



# Legal Regulation of State Electronic Services: Relevant Issues and Ways of Improvement

RESEARCH PAPER

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## ABSTRACT

The emergence of new platforms to promote concepts such as e-government and open data, which are currently being actively implemented in many countries around the world, and, more importantly, the need to promote civic participation and engagement in this regard, which are perhaps two key components for the successful implementation of any modern e-government project, provide both new opportunities and challenges for policy makers in implementing this idea in the Republic of Kazakhstan, which is actively trying to technologically reform the public sector. The result of the policy of implementing the e-government in the Republic of Kazakhstan was the creation of a single e-government portal with unified databases and unified electronic services for the entire country, which were integrated into a single area of the concept in both the political and technological meaning. At present, public services are provided by personal contact through the offices of the Public Service Centre and online through the e-government portal, whose projects include dozens of different information systems, registers, and state databases, and hundreds of applications and services. In modern realities in the Republic of Kazakhstan, it is necessary to conduct a survey to measure the effectiveness of public services, similar to Citizens First in Canada, in order to determine the quality and comparison in the survey, a Common Measurement Tool can be used. As a result of the study, it was also concluded that the following aspects of legal regulation need to be improved in the Republic of Kazakhstan: the establishment of a body for monitoring and protecting information data, as well as the consideration of complaints regarding the violations of the right to protect information data; the need to consolidate national legislation in the field of e-government into a single legal act; the establishment of an interdepartmental state body in the field of e-government.

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## 1. INTRODUCTION

In 2020, fundamental changes have taken place in global development, as evidenced by the call of the Secretary-General of the United Nations, Antonio Guterres, to Member States and other stakeholders to ‘launch a decade of work and action for the benefit of people and the planet’ ([UN E-Government Survey 2020](#)), using, among other things, the e-government model. By investigating and exploring common models of this mechanism around the world, the United Nations E-Government Survey assesses the development of digital government in 193 UN Member States, identifying their strengths, challenges, and opportunities, and providing information on policies and strategies. Since its creation in 2001 by the United Nations Department of Economic and Social Affairs, the Survey has become an indispensable tool for ranking, mapping, and measuring development for digital ministers, policy makers, and analysts engaged in comparative analysis and modern e-government research. The United Nations (UN) E-Government Development Database is a comparative analysis tool that provides a comparative assessment of the development of e-government in the UN Member States. It offers an interactive snapshot of the development of e-government in each country from a regional and global perspective. Encouraging citizen participation is a cornerstone of socially inclusive governance. The e-Participation Index constitutes an additional index to the UN E-Government Survey. It expands the scope of the Survey by focusing on the use of online services to facilitate the provision of information by governments to citizens (‘electronic information exchange’), interaction with stakeholders (‘electronic consultation’), and involvement in decision-making (‘electronic decision-making’). The launch of this Survey also comes at an unprecedented time of the COVID-19 pandemic.

E-government is the application of information and communication technologies (ICTs) to government functions and procedures in order to increase efficiency, transparency, and citizen participation. This definition demonstrates how e-government uses ICTs as a supporting tool for the development of good governance. The appropriate use of e-government can improve the efficiency and effectiveness of government tasks, improve processes and procedures, improve the quality of public services, as well as improve the use of information in decision-making processes, interaction between various government agencies ([Lisitsa & Moroz 2019](#)). As a result, public authorities are capable of engaging in a unique direct interaction with citizens. The considerable growth in the use of ICT over the past few years has had a major impact on various aspects of society and economic activity, making everyday procedures easier and more efficient. The fundamental principle of e-government, supported by an effective e-government institutional framework, is to improve the internal workings of the public sector by reducing financial costs and transaction time, with the purpose of integrating workflows and processes in the most appropriate way and ensuring the efficient use of resources in all areas of various public sector institutions seeking sustainable solutions ([Cherniavskiy et al. 2021](#)). The innovation and e-government allowed the public administration around the world to be more efficient, provide better services, and respond to citizens’ demands for transparency and accountability ([Sinaj et al. 2022](#)).

The development of the field of ICT, especially the concept of open data, according to M. Kassen, provides new opportunities for international, national, and local non-governmental organisations to take part in the creation of various initiatives based on open data, aimed at promoting the components of e-participation and civic participation in the e-government system ([Kassen 2016](#)). Projects that will focus on helping local communities fight corruption and poverty, improving transport routes and crime zones, regulating lobbying activities, and monitoring security standards in the commercial sector, and the like have the potential to transform the conventional mechanism for promoting e-government, increase the role of civil society and civic participation, which in turn could contribute to the development of a political culture and new public thinking, that is, to make e-government more user-oriented and, presumably, more sustainable. E-government is a powerful tool in the fight against corruption, but a number of researchers still doubt the role of e-government, arguing that this model is not only a powerful weapon against corruption, but also the basis for its prosperity. According to N. V. Rustiarini ([Rustiarini 2019](#)), there are internal and external organisational factors that affect the effectiveness of the functions of e-government to combat corruption.

ICTs are already widely used by public authorities, as they are in enterprises, but e-government involves much more than just tools; it involves rethinking organisations and processes and changing behaviours to ensure that public services are delivered to people more effectively. When implemented correctly, e-government allows citizens, businesses, and organisations to do business with government more easily, faster, and at a lower cost (Abudaqa et al. 2019). The potential cost savings are huge. In Denmark, for example, electronic invoicing saves taxpayers 150 million euros and businesses 50 million euros a year. If implemented in the European Union (EU), the annual savings could exceed 50 billion euros. In Italy alone, e-procurement systems have reduced costs by more than 3 billion euros (Shaping Europe's Digital Future 2019). However, with the use of new technologies in this area, especially in the promotion of various interactive and transactional services, all stakeholders, both public and private, have faced regulatory, organisational, socio-economic, and infrastructural challenges. As it turned out, the further development of the national e-government project as a sustainable ecosystem requires a large-scale transformation of public administration and, more importantly, public thinking. Therefore, efforts in this aspect should be focused both on the reform of many administrative mechanisms, primarily the bureaucracy, and, more importantly, on strengthening democratic procedures, since the interactivity of e-government implies the promotion of political dialogue and the growth of political culture in the countries concerned.

The studies of many Kazakh and foreign scientists investigate the issues of legal regulation of state electronic services. Thus, the basis for the development of the author's approach to the subject matter included the studies of such scientists (Alonso et al. 2020; Marcinauskaitė et al. 2020; Rustiarini 2019; Tarakanov et al. 2019; Vinnyk et al. 2020). At the same time, a number of theoretical and applied issues related to the definition of the essence of the processes of development of state electronic services, their role in the management system, and their impact on the main indicators of state development remain completely unresolved. The developed methods of assessment and analysis of these processes are not systematic, are not universal, and therefore do not provide an opportunity to manage the development of information systems and resources of the state at all stages of its establishment and development, which leads to non-performance of the objectives that face the modern information society. The relevance of this problem, its theoretical and practical significance, determined the choice of the subject matter of this study, the definition of its purposes and objectives.

In addition, the situation with the coronavirus pandemic in 2020 worsened the financial situation around the world. This unprecedented situation has pushed the IT system to help many people in the field of communication, distance learning, remote work, and so on (COVID-19 and E-Commerce 2020; Pētersone et al. 2020). Further systematic improvement of e-government can prepare the country for challenges such as limited financial resources. The coronavirus pandemic situation has accelerated the use of e-government services, e-learning, and online systems. On the other hand, it identified gaps in the ICT infrastructure, as well as the lack of preparedness of systems and organisations for such a situation. Users are forced to learn and rely on more e-services. All of the above actualises the consideration of the legal regulation of state electronic services on the example of the Republic of Kazakhstan, the identification and coverage of modern issues in this area and ways to improve them. To achieve the intended purpose, the tasks are defined as follows: 1) to analyse the legal regulation of state electronic services in the Republic of Kazakhstan; and 2) to identify the current problems of the legal regulation of the electronic government mechanism in the Republic of Kazakhstan and the prospects for its improvement.

## 2. MATERIALS AND METHODS

The theoretical and methodological framework of the study is formed by the scientific provisions of the general economic theory, the theory of regional economic development, administration, and management, planning and forecasting, the studies of Kazakh and foreign scientists in various fields. To achieve the tasks set in the study, a set of general scientific and special methods was applied. The leading method in the study was the dialectical method of cognition of phenomena and processes, which made it possible to determine the condition, aspects, and prospects for the development of scientific research and legislative developments in the field of legal regulation of state electronic services. A special place is also occupied by

the comparative legal method, which was used in the process of comparative analysis of the existing national legal provisions in the field of state electronic services with the systems of legislation and scientific developments of other states, in order to identify positive legislative practices that are appropriate and can be tested on the territory of Kazakhstan, considering the specific features of the Kazakhs legal system.

The method of theoretical generalisation was used to identify the features of the theoretical foundations of strategic management of balanced development of electronic services, as well as for a comprehensive description of the transformation processes of territorial-economic systems and digitalisation; abstract-logical – to justify the principles of the system of legal regulation of public electronic services, as well as to analyse the conceptual and methodological approaches of strategic management of the development of such services; statistical, graphical analysis, grouping – to assess the state and results of the introduction of innovative information technologies in the field of public services, to assess the characteristics of innovative regional development; analysis, synthesis, deduction, induction – to justify the conceptual provisions and improve the mechanism for implementing public electronic services; economic and statistical methods – for statistical analysis of the development of public electronic services and their effectiveness; expert assessment methods – to assess the degree of achieving a balance in the development of electronic digital services in the context of modern transformations; structural and logical analysis – to justify methodological approaches to transformation models in the era of digitalisation of public services and the realities of society; system economic analysis – to justify the model of integration processes of national and regional innovative development in the context of digitalisation, to determine the aspects of digital transformation of territorial management systems and corresponding public services.

The historical legal method was useful in the study of the genesis of the development of legislation, which regulates the basis for the effective implementation of public electronic services; the Aristotelian method made it possible to identify gaps in the current national legislation in the area under study. With the help of the dogmatic method, conclusions were formulated in accordance with the purpose of the study. The method of analogy made it possible, considering the experience of foreign states, to draw a conclusion regarding the need to reform the domestic legal field and focus on promising innovations of foreign legislation. When formulating proposals of a legislative nature, a statutory-semantic technique was applied, as well as logical methods of cognition and the method of legal modelling. The methodology is determined by the purpose of the study and the outlined tasks, which, in turn, allowed covering the issues indicated in the study to the best extent and offer an original solution to the problems that arise during law enforcement in modern realities.

### 3. RESULTS

#### 3.1 THE EMERGENCE OF PUBLIC SERVICE CENTRES AND E-GOVERNMENT IN KAZAKHSTAN

The reform of the system of public services in the Republic of Kazakhstan began in 2005 in the form of two parallel initiatives with their subsequent merger: public service centres (PSC), which are a service with individual counters located in a modern and functional room accessible to citizens for the purpose of processing their applications for official documents, payment of registration fees, and many other public services in the business sphere, and e-government. To date, the relevant activities are governed by the Law of the Republic of Kazakhstan 'On Public Services' ([Law of the Republic of Kazakhstan 2020](#)). The implementation of the PSC policy began with the separation of the operations of the front office (customer service) and the back office (document management department). Thus, consulting for clients and submission of applications for public services were carried out in the PSC, while the administrative processes for reviewing the application and making decisions remained in the conventional state bodies. A single access point in the PSC allowed customers to apply for a wide scope of public services rendered by various government agencies in a single visit. This saved clients time and costs and avoided unnecessary bureaucracy upon applying for government services. To some extent, the new PSCs were forced to compete with conventional government agencies for better provision of public services. PSC introduced longer working hours for receiving documents in comparison with state agencies, and offered comfortable and modern waiting areas for customers, who

were welcomed by the polite front office staff. All these factors demonstrated a considerable positive difference compared to the behaviour of civil servants, who, in general, were perceived by the public as indifferent, rude, and unethical (Janenova & Kim 2016). The government has gradually recognised the need to integrate back office and front office processes and management in order to ensure successful integration of public services. It was decided to combine the two policies (PSC and e-government) into a unified state programme.

In March 2016, the State Corporation ‘Government for Citizens’ was created by merging four state-owned enterprises: Public Service Centres, the Research and Production Centre of the Land Cadastre, the Centre for Real Estate, and the State Centre for the Payment of Pensions (Resolution of the Government 2016). In this regard, the government’s intentions were aimed at reducing administrative corruption and improving the quality of public services by integrating them on a ‘one-stop shop’ basis in the short-term. A dedicated technology platform (Electronic Government 2021), opened in 2006, later became the centre of all related projects in this area, often on a top-down basis. The various information and interactive services that a wide range of ministries, departments, and other government agencies began to promote through the platform were considered as an integral part of this unified e-government implementation policy. Officially, preparations for the launch of the first e-government project in the Republic of Kazakhstan began in 2004 with the signing of the Decree of the President of the Republic of Kazakhstan, dated November 10, 2004, No. 1471, ‘On the State Programme for the development of “e-government” in the Republic of Kazakhstan for 2005–2007’ (Decree of the President 2004), adopted by the central government as the main policy document for all ICT-based transformations in government and public administration. Conceptually, this strategy was developed under the strong influence of international trends of the time after almost all developed and many developing countries adopted similar e-government programmes (Law of the Republic of Kazakhstan 2020).

One of the main objectives of the concept was to propose a roadmap for the overall policy advancement of ICT-based public administration and to develop specific tactics for how best to implement a unified e-government project with some potentially useful areas to focus on, such as the development of technological components that would include the portal itself and a set of initial e-services. Basically, e-services were understood as a collection of ordinary government information organised in a unified portal, however, which was better focused on particular areas of government activity. The portal itself ([www.e.gov.kz](http://www.e.gov.kz)) was presented to the public on April 12, 2006, which from the first day of operation provided free access to a number of information services in such areas as culture and leisure, environmental protection, land management, transport, travel, and the like. The organisational part of the ICT-based public sector reforms was to combine all identification numbers into a unified national identification number to better integrate the various e-government systems and databases and, more importantly, to provide a unified technology platform for launching transactional services in the future.

### 3.2 INTEGRATION, STAKEHOLDERS, AND KEY INITIATIVES IN KAZAKHSTAN

The e-government Implementation Strategy, adopted in 2004, has become a key legal instrument regulating all government activities in this area for the next three years. Apart from providing various information and intended transactional services, the programme administrators planned to implement several measures aimed at reducing the digital divide, which was one of the main obstacles to the implementation of e-government in Kazakhstan at that time among citizens and between regions, for example, by organising special courses and educational programmes. Another goal was to provide some degree of information security for the public infrastructure associated with the implementation of the e-government project by protecting databases and telecommunications networks from external interference. At that time, the development of the telecommunications market was virtually monopolised by the national telecommunication operator Kazakhtelecom, which controlled the ICT networks throughout the country. Considering the fact that the development of e-government logically assumed the organisation of easy access to the Internet for a larger number of citizens, the national government decided to ensure the creation of specialised Internet access points (Resolution of the Government 2005). Another goal was to reduce the price of Internet access for all citizens of the country, to ensure the development of an army of potential users for



the normal operation of future e-government projects. In this regard, national authorities resorted to conventional top-down bureaucratic regulatory mechanisms, such as resolutions and directives, which, however, were later found to be effective in the highly monopolised telecommunications market.

The National Government was a key stakeholder in the promotion of the e-government project, whose support and willingness to finance relevant activities made it possible to implement the e-government strategy. The corresponding plan was developed by the Information and Communications Agency, which also provided administrative oversight and strategic guidance related to the launch of the e-government portal. Thus, the agency can de facto be considered the official administrator of the e-government project in the Republic of Kazakhstan, representing and acting on behalf of the national government at that time, since it followed direct instructions from the Presidential Administration, the Government Apparatus. The Prime Minister and other central departments, ministries, and agencies, such as the Ministry of Economy, the National Security Committee, and the Ministry of Justice, also played a role in promoting the project, providing some administrative support and assistance in the corresponding areas. The second period of e-government development in Kazakhstan can be described as the period between 2007 and 2009, when all e-government projects were finally integrated into a single area of the concept, both in the political and technological sense. Another feature of the period is the identification of official stakeholders in various e-government programmes and the identification of the main places of administrative and technological support. This period is also associated with the first results of the development of e-government in Kazakhstan and the benefits that its implementation brought to the public domain, such as a sharp increase in the range of e-services and the emergence of new projects that helped to identify better ways to combat such notorious aspects of public administration as bureaucracy and corruption.

One of the most effective e-government initiatives launched during this period was the e-procurement project, aimed at strengthening regulation in the field of public procurement and contracts of public authorities with the business sector through ICT. Officially, the project was initiated in 2007 as a pilot platform for testing the capabilities of the new public procurement system in government agencies. One of the goals of the project was to create an effective system of budget planning and control over public procurement operations in all state bodies, both at the central and local levels. When creating the platform, the organisers applied the same approach as upon implementing the e-government project on providing a unified platform for all types of activities in the field, such as a unified portal, unified databases, and the choice of a unified operator. Therefore, one of the important steps in the period of the e-procurement project was the creation of a register of potential government contractors and government agencies. Another purpose of the project was to considerably save budget funds by converting all government contracts in this area to an electronic format and, indirectly, to reduce the potential for corruption in this area due to a higher level of transparency of electronic transactions and greater accountability of state institutions in the system.

Another new project aimed at promoting e-government, especially the dissemination of the concept through the mass media, was the online conference project ([Electronic Government 2021](#)). The initiative was launched in 2007 as a dedicated online platform to help central government agencies establish more effective channels of communication with citizens through tools such as online conferences of senior government officials on a regular basis, both at the central and local levels. The e-government portal, launched a year earlier, was considered as the only place to hold such events due to the unitary nature of the public administration system, which requires unified control and management in the sphere at all levels of government. Considering the importance of the project, President Nursultan Nazarbayev decided to speak first at the meeting of the online conference organised on the e-government portal on June 7, 2007. Later, this practice became unofficially mandatory for all top government officials, as participation in online conferences was considered one of the important indicators upon evaluating political civil servants. Notably, the new e-government strategy adopted in 2007 identified the main areas of government activity in this area for the next period from 2008 to 2010, with special attention paid to the development of new aspects of e-government construction in Kazakhstan, such as e-municipalities (e-akimats in Kazakh), e-personnel projects, e-governance, and e-legislation, the implementation of which subsequently proved

too technologically or organisationally complex or expensive to implement in such a short period of time.

To ensure a more organised development of the e-procurement project, the government of Kazakhstan has adopted a special law in this area, which has prepared the legal basis for the implementation of the system. In the Law of the Republic of Kazakhstan 'On electronic procurement' ([Law of the Republic of Kazakhstan 2007](#)), adopted on July 21, 2007, special attention was paid to the regulation of electronic methods of public procurement and the related activities of state bodies in this area. The new amendments, which came into force in 2009, reinforced the document with new directions and mechanisms for regulating control and management in the antitrust sphere. The key objective of the legal instrument was to enable project administrators to implement a unified strategy in this area and to provide a clear overview, both for public authorities and for the business sector, of the main aspects of public procurement transactions. This document constitutes the main source of reference information for the development of various manuals and instructions on the details of procedures. The weight of the e-procurement project was partly aimed at reducing public spending and fighting corruption, and considerably increased the role of the Ministry of Finance. Furthermore, the Information and Communication Agency was then required to bi-annually report to the central government on the implementation of the programme and monitor the progress in the implementation of all projects related to e-government.

### 3.3 PROJECTS FOR THE DEVELOPMENT OF E-GOVERNMENT IN KAZAKHSTAN

The importance of public sector reforms ICT-based reforms in Kazakhstan, including the implementation of the e-government project for the country's reputation in the international arena, predetermined the creation of a special holding JSC 'National Infocommunication Holding' 'Zerde' in 2015, which was responsible to the government of the country for all informatisation projects. The new holding company has started to administer ICT projects, such as the creation of the International Information Technology University (IITU) ([Zhanuzakova et al. 2018](#)) in cooperation with Carnegie Mellon University from the United States and the creation of the KazSatNet project to train specialists in the field of information technology, including the needs of e-government and the promotion of satellite telecommunications technologies, respectively. In connection with the implementation of the e-procurement project, it became necessary to appoint a special programme operator who would promote the online public procurement system on a unified portal. An organisation such as the E-Commerce Centre (ECC) became a key participant in the project, which provided all the procedural and technological assistance to the Ministry of Finance in this regard. The total number of transactional services has dramatically increased since 2010 due to the inclusion of areas of communication with citizens and businesses, such as the launch of online tax reporting, online payments for government duties and utilities. E-government projects have started to provide video guides and instructions on how to better take advantage of the opportunities offered by the platforms.

One of the useful features of the development of e-government in Kazakhstan at that time was the launch of the online legislation project ([Legal Information System 2021](#)), which started providing free access to a regulatory database that included the full texts of documents such as laws, regulations, charters, rules, and other legal acts adopted by state bodies at both the national and local levels of government. The project was considered as one of the measures to bridge the knowledge gap that existed in the country, since access to almost all legal documents used to be provided exclusively on a paid basis. The general management of the project was carried out by the Republican Centre for Legal Information, which is supervised by the Ministry of Justice. This measure was positively received, especially by lawyers, researchers, and students. Another new feature associated with the promotion of the e-government project was the release of new ID cards with a function that allows them to be used as an electronic signature certificate. This measure, which has long been practiced in many developed countries, was developed to improve the information security of electronic transactions when interacting with government systems and to promote the interactive component of the entire project, focused on services that require authorisation and access to databases with personal data and trade secrets ([Balynska et al. 2021](#)).

The release of new identifiers and associated digital devices, such as special card readers and mobile payment terminals, which usually allowed mobile transactions to be conducted with the portal, greatly simplified the mechanism for interacting with the entire e-government system at the national level. As e-government has started to receive a treatment of being an integral part of the overall innovation economy that the country has been attempting to build since independence, the conventional practice of providing a regulatory framework for promoting related projects through an e-government strategy was replaced by a unified strategic document that focused on various aspects of the country's technological development in terms of overall planning, management, and control in this area. The new document adopted in 2010, 'On the National Programme for Accelerated Industrial and Innovative Development of the Republic of Kazakhstan for 2010–2014 and the invalidation of certain decrees of the President of the Republic of Kazakhstan No. 958 of 2010' ([Decree of the President 2010](#)) included aspects of the state's activities to build a new economy, such as the development of technological infrastructure and transport, the promotion of public-private partnerships, information and communication technologies (including the promotion of various e-government projects), mapping of industrialisation zones, and so on.

Another document that governed the development of e-government projects in Kazakhstan at that time was the Decree of the Government of the Republic of Kazakhstan No. 983, 'On approval of the Programme for the Development of Information and Communication Technologies in the Republic of Kazakhstan for 2010–2014', dated September 29, 2010 ([Resolution of the Government 2010](#)). The main idea of the document was to plan the development of the ICT sector from the standpoint of regulation in this area, especially in terms of standardisation and identifying priority areas for innovative development and promoting the best world practices in this area. With regard to the implementation of e-government projects, this legal instrument has provided new opportunities for optimising the existing e-services and outlined the prospects for the development of platforms such as social media-based projects and blog platforms, which have considerably improved the overall progress of e-government projects towards e-participation.

The development of transactional services, the main idea of which was to realise the need to establish a unified platform for all services related to e-government at the central level, as well as the need for the interaction of citizens with public authorities at both the national and local levels, implies the increasing importance of all public institutions. Another reason for the merger was the policy of developing only unified databases for all e-government purposes in all agencies, regardless of whether it was a ministry or an agency. In this regard, new government bodies such as the Ministry of Industry and New Technologies, which was later renamed the Ministry of Investment and Development and the Ministry of Justice, have begun to play some of the most important roles in promoting innovative projects in the ICT sector, including public sector reforms implemented by e-government. The National Innovation Foundation, later renamed the National Agency for Technological Development, and the Centre for Engineering and Technology Transfer ([Law of the Republic of Kazakhstan 2015a](#)) were established to provide additional scientific and technical support to the administrators of these projects. Another purpose of the new stakeholders was to attract foreign partners and import new information and communication technologies and experience, including in the field of e-government.

The fourth period of e-government development is one of the most important in the history of this phenomenon in the Republic of Kazakhstan. In 2015, the Law of the Republic of Kazakhstan 'On Access to Information' ([Law of the Republic of Kazakhstan 2015a](#)) came into force, which became one of the first stages of the establishment of an accountable state and aimed at increasing the openness and transparency of the activities of state bodies. Furthermore, within the framework of the Law of the Republic of Kazakhstan, 'On Informatisation', adopted in the same year ([Law of the Republic of Kazakhstan 2015b](#)), open data is considered as one of the tools for the development of information technologies. The implementation of the 2015 Open Data Project ([Decree of the President 2013](#)) is an experimental platform that is closely monitored by administrators and is implemented conventionally, when government agencies provide data sets on a systematic basis through a unified national open data portal, which is based on the same platform as the digital government system, and should generally be considered an integral part of the e-government project. Thus, when promoting an open data project, the same implementation policy rules are applied, such as the presence of a



unified administrator and operator, as well as centralised funding and political control in this area. Another important stage in building the multidimensional aspects of e-government in Kazakhstan is the so-called mobile government, the implementation of which worldwide has shown a sharp increase in one decade – from SMS messages to multimedia electronic services (Alonso et al. 2020).

The growing popularity of various mobile gadgets and devices, such as smartphones, tablet computers, and mobile operating systems, as well as platforms of related applications and programmes, opens up new opportunities for the promotion of the associated software industry, which provides opportunities for creating new information products in almost any field, including the field of e-government. In this regard, mobile government is considered a miniature version of the conventional version of the e-government project with the same or limited number of electronic services, the same set of security measures and authorisation. One of the interesting aspects of this project in the Republic of Kazakhstan is that it also provides access to transactional services, such as interactive and various payment platforms. Taking into account the recent popularity of mobile devices, the government provides various applications based on such widespread operating platforms as Android and Apple iOS, which dramatically increases the popularity of the project among the citizens of the country.

One of the most important documents aimed at regulating the development of public sector reforms based on ICT is the strategy called ‘Information Kazakhstan 2020’, which was adopted in early 2013. The main idea of the strategic document was to contribute to the development of the country in terms of transitioning to an information society, where the role of e-government institutions, such as new public administration and digital interaction with citizens, would play a crucial role in the informatisation of social relations. The implementation of the document was divided into two periods: one from 2013 to 2017, and the second from 2018 to 2020. One of the goals of the plan was to reduce bureaucratic barriers to the development of e-government services, such as reducing the time to provide e-services to five days or promoting the development of various services based on open data. During this period, the government has set specific strategic goals aimed at achieving progress that should be reflected in the country’s global e-government ranking, for example, to enter the list of the five most developed countries in terms of promoting e-participation, or to be in the list of the thirty most advanced countries in terms of the overall development of e-government in the world, which indicates the strategic importance of e-government as an important project of the country’s global PR and international prestige.

The importance of the projects required fundamental changes in the work of the chief administrator of almost all e-government projects – the Information and Communications Agency, whose role as a state agency representing the central government was crucial in many aspects. In this regard, the adoption of the Resolution of the Government of the Republic of Kazakhstan No. 369, dated April 17, 2014 (Resolution of the Government 2014), regulating the agency’s activities in terms of strategic development, was one of the steps to consolidate the leading role of the organisation in promoting projects in this area. One of the interesting aspects of promoting e-government was the organisation of data centres and special laboratories in such areas as cloud computing, big data, mobile technologies, and e-government technologies (Decree of the Government 2020). Another goal of the agency was to promote the development of ICT-based projects that would help bridge the digital divide, especially in rural areas of the country. Issues related to the development of public services are under the special control of the Head of the Republic of Kazakhstan and are included in the State Programme ‘Digital Kazakhstan’ (Digitalisation in the Republic of Kazakhstan 2020).

The growing importance of ICT-based public sector reforms and the need to focus on more collaborative aspects of e-government development in the Republic of Kazakhstan has required a fundamental transformation of the roles that public authorities play in promoting projects in the field of Information and Communications Agency – that is, a key participant in almost all e-government platforms – but also for all ministries and local authorities (akimats), and sometimes even for national corporations that are involved in some projects, such as the informatisation of the country in general and the electronic portal of public procurement or the open data initiative in particular, which is beginning to play an important role. In this regard, agencies such as the Ministry of National Economy and the Transport Committee of the

Ministry of Investment and Development are starting to play an important role in the overall development of various e-government projects. Even the Parliament of Kazakhstan should be considered as one of the key stakeholders in building e-government, since the promotion of the concept of open government is impossible without the implementation of open institutions in all branches of government.

### 3.4 THE CURRENT SITUATION IN KAZAKHSTAN ON THE IMPLEMENTATION OF E-GOVERNMENT

Currently, public services are provided through personal contact through the PSC offices and online through the e-government portal. From 2005 to 2015, the number of PSCs increased from four pilot offices to 300 offices in all regions, providing more than 300 public services on behalf of a variety of concerned government agencies. Public services provided in the PSC range from registering legal documents, starting a business, applying for social benefits, such as public housing, kindergarten, unemployment benefits, and so on. To date, e-government projects include dozens of different information systems (IS), registers, state databases (SDB), hundreds of applications and services. These are the IS 'E-Akimat', IS 'E-notary', SBD 'Individuals', SBD 'Legal entities', SBD 'Real Estate Register', the Unified System of Electronic Document Management of State Bodies, the Integrated IS 'PSC', IS SBD 'E-licensing', the intranet portal of state bodies, the gateway and payment gateway of e-government, the information system 'Mobile government', chatbots in Telegram, Facebook, and VK, and many others. Open government comprises such components as: open data, open regulations, open dialogue, open budgets, as well as evaluation of the effectiveness of government agencies. The Register of Public Services of the Republic of Kazakhstan provides access to 698 public services, 85.5% of which are carried out in electronic form. In 2020, the corresponding indicator according to the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan should be brought to 90% ([Country Data 2020](#)).

The result of the activity of the Republic of Kazakhstan in this aspect was the fact that, according to the UN data on the E-Government Development Index 2020 ([E-Government Development Index 2020](#)), the Republic of Kazakhstan ranks 29th out of 193 countries in the world, and according to the UN E-Participation Index for 2020 – 26th out of 193 countries in the world. As a result, the following conclusions can be drawn. The period of development of e-government in the Republic of Kazakhstan can be described as a milestone in the conceptual implementation of the idea of digital government and the complete transformation of implementation strategies, which are more focused on promoting transactional services, improving the structure and ergonomics of the project and, more importantly, in promoting the development of participation tools and platforms in an attempt to improve the country's global position in the e-government rankings and focusing on projects that are closely monitored and studied by e-government experts from the United Nations. The result of the policy of implementing the e-government in the Republic of Kazakhstan was the creation of a single e-government portal with unified databases and unified electronic services for the entire country, which were integrated into a single area of the concept in both the political and technological meaning ([Sadvakasova & Khanov 2019](#)). At present, public services are provided by personal contact through the offices of the Public Service Centre and online through the e-government portal, whose projects include dozens of different information systems, registers, state databases, and hundreds of applications and services.

Kazakhstan is a catching-up country in the e-intensity rating of the international consulting company The Boston Consulting Group in terms of the current level of digitalization. To overcome the catch-up status in the Program, revolutionary breakthrough activities are required in all areas of digitalization on the agenda of the countries of the world. These areas include the digital transformation of traditional industries, the development of human capital, the digitalization of government agencies, the development of digital infrastructure, as well as a breakthrough in the development of a digital entrepreneurship ecosystem and, consequently, changes in production and value-added models in the real economy. The head of state in his January 31, 2017, Address to the People of Kazakhstan announced the Third Modernization, the core of which is digitalization, noted the need to cultivate new industries created using digital technologies, and that 'it is important to ensure the development of communications, widespread access to fiber-optic infrastructure. The development of the digital industry will

provide an impetus to all other industries.' The nationwide plan to implement the President's Message to the people of Kazakhstan of January 31, 2017, defined the criterion for achieving the goals of implementing the Third Modernization of the country – Kazakhstan will be among the 30 developed nations of the world by 2050. For this purpose, the average annual growth rate of the economy should be at the level of 4.5–5%.

The key drivers in the new growth model should be sectors of the economy that are able to provide 70% of GDP growth, increase employment, exports and attract investment. In accordance with this the priority directions, which are at the forefront of the Third Modernization, have been approved. The social sectors (health, education, employment) and the ICT industry are expected to provide the remaining 30% of growth in the short term. In the fifth priority of the Third Modernization the President of the country outlined the relevance of the fight against cybercrime, religious extremism, and terrorism. In the Address of the Head of State the Government and the National Security Committee were instructed to develop the concept of 'Cyber Shield of Kazakhstan', which aims to ensure information security of society and the state in the field of information and communication, as well as protection of privacy of citizens when they use information and communication infrastructure.

#### 4. DISCUSSION

In a relatively short period, the Republic of Kazakhstan has achieved positive changes in the provision of public services. S. Janenova and P. Kim come to the following conclusions: (1) information on public services has become more transparent; (2) the physical infrastructure of customer service has substantially improved; (3) public services have become more accessible due to the PSC and the e-government portal; (4) employees have gained new knowledge and acquired new skills to provide a wide scope of services in one place and work with different professions and government agencies; and (5) the consultation mechanism has become more transparent (participation of international experts, business associations in the discussion of public services) (Janenova & Kim 2016). However, the implementation of the public service integration reform in Kazakhstan faced strong resistance from senior, middle, and lower-level government officials, who were concerned about the delegation of functions to their organisations and the division of budget and human resources with such a new innovative organisation as the PSC. According to scientists, distrust and weak interdepartmental cooperation between various government agencies and groups of professions persists (Dzhanenova 2017).

M. Kassen believes that the implementation of the open data project, launched in 2013, is mainly considered as part of the public administration reforms that the government has been trying to reform over the past two decades, and not as an aspect of political transformation in a country where this subject is considered controversial (Kassen 2016). Focusing on public sector and economic reform is considered as the number one priority, while discussing issues in this area is considered too early and even dangerous for social stability and political security. A study conducted by scientists including A. Sadkov and N. Kolesnikov suggests that the implementation of the e-government system cannot be implemented solely by the efforts of the Government of the Republic of Kazakhstan (Sadkov et al. 2020). This process can be implemented through public and private sector efforts and feedback. In a rapidly changing technological world, developed countries tend to use more innovation, which supports their competitiveness in the global market. For the Republic of Kazakhstan, the transformation of technological innovations takes place horizontally through cooperation with foreign companies. Nevertheless, sharing knowledge on local discoveries with global companies attracts more collaboration to achieve economic sustainability.

Furthermore, the relationship between social, closed, and open market innovations can be linked on online sites. This is beneficial for entrepreneurial businesses. The complexity of the open innovation system also requires the participation of various organisations, from micro- to macro-systems. Scientists address the fact that perceived utility is an important factor in the adoption of an e-government portal. To increase the level of its adoption, the developers of the e-government portal should consider ways to increase its utility through ease of use. Obstacles to the implementation of this portal were identified, the main one being the fact that there was a low level of awareness regarding the existence of an e-government portal. Scientists submit a proposal to the government to start promoting the importance of the portal

through media channels, especially television, newspapers, and publish information about it in reliable sources of information on the Internet. Trust is another important factor for the effective implementation of e-government services. Therefore, it should be taken into account at all stages of further implementation of the portal. Consequently, the issue of trust should be established from the very beginning; for example, by having the latest news and information from complete and reliable sources.

According to N. V. Rustiarini, firstly, e-government creates a digital divide between bureaucrats themselves or between bureaucrats and citizens (Rustiarini 2019). Issues causing the digital divide include technological literacy, usability, accessibility, and functionality (Abdurakhmanova et al. 2020). P. Tsai points to the fact that the digital divide arises when the implementation of e-government requires the specialised knowledge of bureaucrats to implement this system, who may abuse their competence for deviant behaviour (Tsai 2019). The disparity in literacy and access to technology allows corrupt bureaucrats to continue corruption or even more aggressive actions. As M. Davydova fairly notes, a citizen who is better versed in technology is also more likely to receive better public services, thus the 'digital divide' creates new opportunities for corrupt bureaucrats (Davydova et al. 2019). Secondly, excessive investment in e-government infrastructure also creates opportunities for corruption. The implementation of e-government should be supported by appropriate technological means and infrastructure. However, bureaucrats often used this opportunity to increase budget allocations, especially for e-government projects (Rustiarini et al. 2019). According to R. Lenkovskaya, adequate investments in providing infrastructure can reduce corruption, but excessive investments actually increase the occurrence of corruption, thereby actually undermining the role of e-government in the fight against corruption (Lenkovskaya et al. 2019).

Thirdly, e-government does play an important role in the fight against corruption, but it is not the only effective strategy. Corruption is a multidimensional problem caused by various factors, such as political, social, institutional, and cultural (Getman et al. 2019; Nikolaychenko & Nikolaychenko 2019). Private officials are more optimistic about the potential and role of e-government in ensuring efficiency and reducing corruption than state officials, who consider corruption in public organisations to be a widespread phenomenon. The e-government initiative is only a small part of the government's efforts to reduce the probability of corruption. Scientists point to the fact that one of the most difficult problems in implementing e-government is changing the organisational culture, especially in the public sector (Vinnyk et al. 2020). A. Alonso and A. Gordilo state that organisations need a holistic strategy to support the e-government initiative (Alonso et al. 2020). The success of e-government implementation is inseparable from internal organisational factors such as leadership, bureaucratic professionalism, quality of bureaucracy, and adequate enforcement. These internal factors are the social capital of the organisation to create a culture of transparency in the management of the organisation.

The effectiveness of e-government is also determined by external factors, such as politics, economy, and social culture. Thus, according to the scientists, each organisation should cooperate with the internal and external factors of the organisation in order to increase the effectiveness of e-government in reducing corruption. To improve the quality of public services in Kazakhstan, it is necessary to conduct a survey to measure the effectiveness of public services, similar to Citizens First in Canada (Citizens First 2021). Citizen-centred service is an approach in which the public sector prioritizes the needs, perspectives, improvement priorities, and satisfaction of Canadians. It requires organizations to focus on citizens' service improvement priorities, individual needs, and satisfaction levels. Citizen satisfaction becomes the measure of success and the basis for evaluating public sector service delivery (Anisimova, HV 2020). Additionally, this approach emphasizes the challenge of providing seamless, integrated services by working together across levels of government. Clients of government services are more than just consumers; they are taxpayers and citizens with personal interests in how services are consumed. Governments must balance the interests of different categories of citizens while creating positive impressions through every service interaction, as these moments shape Canadians' confidence in public institutions and their belief in their own citizenship (Citizens First 2021). This study identifies the satisfaction of citizens with particular services, such as obtaining a birth/marriage/death certificate, applying for a medical policy, receiving pensions, and the like. The national survey should examine the level of satisfaction of the population with a wide scope of services provided by the PSC, as well as individual ministries, akimats,

police, hospitals, and other state organisations. The Common Measurement Tool (CMT) (About the [CMT 2021](#)), which includes a set of questionnaires and a methodology developed by the Canadian Institute for Citizen-Centred Service (ISSC), can be used to determine the quality and compare the survey.

In addition, according to scientists, it is necessary to strengthen the multi-channel provision of services, which would increase the availability of services over the Internet, during a personal visit, and by phone. There is an opportunity to reduce the workload of the PSC by improving the quality and awareness of the availability of online services and telephone consultations. Since mobile penetration in Kazakhstan has reached 100% and Internet access has substantially increased with a corresponding reduction in its cost, the provision of public services using mobile technologies has a huge potential for successful implementation. In this regard, strengthening cooperation between ministries and departments to achieve a greater level of service integration may be the most difficult goal to achieve, since ministries, and even departments within individual ministries, are used to working in isolation. Changing this situation would require long-term changes in the organisational culture of the Kazakh civil service. In the short term, cooperation can be improved by measuring the degree of openness of individual ministries and departments. The researchers concluded that the Agency for Civil Service Affairs and Anti-Corruption could launch an online survey among civil servants and employees of the PSC, which would assess the degree of openness and cooperation of the relevant state bodies.

M. Kassen believes that in the modern conditions, the Republic of Kazakhstan needs to improve the following aspects of legal regulation: the establishment of a body for monitoring and protecting information data, as well as the consideration of complaints regarding the violations of the right to protect information data; the need to consolidate national legislation in the field of e-government into a unified legal act; the establishment of an interdepartmental state body in the field of e-government ([Kassen 2016](#)). As a result of the study, the following conclusions can be drawn. According to scientists, to increase the level of its adoption, the developers of the e-government portal should consider ways to increase its utility through ease of use. The issue of importance and trust to the e-government portal should be established from the very beginning; for example, by publishing information about it in reliable sources of information on the Internet. The digital divide creates new opportunities for corrupt bureaucrats, and excessive investment in e-government infrastructure also creates opportunities for corruption ([Cherniavskiy et al. 2022](#)). The Agency for Civil Service Affairs and Anti-Corruption could launch an online survey among civil servants and employees of the PSC, which would assess the degree of openness and cooperation of the state bodies, which they interact with. It can be concluded that the success of e-government implementation is inseparable from internal organisational factors such as leadership, bureaucratic professionalism, quality of bureaucracy, and adequate enforcement. Scientists believe that in the Republic of Kazakhstan, it is necessary to conduct a survey to measure the effectiveness of public services, similar to Citizens First in Canada, in order to determine the quality and comparison in the survey, a Common Measurement Tool can be used. As a result of the discussion, it was also concluded that the Republic of Kazakhstan needs to improve some aspects of legal regulation.

The result of the policy of implementing the e-government in the Republic of Kazakhstan in 2005–2007 was the establishment of a unified e-government portal with unified databases and unified electronic services for the entire country without subdivisions containing regional and local projects. In 2007–2009, all e-government projects were finally integrated into a unified area of the concept, both in the political and technological sense. Starting from 2010, the period of development of e-government in the Republic of Kazakhstan can be described as a milestone in the conceptual implementation of the idea of digital government and the complete transformation of implementation strategies, which are more focused on promoting transactional services, improving the structure and ergonomics of the project and, more importantly, in promoting the development of participation tools and platforms in an attempt to improve the country's global position in the e-government rankings and focusing on projects that are closely monitored and studied by e-government experts from the United Nations. With the adoption of strategic legal documents since 2013, the development of e-government has reached an important level in the history of this phenomenon in the Republic of Kazakhstan. At present, public services are provided by personal contact through the offices of the Public



Service Centre and online through the e-government portal, whose projects include dozens of different information systems, registers, and state databases and hundreds of applications and services.

## 5. CONCLUSIONS

The implementation of the reform on the integration of public services in the Republic of Kazakhstan is very successful, but this process is described by a strong resistance from the leaders of the top, middle, and lower levels of government agencies. Focusing on public sector and economic reform is considered as the number one priority, and the implementation of the open data project, launched in 2013, is mainly considered as part of public administration reforms. According to scientists, to increase the level of its adoption, the developers of the e-government portal should consider ways to increase its utility through ease of use. Among the obstacles to the implementation of this portal is the fact that there is a low level of awareness of the presence of an e-government portal. The issue of trust and importance to the e-government portal should be established from the very beginning; for example, by publishing information about it in reliable sources of information on the Internet. The digital divide creates new opportunities for corrupt bureaucrats, and excessive investment in e-government infrastructure also creates favourable conditions for corruption. One of the most difficult challenges in implementing e-government is changing the organisational culture, especially in the public sector. The success of e-government implementation is inseparable from internal organisational factors such as leadership, bureaucratic professionalism, quality of bureaucracy, and adequate enforcement.

As a result of the study, it was concluded that in modern realities the Republic of Kazakhstan needs to conduct a survey to measure the effectiveness of public services, similar to Citizens First in Canada, in order to determine the quality and comparison in the survey, a Common Measurement Tool can be used. The Agency for Civil Service Affairs and Anti-Corruption could launch an online survey among civil servants and employees of the PSC, which would assess the degree of openness and cooperation of the state bodies, which they interact with. In addition, the following aspects of legal regulation need to be improved in the Republic of Kazakhstan: the establishment of a body for monitoring and protecting information data, as well as the consideration of complaints regarding the violations of the right to protect information data; the need to consolidate national legislation in the field of e-government into a unified legal act; the establishment of an interdepartmental state body in the field of e-government.

## DATA ACCESSIBILITY STATEMENTS

The data that support the findings of this study are available on request from the corresponding author.

## COMPETING INTERESTS

The authors have no competing interests to declare.

## AUTHOR CONTRIBUTIONS

Akzhan G. Duisenkul and Gaziz D. Taigamitov were involved in planning and supervised the work. Saule M. Madykhan performed the analysis and drafted the manuscript. Dzhamilya A. Ospanova aided in interpreting the results. All authors discussed the results and commented on the manuscript.

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