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E-Government in Kazakhstan: Realization and Prospects

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E-Government in Kazakhstan: Realization and Prospects

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Abstract: Kazakhstan tries to develop its own model of public administration in a westernized manner. One of the examples of such a trend in this country is efforts on organization of e-government. One more aspect of the aspiration is e-voting. These two innovations are often regarded today as potential accelerators of the complicated administrative reforms which the Kazakh government has been carrying out since declaration of its independence in 1991.

Inspired by successful international experience of e-government development, especially, of Baltic States and Singapore, Kazakhstan starts e-government project in 2005 by approving a two-year strategic implementation program. The information web-portal (www.e.gov.kz) inaugurated in 2006 was the first and virtually the only outcome of the project. Today information services the web-portal suggests are considered as its integral part. However, introducing new technology, videlicet, interactive transaction between citizens and governmental agencies, the nation faces challenges of regulatory, organizational and infrastructural character.

As a whole e-government organization requires a large-scale transformation of public administration. Therefore, efforts shall be focused on both reformation of many administrative mechanisms, first of all bureaucracy, and enhancement of democratic procedures since interactivity of e-government implies active political dialogue and rise of political culture in Kazakhstan.

In this respect, introduction of e-government opens a great opportunity to accelerate reformation of traditional democratic institutions. Moreover, it will promote economic development of Kazakhstan as new horizons for use of electronic commerce appear. For example, a recently launched within the framework of e-government, e-procurement web-portal has already proved to be cost-effective. It has saved about 22 % of government expenditures.

Keywords: Kazakhstan, political science, e-government, e-democracy, interactivity

1 Introduction

The objective of the paper is to analyze political and legal nuances of e-government development in the Republic of Kazakhstan, offer periodization of the phenomenon development and recommend a complex of practical measures for solution of problems of e-government development.

The urgency of the article is caused by the following factors: acceleration of processes of the digital modernization in Kazakhstan under the influence of global informatization; increasing efficiency of the Kazakh government due to introduction of information technologies; need to develop a state policy on application of new technologies in political sphere in Kazakhstan; need to accelerate economic and political modernization of the Kazakh society via widespread use of information technologies, and theoretical and practical interest of researching potential benefits of the e-government.

Methods of system analysis, structural-functional analysis, event and content-analysis of important documents and legal acts, script method were applied by an author.

Actually the e-government issue is poorly studied in Kazakhstan. Some aspects of administrative informatization were studied in Dariga Nazarbayeva's work "Mass media and problem of democracy" [Nazarbayeva, 1998] and Galiya Ibrayeva's work "Television of Kazakhstan during formation of statehood (political aspects and tendencies of development)" [Ibrayeva, 1996].

However their researches, mainly, have been devoted to domestic mass media development. Giving due to the works, it is necessary to note, that by virtue of diversity of the studied subject only some issues of general informatization policy were explored. In view of fast development of information sphere new perspective directions for use of information technologies, first of all, e-government organization, have not been careful studied. Therefore this phenomenon requires more profound examination.

2 Current situation

Under the influence of the global information revolution, various spheres of human activity have been actively computerized in Kazakhstan since mid-1990s. Today computers and other computing equipment are used in almost any sphere. Office work is unthinkable without a personal computer. Internet-cafes are opening in cities. Number of web-users is growing.

Kazakhstan has recently begun to use new technology for improving work of its government as well. The governmental authorities have made great efforts to accelerate development of information society. For instance, this year the UN Department of Economics and Social Affairs (UNDESA) ranks Kazakhstan 46th in E-government development in its UN Global E-Government Survey 2010 (Table

1). It is a real breakthrough in comparison with 2008, when the country ranked 81st (UN E-Government Survey, 2008: 2).

Table 1: UN E-government development index 2010 (sample data)

Rank	Country	Index value	Of which		
			Online service component	Telecommunication infrastructure component	Human capital component
1	Republic of Korea	0.8785	0.3400	0.3277	0.2109
2	United States	0.8510	0.3184	0.3198	0.2128
3	Canada	0.8448	0.3001	0.3204	0.2244
4	United Kingdom	0.8147	0.2634	0.3149	0.2364
5	Netherlands	0.8097	0.2310	0.3257	0.2530
10	France	0.7510	0.2321	0.3225	0.1965
20	Estonia	0.6965	0.1705	0.3190	0.2070
21	Ireland	0.6866	0.1695	0.3277	0.1894
30	Malta	0.6129	0.1597	0.2927	0.1605
38	Italy	0.5800	0.0982	0.3196	0.1622
41	Greece	0.5708	0.1209	0.3235	0.1263
42	Cyprus	0.5705	0.1263	0.3015	0.1428
43	Slovakia	0.5639	0.1177	0.3072	0.1390
44	Bulgaria	0.5590	0.1392	0.3086	0.1112
45	Poland	0.5582	0.1317	0.3152	0.1113
46	*Kazakhstan*	*0.5578*	*0.1792*	*0.3194*	*0.0593*
47	Romania	0.5479	0.1414	0.3045	0.1021
48	Argentina	0.5467	0.1403	0.3136	0.0928
49	United Arab Emirates	0.5349	0.0853	0.2703	0.1793
50	Kuwait	0.5290	0.1565	0.2892	0.0833
59	Russian Federation	0.5136	0.1123	0.3101	0.0913
60	Montenegro	0.5101	0.1069	0.2940	0.1093

Source: UN Global E-Government Survey 2010. [online], http://www2.unpan.org/egovkb/documents/2010/E-governmentDevelopmentIndex_2010.xls

The main reasons of the index improvement are launch of electronic public procurement portal, realization of 59 e-services of state bodies, new database «e-licensing», frequent open public web-conferences with active participation of the President and Prime-Minister, and successful realization of actively updating blog platforms in many ministries and agencies.

3 History

Kazakhstan tries to develop its own model of public administration in a westernized manner. One of the examples of such a trend in this country is efforts on organization of the e-government. One more aspect of the aspiration is e-voting. These two innovations are often regarded today as potential accelerators of the complicated administrative reforms which the government has been carrying out since declaration of its independence in 1991.

Analyzing implementation of e-government national program, the four stages of its development should be highlighted as follows.

Stage 1 (1997 -2000) is a period of strategic planning for the state informatization. In 1997 the head of state emphasized in his message to the nation "Kazakhstan - 2030" the importance of 'establishing priority of an independent and effective system of telecommunications services of its own, competitive in future with similar infrastructures of the world developed economies' (Nazarbayev, 1997).

To achieve this strategic objective during the period the presidential decree on formation of the common information space in 1997 and the conception of the single information space of Kazakhstan in 1998 were enacted.

Stage 2 (2001-2003) could be characterized as a period of development of basic information infrastructure in public administration.

Approved in March 2001 state program on formation and development of national information infrastructure in the Republic of Kazakhstan was in fact the first instrument for informatization of public administration. The program was developed in order to realize long-term priority "Infrastructure" in "Kazakhstan-2030" strategy.

The main purpose of the document was to build new technological structures based on use of advanced information technology and telecommunications in economy, public administration, cultural and social sphere.

Although the implementation of the program has been slow, it nevertheless paved the way for more ambitious project, an electronic government.

Another important legal act was the law on informatization approved in 2003. It regulates informatization process, development and protection of information resources and information systems, establishes the competence of government, rights and responsibilities of citizens and businesses in this sphere. For the first time the law has been specified the principles of state regulation in informatization sphere: free development of information services market, ensuring interests of the national security, ensuring protection of confidential information, high quality and

effective information services for citizens and organizations, creation of conditions for free and equal access, dissemination and use of information resources.

As a whole the state regulation in the sphere is aimed at development of public information resources, information systems and information networks in order to ensure their compatibility and interoperability in a single information space of Kazakhstan.

However, the law does not propose specific ways to develop the infrastructure necessary for large-scale organization of electronic services for citizens and businesses.

Faster processing of document flow required effective application of information technology in more conservative segment of the public administration - document management. This step is very important element in development of e-government in Kazakhstan.

In 2003 Kazakh government enacted the law on electronic document and digital signature which regulated the exchange of electronic documents. In particular, this instrument was aimed at regulation of digital signatures use, modification or termination of legal relations, as well as rights and duties of parties in e-document flow process.

The law recognizes the operation of various electronic document management systems, use of e-documents in all areas where information technology could be applied. But it had various readings, mainly because it does not specify exactly what kind of documents is electronic. Therewith the process is also impeded by poor infrastructure and some psychological aspects.

People habitually incline to use paper documents, because electronic document is still unusual thing. In Kazakhstan e-documents flow has been so far technology of common remote exchange of official correspondence, although more structured and systematic in comparison with an ordinary e-mail.

Stage 3 (2004-2005) is a period of practical introduction of new technologies in public administration.

Inspired by successful international experience of e-government development, especially, of Baltic States and Singapore, Kazakhstan starts e-government project in 2004 by approving a two-year strategic implementation program.

The adoption of the state program on e-government was the most important step during this period. The main purpose of the program is to provide citizens and organizations with a quick and quality access to public services and improve work of government through the widespread application of information and communication technologies (Republic of Kazakhstan E-Government Development Program for 2005-2007, 2004).

Agency for Informatization and Communication of Kazakhstan was an administrator of the program. The government exercised control over the course of the program through central and local executive

bodies. For realization of the project a special working group was created. The group consisted of representatives of the Agency for Informatization and Communication, Office of the Prime Minister, Ministry of Justice, National Security Committee, Ministry of Economy and Budget Planning, Kazakhtelecom and state-owned joint-stock company National Information Technologies.

Government allocated more than 50 billion tenge (400 million US $) for realization of the project. Most of the budget was developed in 2006 and 2007. Building of necessary infrastructure required liberal share of the money.

Formation of e-government is carried on a classical western scheme of implementation and consists of two contours and three modules:

1) The inner contour regulates the intra-transactions between governmental agencies via internal information channels. With high level of information security, this communication is suitable for transfer of classified information. This type of communication is called like in western countries «Government to Government» module (G2G).

2) The external contour regulates relations between citizens, businesses and government and consists of two modules 'Government to Citizens' (G2C) and 'Government to Business' (G2B).

Summarizing the result of the project, it is necessary to highlight the following outcomes:

- creation of basic components of e-government, which include web- portal and e-government gateway, national identification system;
- unification of national identity card number with registration number of the taxpayer and social individual code.

Innovations are being implemented not only in public administration, but also used in a political process. Kazakh model of the electronic voting Sailau was introduced in 2004. It has already proved itself in three national elections: parliamentary elections in 2004 and 2007 and presidential elections in 2005.

Several legal acts regulating e-voting were enacted: the instructions of the Central Election Committee, governmental regulations, and presidential decrees. However, the key legal instrument that defines the work of e-voting is a constitutional law on elections. It was amended in a rush only in April 2004, so the document does not regulate e-voting properly. Taking into account intention of further use of this technology in Kazakhstan, it would be useful to develop the law "On e-voting".

Stage 4 (2006 - present) is characterized by first practical results of e-government realization.

On April 12, 2006 e-government website www.e.gov.kz began its work. More than 59 information services were launched in sections such as defense, security, culture, environment, transportation, agriculture, land management and land cadastre, etc.

The implementation of the programs during previous stage enabled Kazakhstan to succeed in reformation of document flow, for instance, in already operating in pilot mode interagency network for electronic documents exchange between the Ministry of Economy and Budget Planning, Ministry of Justice, Ministry of Transport and Communications, Ministry of Industry and Trade, Ministry of Labor and Social Protection, Ministry of Education and Science, Central Election Commission, Accounting Committee, Presidential Office, Agency for Informatization and Communications.

4 Main challenges

For development of new principles of work and corresponding transformation of governmental organs' activity it is necessary to meet a number of political, legal, administrative and technical challenges. Therefore effective realization of e-government requires a coherent strategy which allows organizing and coordinating development of e-government infrastructure, corresponding specialists training, and solving many other matters realized by all parts: government, business, public associations, scientific institutions and citizens.

What are the characteristics of the e-government organization in Kazakhstan? What should be improved?

Finances

The key issue is finances. National budget is a basic source for e-government relization. Nevertheless additional finances may come from local and transnational corporations, non-governmental organizations and international structures.

Regulation

Good functioning of e-government requires improvement of normative and methodological basis of the project.

When developing laws it is necessary to take into account both specificity of established regulation mechanisms and perspectives of transactional technologies development. The laws should 'specify, what functions of state administration will be carried out by which governmental institution, difining their competence, rights and obligations, as well as the principles of strategic planning' [Kiškis and Petrauskas, 2003, p. 410].

In this respect, it is necessary to pay special attention to issues of software and services licensing and certification in the sphere of new technologies. Such issues as providing e-services, protection of users' rights, rights and obligations of state agencies and public servants are required to be regulated in corresponding laws for providing full functioning of e-government and legal regulation between various subjects.

Infrastructure and organization

First of all, it is necessary to provide improvement of main infrastructure components of e-government including:
1. e-government web-portal, i.e. a component that provides access for all e-services
2. internal governmental network, i.e. information system which provides interactions between public officials and technical administrators via closed cipher information networks;
3. e-certificate or digital signature providing and identification by authentification center;
4. communication systems;
5. common databases.

Taking into account integration of information sub-systems of central and local official bodies, the e-government should be based on use of common databases and algorithms of activity, 'mechanism' which can be conditionally defined as *a principle of e-government internal integrity*.

In this context it is worthwhile to provide access to interactive services based on common databases which allow citizens to fill in e-applications in interactive mode, address directly to the civil servants, and search for laws by advanced search machines. Clear understanding of purposes and goals of e-government by all parts is a precondition of successful organization of the project.   Therefore the work in this stage will require high level of scrupulousness and responsibility from all Kazakh public officials and technical specialists.

In this connection steady launch of e-services and integration of various departments databases should be provided, avoiding intricacy with ways of access to the networks. Information security should be ensured without detriment to ease of access. For the purpose a web-portal should exercise the following functions:
- transformation of various information data formats, including application of scanned paper documents;
- support of various communication protocols including mobile access;
- support of wide range of access to the system and data ciphering;
- data processing in interactive mode.

Today prevalence of such different identification numbers as IDs, taxpayer registration numbers, social individual numbers, etc., impedes wide implementation of 'single access' principle to the electronic databases in Kazakhstan.

In this respect use of universal portative devices combining functions of cellular phones, personal digital assistants (PDAs), electronic ID cards, driver's licenses, social individual numbers and taxpayer's registration numbers are perspective as bearers of key information. For instance, use of MyKad or Multipurpose Card in Malaysia 'merges two most important official documents - the identification card and driving license - with four other applications namely Passport Information, Medical Information, E-Cash and Public Key Infrastructure' [Musa, 2009].

Information security

Any modern information system implies authorization of users and administrators. As for e-government all adult citizens and residents in Kazakhstan can be users while public officials are administrators of the system. Therefore the center of authentification providing identification of users on e-government portal is an important aspect of information security.

The authentification center provides access to e-government services via unique login and password. Access to some services will be rendered to citizens only after registration. In this respect electronic identification should be obligatory for access to most of the e-government services, first of all, interactive services as identification determines rights and duties of users and public officials.

The key aspect of electronic transactions is security of the system and networks. When realizing interactive services citizens, business and government should be confident of authenticity of any part of the transaction process. This relates to a citizen's personality identification as well as such characteristics as education, professional qualification, etc. i.e. information which can be requested and identified with common databases when accessing to particular electronic services. However it is necessary to guarantee high level of information protection and provide observance of users rights for protection of anonymity when connecting with e-government. Especially authentification is important in realization of financial operation on the web-portal.

Without ensuring electronic transactions security, there is a good ground for various cybercrimes, e.g. illegal access to personal information, illegal change of information in databases, financial crimes, etc. In this context, common databases are necessary, for instance, concerning all registered real property.

However, there are always interrelation of freedom and responsibility, privacy and security in any such a system. Protection of personal data is an essential factor of successful e-government. Consequently we have to balance between necessity of using personal information and maintaining its anonymity.

Therefore personal data protection implies high level of information security against various types of challenges. Personal information should not be published or transferred to third part without a citizen's sanction.

In this respect it is practical to apply the following elements of protection against e-government server cracking:

- Data protection during authentification of citizens and public officials (use of e-signature, e-certificates, etc.);
- Data ciphering during electronic transactions;
- Protection of e-government server against direct physical tampering or elimination;
- Systematic tests of the web-portal functioning and daily view of all reports and logs.

Generally some measures of electronic information protection are stipulated in number of laws. But they solve this problem only in part. A common document regulating the issues as a whole is required. Law on information security could be such a legal instrument.

5 Conclusion

The analysis of the current state of informatization in public administration in Kazakhstan shows that despite impressive achievements in development of e-government, e-voting and e-document flow, further development will require solution of many challenges.

The information web-portal inaugurated in 2006 was the first and virtually the only outcome of the project. Today information services the web-portal suggests are considered as its integral part. However, while introducing new technology, videlicet, interactive transaction between citizens and governmental agencies; the nation faces problems of regulatory, organizational and infrastructural character.

As a whole e-government organization requires a large-scale transformation of public administration. Therefore, efforts shall be focused on both reformation of many administrative mechanisms, first of all bureaucracy, and enhancement of democratic procedures since interactivity of e-government implies active political dialogue and rise of political culture.

In this respect, introduction of e-government will open a great opportunity to accelerate reformation of traditional democratic institutions due to rise of political culture. Moreover, it will promote economic development of Kazakhstan as new horizons for use of electronic commerce appear. For example, a recently launched within the framework of e-government, e-procurement web-portal has already

proved to be cost-effective. It has saved about 22 % of government expenditures [Kazakhstan Today, 2009].

It is necessary to note that organization and functioning of e-government in future will require realization of some challenges: improvement of normative and methodological basis; realization of interactive services; solution of the technical part of the project (organization of common information network and common electronic databases and maintenance of information protection); the project outreach in mass media and educational institutions (universities, schools, refresher courses, etc.). Demonstrating that new participating democracy leads to positive changes, videlicet, helps the civil society to develop, political, social and economic purposes of the innovation will be successfully realized.

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