», indexed in the Scopus Database with a percentile of 63.

14. The practical significance of the results of the study has confirmed by letters of state bodies and higher educational institutions (Appendix E, Appendix F, Appendix G, Appendix H).

Thus, the *key results of the research work* are the following:

1. The developed conceptual apparatus will make it possible to systematize the use of the terminology of the Electronic, Digital, and Digital Proactive Government.

2. The presented Gartner Digital Government maturity assessment model can be using as a practical tool for analyzing the current situation of the introduction of e-government in the Republic of Kazakhstan.

3. The proposed conceptual and practical model of information interaction between citizens and the government will contribute to the revision of the integration processes of state and non-state information systems.

4. The practical value of this model has shown in two public services and lies in the possibility of expanding and replicating the model of information interaction on other public services and areas has was performed. Here 223 services need to be reviewing, 47 services have proposed to be reducing, and 23 services can be optimizing in result of the implementation of the proposed model.

6. The practical recommendations on expanding the functionality of the e-Government portal have developed.

7. The practical significance of the results of the study has confirmed by letters of state bodies and higher educational institutions.

REFERENCES

1 Kaufmann D., Kraay A., Mastruzzi M. Woldwide Governance Indicators: Methodology and analytical issue // World Bank Policy Research Working Paper. – Washington, 2010. – №5430. – P. 4-19.

2 Osborne S.P., Radnor Z., Nasi G.A. New theory for public service management? Towards a (public) service omiDnant approach // The American Review of Public Administration. – 2013. – Vol. 43, №2. – P. 135-158.

3 E-Government Development Index (EGDI) – the United Nations // https://publicadministration.un.org/egovkb/en-us/Reports/UN-E. 02.03.2019.

4 Layne K., Lee J. Developing fully functional e-Government: a four Stage model // Government Information Quarterly. – 2001. – Vol. 18(2). – P. 122-136.

5 Degree of the President of the Republic of Kazakhstan. Strategic Development Plan of the Republic of Kazakhstan until 2025: approved 15 february, 2018, №636 // http://adilet.zan.kz/rus/docs/U1800000636. 20.02.2020.

6 Message from the President of the Republic of Kazakhstan Kassym-Zhomart Tokayev to the People of Kazakhstan, 2019 // https://www.akorda.kz/ru/.addresses/ addresses_of_President. 24.03.2020.

7 Program evaluation methods: measurement and attribution results. – Ed. 3nd / Government Review and Quality Services; Treasure board of Canada; Secretariat. – Ottawa, 1998. – 152 p.

8 Bingham R.D., Felbinger C.B. Evaluation in practice: a methodological approach. – Ed. 2nd. – N.Y., 2002. – 356 p.

9 Central government guidance on appraisal and evaluation: the green book / HM Treasury. – London, 2018. – 132 p.

10 Jonker J., Pennink B.J.W. The essence of research methodology: A concise guide for master and PhD students in management science. – Berlin: Springer, 2008. – 169 p.

11 Kellogg W.K. Logic Model Development Guide. – Michigan, 2004. – 71 p.

12 Ponomarev A.B., Pikuleva E.A. Methodology of research: textbook. allowance. – Perm: Publishing House Perm. Nat. Researched Polytechnic University, 2014. – 186 p.

13 Kalmogorov Y.N., Sergeev A.P., Tarasov D.A., Arapova S.P. Methods and means of research: a training manual. – Yekaterinburg: Publishing House Ural. University, 2017. – 152 p.

14 Decree of the Government of the Republic of Kazakhstan. The State Program «Digital Kazakhstan»: approved 12 december 2017, №827 // https://online.zakon.kz/document/?doc_id=37168057#pos=0;0. 24.10.2018.

15 Atamanchuk G.V. Theory of Public administration: Lecture course. – Ed. 3rd. – M.: Publishing house OMEGA-L, 2005. – 584 p.

16 Osborne D., Gaebler T. Reinventing Government. – N.Y.: Addison-Wesley Publ. Co., 1992. – 427 p.

17 Osborne S.P. The New Public Governance? // Public Management Review. – 2006. – Vol. 8, №3. – P. 377-388.

18 Robinson M. From old Public administration to the new public service: Implications for public sector reform in developing countries. – Singapore: UNDP Global Centre for Public Service Excellence, 2015. – 20 p.

19 The quality of public administration in the countries of the World - 1998-2008 // http://gtmarket.ru/news/state/2009/07/10/2242. 24.10.2018.

20 United Nations Economic and Social Commission for Asia and the Pacific. What is Good Governance? // https://www.unescap.org/sites/default/files/ good-governance.pdf. 30.11.2018.

21 Kettani D., Moulin B. E-Government for Good Governance in developing countries. – N.Y.: Anthem Press, 2014. – 285 p.

22 Milakovich M.E. Digital Governance: new technologies for improving public services and participation. – N.Y.: Published by Routledge, 2012. – 376 p.

23 Государственная и муниципальная социальная политика. Курс лекций: учебное пособие / под ред. Н.А. Волгина. – М.: КНОРУС, 2018. – 1011 с.

24 Munoz L.A., Bolivar M.R. International e-Government development: policy, implementation and best practice. – Cham: Palgrave Macmillan, 2018. – 371 p.

25 The changing nature of work: world development report, 2019 / World Bank // http://documents1.worldbank.org/curated/en/. 30.10.2018.

26 World employment and social outlook: Trends 2018 / International Labour Office – Geneva: ILO, 2018. – 82 p.

27 Евразийская электронная биржа труда будет создана в ЕАЭС // https://www.zakon.kz/4986735-evraziyskaya-elektronnaya-birzha-truda. 27.05.2020.

28 30 million have sought U.S. unemployment aid since COVID-19 hit // https://www.marketplace.org/2020/04/30/covid-19-us-unemployment/. 23.05.2020.

29 A Joint Statement by the World Bank Group and the IMF regarding a call to action on MAP debt // https://www.imf.org/ru/News/Articles/2020/. 30.03.2020.

30 Алексеева И.Ю. Возникновение идеологии информационного общества // http://emag.iis.ru/arc/infosoc/emag.nsf/BPA. 20.06.2020.

31 Bell D. Social framework of the information society // In book: New technocratic wave in the West. / ed. P.S. Gurevich. – M., 1988. – P. 330-342.

32 Якимова О.Ю., Королева Т.П., Коваленко Е.Г., Полушкина Т.М. Развитие Электронного Правительства в Республике Мардовия. – М.: Российская академия естествознания, 2014. – 165 с.

33 Worldwide Governance Indicators // http://info.worldbank.org/ governance/ wgi/sc_country.asp. 20.06.2020.

34 Терещенко Л.К. Услуги: государственные, публичные, социальные // Российского права. – 2005. – №10. – С. 16-17.

35 Garcia-Murillo M. Does a Government web presence reduce perceptions of corruption? // Information technology for development. – 2013. – Vol. 19, №2. – P. 151-175.

36 Clinton W.J., Gore A. Technology for America’s growth: a new direction to build economic strength // Journal of industry studies. – 1993. – Vol. 1(1). –

P. 88-91.

37 E-Government strategy 2003 // http://www.whitehouse.gov/sites/default/files/omb/assets/omb/egov/2003egov_strat.pdf. 24.10.2018.

38 West D.M. E-Government and the transformation of service delivery and citizen attitudes // Public administration review. – 2004. – Vol. 64(1). – P. 15-27.

39 Baum C., Maio A.D. Gartner's Four Phases of e-Government model. – Stamford: Gartner group, CT, 2000. – 12 p.

40 Dyatlov S.A. E-Government: concept, structure, functions. – SPb.: Publishing House of St. Petersburg. University, 2013. – 286 p.

41 Khramtsovskaya N.A. Development of the conceptual apparatus of the Information society: evolution of the concept of E-Government // Social transformations and cyberspace: interdisciplinary research. sat art. – SPb., 2009. – P. 50-67.

42 Smorgunov L.V. From The Electronic state to E-Government: a Paradigm shift // Political science. – 2007. – №4. – P. 20-49.

43 West D.M. Digital Government. Technology and public sector performance. – New Jersey: Princeton University Press, 2005. – 222 p.

44 Perry J.L., Hondeghem A., Wise L.R. Revisiting the motivational bases of public service: twenty years of research and an agenda for the future // Public administration review. – 2010. – Vol. 70, №5. – P. 681-690.

45 E-Government 2014 // http://go.worldbank.org/6WT3UPVG80. 18.05.2018.

46 Moon M.J. The Evolution of e-Government among municipalities: Rhetoric or reality? Public administration review. – 2002. – Vol. 62(4). – P. 424-433.

47 Recommendation of the Council on Digital Government strategies // www.oecd.org/gov/digital-government/Recommendation-digital. 20.01.2018.

48 West D.M. Digital Government. Technology and public sector performance. – New Jersey: Princeton University Press, 2005. – 222 p.

49 Fath-Allah A., Cheikhi L., Al-Qutaish R.E., Idri A. e-Government maturity models: A comparative study // International journal of software engineering & Applications. – 2014. – Vol. 5(3). – P. 71-91.

50 Chaushi A., Chaushi B., Ismaili F. Measuring e-Government maturity: A meta-synthesis approach // https://doi.org/10.1515/seeur-2015-0028. 27.10.2018.

51 Andersen K.V., Henriksen H.Z. E-Government maturity models: Extension of the Layne and Lee model // Government Information Quarterly. – 2006. – Vol. 23(2). – P. 236-248.

52 Электронное Правительство: исследование / ООН, 2018 // https://publicadministration.un.org/egovkb/Portals/egovkb/. 18.09.2019.

53 E-Government benchmark 2017 // https://publications.europa.eu/en/publication-detail/-/publication. 20.03.2018.

54 Di Maio A. Gartner's 5 levels of Digital Government maturity // https://www.gartner.com/smarterwithgartner/5-levels-of-digital. 14.09.2018.

55 Santos J., Rodrigues F., Oliveira L. A web & mobile city maintenance reporting solution // Procedia technology. – 2013. – Vol. 97. – P. 226-235.

56 Harrison T.M., Guerrero S., Burke G.B. Cook, M., Cresswell, A., Helbig,

N., Pardo, T. Open Government and e-Government: democratic challenges from a public value perspective: proceed. of the 12th Annual internat. conf. on Digital Government Research. – Maryland: College park, 2011. – Vol. 17, Issue 2. – P. 83-97.

57 Vassil K., Solvak M., Vinkel P., Trechsel A.H., Alvarez R.M. The diffusion of Internet voting. Usage patterns of Internet voting in Estonia between 2005 and 2015 // Government information quarterly. – 2016. – Vol. 33. – P. 453-459.

58 Solvak M., Unt T., Rozgonjuk D. et al. E-Governance diffusion: population lLevel e-service adoption rates and usage patterns // Telematics and Informatics. – 2019. – Vol. 36. – P. 39-54.

59 Digital Government: building a 21st century platform to better serve the American people, 2012 // https://www.hsdl.org/?abstract&did=711162. 14.10.2019.

60 Kristjan V. Estonian e-Government ecosystem: foundation, applications, outcames // http://pubdocs.worldbank.org/en /165711456838073531. 18.09.2019.

61 Competition in the digital age: strategic challenges for the Russian Federation: Report on the Development of the Digital Economy in Russia // website: www.worldbank.org. 18.09.2019.

62 Электронный Азербайджан: госпрограмма, 2010 // https://azertag.az/ru/xeber/. 14.10.2019.

63 The Global Competitiveness Report 2018 // http://www3.weforum.org/ docs/GCR2018/05FullReport/TheGlobal.. 23.11.2019.

64 Benchmarking e-Government: A Global perspective // unpan1.un.org/intradoc/groups/public/documents/un/unpan021547.pdf. 20.03.2019.

65 Kassen M. E-Government in the United States: The Federal model of implementation // In book: Understanding systems of e-Government. – N.Y.: Rowman & Littlefield, 2015. – P. 27-43.

66 Obama B. Transparency and open Government. Memorandum for the Heads of Executive departments and agencies // http://www. whitehouse.gov/the _press_office/TransparencyandOpenGovernment. 23.09.2019.

67 Overview: CitySourced / Government Technology // https://www.govtech.com/100/CitySourced.html. 12.03.2019.

68 Kassen M. A promising phenomenon of open data: A Case Study of the Chicago open data project // Government Information Quarterly. – 2013. – Vol. 30(4). – P. 508-513.

69 Goede M. E-Estonia: The e-Government cases of Estonia, Singapore, and Curacao // Archives of Business Research. – 2019. – Vol. 7(2). – P. 216-227.

70 Heller N. Estonia, the Digital Republic // https://www.newyorker. com/magazine/2017/12/18/estonia-the-digital-republic. 30.11.2018.

71 Tiik M., Ross P. Patient opportunity in the Estonian Electronic Health Record System // Stud Health Technol Inform. – 2010. – Vol. 156. – P. 171-177.

72 Heiberg S., Willemson J. Verifiable Internet Voting in Estonia // 6th internat. conf. on Electronic Voting. – Bregenz, 2014. – P. 23-29.

73 Maaten E. Towards Remote E-Voting: Estonian Case. Electronic voting in Europe-Technology // Law. Politics and Society. – 2004. – Vol. 47. – P. 83-100.

74 Act Republic of Estonia. Personal data protection: approved on January 1,

2018 // https://www.riigiteataja. ee/en/eli/512112013011/consolide. 11.11.2018.

75 Menkhoff T. Lessons from two smart nations: Germany and Estonia // https://www.sgsme.sg/news/lessons-two-smart-nations-germany-estonia. 17.05.2019.

76 Jaffe E. Save time and improve your marks with CiteThisForMe // http://www.citethisforme.com/. 20.04.2018.

77 Ростелеком планирует перевести все госуслуги в электронный вид к 2013 году // https://www.cnews.ru/news/line/rostelekom_planiruet. 30.11.2018.

78 Digital Government 2020: prospects for Russia //https://openknowledge.worldbank.org/handle/10986/24402. 20.09.2019.

79 Decree of the Government of the Russian Federation. On the System for managing the implementation of the National Program: approved on March 2, 2019, №234 // http://government.ru/docs/35964/. 18.10.2019.

80 Оказание государственных услуг по принципу «одного окна»: опыт Азербайджана // https://www.astanacivilservicehub.org/. 14.03.2019.

81 2015 United Nations Public Service Awards winners // https://publicadmi nistration.un.org/ru/2015unpsa. 14.03.2019.

82 Development strategies of Kazakhstan until 2030 // http://adilet.zan.kz/rus/docs/T010000735. 23.03.2019.

83 Reform of the public administration system: foreign experience and Kazakhstan / KISI. – Almaty, 2005. – 276 p.

84 Annual state of the nation address: Kazakhstan-2050 Strategy: December 15, 2012 // http://adilet.zan.kz/rus/docs/K1200002050. 15.04.2019.

85 Benchmarking civil service reform in Kazakhstan. Series: OECD Public Governance reviews / OECD. – Paris, 2018. – 168 p.

86 Amirova A., Digital Transformation: reshaping public authorities towards innovative civil service of Kazakhstan (Case Study of remuneration by results project) // Proceed. of the internat. Research conf. «State of the Future: New Technologies and Public Administration». – Astana, 2019. – P. 29-34.

87 Decree of the Government of the Republic of Kazakhstan. The Concept of Social Development of the Republic of Kazakhstan Until 2030 and the Plan of Social Modernization for the Period until 2016: approved on April 24, 2014, №396 // https://online.zakon.kz/Document/?doc_id=31547041. 23.09.2018.

88 State Program to the Development of Education and Science of the Republic of Kazakhstan to 2020-2025 // http://government.kz/en/news/ gosprogramma-razvitiya-obrazovaniya-do-2025-goda-obnovlenie. 18.01.2020.

89 State Program Health Care Development of the Republic of Kazakhstan for 2020-2025 // http://government.kz/en/news/pravitel-stvo-utverdilo-gosprogrammu-razvitiy-zdravoohraneniy-na-2020-2025-gody. 17.01.2020.

90 Decree of the Government of the Republic of Kazakhstan. State Program for the Development of Productive Employment and Mass Entrepreneurship for 2017-2021 «Enbek»: approved on November 13, 2018, №746 // http://adilet.zan.kz/rus/docs/P2000000189. 22.04.2019.

91 Арзикулова Р.К. Социальная политика и источники реализации социальных программ // Вестник Казахского национальный педагогического университета. – 2017. – №3. – С. 17-23.

92 Tynyshtykbaev A.D., Abdimomynova A.Sh. Social policy of the Republic of Kazakhstan: theoretical aspect // Young Scientist. – 2017 – Vol. 3(137). – P. 404-406.

93 World Employment and Social Outlook: Sustainable enterprises and jobs, 2017 / International Labour Office. – Geneva, 2017. – 147 p.

94 The Green Book. Appraisal and evaluation in central Government./ Treasury guidance. – London: TSO, 2018. – 118 p.

95 The State Program for the Development the Education and Science of the Republic of Kazakhstan for 2016-2019 // https://nur.nu.edu.kz/bitstream/handle/.. 18.02.2020.

96 The State Program of Education Development until 2025: Updating curricula, supporting science and electronic UNT // https://primeminister.kz/en/news /gosprogramma-razvitiya-obrazovaniya. 19.12.2019.

97 World employment and social outlook: Trends 2018 / International Labour Office. – Geneva, 2018. – 82 p.

98 The Government transformation strategy / The Cabinet office. – London, 2016. – 93 p.

99 Lonescu L. The role of e-Government in curbing the corruption in public administration // Economics, Management and Financial Markets. – 2015. – Vol. 10(1). – P. 48.

100 The Law of the Republic of Kazakhstan. On Education: approved 27 July, 2007, №319-III // http://adilet.zan.kz/eng/. 18.02.2020.

101 The e-Learning Trends of Higher Education in Kazakhstan // https://www.researchgate.net/publication/274149510_. 18.03.2019.

102 OECD Employment Outlook 2019: The future of work, OECD Publishing, Paris// https://doi.org/10.1787/9ee00155-en. 24.03.2020. 24.03.2020.

103 In the US, more than 30 million citizens were left without work // https://fbc.net.ua/news/ekonomika/v-ssha-bolee-30-mln-grazhdan. 18.05.2020.

104 Arntz M., Gregory T., Zierahn U. The risk of automation for jobs in OECD countries: a comparative analysis: working papers. – Paris, 2016. – №189. – 35 p.

105 The State Program “Digital Kazakhstan”, 2017 // https://digitalkz.kz/en/. 18.04.2020.

106 The future of jobs: Report 2018 // http://www3.weforum.org/docs/ WEF_Future_of_Jobs_2018.pdf. 24.03.2019.

107 Rashid B. The rise of freelancer economy // https://www.forbes.com/sites/brianrashid/2016/01/26/the-rise-of-the. 23.10.2018.

108 Employment Outlook, 2017 / OECD // https://read.oecd-ilibrary.org/employment/oecd-employment-outlook-2017_empl_. 23.03.2019.

109 Building inclusive Labour markets in Kazakhstan: A focus on youth, older workers and people with disabilities / OECD. – Paris, 2017. – 202 p.

110 The Directive №464 - 2013, January – 8 / The State Program “Information Kazakhstan – 2020” // http://adilet.zan.kz/rus/. 23.09.2019.

111 The Kazakh Law on Access to Information // http://online.zakon.kz/Document/? doc_id=39415981. 23.09.2019.

112 Kassen M. E-Government in Kazakhstan: realization and prospects // http://opensiuc.lib.siu.edu/ pnconfs_2010/6/. 24.05.2019.

113 Kassen M. A retrospective analysis of e-government development in Kazakhstan. In: E-government in Kazakhstan – Routledge: London. 2016. – P. 29-53.

114 Kassen M. Globalization of e-Government: open Government as a global agenda; benefits, limitations and ways forward // Information Development. – 2014. – Vol. 30(1). – P. 51-58.

115 Как развивается портал Электронного Правительства Казахстана? // https://kursiv.kz/news/obschestvo/2018-11/kak-razvivaetsya-portal.. 23.02.2019.

116 The Decree of the Acting Chairman of the Informatization and Communication Agency of Kazakhstan. The rules for the registration of the domain space in the Kazakhstan segment of the Internet: approved on March 28, 2018, №16654 // http://adilet.zan.kz/rus/docs/V1800016654. 24.04.2019.

117 Decree of the President of the Republic of Kazakhstan. The Conception of Information security of Kazakhstan: approved on November 14, 2011, №174 // http://adilet.zan.kz/rus/docs/U1100000174. 23.03.2019.

118 Janenova S. E-Government in Kazakhstan: challenges for a transitional country // Procced. 18th NISPAcee Annual conf. «Public Administration in Times of Crisis». – Warsaw, 2010. – P. 12-14.

119 Janenova S., Kim P. Innovating Public service delivery in transitional countries: The case of one-stop shops in Kazakhstan // International Journal of Public Adminstration. – 2016. – Vol. 39(4). – P. 323-333.

120 Zerde / The National Telecommunication Holding // www.zerde.gov.kz. 24.04.2020.

121 The Report of the Ministry of Education and Science of the Republic of Kazakhstan dated May 31, 2020 // https://primeminister.kz/en. 31.05.2020.

122 Amagoh, F. New public management and health reform in Kazakhstan//International Journal of Public Administration. – 2011. – Vol. 34(9). – P. 567-578.

123 Resolution №369, 2014, April – 17 / On the Agency of Informatization and Communication of Kazakhstan // http://adilet.zan.kz/rus/docs/P1400000369#z12. 23.09.2019.

124 The Law of the Republic of Kazakhstan. On Compulsory Social Health Insurance: approved November 16, 2015, №405-V // http://adilet.zan.kz/eng/docs/ Z1500000405. 2309.2019.

125 Knox C., Yessimova S. State-society relations: NGOs in Kazakhstan // Journal of Civil Society. – 2015. – Vol. 11(3). – P. 300-316.

126 Diachenko S. The Government and NGOs in Kazakhstan: strategy, forms, and mechanisms of cooperation // Central Asia and The Caucasus. – 2007. – Vol. 1(43). – P. 44-56.

127 Bhuiyan S.H., Amagoh F. Public sector reform in Kazakhstan: issues and perspectives // International Journal of Public Sector Management. – 2011. – Vol. 24(3). – P. 227-249.

128 Janenova S. One-Stop-Shop Public Service Delivery Model: the Case of Kazakhstan. – Astana: Regional Hub of Civil Service in Astana, 2009. – 36 p.

129 The changing nature of work: world development report 2019 / World Bank. – Washington, 2019. – 151 p.

130 Reform of the public administration system: Foreign Experience and Kazakhstan / KISI. – Almaty, 2005. – 276 p.

131 Janenova S., Knox C. Civil service reform in Kazakhstan: trajectory to the 30 most developed countries? // International Reviews of Administrative science. – 2019. – Vol. 85(3). – P. 419-439.

132 Kassen M. Empowering social media: citizens-source e-Government and peer-to-peer networks // 5th Political Networks conf. – Boulder: University of Colorado, 2012. – P. 2.

133 Динамика основных социально-экономических показателей (The official statistical information, Committee on Statistics; Ministry of National Economy of the Republic of Kazakhstan) // https://stat.gov.kz/official/dynamic. 23.05.2019.

134 Knox C., Janenova S. Public management reforms: one-stop shops to Digital Government // Oxford Research Encyclopedia of Politics. – Oxford: Oxford University Press, 2019. – P. 1-22.

135 Zharkeshov Y. Comparative analysis of institutional reforms and human resource capacities of public administrations in post-soviet countries // International Journal of civil service reform and practice. – 2014. – Vol. 4. – P. 114-153.

136 Kassen M. Understanding systems of e-Government: e-Federalism and e-Centralism in the United States and Kazakhstan. – Lanham, MD: Lexington Books. 2015. – 200 p.

137 Public service excellence in the 21st century 2019 / ed. A. Baimenov, P. Liverakos. – Cham: Palgrave Macmillan, 2019. – 345 p.

138 Jussupova G., Zhussip D. Models of effective public administration in digitalization // Opción. – 2019. – Vol. 35, №24. – P. 1517-1531.

139 Miles M., Huberman A.M., Saldana J. Qualitative data analysis: a methods sourcebook. – Ed. 3rd**.** – London: SAGE Publications, 2014. – 381 p.

140 Bhatnagar S. E-Government: from vision to implementation. – New Delhi: Sage Publication India, 2004. – 203 p.

141 Dulambayeva R., Zhunussova A., Balkenzhe A., Jussupova G. Development of information and communication services in the countries of the EAEU // Opcion. – 2020. – Vol. 36, Issue 27. – P. 809-827.

142 Jussupova G. Global challenges of social policy on the example of the Labor market. The experience of Kazakhstan // Proceed. book. 18 internat. conf. of Social science. – Lisbon, 2019. – P. 261-266.

143 Jussupova G., Bokayev B., Davletbayeva Zh. Leadership competence under digital transformation of governance // Vestnik PSU. – 2020. – №1. – P. 109-122.

144 Jussupova G., Bokayev B., Zhussip D. Digital Government maturity as a technologically new e-Government maturity model: experience of Kazakhstan // Proceed. book, 3rd internat. conf. on e-Commerce, e-business and e-Gov. – Lyon, 2019. – P. 10-15.

145 Jussupova G. Assessment of the current state of the e-Government of

Kazakhstan // Public Administration and Public Service. – 2018. – №2. – P. 15-22.

146 D. Satpayev. What would you say are symbols of your current situation or the current situation in your country? // https://www.goethe.de/ins/bd/en/kul/prj/day-afterthoughts/21832430.html. 06.05.2020.

147 Baimenov A., Janenova S. The emergence of a new model? Trajectories of civil service development in the former Soviet Union countries // Public Service Excellence in the 21st Century – Cham: Palgrave Macmillan, 2019. – P. 105-143.

148 Knox C., Janenova S. The e-Government paradox in post-soviet countries // International Journal of Public Sector Management. – 2019. – Vol. 32(6). – P. 600-615.

149 Tham J., Jussupova G. Digital technologies and the future of employment // Proceed. book internat. conf. «The State of the Future: New Technologies and Public Administration». – Astana, 2019. – P. 8-14.

150 Jussupova G. Social Policy in the Digital Age: Analysis of Education // Proceed. book internat. conf. «Great Capitals - Smart Cities» dedicated to the 20th anniversary of Astana - the Capital of the Great steppe. – Astana: L.N. Gumilyov Eurasian National University, 2018. – P. 59-72.

151 «Цифровые» вице-министры появятся еще в трех ведомствах Республики Казахстан // https://www.inform.kz/ru/cifrovye-vice-ministry-poyavyatsya-esche-v-treh-vedomstvah-rk_a3588730. 03.02.2020.

152 Isabaeva S., Karmys G., Beksultanov A., Jussupova G. Comparative analysis of the rating of countries on digitalization and cybersecurity: problems and opportunities // Kazakhstan-Spectrum Magazine, Kazakhstan Institute for Strategic Studies. – 2018. – №3. – P. 23-37.

153 Karmys G., Beksultanov A., Isabaeva S., Jussupova G. Comparative analysis of the state approach to digitalization of Kazakhstan and Russia // Journal of the Bulletin of the University «Turan». – 2018. – №3. – P. 197-202.

APPENDIX A

Table A.1 - Information systems and information resources of the Ministry of Education and Science of the Republic of Kazakhstan

Information System Name	Information System Purpose
1	2
«E-Learning Information System» / as part of the e-Learning project	The system is designed to automate the learning processes, teaching and educational activities, and administrative management of educational organizations
Unified higher education management system	The system is designed to automate the collection of standard reporting on education sectors, visualize analytical data, implement on-line enrollment of citizens, and automate socially significant public services
Automated Information System «Unified National Testing»	Designed to ensure equal access for graduates with secondary general education to enter higher education institutions
Information system “Psychological-medical-pedagogical consultation”	The system is designed to collect, accumulate, store, process and search for information about children with developmental disabilities, as well as to generate statistical reports upon request and according to the statistical reporting forms of PMPK
Automated information system of a higher educational institution	Designed to automate credit technology of training in higher education organizations and increase management efficiency in the field of education based on information and technical support for solving problems of monitoring compliance with contingent cash receipts
Multifunctional information system «e-Bolashak»	Designed to ensure transparency in the process of admission and selection of applicants, with the ability to control the progress of fellows and the movement of citizens of Kazakhstan studying abroad
Information system «Accounting and monitoring of repayment of state education and student loans, guarantee obligations for educational loans»	The system is designing to automate: - accounting procedures for state educational and state student loans; - procedures for the issuance by the Financial Center of guarantee liabilities to banks for educational loans and their accounting; - procedures for claim work, accounting for the execution of court acts. defaults and amounts paid to guarantee banks; - maintaining an archive of documents, the formation of regulated reporting
«A unified database of students of continuing education courses»	Designed for registration of students of level and short-term advanced training courses and reporting
«Unified database of teaching aids»	Designed to automate the process of maintaining a base of teaching aids and a base of students (teachers)
Antiplagiarism	Designed for the examination of monographs, scientific papers, textbooks, and teaching aids
Kazakh language proficiency assessment system	The KAZTEST system is intended for computer testing of one or several users to assess the level of proficiency in the state language in the Republic of Kazakhstan

Continuation of table A.1

1	2
Competition	The system is intended for integrated information and analytical support of the processes of holding a competition for the award of educational grants for admission to a university
Comprehensive testing of applicants	AIS «KTA» is intended for integrated information and analytical support of the processes of the KTA
External assessment of educational attainment of secondary education (computer)	Designed for integrated information and analytical support of the processes of NTs affiliates and secondary education organizations, subject to participation in testing
External assessment of academic achievement in higher education	Designed for integrated information and analytical support of the processes of NTs affiliates and higher education organizations, subject to participation in testing
Comprehensive testing of students during the state certification of educational organizations (state certification of schools)	Designed for comprehensive testing during the period of state certification of educational organizations carried out in the branches and scientific and technical centers by relevant specialists
Comprehensive testing for students transferring from foreign universities to universities of Kazakhstan	Designed to automate comprehensive testing of students transferring from foreign universities to universities of Kazakhstan
Comprehensive testing of teachers	Designed to automate the comprehensive testing of teachers
Acceptance of applications for after university education	Designed to automate testing of applicants for postgraduate education
Automated Information Library System «MARSQL»	A tool for automating traditional library technologies related to library stock accounting
Unified Digital Library	Designed for the collection and storage of heterogeneous electronic documents equipped with navigation and search
Electronic document management system of JSC «Center for International Programs»	Designed to automate the process of documenting and processing statistical reporting forms, as well as storing and receiving accounting and reporting documentation
E-learning system AOO NU	The system is designed to automate the learning processes, teaching and educational activities, and administrative management of AOO NU
Portal «System-methodical complex»	The purpose is to ensure the updating of the content of secondary education
Online educational platform Bilimland.kz	The mission is to create a universal, educational platform with access to interactive lessons and materials on inclusive education
Educational resource Twig-Bilim.kz	The purpose is to provide students with access to educational materials and to obtain accessible explanations of the most complex topics in physics, mathematics, chemistry, biology, and geography for use in the classroom and at home
Internet resource of the Ministry of Education and Science of the Republic of Kazakhstan	Providing information on the structure of civil society and its subordinate organizations, civil society functions, standards, reports on civil society activities, strategic plans, a list of approved textbooks, contact numbers

Continuation of table A.1

1	2
Internet resource of the Committee for the Control of the Sphere of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan	Providing information on the structure of civil society and subordinate organizations, civil society functions, standards, reports on civil society activities, strategic plans, contact numbers for contact, a schedule for receiving managers,
Internet resource of the Committee of Science of the Ministry of Education and Science of the Republic of Kazakhstan	Providing information on the structure of civil society and subordinate organizations, civil society functions, standards, reports on civil society activities, strategic plans, contact numbers for contact, a schedule for receiving managers,
Internet resource of the Committee for the Protection of Children's Rights of the Ministry of Education and Science of the Republic of Kazakhstan	Providing information on the structure of civil society and subordinate organizations, civil society functions, standards, reports on civil society activities, strategic plans, contact numbers for contact, a schedule for receiving managers,
Automated control system «BILIMAL. Electrons mektep»	The system is designed to provide a wide range of teaching tools and tools for teachers, parents, and children
Digital Education Resource NIS	Designed to create, adapt the implementation of digital educational resources to accompany the educational process in grades 1-12
Distance learning system of JSC «Scientific and Production Center» Orleu «(dl.orleu-edu.kz)	Designed to to become familiar with the materials of training courses and perform tasks and testing on-line
Scientific and educational portal of moral and spiritual training and education	Systematic improvement of the quality of the country's human capital by promoting the ideas of moral-spiritual education «Self-knowledge» in society
National Scientific, Practical, Educational, and Wellness Center	Designed to inform about the activities of the National Scientific, Practical, Educational, and Health Center
IR of the Republican Training and Health Center «Baldauren»	Designed to inform about the activities of the Republican Training and Health Center «Baldauren», recreation
Housing Management System (Hotel Management System)	The system is designed to record living quarters and provide them for teachers, students
LMS KazNITU	Providing distance education
LMS KSPI	Providing distance education
Internet resource of the State Institution “National Scientific and Practical Center for Correctional Pedagogy”	Provision of legal acts, methodological support in the field of correctional pedagogy
Online application for computer testing using the KazTest system	Designed to automate the process of applying for computer testing to determine the level of competence in the Kazakh language
Automated Library Information System	A system of enterprise resource planning for libraries that are used to track library collections, from ordering and purchasing to issuing libraries to visitors
Unified user management system	Designed for unified and centralized management of registration data, accounts, and user access to information resources of the organization by ensuring the transfer of uniform information about users in connected systems

Continuation of table A.1

1	2
Internet resource «National Scientific Portal»	The National Science Portal is a multifunctional web portal where representatives of the Kazakhstani and world scientific community will be able to find the information they need about the state of Kazakhstani science, about the latest events, achievements and upcoming scientific events, information about world scientific publications, about getting access to them and about many other things
IS «Sirius»	Accounting for students and their academic achievements
IS «Univer»	Accounting for students and their academic achievements
IR Center for International Programs	Providing all the necessary information to the applicant, scholarship holder, graduate of the international scholarship "Bolashak"
ELECTRONIC SYSTEM of the educational process of schools in the Mangystau region	The organization of accounting for the data of the educational process of educational schools of the Mangystau region (by adapting to a single format the formation of resources of the educational contingent
Republican Scientific and Practical Center «Textbook»	The portal aims to improve the quality and content of text books, as well as to take into account the views and suggestions of the wider parent and pedagogical community
IR Center for Educational Programs AEO «Nazarbayev Intellectual Schools»	1) Development, implementation, and monitoring of integrated educational and training programs; 2) Introduction of a multilingual education system based on the development of a trilingual education model; 3) Creation of a mechanism for transmitting an integrated educational program to secondary schools of the Republic of Kazakhstan
Automated information system «Nostrification»	Designed to automate the accounting of received applications for the nostrification service and control the timing of their execution
Automated information system of the «Department of nostrification»	Standalone/local software (without server-side), used only for printing identities
IR JSC «Republican Scientific and Methodological Center for the Development of Technical and Vocational Education and Qualification»	Educational and methodological support of TVE organizations
Socially-oriented collaboration platform ARTA SYNERGY	The socially-oriented platform is intended for organizing access to the service for providing textbooks and educational-methodological complexes (UMK) and to the service for registering emergency and educational institutions requiring major repairs
Unified information system of education and science (prototype)	Automated performance monitoring
Software «Universal Accounting System» (Republican databank of orphans)	The module "Databank of orphans" is intended to automate the function of keeping records of orphans and children left without parental care and to be adopted and to access information about them for their transfer to foster care (adoption, guardianship, foster care)

Continuation of table A.1

1	2
Automated educational information system «Kundelik»	Improving the quality of the educational process by creating in each educational organization a unique environment for life support; introduction of an effective regional system of information exchange in the field of education
Massive Open Online Courses	MOOCs provide an opportunity to study any subject or discipline for free at a time convenient for you and at a pace convenient for you
The information (automated) system for managing the activities of Financial Center JSC to support and monitor the implementation of per capita regulatory financing in secondary education organizations	Designed to ensure the transition from financing the costs of educational institutions to financing the costs of training students, depending on their numbers
e-Government portal	The e-government portal has created to simplify the procedures for providing public services to the population on a one-stop basis. A single access point to all information resources of state bodies: open dialogue with the authorities, confidentiality, establishment of direct and reverse interaction of a citizen with state bodies
Integrated Information System for Public Service Centers	An information system designed to automate the process of providing public services to the population through public service centers
Information system «e-Akimat»	Designed to ensure information interaction between internal information systems of structural units of local executive bodies with the basic components of «e-Government» and departmental centralized information systems of central executive bodies
Information system State database «E-licensing»	It was created to automate licensing processes, permits and provide an effective, transparent mechanism for information interaction between government bodies - licensors and the business community of Kazakhstan
Integrated personnel management information system «e-Kyzmet»	Designed to solve the primary tasks of the Ministry of Civil Service of the Republic of Kazakhstan and the personnel management service of state bodies, as well as the development and improvement of personnel management processes
DB «Law»	Electronic source of legal information in the state and Russian languages, containing all the regulatory legal acts of the country
Intranet portal of government agencies	The portal is intended for the formation of a unified information environment, automation of business processes of state bodies
Unified electronic document management system	113 system is designed to increase the efficiency and transparency of government records management by unifying departmental and interdepartmental processes of documentation support for government bodies
IR JSC «Science Fund»	Publication of grant financing contests

Continuation of table A.1

1	2
Automated information system «Electronic public procurement»	The system provides a single access point to electronic services in the field of public procurement and allows you to participate in public procurement as a customer, organizer, and supplier
IS Treasury client	It is an electronic document management system of the Treasury and territorial divisions of the Treasury (hereinafter - TC) with the Client
IS State Planning	Designed to automate the planning of the budget process and information support of the Ministry
IS Unified register of subjects and objects of verification	The uniqueness of the register is determined not only by the possibility of centralizing information about all objects of inspections, automating the processes for assigning inspections by the risk assessment system and their registration but also by ensuring the transparency of the inspection proce dure, both for inspection bodies and audited entrepreneurs
Subsystem «Accounting» - Complex of programs «Balance» (Balance)	The system provides the principle of a unified accounting of the forms of financial statements for all types of financing, can form codes for the accounts. Intraform and interform control of the entered information has carried out. An important requirement is the centralized maintenance and administration of IS directories and classifiers
1C Configuration «Budget»	Designed to automate the financial and economic activities of state institutions
1C Configuration «Asset Accounting»	The configuration provides the ability to keep records of several organizations in a common information base
IS «Register of students of universities and medical faculties»	The system is designed to automate the process of accounting for students of higher and secondary educational institutions, analysis of the quality of student learning by state order and on a paid basis
1C Production Enterprise Management AOO NU	A comprehensive solution allows you to organize a single information system for managing various aspects of the enterprise
Electronic document management system AOO NU	An EMS platform that already in its basic configuration closes the basic functions of an electronic document management system (EDMS) for managing documents and business processes
IR JSC «National Center for State Scientific and Technical Expertise»	Publication: 1) directions, terms of grant financing; 2) results of the competition for grant financing
APEC Petrotechnic	Designed to inform about the activities of the college «Atyrau training center for the oil and gas industry»
IR RSU «Republican Center» Preschool Childhood «	1) methodological support of the preschool education program; 2) advanced training; 3) organization of the contest «Best Preschool Organization»
IR RGKP «Republican Training Center for Continuing Education» of the MES RK	1) Development of a methodology; 2) Implementation, testing; 3) Advanced training

APPENDIX B

List of public services approved by order
Minister of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan dated January 31, 2020 No. 39 / НҚ, recommended for optimization

1. (5) Issuance of a certificate of the presence or absence of a criminal record – GP.

2. (7) Issuance of certificates to persons with benefits (participants in the Great Patriotic War, liquidators of the Chernobyl accident, soldiers-internationalists – MD.

3. (8) Issuance of certificates of confirmation of military service – MD.

4. (9) Issuance of certificates on the citizen's attitude to military service – MD.

5. (10) Submission of information confirming registration at a permanent place of residence in a settlement of a border territory - Ministry of Internal Affairs.

6. (12) Issuance of information on the records of the Committee on Legal Statistics and Special Accounts of the General Prosecutor's Office of the Republic of Kazakhstan on a person committing an administrative offense – GP.

7. (13) Issuance of certificates to citizens traveling outside the Republic of Kazakhstan for permanent residence – MD.

8. (24) Registration of death, including amendments, additions, and corrections to the records of acts of civil status - Ministry of Internal Affairs.

9. (64) Registration of the birth of a child, including amendments, additions, and corrections to the records of acts of civil status – MJ.

10. (65) Issuance of certificates of trusteeship and guardianship – MES.

11. (67) Issue of certificates for disposing of the property of minors – MES.

12. (71) Assignment of benefits for childbirth and childcare – MLSSP.

13. (72) Assignment of benefits to mother or father, adoptive parent (s), guardian (curator) raising a disabled child – MLSPP.

14. (73) Issuance of permission to visit a child to parents deprived of parental rights that do not adversely affect the child – MES.

15. (74) Assignment of state allowance to mothers of many children, awarded with pendants «Altyn alka», «Kүmis alka» or who had previously been awarded the title «Mother Heroine», awarded with orders of «Mother Glory» of the I and II degrees – MLSPP.

16. (75) Assignment of the allowance for the care of a disabled person of the first group since childhood – MLSPP.

17. (94) The purpose of the payment of benefits to guardians or trustees for the maintenance of an orphan (orphans) and a child (children) left without parental care – MES.

18. (98) Appointment of lump-sum cash payment in connection with the adoption of an orphan and (or) a child left without parental care – MES.

19. (100) - Registration of a pledge of movable property not subject to mandatory state registration of the Ministry of Justice.

20. (101) - Issuance of an extract from the registry of registration of pledges of movable property – Ministry of Justice.

21. (117) State registration of rights (encumbrances) on real estate – MJ.

22. (119) Entering into the legal cadaster of identification and technical information of buildings, structures and (or) their components for newly created real estate, issuance of a technical passport of real estate and a conclusion on the establishment of discrepancies in the identification and technical information based on the results of a state technical examination of the newly created real estate - Ministry of Justice.

23. (122) Issuance of a certificate of registered rights (encumbrances) on real estate and its technical characteristics – Ministry of Justice.

24. (123) Issuance of a certificate of absence (presence) of real estate – Ministry of Justice.

25. (124) Issuance of certificates of registered and terminated rights to real estate – Ministry of Justice

26. (141) Issuance of a certificate from a medical organization providing primary health care – MH.

27. (144) - Issuance of an extract from a medical record of a hospital patient – MH.

28. (178) - Issuance of a certificate from a neuropsychiatric organization – MH.

29. (179) - Issuance of a certificate from a narcological organization – MH.

30. (180) - Issuance of a certificate from a TB organization – MH.

31. (182) - Issuance of a certificate of admission to driving a vehicle – MH.

32. (186) - Assignment of pension payments by age – MLSPP.

33. (187) - Appointment of the state basic pension payment – MLSPP.

34. (188) - Appointment of social benefits for cases of disability – MLSPP.

35. (190) - Appointment of the State Social Disability Allowance – MLSPP.

36. (192) - Issuance of information on participation as a consumer of medical services and on the transferred amounts of deductions and (or) contributions to the system of compulsory social health insurance – MH.

37. (193) - Pension payments from pension savings generated from mandatory pension contributions, mandatory professional pension contributions from a single funded pension fund – MLSPP.

38. (194) - Issue to a participant of the system of mandatory social insurance information on the status and movement of social contributions – MLSPP.

39. (195) - Appointment of state social benefits in the event of the loss of a breadwinner – MLSPP.

40. (196) - Appointment of social benefits in cases of loss of a breadwinner – MLSPP.

41. (197) - Assignment of social benefits for cases of job loss – MLSPP.

42. (199) - Assignment of social benefits in cases of loss of income in connection with the adoption of a newborn child (s) and loss of income in connection with caring for a child when he reaches the age of one year – MLSPP.

43. (201) - Appointment of state targeted social assistance – MLSPP.

44. (202) - Appointment of special state allowance – MLSPP.

45. (203) - Assignment of social assistance to certain categories of needy citizens according to decisions of local representative bodies – MLSPP.

46. (217) - Issuance of information on the receipt and movement of funds of the depositor of the unified accumulative pension fund – MLSPP.

47. (218) - Issuance of a certificate confirming that the applicant (family) belongs to the recipients of targeted social assistance – MLSPP.

48. (220) - Issuance of a certificate of registration as unemployed – MLSPP.

49. (224) - Awarding of educational grants, as well as the provision of social support to students in higher education organizations – MES.

50. (225) - Issuance of a certificate on the status of the scholarship holder of the Bolashak international scholarship – MES.

51. (226) - Provision of a letter of guarantee for those traveling to study as a scholarship holder of the Bolashak international scholarship – MES.

52. (227) - Reimbursement of expenses to scholarship holders of the Bolashak international scholarship – MES.

53. (228) - Advance of scholarship holders of the Bolashak international scholarship – MES.

54. (229) - Issuance of a real estate pledge agreement provided as security for the fulfillment of obligations of Bolashak scholarship holders – MES

55. (230) - Issuance of a notice of termination of a pledge of real estate upon fulfillment of obligations by a scholarship holder of the Bolashak – MES

56. (234) - The issuance of a license to engage in educational activities – MES RK

57. (236) - Issuing an expert opinion to authors and authors on educational publications of preschool, elementary, basic secondary, general secondary, technical and vocational, post-secondary, higher and postgraduate education – MES.

58. (237) - Issuance of a certificate of delivery of unified national testing – MES.

59. (238) - Issue of a license for the export of collection materials on mineralogy, paleontology, bones of fossil animals – MES.

60. (239) - Issue of a license for the export of cultural property, documents of national archival funds, and originals of archival documents – MCS.

61. (252) - Issuance of a certificate to persons who have not completed technical, vocational, post-secondary education – MES.

62. (258) - Issue of a certificate of registration (re-registration) of legal entities, accounting registration (re-registration) of their branches and representative offices – Ministry of Justice.

63. (261) - Providing information on the category of business entity MNE.

64. (263) - Issuance of a license to engage in forensic activities, including forensic, forensic and forensic psychiatric examinations – Ministry of Justice.

65. (265) - The issuance of a license to practice law – Ministry of Justice (267) - Issuance of a license for the right to engage in notarial activity of the Ministry of Justice.

66. (269) - Issue of a license to engage in the activities of a private enforcement agent of the Ministry of Justice.

67. (270) - Issuance of a license for the implementation of scientific and restoration works on historical and cultural monuments and (or) archaeological works - Ministry of Justice.

68. (271) - Issue of a license to engage in casino activities – MCS.

69. (272) - Issue of a license to engage in the activities of a slot machine hall – MCS.

70. (273) - Issue of a license to engage in the activities of a bookmaker – MCS.

71. (274) - Issuance of a license to engage in the activities of a totalizator – MCS.

72. (275) - Issuance of a license to import and (or) export certain types of goods – MCS.

73. (276) - Issuance of a license to engage in the activities of commodity exchanges – MTI.

74. (277) - Issue of permission for export and (or) import of certain types of goods into the territory of the Republic of Kazakhstan – MTI.

75. (279) - Assignment of qualification of a forensic expert – MTI.

76. (280) - License to manufacture tobacco products – MF.

77. (281) - Issue of a license for the production of ethyl alcohol – MF.

78. (282) - Issue of a license for the production of alcoholic beverages – MF.

79. (283) - Issuance of a license for the storage and wholesale of alcoholic beverages, with the exception of the activities for the storage and wholesale of alcoholic beverages in the territory of its production – MF.

80. (284) - Issuance of a license for the storage and retail sale of alcoholic products, with the exception of activities for the storage and retail sale of alcoholic products in the territory of its production – MF.

81. (292) - Issue of a license for tourist operator activity (tour operator activity) – MF.

82. (294) - Issuance of an international certificate for the weighing of freight vehicles – MCS.

83. (296) - The issuance of a license for the right to engage in activities on the occasional transportation of passengers by buses, minibuses in intercity interregional, interdistrict (intercity intraregional) and international communications, as well as the regular transportation of passengers by buses, minibuses in international traffic – MID.

84. (297) - Issuance of a special permit for the passage of heavy and (or) bulky vehicles – MID.

85. (301) - Approval of routes and timetables of regular urban (rural), suburban and intra-district automobile transportation of passengers and baggage – MID.

86. (302) - Issuance of a certificate for re-equipment of a motor vehicle and (or) trailers for it – MID.

87. (303) - Issuing certificates to aviation personnel – MIA.

88. (304) - Issuance of an operator’s certificate – MID.

89. (305) - Issuance of permission for international non-scheduled flights – MID.

90. (306) - Issuance of a certificate of airworthiness of an ultralight aviation aircraft – MID.

91. (308) - Issuance of a certificate of airworthiness of a civil aircraft – MID.

92. (309) - Issuance of a decision on recognition of the certificate of airworthiness of civil aircraft issued by a foreign state – MID.

93. (310) - The issuance of a certificate from the Aviation Training Center for Civil Aviation – MID.

94. (311) - Issuance of a certificate for the organization of inspection by the aviation security service of an airport – MID.

95. (312) - Issuance of a certificate for the right to perform aviation work – MID.

96. (313) - Issuance of a certificate of accreditation of foreign carriers operating in the territory of the Republic of Kazakhstan – MID.

97. (314) - Issuance of a certificate of an organization for maintenance and repair of civil aviation equipment – MID.

98. (315) - Issuance of a certificate for the right to fly (general aviation operator) – MID.

99. (316) - Issuing an aircraft noise certificate – MID.

100. (317) - Issuance of a certificate of validity for an aerodrome (heliport) – MID.

101. (318) - Issuance of permission to use radio transmitting equipment – MID.

102. (319) - Issuance of permission to perform a special flight – MID.

103. (320) - Issuance of export certificate of airworthiness – MID.

104. (322) - Issuance of a certificate for a civil aircraft type – MID.

105. (323) - Issue of certificate of air navigation services provider – MID.

106. (324) - Issuance of a special permit for flying over the territory of restricted areas and restricted areas of flights after coordination with the State Security Service of the Republic of Kazakhstan and with national security bodies – MID.

107. (326) - Issuance of a certificate of minimum crew of a ship – MID.

108. (327) - Issuance of a permit for the operation of a vessel flying the flag of a foreign state in the Kazakhstan sector of the Caspian Sea – MID.

109. (330) - Issuance of a license for the carriage of goods in the field of railway transport – MID.

110. (333) - Issuance of technical specifications for designing at the intersection of public roads of international and national importance by channels, communication and power lines, oil pipelines, gas pipelines, water pipelines and railways, other engineering networks, communications, as well as for the construction of access roads and junctions to public roads of international and republican significance – MID.

111. (334) - Issuance of a permit to travel across the territory of a foreign state to carriers of the Republic of Kazakhstan in accordance with international treaties ratified by the Republic of Kazakhstan – MID.

112. (335) - Issuance of a special permit for the transport of dangerous goods of classes 1, 6 and 7 – MID.

113. (336) - Issuance of a certificate of approval of a vehicle for the transport of dangerous goods in international traffic – MID.

114. (337) - Issuance of a permit for entry (exit) into the territory (from the territory) of a foreign state by carriers of the Republic of Kazakhstan, carrying out regular road transport of passengers and baggage in international traffic – MID.

115. (338) - Issue of a license for the performance of work and the provision of services in the field of environmental protection – MID.

116. (339) - The issuance of a license for the import into the territory of the Republic of Kazakhstan from countries outside the Customs Union, and the export from the territory of the Republic of Kazakhstan to these countries of ozone-depleting substances and products containing them – MEGNR .

117. (340) - Issuance of a permit for work using ozone-depleting substances, repair, installation, maintenance of equipment containing ozone-depleting substances – MEGNR.

118. (341) - Issue of environmental permits for facilities of category I – MEGNR.

119. (342) - Issuance of conclusions of the state environmental impact assessment for facilities of category I – MEGNR.

120. (343) - Issuance of permits for emissions into the environment for facilities of categories II, III and IV – MEGNR.

121. (344) - Issuance of conclusions of the state environmental impact assessment for facilities of category II, III and IV – MEGNR.

122. (346) - Issuance of an Integrated Environmental Permit – MEGNR.

123. (349) - Permission for special water use – MEGNR.

124. (353) - Issuance of an opinion on construction, reconstruction (expansion, modernization, technical re-equipment, re-profiling), operation, conservation, liquidation (post-utilization) of objects affecting the state of water bodies – MEGNR. (361) - The issuance by the administrative authority of permits for import into the territory of the Republic of Kazakhstan, export and (or) re-export from the territory of the Republic of Kazakhstan of animal species that are subject to the Convention on International Trade in Endangered Species of Wild Fauna and Flora – MEGNR.

125. (362) - The issuance by the administrative authority of permits for the import into the territory of the Republic of Kazakhstan, export and (or) re-export from the territory of the Republic of Kazakhstan of flora objects, their parts and derivatives subject to the Convention on International Trade in Endangered Species of Wild Fauna and Flora disappearances – MEGNR.

126. (363) - Issuance of a permit for the production of introduction, reintroduction and hybridization of animals – MEGNR.

127. (364) - Allocation of quotas for the seizure of objects of the animal world on the basis of approved limits – MEGNR.

128. (365) - Issuance of a brand of caviar for sturgeon fish species for trade on the domestic market of the Republic of Kazakhstan – MEGNR.

129. (367) - Issuance of a permit for amateur (sport) fishing, reclamation fishing, research fishing, and fishing for reproductive purposes at water bodies located in specially protected natural areas with the status of a legal entity, on the basis of biological justification in the presence of a positive state opinion environmental expert assessment – MEGNR.

130. (369) - Issue of permission to use the animal kingdom – MEGNR.

131. (370) - Issuance of a permit for the removal of animal species, the number of which is subject to regulation – MEGNR.

132. (373) - Registration of a pledge agreement for the right to use subsurface resources for exploration, production, or combined exploration and production for underground waters, therapeutic mud and solid minerals – MEGNR.

133. (374) - Issuance of a license for the operation of mining and chemical industries – MEGNR.

134. (375) - Registration of a pledge agreement on the right of subsoil use for exploration, extraction of common mineral resources – MID.

135. (376) - Issuance of permission to use a liquidation fund – MID.

136. (377) - Issuance of an opinion on the economic inexpediency or impossibility of processing raw materials containing precious metals on the territory of the Republic of Kazakhstan – MID.

137. (378) - Issuing a conclusion on the possibility (impossibility) and economic feasibility (inappropriateness) of the industrial extraction of precious metals from raw materials in the Republic of Kazakhstan – MID.

138. (379) - The issuance of an act of state control when importing into the territory of the Republic of Kazakhstan from countries outside the Eurasian Economic Union, precious metals (excluding products from them), scrap and waste of precious metals, the export of which is carried out on the basis of a license (without a license) – MID.

139. (380) - Issuance of an act of state control and cost assessment when exporting from the territory of the Republic of Kazakhstan to countries outside the Eurasian Economic Union, precious metals (excluding products from them), scrap and waste of precious metals exported under a license (without licenses) – MID.

140. (381) - Issuance of an opinion on the absence or insignificance of minerals in the subsoil under the site of the upcoming development – MID.

141. (382) - Issuance of a permit for the development of mineral deposits – MID.

142. (384) - Issuance of a conclusion (permit) for the placement of mineral raw materials under the customs procedure for processing outside the customs territory – MID.

143. (388) - Issuance of a license for prospecting – MID.

144. (389) - Issuance of a license for the use of subsurface space – MID.

145. (392) - Issuance of a permit for the extraction of rock mass and (or) displacement of soil at a prospecting site in an amount exceeding one thousand cubic meters – MID.

146. (398) - Issue of a veterinary certificate for movable (transported) objects upon export - MID.

147. (399) - Issue of a quarantine certificate for the movement of regulated products on the territory of the Republic of Kazakhstan - Ministry of Agriculture RK

148. (400) - Issue of a phytosanitary certificate for the export of regulated products outside the Republic of Kazakhstan - MID

149. (401) - Issuance of a veterinary and sanitary opinion on objects of state veterinary and sanitary control and supervision - Ministry of Agriculture.

150. (402) - Issuance of a title of protection for a selection achievement - Ministry of Agriculture.

151. (403) - Issuance of an examination certificate (test report) issued by veterinary laboratories - Ministry of Agriculture.

152. (404) - Issue of a veterinary certificate - Ministry of Agriculture.

153. (410) - Issue of a veterinary passport - Ministry of Agriculture.

154. (412) - Issuance of a conclusion (permit) for the import of samples of unregistered plant protection products (pesticides) for registration (small-scale and industrial) tests and (or) scientific research in accordance with the decisions of the Board of the Eurasian Economic Commission - Ministry of Agriculture.

155. (413) - Coordination of import of quarantine objects (quarantine harmful organisms) for scientific research purposes - Ministry of Agriculture.

156. (419) - Registration of laser stations, products (tools) and attributes for identification of farm animals and their producers - Ministry of Agriculture.

157. (427) - State registration of veterinary drugs, feed additives – Ministry of Agriculture.

158. (429) - Issue of a license for engaging in activities in the field of veterinary medicine - Ministry of Agriculture.

159. (430) - Certification of producers of original, elite seeds, seeds of the first, second and third reproductions and seed distributors - Ministry of Agriculture.

160. (431) - The issuance of a license to carry out activities for the production (formulation) of pesticides, the sale of pesticides, the use of pesticides by aerosol and fumigation methods - Ministry of Agriculture.

161. (432) - Issue of a license for the provision of services for warehouse activities with the issue of grain receipts - Ministry of Agriculture.

162. (433) - Issue of a license for the provision of services for warehouse activities with the issuance of cotton receipts - Ministry of Agriculture.

163. (434) - Issue of a permit for the export, import and transit of movable (transported) objects, taking into account the assessment of the epizootic situation in the relevant territory - Ministry of Agriculture.

164. (435) - Issue of a license to import plant protection products (pesticides) - Ministry of Agriculture.

165. (436) - Issue of a license for the export of wild living animals, individual wild plants and wild medicinal raw materials - Ministry of Agriculture.

166. (437) - Issue of a license for the export of rare and endangered species of wild animals and wild plants included in the Red Book of the Republic of Kazakhstan, in accordance with the Decree of the Government of the Republic of Kazakhstan dated October 31, 2006 No. 1034 – Ministry of Agriculture.

167. (439) Issuance of a certificate of readiness for energy-producing and energy-transmitting organizations to work in the autumn-winter period – Ministry of Agriculture.

168. (443) - Issue of a certificate of type approval of measuring instruments – Ministry of Agriculture.

169. (444) - Issuance of a certificate of metrological certification of measuring instruments – ME.

170. (446) - Issue of a permit for the transit of products subject to export control – ME.

171. (448) - Issuance of a license to carry out activities for the production of the State flag of the Republic of Kazakhstan and the State Emblem of the Republic of Kazakhstan – ME.

172. (449) - Issuance of a license to perform work related to the stages of the life cycle of nuclear facilities – MID.

173. (450) - Licensing of nuclear material handling activities – MTI.

174. (451) - The issuance of a license to carry out activities for the management of radioactive substances, devices and installations containing radioactive substances – ME.

175. (452) - Issuance of a license for the handling of devices and installations generating ionizing radiation – ME.

176. (453) - Issuance of a license to carry out activities for the provision of services in the field of atomic energy use – ME.

177. (454) - Issuing a license for radioactive waste management activities – ME.

178. (455) - Issuance of a license for the transportation, including transit, of nuclear materials, radioactive substances, radioisotope sources of ionizing radiation, radioactive waste within the territory of the Republic of Kazakhstan – ME.

179. (456) - Issue of a license for activities in the territories of former nuclear test sites and other territories contaminated as a result of nuclear tests – ME.

180. (457) - Issue of a license for the physical protection of nuclear installations and nuclear materials – ME.

181. (458) - Issuance of a license for the implementation of activities for the special training of personnel responsible for nuclear and radiation safety – ME.

182. (459) - Issuance of a license to carry out activities for the production, processing, acquisition, storage, sale, use, destruction of poisons – ME.

183. (460) - The issuance of a license for the development, production, repair, purchase and sale of ammunition, weapons and military equipment, spare parts, components for their devices, as well as special materials and equipment for their production, including installation, commissioning, modernization, installation, use, storage, repair and maintenance – ME.

184. (461) - The issuance of a license to carry out activities for the development, production, acquisition, sale, storage of explosive and pyrotechnic (with the exception of civilian) substances and products with their use – MID.

185. (462) - The issuance of a license to carry out liquidation activities through the destruction, disposal, burial and reprocessing of released ammunition, weapons, military equipment, special means – MID.

186. (463) - Issuance of a license to import and (or) export certain types of goods – MID.

187. (464) - Issue of a license for the export and import of products subject to export control – MID.

188. (465) - Issuance of permission to process products outside the territory of the Republic of Kazakhstan – MID.

189. (466) - Issue of permission to re-export products subject to export control. – MID.

190. (470) - Issuing opinions on the import into the territory of the Republic of Kazakhstan of radio-electronic means and high-frequency civilian devices, including those built-in or included in other goods, in cases other than imports, and (or) issuing a license for their import – MID.

191. (471) - Licensing of export and import of hazardous waste – MID.

192. (472) - Issue of a license for the export of information on subsurface resources by region and field of fuel, energy and mineral raw materials – MEGNR.

193. (473) - Issuance of a guarantee obligation (end-user certificate) – MEGNR.

194. (480) - Conclusion of the authorized body of the Member States of the Eurasian Economic Union on the transit of hazardous waste through the customs territory of the Eurasian Economic Union – MEGNR.

195. (484) - Issuing a permit for tree felling – MID.

196. (485) - Issuance of permission for the burning of raw gas in flares – MEGNR.

197. (486) - Issuance of permission for the creation and placement of offshore facilities – MID.

198. (489) - Presentation of information on the absence (presence) of debt accounted for by the state revenue authorities – MF.

199. (490) - Issuance of a certificate of the amount of income received from sources in the Republic of Kazakhstan and withheld (paid) taxes – MF.

200. (491) - Confirmation of the residency of the Republic of Kazakhstan – MF.

201. (505) - Issuance of extracts from the personal account on the status of settlements with the budget, as well as on social payments – MF.

202. (506) - Issue of accreditation certificate for a professional organization of accountants – MF.

203. (507) - Issue of accreditation certificate for professional accountants certification organization – MF.

204. (508) - Issuance of a certificate of accreditation of a professional audit organization – MF.

205. (509) - Issuance of a license for audit activities – MF.

206. (529) - Issuance of a license for exchange operations with cash foreign currency issued to authorized organizations – MF.

207. (554) - Issuance of a certificate of approval for an international transport vehicle to transport goods under customs seals and stamps – MF.

208. (570) - Issuance of a license for the right to engage in security activities – NB.

209. (582) - Issue of archival certificates and / or copies of archival documents within the archives of the Committee on Legal Statistics and Special Records of the General Prosecutor's Office of the Republic of Kazakhstan and its territorial bodies – MF.

210. (596) - Providing information from the state land cadaster – MIA.

211. (618) - Issue of archival certificates, copies of archival documents or archival extracts – GP.

212. (648) - Issuance of a license for project activities – MA.

213. (649) - Issuance of a license for exploration activities – MA.

214. (650) - Issuance of a license for construction and installation works – MID.

215. (654) - Issuance of a certificate to determine the address of real estate in the Republic of Kazakhstan – MID.

216. (663) - Issue of an account statement of an agreement on shared participation in housing construction – MID.

217. (668) - Submission of a certificate to citizens whose only dwelling is recognized as emergency – MID.

218. (680) - Issuance of a license to carry out activities in the field of the use of outer space – MID.

219. (690) - Provision of statistical information not provided for in the distribution schedule of official statistical information – MID.

220. (691) - Submission of information from the register of state property (list of state-controlled joint-stock companies and limited liability partnerships, as well as state legal entities; information and materials on state property included in the schedule for putting up for sale state property objects) – MDDIAI.

221. (692) - Issuance from the state property register of a certificate to tenants (trustees) of state property on lease agreements (trusts) concluded with them containing information on accruals under the agreement, interest and payments received to the state budget – MNE.

222. (693) - Issuance of archival certificates and / or copies of archival documents within the special state archive of the Ministry of Internal Affairs of the Republic of Kazakhstan and its territorial divisions – MF.

223. (694) - Issuance of a certificate from the state database «Legal Entities» – MF.

The list of public services approved by order of the acting Minister of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan dated January 31, 2020 No. 39 / НҚ, recommended for exclusion:

1. (5) Issuance of a certificate of the presence or absence of a criminal record – GP.

2. (7) Issuance of certificates to persons with benefits (participants in the Great Patriotic War, liquidators of the Chernobyl accident, soldiers-internationalists – MD.

3. (8) Issuance of certificates of confirmation of military service – MD.

4. (9) Issuance of certificates on the citizen's attitude to military service – MD.

5. (10) Submission of information confirming registration at a permanent place of residence in a settlement of a border territory - MIA.

6. (12) Issuance of information on the records of the Committee on Legal Statistics and Special Accounts of the General Prosecutor's Office of the Republic of Kazakhstan on a person committing an administrative offense – GP.

7. (13) Issuance of certificates to citizens traveling outside the Republic of Kazakhstan for permanent residence – MD.

8. (65) Issuance of certificates of trusteeship and guardianship – MES.

9. (67) Issue of certificates for disposing of property of minors – MES.

10. (101) - Issuance of an extract from the registry of registration of pledges of movable property – MJ.

11. (122) Issuance of a certificate of registered rights (encumbrances) on real estate and its technical characteristics – MJ.

12. (123) Issuance of a certificate of absence (presence) of real estate – MJ.

13. (124) Issuance of certificates of registered and terminated rights to real estate – MJ.

14. (141) Issuance of a certificate from a medical organization providing primary health care – MH.

15. (144) - Issuance of an extract from a medical record of a hospital patient – MH.

16. (178) - Issuance of a certificate from a neuropsychiatric organization – MH.

17. (179) - Issuance of a certificate from a narcological organization – MH.

18. (180) - Issuance of a certificate from a TB organization – MH.

19. (182) - Issuance of a certificate of admission to driving a vehicle – MH.

20. (192) - Issuance of information on participation as a consumer of medical services and on the transferred amounts of deductions and (or) contributions to the system of compulsory social health insurance – MH.

21. (194) - Issue to a participant of the system of mandatory social insurance information on the status and movement of social contributions – MLSPP.

22. (217) - Issuance of information on the receipt and movement of funds of the depositor of the unified accumulative pension fund – MLSPP.

23. (218) - Issuance of a certificate confirming that the applicant (family) belongs to the recipients of targeted social assistance – MLSPP.

24. (220) - Issuance of a certificate of registration as unemployed – MLSPP.

25. (225) - Issuance of a certificate on the status of the scholarship holder of the Bolashak international scholarship – MES.

26. (227) - Reimbursement of expenses to scholarship holders of the Bolashak international scholarship – MES.

27. (228) - Advance of scholarship holders of the Bolashak international scholarship – MES.

28. (252) - Issuance of a certificate to persons who have not completed technical, vocational, post-secondary education – MES.

29. (258) - Issue of a certificate of registration (re-registration) of legal entities, accounting registration (re-registration) of their branches and representative offices – MJ.

30. (261) - Providing information on the category of business entity MNE.

31. (301) - Approval of routes and timetables of regular urban (rural), suburban and intra-district automobile transportation of passengers and baggage – MID.

32. (489) - Presentation of information on the absence (presence) of debt accounted for by the state revenue authorities – MF.

33. (490) - Issuance of a certificate of the amount of income received from sources in the Republic of Kazakhstan and withheld (paid) taxes – MF.

34. (491) - Confirmation of the residency of the Republic of Kazakhstan – MF.

35. (505) - Issuance of extracts from the personal account on the status of settlements with the budget, as well as on social payments – MF.

36. (508) - Issuance of a certificate of accreditation of a professional audit organization – MF.

37. (582) - Issue of archival certificates and / or copies of archival documents within the archives of the Committee on Legal Statistics and Special Records of the General Prosecutor's Office of the Republic of Kazakhstan and its territorial bodies – GP.

38. (596) - Providing information from the state land cadaster - MA.

39. (618) - Issue of archival certificates, copies of archival documents or archival extracts – MCS.

40. (654) - Issuance of MID.

41. (663) - Issue of an account MID.

42. (668) - Submission of a certificate to citizens whose only dwelling is recognized as emergency – MID.

43. (690) - Provision of statistical information not provided for in the distribution schedule of official statistical information – MNE.

44. (691) - Submission of information from the register of state property (list of state-controlled joint-stock companies and limited liability partnerships, as well as state legal entities; information and materials on state property included in the schedule for putting up for sale state property objects) – MF.

45. (692) - Issuance from the state property register of a certificate to tenants (trustees) of state property on lease agreements (trusts) concluded with them containing information on accruals under the agreement, interest and payments received to the state budget – MF.

46. (693) - Issuance of archival certificates and / or copies of archival documents within the special state archive of the Ministry of Internal Affairs of the Republic of Kazakhstan and its territorial divisions - MIA.

47. (694) - Issuance of a certificate from the state database «Legal Entities» – MJ.

APPENDIX C

Expert interview
as part of a dissertation research on the topic «Proactive Digital Government as an effective model of public management in the social sector»

The purpose of the expert interview:
It is needs to obtain an expert opinion on the formation and implementation of state policy in the field of digitalization, the introduction of digital / e-Government in the Republic of Kazakhstan, as well as information on the opportunities and risks of the digitalization process in the social sphere of the country.

Date _____

Time: Start _____ End _____

Respondent: Man Woman

Age _____

Place of work: _____

Position: _____

Sample set: government officials, digitalization experts

Sample: targeted, 8-20 experts, government officials involved in the digitalization of the social sphere

Introduction

Good Afternoon,

My name is Gul Jussupova!

I am a doctoral student at the Academy of Public Administration under the President of the Republic of Kazakhstan.

Since 2018, I have been working on a dissertation study on the implementation of the Digital Government.

Thank you very much for your time and consent to participate in this expert interview.

It is very important for us to get your expert opinion on digitalization.

All information obtained because of this study will remain strictly confidential and will be used exclusively for scientific purposes.

The purpose of this expert interview is to obtain expert opinion on the formation and implementation of state policy in the field of digitalization, the introduction of digital / e-Government in the Republic of Kazakhstan, as well as information on the opportunities and risks of the digitalization process in the social sphere of the country.

In the future, based on the obtained data, it is planned to develop proposals / recommendations for improving / expanding the functionality of the E-Government, expanding the capabilities of the digital Government, requirements for the competencies of civil servants and developing an effective model of public administration.

Under the social sphere, it is customary to take all spheres of human life, including healthcare, education, social protection, housing and communal services, tourism, sports, etc.

In the framework of the proposed study, the social sphere considers issues of education, health, labor and social protection.

If you have no further questions, we can begin the interview.

BLOCK 1. History of state policy in the field of digitalization and implementation of e-government in Kazakhstan

Question 1: From what period in Kazakhstan is began the process of digitalization of the public sector?

Answer

Question 2: What historical background and socio-economic indicators influenced the decision-making at the state level is to begin the process of informatization of public administration?

Answer

Question 3: What international experience has taken as a model for implementation?

Answer

Question 4: What goals and objectives have originally laid down in the process of implementing e-government? Have the priorities and objectives of the E-Government and the Digital Government changed?

BLOCK 2. Initiation of public sector informatization and digitalization projects

Question 5: Where did the idea of introducing e-Government come from and how was the process of initiating this project going?

Answer

Question 6: What are documents reflected the process of implementation of e-government? Why have these processes spelled out in these documents?

Answer

Question 7: What is the main goal and objectives of the state program «Digital Kazakhstan»?

Why are the goals and tasks voiced by you that are paramount in the implementation of the state program "Digital Kazakhstan"?

Answer

BLOCK 3. Problems of implementation of the Electronic, Digital Government in Kazakhstan

Question 8: How do you think, what problems or limitations have exist for the effective implementation of digitalization of the public sector?

Answer

Question 9: How do you think is it possible to measure the effectiveness of the functioning of the Electronic / Digital Governments?

Answer

Question 10: At what stage of development of e-government do we now?

Answer

BLOCK 4. Prospects for digitalization of the public sector in Kazakhstan

Question 11: What do you think can we to improve the process of implementing Electronic, Digital Government?

Answer

Question 12: Are there any fundamental differences between Electronic, Digital, Smart and Intelligent Government?

Answer

Question 13: What are the prospects for the development of Digital Government in Kazakhstan?

Answer

BLOCK 5. Digitalization of the social sphere

Question 14: How do you think up why the social sphere needs digitalization?

Answer

Question 15: In what areas of the social sphere do digitalization problems exist? If so, why it has? What is the reason for this?

Answer

BLOCK 6. Involving citizens in the digitalization process

Question 16: In your opinion, how actively / passively do citizens participate in the digitalization process? Why is it?

Answer

Question 17: Are there barriers to using the benefits of the digitalization process by citizens? What are citizens afraid of in the digitalization process? How should citizens relate to the digitalization process?

Answer

Question 18: When did adopting government programs and / or other documents? Is there a discussion with citizens? If so, what suggestions have introduced by citizens?

Block 7. Socio-demographic characteristics and competencies of the expert

Question 19: Tell us a little about yourself: What do you work with? What is your education, profession, seniority? How long have you been working here? What are the main functions according to your job description, and what actual tasks do you perform?

Answer

Question 20: What is the mission of your organization?

Answer

Question 21: How the government programs have adopted in Kazakhstan and directly in your government agency?

Answer

Question 22: Have you been responsible or participated in writing / implementing / implementing a state program?

Answer

Question 23: When have you involved in the implementation of public sector digitalization?

Answer

Question 24: What tasks of digitalization are set for your state body and for yourself? Tell us in detail about the achievements and failures of your state body in the field of digitalization.

Answer

Blitz survey:

How long do you work in public service?

What is your total work experience?

How much do you work in the field of digitalization?

What competencies do you think you need to develop?

Thank you for your cooperation!

APPENDIX D

Expert Interview with Leadership of Ministries Supervising Social Sector Digitalization

Table D.1 – List of executives interviewed

First & Surname of the Leader	Position at the Ministry
1	2
Abishev Olzhas Amangeldievich	Vice Minister of Health of the Republic of Kazakhstan
Mukushev Nariman Nurlanovich	Vice Minister of Labor and Social Protection of population of the Republic of Kazakhstan
Bigari Rustem Aidarbekovich	Vice Minister of Education and Science of the Republic of Kazakhstan
Meldebekova Mayra Turganbaevna	Chairman of the Committee for Secondary and Preschool Education of the Ministry of Education and Science of the Republic of Kazakhstan
Toybaev Adlet Zhunisovich	Director of the Department of Higher and Postgraduate Education of the Ministry of Education and Science of the Republic of Kazakhstan
Ospanova Nasymzhan Zhambekovna	Director of the Department of Technical and Vocational Education of the Ministry of Education and Science of the Republic of Kazakhstan
Kozhakhmetov Murat Mukhtarovich	Department of organizational work and public services of the Ministry of Education and Science of the Republic of Kazakhstan
Kenbai Kanat Oraztaevich	Director of the Department of Information Technologies of the Ministry of Education and Science of the Republic of Kazakhstan
Maksutov Adiyar	Deputy Director of the Department of Information Technologies of the Ministry of Education and Science of the Republic of Kazakhstan
Khasenov Ruslan	Head of IT Project Management, Information Technology Department, Ministry of Education and Science of the Republic of Kazakhstan
Ospanov Erbol Amangelduyevich	Head of the department of entrepreneurship and industry of Akmola region
Ziyashev Samat Sayatovich	Head of the Department for Quality Control of Public Services in Temirtau
Sartov Arnur Maratovich	Deputy Head of Fedorovsky district of Kostanay region

APPENDIX E

Act of Implementation in the educational process of Kyzylorda University named after Korkyt Ata (Kazakh)

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
БІЛІМ ЖӘНЕ ҒЫЛЫМ
МИНИСТРЛІГІ
ҚОРҚЫТ АТА АТЫНДАҒЫ
ҚЫЗЫЛОРДА УНИВЕРСИТЕТІ

МИНИСТЕРСТВО
ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН
КЫЗЫЛОРДИНСКИЙ УНИВЕРСИТЕТ
ИМЕНИ КОРКЫТ АТА

120014, Қызылорда қаласы, Әйтеке би көшесі, 29 «А»
Тел.: (8-7242) 26-17-95, 26-17-16
Факс: (8-7242) 26-27-14, 26-17-16
E-mail: ksu@korkyt.kz, korkyt_ksu@mail.ru
(ISO 9001:2008)

120014, г. Кызылорда, ул. Айтеке би, 29 «А»
Тел.: (8-7242) 26-17-95, 26-17-16
Факс: (8-7242) 26-27-14, 26-17-16
E-mail: ksu@korkyt.kz, korkyt_ksu@mail.ru
(ISO 9001:2008)

22.06.2020ж № 15-32-01/1271

Теориялық курсты енгізу актісі

«Цифрлық үкімет және цифрлық үкіметтің жетілуін бағалау модельдері»

Қорқыт Ата атындағы Қызылорда мемлекеттік университеті білім беру жүйесіне қызығушылық танытқаны үшін және практикалық зерттеу нәтижелерін университетіміздің білім беру бағдарламаларында пайдалану мүмкіндігі үшін ризашылығын білдіреді.

Қазақстан Республикасы Президентінің жанындағы Мемлекеттік басқару академиясының PhD докторы Жүсіпова Гүл Ғабдулуалитқызы диссертациясының материалдарын, сондай-ақ Цифрлық үкімет туралы теориялық курсты зерделей отырып, университет басшылығы бакалаврларды, магистрлерді және докоранттарды оқыту үшін ақпараттық технологиялар факультетінің элективті курстарында зерттеу материалдарын қолдануға қызығушылықты растайды. Халықаралық тәжірибені, озық тәжірибені және Қазақстанда электрондық үкіметті енгізуді зерделеуге құрылымдық көзқарас бізді ерекше қызықтырады. Осы ұсыныстар негізінде біз докоранттар үшін болашақ зерттеу тақырыптарын дайындадық және компьютерлік ғылымдар кафедрасында студенттерге әлеуметтік саладағы мемлекеттік секторды цифрландыруға үйрету үшін практикалық курстар әзірледік.

Ректор **Б.С. Кәрімова**

017821

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
БІЛІМ ЖӘНЕ ҒЫЛЫМ
МИНИСТРЛІГІ

ҚОРҚЫТ АТА АТЫНДАҒЫ
ҚЫЗЫЛОРДА УНИВЕРСИТЕТІ

120014, Қызылорда қаласы, Әйтеке би көшесі, 29 «А»
Тел.: (8-7242) 26-17-95, 26-17-16
Факс: (8-7242) 26-27-14, 26-17-16
E-mail: ksu@korkyt.kz, korkyt_ksu@mail.ru
(ISO 9001:2008)

МИНИСТЕРСТВО
ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН

КЫЗЫЛОРДИНСКИЙ УНИВЕРСИТЕТ
ИМЕНИ КОРКЫТ АТА

120014, г. Кызылорда, ул. Айтеке би, 29 «А»
Тел.: (8-7242) 26-17-95, 26-17-16
Факс: (8-7242) 26-27-14, 26-17-16
E-mail: ksu@korkyt.kz, korkyt_ksu@mail.ru
(ISO 9001:2008)

22.06.2020г. № 15-32-01/1271

Акт внедрения теоретического курса

«Цифровое правительство и модели оценки зрелости Цифрового Правительства»

Кызылординский государственный университет имени Коркыт Ата выражает свою признательность за проявленный интерес к системе образования и возможности использования практических результатов исследования в образовательных программах нашего университета.

Изучая материалы диссертации PhD студента Академии государственного управления при Президенте Республики Казахстан Джусуповой Гуль Габдулуалитовны, а также теоретический курс по Цифровому правительству руководство университета подтверждает заинтересованность в использовании материалов исследования в элективных курсах факультета информационных технологий для обучения бакалавров, магистров и докторантов. Также для нас представляет особый интерес структурированный подход в изучении международного опыта, лучших практик и реализации Электронного правительства в Казахстане. На базе данных рекомендаций мы подготовили темы будущих исследований для наших докторантов и практический курс для преподавания на кафедре компьютерной науки для обучения наших студентов по вопросам цифровизации государственного сектора в социальной сфере.

Ректор **Б.С. Каримова**

017822

ДП «Эдельвейс»
СТ РК - 989-2014

APPENDIX F

Significance Confirmation Letter and practical value of research results from the National Engineering Academy of the Republic of Kazakhstan

РҚБ «ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ҰЛТТЫҚ ИНЖЕНЕРЛІК АКАДЕМИЯСЫ»

050010, Алматы қаласы, Бөгенбай батыр көшесі, 80
тел.: (727) 291-52-90, тел.факс: (727) 291-51-90
e-mail: nia_rk@mail.ru

РОО «НАЦИОНАЛЬНАЯ ИНЖЕНЕРНАЯ АКАДЕМИЯ» РЕСПУБЛИКИ КАЗАХСТАН

050010, г.Алматы, ул.Богенбай батыра, 80
тел.: (727) 291-52-90, тел.факс: (727) 291-51-90
e-mail: nia_rk@mail.ru

Исх.№1-09/383
от 26.06.2020г.

Письмо-подтверждение о практической значимости результатов исследований Джусуповой Гуль

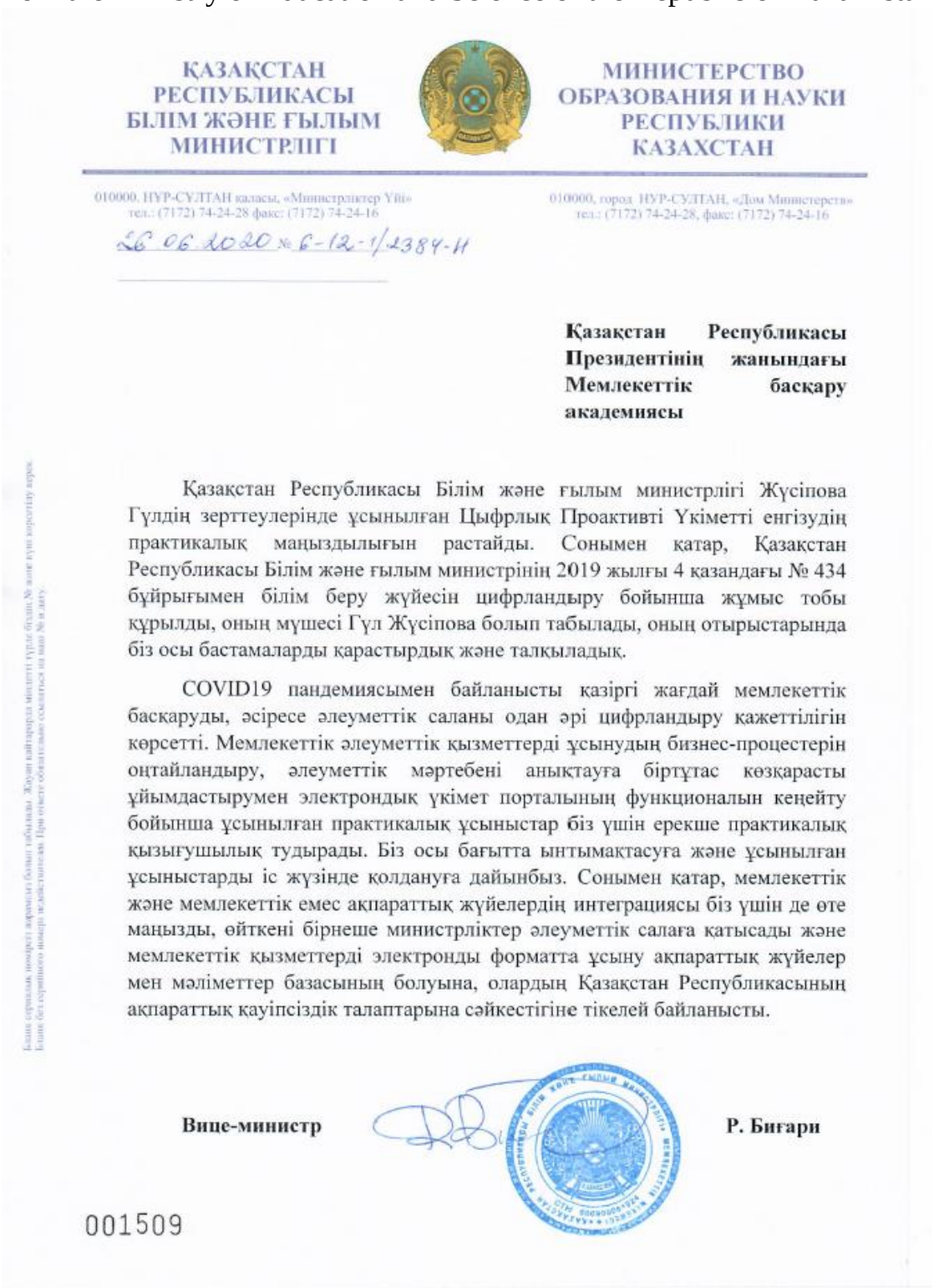
В эпоху стремительного развития цифровых технологий и инноваций развитие цифровизации социального и государственного сектора имеет особое значение для нашей страны. Национальная Инженерная Академия Республики Казахстан занимается научными исследованиями и практическими работами в области цифровых технологий, инноваций и индустриального развития Казахстана.

Изучая материалы диссертации PhD студента Академии государственного управления при Президенте Республики Казахстан Джусуповой Гуль Габдулуалитовны Национальная Инженерная Академия Республики Казахстан подтверждает заинтересованность в использовании материалов исследования в развитии научного направления нашей Академии. Big Data, создание и интеграция информационных систем, цифровизации государственных функций и развитие Электронного правительства являются приоритетными направлениями для нашей академии. Кроме того, данные исследования имеют практическую ценность для наших исследователей с целью применения данных результатов в своих научных трудах и разработках. Мы выражаем признательность за проявленный интерес в развитии технических наук нашей страны, мы это ценим.

Вице – президент **Темирбеков Н. М.**

APPENDIX G

Significance Confirmation Letter and practical value of research results from the Ministry of Education and Science of the Republic of Kazakhstan



ҚАЗАҚСТАН РЕСПУБЛИКАСЫ БІЛІМ ЖӘНЕ ҒЫЛЫМ МИНИСТРЛІГІ

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РЕСПУБЛИКИ КАЗАХСТАН

010000, НУР-СҰЛТАН қаласы, «Министрлікter Үйі»
тел.: (7172) 74-24-28 факс: (7172) 74-24-16

010000, город НУР-СУЛТАН, «Дом Министерств»
тел.: (7172) 74-24-28, факс: (7172) 74-24-16

26.06.2020 № 6-12-1/2384-И

Қазақстан Республикасы Президентінің жанындағы Мемлекеттік басқару академиясы

Қазақстан Республикасы Білім және ғылым министрлігі Жүсіпова Гүлдің зерттеулерінде ұсынылған Цифрлық Проактивті Үкіметті енгізудің практикалық маңыздылығын растайды. Сонымен қатар, Қазақстан Республикасы Білім және ғылым министрінің 2019 жылғы 4 қазандағы № 434 бұйрығымен білім беру жүйесін цифрландыру бойынша жұмыс тобы құрылды, оның мүшесі Гүл Жүсіпова болып табылады, оның отырыстарында біз осы бастамаларды қарастырдық және талқыладық.

COVID19 пандемиясымен байланысты қазіргі жағдай мемлекеттік басқаруды, әсіресе әлеуметтік саланы одан әрі цифрландыру қажеттілігін көрсетті. Мемлекеттік әлеуметтік қызметтерді ұсынудың бизнес-процестерін оңтайландыру, әлеуметтік мәртебені анықтауға біртұтас көзқарасты ұйымдастырумен электрондық үкімет порталының функционалын кеңейту бойынша ұсынылған практикалық ұсыныстар біз үшін ерекше практикалық қызығушылық тудырады. Біз осы бағытта ынтымақтасуға және ұсынылған ұсыныстарды іс жүзінде қолдануға дайынбыз. Сонымен қатар, мемлекеттік және мемлекеттік емес ақпараттық жүйелердің интеграциясы біз үшін де өте маңызды, өйткені бірнеше министрліктер әлеуметтік салаға қатысады және мемлекеттік қызметтерді электронды форматта ұсыну ақпараттық жүйелер мен мәліметтер базасының болуына, олардың Қазақстан Республикасының ақпараттық қауіпсіздік талаптарына сәйкестігіне тікелей байланысты.

Вице-министр **Р. Биғари**

001509

APPENDIX H

Significance Confirmation Letter and practical value of research results from the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ЕҢБЕК ЖӘНЕ ХАЛЫҚТЫ ӘЛЕУМЕТТІК ҚОРҒАУ МИНИСТРЛІГІ

МИНИСТЕРСТВО ТРУДА И СОЦИАЛЬНОЙ ЗАЩИТЫ НАСЕЛЕНИЯ РЕСПУБЛИКИ КАЗАХСТАН

010000, Нұр-Сұлтан қаласы, Мәңгілік ел даңғылы 8,
Министрліктер үйі, 6-кіреберіс,
тел.: 7 (7172) 743603, факс: 7 (7172) 743603
e-mail: kense@enbek.gov.kz

010000, город Нур-Султан, проспект Мәңгілік ел 8, Дом Министерств, 6-подъезд,
тел.: 7 (7172) 743603, факс: 7 (7172) 743603
e-mail: kense@enbek.gov.kz

01-1-3-11/10353-И от 02.07.2020

Академия государственного управления (при Президенте) Республики Казахстан

Министерство труда и социальной защиты населения Республики Казахстан *(далее – Министерство)* подтверждает практическую значимость полученных результатов исследования от Джусуповой Г. на тему *«Цифровое Проактивное Правительство как эффективная модель государственного управления в социальном секторе»* для цифровизации государственных функций по социальным вопросам.

Цифровизация государственного управления в социальной сфере – одно из стратегически важных задач государственной социальной политики, которая обозначена в Государственной программе «Цифровой Казахстан», в Стратегическом плане развития Казахстана до 2025 года и в Стратегия «Казахстан-2050»: новый политический курс состоявшегося государства. Поэтому, исследование данного вопроса с научной точки зрения, предложения, практические рекомендации представляют особый интерес для нашего Министерства, которое усиленно работает над совершенствованием бизнес-процессов оказания государственных социальных услуг.

Практические рекомендации по созданию единого системного подхода для определения социального статуса населения страны особенно важно в данной ситуации, связанной с пандемией COVID19. Предложения по оптимизации бизнес-процессов оказания социальных услуг, реестра государственных услуг, расширения функционала портала Электронного правительства с предоставлением централизованных цифровых сервисов для населения будут использованы в работе Министерства.

Министерство активно работает над разработкой новых решений, мобильных приложений, порталов по оказанию социальных услуг и заинтересовано в поступлении предложений, рекомендации, «лайфхаков» по совершенствованию бизнес-процессов в социальной сфере, а также для любого сотрудничества со стороны научной общественности и граждан РК.

Вице министр **Н. Мукушев**