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Mongolia's Experience in E-Governance and Current Challenges

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Abstract. Although, Mongolia carried out «E-Government Mongolia» national programme in 2005–2012, the National Programme to develop Integrated Registration System in 2008-2012, and the E-Governance National Programme in 2012–2016, the operation to separate information communication networks and services could not be successfully completed. The main reason is the inertia of mentality of the previous system to continue the state ownership of databases of all types, to monopolize of all profits for the government and to use for exercising power in implementing activities in information and communication sector resulting in ineffectiveness of political system and governance.

In order to assess the digital governance issues and challenges of Mongolia, we intend to analyse policy documents, and conduct case research and make an inductive conclusion.

First, we examined the implementation of the Government policy of Information and Communication Development. The Government of Mongolia prioritizes the following 6 tasks towards the development of the sector development. These include: a) legal framework, b) networks and infrastructure c) service d) innovation and research, e) production, f) investment and competition g) information security and h) e-governance. Therefore, we aimed to examine the implementation of these tasks, their stages, and their mutual dependence.

Second, to evaluate the overall implementation of the E-Governance, we analyse historical development, political decisions regarding e-governance, legal framework, and negative consequences in government service and information transparency through cases.

Large majority of the population (78.2%) or 2,602,000 people use internet and social networks. This indicates that there is very high internet usage among the adult population. To be more precise, individuals between the ages of 14 and 64 constitute 64.4% of the population, indicating a significantly high proportion.

There are 496 government services that are provided online. Among other services, most widely used digital services include: one stop service, Electronic kiosk of government service, «Khur» government information exchange system, «Dan» recognition and access system, E-Mongolia, and E-barimt application¹.

Our research findings suggest the following conditions for the major difference of above-men-

¹ <https://ebarimt.mn/>

tioned quantity and percentages, slow progress of digital transformation. These are:

- Legal environment for digital services is not established;
- Open databases are not accessible, only government can use them;
- Although government services can be provided online, society has not yet recognized its security and still tends to demand for paper-based certification;
- Information security is not guaranteed;
- Databases are only used for government decisions, but frequency of sudden changes in the information security level sets up the various discrimination in the society.

The key findings of the research indicate the difference between the above-mentioned figures is large and the digital transformation is not effective due to the following conditions.

In conclusion, the lack of a legal framework for e-government is caused by the lack of a unified public management or absence of central ministry on the relevant policy. Due to the lack of coordination between the use of the database and other policies, citizens are obliged to provide in-person services by government agencies and provide additional paper documentation. The fact that the usage of digital signatures is limited, with only a small percentage used in public tenders and banking services, is becoming the main pressing issue.

Keywords: e-governance, e-Mongolia, E-Governance legal environment, e-notary, digital transition of Mongolian governance, Digital Nation Mongolia, government ownership of data base

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Опыт Монголии в использовании систем электронного управления и актуальные вызовы

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Аннотация. Несмотря на то что национальная программа «Электронное правительство в Монголии» была реализована в 2005–2012 гг., национальная программа по разработке интегрированных систем регистрации — в 2008–2012 гг., а национальная программа по электронному управлению — в 2008–2012 гг., переход на информационно-коммуникационные сетевые ресурсы и сервисы пока полностью не завершен. Основными причинами являются инерционные процессы в ментальности и привязанность к предыдущей системе, которая по-прежнему является собственником всех правительственных баз данных и монополизирует все доходы в пользу правительства, тогда как использование возможностей по внедрению каких-либо активностей в информационный и коммуникационный сектор является неэффективным, оказывает негативное воздействие на политическую систему и управление. С целью оценки проблем и вызовов цифрового управления в Мон-

голии с позиций индуктивной методологии авторы провели анализ программных документов и отдельных случаев. Прежде всего была проанализирована политика государства по развитию информационно-коммуникационных технологий. Правительство Монголии устанавливает в качестве приоритета следующие задачи по развитию сектора: а) разработка законодательства и создание правовых основ, б) сети и инфраструктуры, в) сервисы, г) инновации и исследования, е) производство, ф) инвестиции и конкуренция, г) информационная безопасность и h) электронное управление. Реализация этих направлений и их взаимообусловленность является предметом анализа. Во-вторых, для оценки результатов внедрения электронных систем авторы анализируют исторические аспекты принятия политических решений в области электронного управления, правовые основы и негативные последствия для оказания государственных услуг и обеспечения информационной прозрачности через отдельные кейсы. Статистика показывает, что большинство населения (78,2% из 2602 тыс. чел.) использует интернет и социальные сети, что означает, что доля пользователей интернета среди взрослого населения очень высока. В частности, взрослые от 14 до 64 лет составляют 64,4% населения. В Монголии более 496 государственных услуг предоставляются населению онлайн, наиболее часто используемыми являются: многофункциональные центры (услуга одной остановки), Электронный киоск государственных услуг, система информационного обмена «Хур», система электронного распознавания и доступа «Дан», E-Mongolia и приложение E-barimt¹. Результаты исследования показывают, что причинами и условиями, приводящими к различиям в количестве оказываемых услуг и медленному прогрессу цифровой трансформации, являются: слабая проработка правового окружения для цифровых услуг; недоступность открытых данных, их подчиненность правительству; недоверие населения к онлайн-услугам и предпочтение получения документов в бумажном виде; слабые гарантии информационной безопасности; приоритетное использование информации правительственными структурами и проблемы информационной безопасности, приводящие к использованию информации в дискриминационных целях. Ключевые выводы исследования заключаются в выявлении различий в проявлении этих проблем и констатации неэффективности цифровой трансформации. В свою очередь, недостаток правового обеспечения процессов внедрения электронных систем управления связан с отсутствием согласованной политики и специального министерства, которое бы могло проводить унифицированную политику. Нехватка координации в использовании баз данных и других политических решений приводит к тому, что граждане вынуждены при получении государственных услуг предоставлять документацию в бумажном виде. Практика использования электронных подписей ограничена сферами публичных тендеров и банковских сервисов, что является одной из самых актуальных проблем.

Ключевые слова: электронное правительство, e-Монголия, правовые основы электронного управления, электронный нотариат, цифровой переход в государственном управлении в Монголии, Монголия как цифровая нация, государственная собственность баз данных

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¹ <https://ebarimt.mn/>

Introduction

Mongolia implemented a democratic transition in 1990 and introduced democratic values in all relations between the state and society in accordance with the new Constitution. However, public confidence in the government has declined steadily over the past 30 years. According to a series of survey conducted by the Sant Maral Research Institute, public confidence in the government has been less than 50 percent. The survey also consistently ranked corruption, effective law enforcement, and government red tape in the top ten in the order of social and economic issues. In particular, 57.6% of respondents once said that the only way to solve the red tape related to public service is to pay a bribe. According to the Worldwide Governance Indicators, in 2021, Mongolia's Government Effectiveness (GE) is 39.9 points, which means that red tape and public service inefficiency are still weak¹.

In the case of a new democratic state, if the people's trust in the state is not restored, there are negative indicators that a dictatorial system can be established in 20–30 years (Crozer, 1975). To prevent this, transparency in public services and public awareness may not directly increase citizens' trust in the government, but they can strengthen their trust in the government. In short, there is an acute need to bring the relationship between the state and the citizen closer. To improve the weakness of this weakness in the government, the idea of good governance has been promoted internationally. The core values of good governance are accountability, transparency and openness. In our country, after the 2004 election, the idea of developing good governance began spreading strongly.

UNDP defines the good governance using the following criteria: greater citizen participation, decision-making based on the rule of law, transparency in government operations, better awareness of the needs and interests of citizens, equal treatment of all citizens, efficient and effective use of public funds, and political accountability and apply visions in development planning.

Consequently, the transition to e-governance using technological advances may make the idea of good governance a reality. Researchers (Contreras, 2021) believes that good governance provides the basis for e-governance ethics and norms.

It can be said that the foundation for the development of e-governance has been laid in our country since 1990. For example, on February 14, 1992, Government Resolution No. 25 was issued to establish an internal network of automated information system of the government. Recognizing the need for e-government, the relevant policies had been developed starting with the 2005 e-Mongolia National Program. Series of policy documents were approved subsequently.

These include:

- «Electronic Mongolia» national program in 2008;
- National e-Governance Program in 2012;
- E-governance National program in 2019.

The main concepts and results of these policy documents are summaries in the following table (Table 1).

¹ <https://info.worldbank.org/governance/wgi/>

Table 1.
Таблица 1.

Government policies and programs on e-governance development
Государственная политика и программы по развитию инфраструктуры электронного правительства

«Electronic Mongolia» National Program 2005–2012

Concept	Expected Results	Implementation
The goal is to create a new management model based on ICT and implement e-governance.	<p>Introduce e-government to a new level of government services to citizens and organizations, and create a new flow of information from citizens to the government</p> <p>Develop an action plan to introduce ICT tools into the public administration system</p> <p>The quality and accessibility of public services will be improved</p> <p>Government activities will be open, transparent, efficient and reduced bureaucracy</p> <p>Establish a good governance system with a public service centered on «citizen»</p>	<p>2005</p> <p>Mongolia's external Internet access capacity is 78 Mbit / s</p> <p>Internet users 22,000</p> <p>The length of the broadband fiber optic cable is 3251 km</p> <p>Cellular phone users 551,000</p> <p>2012</p> <p>External Internet access capacity is 22 Gbps</p> <p>Internet users 654,009</p> <p>The length of the broadband fiber optic cable is 18123.8 km</p> <p>Cellular phone users 3,409,005</p>
Concept	<p>National Program on Development of Unified System of Registration in Mongolia 2008–2012</p> <p>Expected Results</p> <p>Improve transparency and openness of government organizations, and increase citizen participation in government policy making, make government services more accessible and less time consuming, and develop and introduce e-government services</p>	<p>Implementation</p> <ul style="list-style-type: none"> •Established a national data center, improved civil registration, state registration of property rights, state registration of legal entities, ensured property exchange and updated the registration, database and system of government organizations included in the unified registration system. •On July 5, 2010, civil registration was conducted nationwide, and 331 soums in 21 aimags, 132 khoroos in 9 districts, and a total of 463 units registered citizens and issued e-ID cards to citizens.
The goal is to create a new ICT-based management model and implement e-governance.		

«E-Governance» National Program 2012–2019		
Concept	Expected Results	Implementation
Developing e-Government «One of the ways to improve government operations and introduce innovations to develop e-government»	The results achieved in this policy document are the same as in 2005 and 2012 «Develop e-government to make public service more citizen-friendly, efficient and cost-effective»	Identify public services that can be converted to electronic form and identify 25 services in the e-service machine 18 services that citizens consider to be the most difficult and time consuming were delivered electronically through the unified public service portal www.ezasag.mn Introduction of kiosk service will serve 2.2 million people in duplicate in 2018, saving 1 hour and 40 minutes per service
«E-Mongolia» Digital Nation Program 2020		
Concept	Expected Results	Implementation
Implement «Vision 2050», Government Action Plan 2021–2024, become an «Digital Nation»	1. In the first phase of the project, mgov.mn provided 188 services online from 34 organizations 2. In 2020, the e-Nation program launched a mobile application to deliver 181 government services to citizens electronically from 23 government organizations.	Moved to e-mongolia.mn platform. In 2021, 592 public services from 50 government organizations are being integrated into the system.
Source: Integrated Legal Information Database https://www.legalinfo.mn/		
Open Date Initiative		
Инициатива по открытым данным		
Initiative	Date of start	Main activities implemented
Open Government Partnership	2013	- Improving public services - Increase the transparency of government institutions - Strengthen justice and reduce corruption
Open Data	2014	In 2014, the idea of the Open Data became active in our country. International projects have started. A smart card reader is installed in public transportation. The purpose is to regulate public transport routes. An open database of the Capital City Citizens' Representative Assembly was established.
Open tender and Budget	2012–2016	Technical support for electronic bidding and budget transparency

Source: Mongolia's Electronic Data Mapping and Evaluation, 2017. P.22.

Table 2.

Таблица 2.

In this way, policy documents e-government development were changed and approved each time by the new government after the regular parliamentary elections. Subsequently, in order to implement the programs approved since 2005 and presented in Table 1, 67 other documents have been approved by the Parliament and the Government to create a legal basis for the development of e-government and as a policy direction.

Nevertheless, the development of e-government is still weak, according to indices developed by international research organizations. For example, according to the United Nations Department of Economic and Social Affairs' EGDI (E government development index), Mongolia ranks 92nd out of 193 countries. The dimensions of this study are: a) e-service — quality issues b) electronic technology c) human resources. According to this index, Mongolia is quite weak. One of the main factors influencing this may be the fact that the corruption and red tape indicators of public organizations has consistently been poor, as it is noted in the Corruption Perceptions Index.

According to a 2015 survey on red tape in domestic government organizations, 62% of participants said they were bureaucratic, while in 2018, the same answer was given by 53%. According to the average survey, the Bureaucracy Index is still 2-3. Respondents said that the main reason was the lack of coordination between government agencies. In 2015, 62% of respondents said it was bad and 20% said it was average, while in 2018, 42% — said it was bad and 39% — said it was average. About 70-80% of the total answers were rated as medium or bad, which may indicate that the policy documents were not being correctly implemented. In particular, it is important to see whether the legal environment, technological development, and human resource capacity are consistent with policy objectives.

For example, let's look at how inter-agency coordination and a unified platform have been addressed. Efforts have been made to improve the technology and systems used in Mongolia's civil service and to create open data. There is a growing tendency to disclose information, expand cooperation, and create a unified government information distribution platform.

For example, Mongolia has been a participant in the International Open Government Partnership for Open Data since 2013. Within the framework of this initiative, the following activities have been carried out in our country (Table 2).

According to this initiative, the real platform that can be used in accordance with open data usage procedures, presented in the Figure 1.

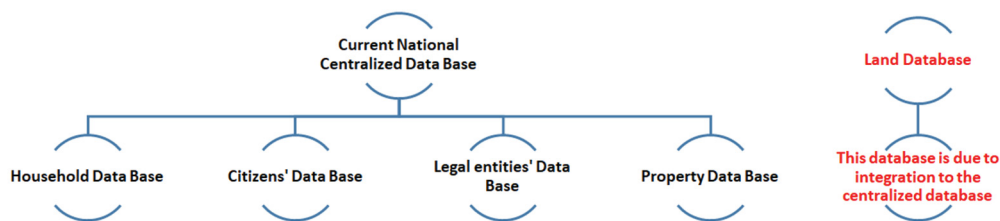


Figure 1 — Centralization into the National central data base.

As for the databases in the figure 2, are not yet integrated into the National Centralized Data Base.



Figure 2 — Not integrated into the National Centralized Data Base.

Рисунок 2 — Компоненты, не интегрированные в Национальную централизованную базу данных.

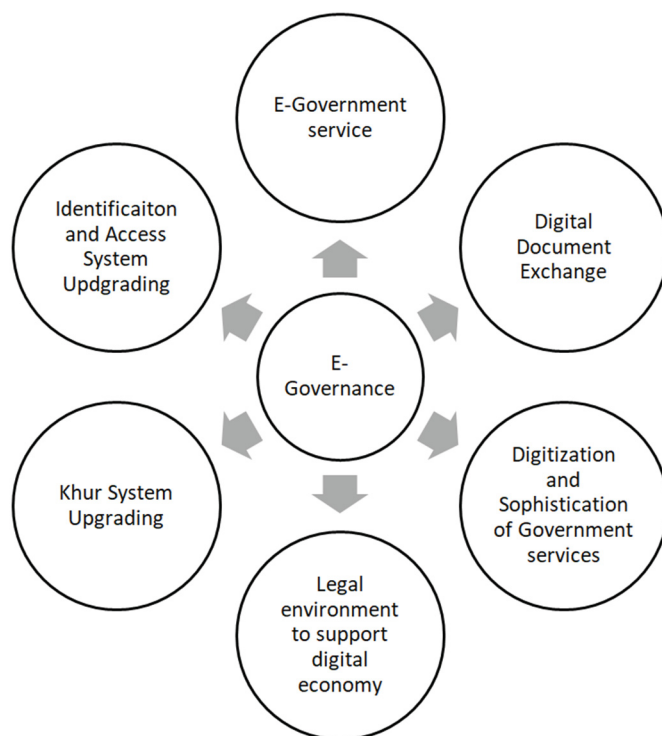


Figure 3 — Components of the E-Government development.

Рисунок 3 — Компоненты электронного правительства.

As can be seen from Figures 1 and 2 above, the inconsistency of the internal information network and open database of government organizations has a negative impact on public services. The results of the research on the coordination of government organizations show that they are true.

In 2019, the National e-Government Program was approved, considering that weak policy implementation and systemic inconsistencies have a negative impact on the implementation of e-government.

The Mongolian Communications and Information Technology Authority has been tasked to implement the e-Nation program approved under the national program. The program is one of the six strategic goals of the organization. In particular, the MCITA has set six strategic goals: digital infrastructure — e-government — information security — digital literacy — innovation, and industry-accelerator of the national development. It should be noted that the realization of policy for the development of e-government is exclusively implemented by governmental agencies.

Within the framework of the strategic goals set by the Authority, the development of e-government in Mongolia can be shown in Figure 3.

The latest e-government program approved in 2019 aimed to have two laws related to e-government. This directly leads to the conclusion that the legal environment has not been fully laid out. Therefore, it is necessary to study the reasons that hinder the development within the framework of this research.

Literature review

We utilized one of the e-government development models as a source. For example, according to Richard Heeks (Heeks, 2001), developing countries need to create e-readiness that will be the basis for the development of e-government. Therefore, «The priority for an NeGI is to build e-readiness in six areas: Institutions, Laws, Leadership and commitment, Human capacities, Technology, Data systems» as a complex system. In order to form this complexity, four stages of development were proposed.

Another e-government model for developing countries was developed by M. Backus (2001). He states that e-government is aimed at promoting a good governance, so many stakeholders of society should be involved. The model by Layne and Lee (Layne, 2001) is focused on the integration and technological and organizational complexity, in which ICTs play an important role in the development of e-government.

Furthermore, the role of government should be clear in the development of e-government.

Scholars, such as Palvia & Sharma (Palvia, 2007) has found that a government agency (G) interacts with outside constituents including citizens (C), business (B), another governmental agency (G) or employees (E). Separate governmental agencies are held responsible for performing activities such as tax collection where such revenues are utilized to provide services similar to defense, security or health care. To perform all these activities, governmental agencies deploy ICT, making this activity 'electronic' government or e-government. Thus, primary delivery models for e-government are: (1) G2C—Government-to-Citizen, (2) G2G—Government-to-Government, (3) G2E—Government-to-Employees and, G2B—Government-toBusiness.

The above research shows that the development of e-government should be systematic, complex and needs to go through different steps. It is clear that the transition will take some time, and how to make an effective transition is not only a matter of develop-

ment, but also it needs policy and legal regulations. E-government also needs to involve many stakeholders, as it covers all societal activities. Therefore, the research will analyze the coherence of the policy documents issued to date and compare whether the conditions are met as reflected in the e-development model.

Study design

The research methodology was followed in the order of document analysis-comparative analysis-case study. The purpose of the document analysis was to analyze the content of key documents related to e-government.

Analysis of policy documents included a total of 67 policy documents, in particular:

- Internal government operations (G2G / G2E)
- Government Business Organization (G2B)

There were six documents from the government that covered all of the three main areas of citizen (G2C) regulation, defining medium- and long-term e-government policies, while containing the continuity of e-government policies.

These six policy documents are:

1. Concept of information and communication technology development of Mongolia until 2010 approved by the Parliament Resolution No. 21 of 2000.
2. Mongolia's Medium-Term Strategy for the Development of Information and Communication Technologies and Action Plan for the Implementation of the Strategy, approved by Government Resolution No. 233 of 2002.
3. «Electronic Mongolia» national program, approved by Government Resolution No. 216 of 2005.
4. National e-Government Program, approved by Government Resolution No. 101 of 2012.
5. State policy on information and communication development approved by the Government Resolution No. 47 of 2017;
6. National e-Government Program, approved by Government Resolution No. 73 of 2019.

Of the six policy documents, three of them «e-Mongolia», «e-Mongolia» and «e-government» were directly linked to the e-governance development. Therefore, the analysis was primarily focused on these documents.

«E-Mongolia» National Program

In 2005, the Government of Mongolia pursued a strategy to implement the «Electronic Mongolia» national program in order to build an informed society. In order to implement this program, it has been included in the government's medium-term development policy in the ICT sector. It can be assumed that the use of ICTs will create an informed society, which will make the development of e-government a reality. In particular, the goal of the ICT Authority is to make technology universal. The e-Mongolia program, on the other hand, has a strategy of using information and communication technology to develop e-government. It is clear that e-government will develop if there is a connection between the two. It can be concluded that there is a policy error in the development of our country as two independent issues separately. Therefore, to date, the development of e-government is the responsibility of the CIT Agency.

The main strategy of the e-Mongolia Program is defined in four main areas: legal, policy and regulatory environment, infrastructure development, ICT use in all sectors of society, and human resource development, consisting of 7 chapters and 25 sub-chapters and around 100 measures, developed together with the master plan. In particular, it is planned that the use of ICTs will ensure the coherence of e-government as follows (See the Table 3).

Table 3.

Таблица 3.

Planned that the use of ICTs will ensure the coherence of e-government

Планы по использованию ИКТ для обеспечения согласованности всех компонентов электронного правительства

	ICT development goal	«Electronic Mongolia» program's ICT development strategy
1	Use of ICT in all areas of society	<p>Provide government support and leadership</p> <ul style="list-style-type: none"> • Improving the efficiency of public administration through the use of ICTs <hr/> <p>ICT application and its interrelationships</p> <ul style="list-style-type: none"> • Development of e-government (G2C / G2B / G2C) • Development of e-learning • Development of e-health • Develop e-commerce • Standard <hr/> <p>ICT-based economic growth</p> <ul style="list-style-type: none"> • Accelerate and support ICT investment and consumption in the economy • Increase and support the use of ICT in SMEs and enterprises • Develop the domestic ICT market • Increase the growth of export products of domestic ICT companies <hr/> <p>Introduce ICT to the public and citizen participation</p> <ul style="list-style-type: none"> • Introduce ICT to the public • Intensify public training and advocacy activities • increase citizen participation in government activities
4	Developing Human Resources	<p>ICT capability and human resource development</p> <ul style="list-style-type: none"> • Provide ICT skills to everyone • Improving ICT education for civil servants • Training of ICT professionals and researchers

Comparing the content of the e-government development strategy with the content of the World Bank's 2001 e-government definition, the e-government issues in the e-Mongolia national program are similar to the content of the e-government definition, but logically inconsistent. This is because the program does not specify regulation of social relationships regarding who will do what, who will provide what, and who will receive what from whom.

The content of the World Bank's definition of who should do what and how is first defined as to use ICTs to improve public, citizens and private partnerships, while the e-Mongolia national program does not consider the participation of social stakeholders.

Second, the quality results of government, citizens and private sector cooperation or stakeholder engagement in improving access to public services, strengthening accountability, and ensuring transparency and openness and accountability mechanism, and it viewed the responsibilities of government, citizens and private sector to have an equal participation. However, stakeholders in the e-Mongolia national program were defined not clearly enough. For example, it is not clear what responsibilities the state has, what the citizen has the right to receive, but no mention of responsibilities of citizens, what role the relationship of private sector has in the relationship between government and citizens. Third, the use of ICTs in government, citizens and private sector interrelationships is a way to reduce the time, space, and the cost of services and products, meanwhile the Electronic Mongolia National program viewed this as to make the government, government services and management, governance structure and system citizen-centered.

In terms of policy and regulation, the e-Mongolia program is aimed at increasing the effectiveness of public administration, and the program's goals and objectives are to regulate G2G or inter-government activities. Therefore, it can be considered that all aspects have not been coordinated.

«E-Government» National Program

In order to define the next stage in the development of e-government, the Government of Mongolia adopted the «E-Government» national program 2012 with the goal to improve the government activities open and transparent, increase citizens' participation in the policy making of the government, and make the government services accessible, less cumbersome and develop e-government services.

The program is based on the objectives of the e-Mongolia National Program and other relevant policy documents, the results of monitoring their implementation, and the World Bank's e-government development model, recommendations, and research. The policy paper defines the term e-government (Electronic Government, E-Gov) as a translation of the word, and includes terms such as Government Enterprise Architecture, information technology infrastructure, mobile communications, and cloud computing. «Electronic Government, E-Gov» is defined as the use of advanced information and communication technologies in the process of providing information on government activities to citizens in a transparent and efficient manner, ensuring cooperation between citizens, businesses and government organizations, and increasing their participation and the process of streamlining the country's internal and external relations and governance activities based on e-services.

The goal of the program was defined as to increase citizen participation in government policy-making through the use of ICT advances by establishing an information technology (G2G communication) infrastructure that connects government agencies, and makes government activities, services, news and information transparent and open to citizens regardless of space or time, accessible and fast delivery, sophisticate the government memory and develop e-government services based on it. In other words, increasing the participation of citizens in public policy-making through the use of the ICT infrastructure used in inter-government relations, and the delivery of transparent and open public services by increasing citizen participation, bringing about accessible

government activities. 25 categories of 130 measures of activities were planned in the program implementation and action plan was approved.

Comparing the goals, objectives, and scope of activities of the e-Government and e-Mongolia programs, the e-Government program is a continuation of the e-Government program, but has improved in theory and concept. The goal is to address all issues of e-government stakeholders, including legal regulation, building the necessary infrastructure, digitalization of public services with the help of infrastructure, and improving the education of both public servants and citizens to use ICTs through e-government. However, in terms of regulating social relations on who does what, how, who provides what and how, this program emphasized the intergovernmental relations and government and citizen relationship. As a result, e-government stakeholder relations are asymmetric.

Within the framework of the National e-Government Program, a total of 72 measures are planned to gradually transfer public services to electronic form, and 27 measures are planned to expand and develop public services based on mobile communication technology. These objectives are aimed at improving e-government stakeholder engagement, government, citizen and private sector relationship. In the e-government program, citizens expressed their opinion on freedom of expression, openness, citizen participation, and the implementation rate was 55% on average. If we compare these evaluation to the evaluation of the Electronic Mongolia program of 2005, the evaluation decreased from 90.5 percent to 55 percent. In comparison with e-Mongolia program, the E-Government program has the advantage of trying to use all forms of regulation.

The National Program on E-Government was approved in 2019. The National e-Government Program is a continuation of the e-Mongolia National Program (2005-2012) and the e-Government National Program (2012-2016). Within the framework of the «Electronic Mongolia» national program approved in 2005, the ICT network and services were separated, a public service obligation fund was established, the sector was liberalized, national infrastructure was developed and connected to international Internet traffic, and universal computerization was implemented.

The e-Government National Program, approved in 2012, focuses on the development of information systems and databases, including the digitization of public services, electronic grievance systems, kiosks, disaster warning, glass accounts, and the VAT system.

Out of 63 government organizations surveyed to establish interconnection infrastructure for government information exchange:

- 50 have electronic databases
- 13 have not created an electronic database and are still collecting information in paper form
- 25 public services can be transferred to electronic form and use 25 kiosks
- 18 services cause the most inconvenience to citizens through the website www.ezasag.mn.

In addition, the e-Government program was developed by the policy maker based on the following needs. These include:

- Ensure the integrity, integrity and security of public databases and databases by creating an open database to support its use and e-participation of citizens in government decision-making process by organizing hard and soft infrastructure for e-government with integrated policy and planning and transferring public services to electronic form and provide and support human development and increase the range of public services to be provided in electronic form regardless of space and time using smart devices;
- In order to introduce the advancement of information technology in the economic and social sectors with a unified policy and planning, and to create a transparent, competitive, and highly productive and responsible government, it is necessary to develop citizen-centered e-government.

This is because the actual conditions for the development of e-government, as shown in Figure 3 below, remained weak in the use of open data or public information systems.

The reasons are: poor coordination (1), lack of legal environment (2), lack of unified organization for electronic communication (3)

Outcome: Low use of digital signatures (4), multiple incoherent systems (5)

Effect: Citizens do not have access (6), Redundant investments (7).

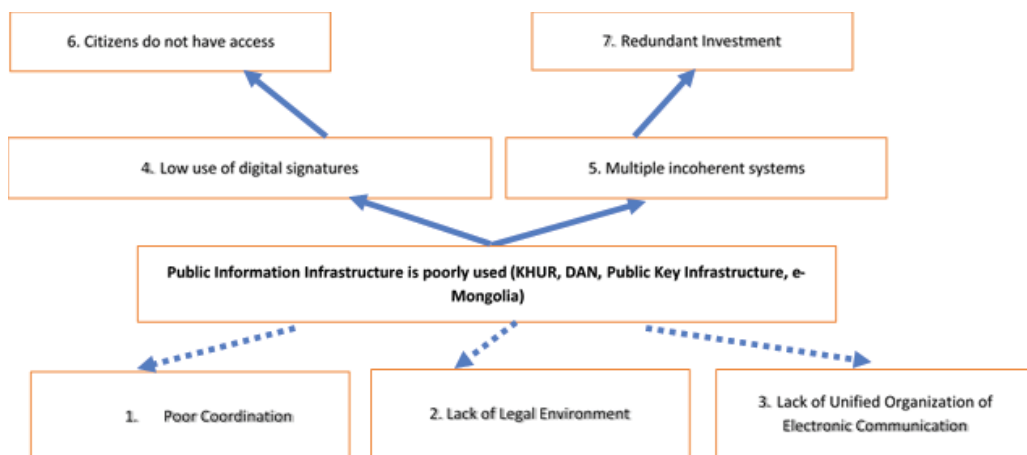


Figure 4. Main factors that inhibits the development of e-governance.

Рис 4. Ключевые факторы, задерживающие развитие внедрения электронных систем.

The «e-Mongolia» national program was approved in 2005 and the «e-government» national program — in 2012, all consist of first, the legal environment, second, infrastructure development, third, the use of e-government or products and services, and fourth, human resources or ICT of consumers and suppliers which laid the foundation of e-government policy.

The National e-Governance Program approved in 2019 will be implemented within the framework of nine additional objectives in the four sections mentioned above. There

are 57 measures planned for the implementation of the program, which include government-government, government-citizen, and public-private sector relationships.

Document research results

An analysis of the content of policy documents by type of activity reveals nine types of G2G or inter-government relations. G2B is a document that regulates the relationship between government and business organizations. There are five types of G2C documents that regulate the relationship between government and citizens. There are also a total of 12 documents regulating the types of multilateral government activities, including G2G and G2B, G2G G2C and G2B, G2C and G2B.

For example, according to Article 11 of the G2C «Regulations on Voluntary Social Insurance», the insured is required to have a citizen ID card, social insurance book, and a child's birth certificate. However, the provision 11.2 states that these documents can be retrieved electronically from the database of a government organization which further confuses whether these can be taken by the citizen themselves or from the relevant government agency directly. And as to how, when and in what format these information can be retrieved are also uncertain with specific regulation.

In addition, the «Procedure for compiling and reviewing documents required for determining pensions» approved by the first appendix of the order a / 30 of the Director of the General Department of Social Insurance dated February 20, 2019, the elderly, herders, including female herders, disabled people, persons who lost breadwinner, military officer, are obliged to submit their citizen ID cards, dismissal orders, Governor's certificates, marriage certificate or archival reference, court decision, formal reference in paper form all of which can be exchanged between government agencies.

Even Article 3.1 of the Law on Promotion of Small and Medium Enterprises and Services, which was revised in 2019, states that a business entity must submit a request for registration as a small and medium enterprise or service provider to the state administrative body in charge of small and medium enterprises or their local branches to the authorized person in writing or electronically. This proves that rules and regulations that are in controversy with e-government are constantly adopted.

Of the 27 documents covered in this study, it can be concluded that most of them use horizontal, G2C-style policy-making tools. Three factors have been identified that hinder the systematic development of e-government. The main reasons are poor coordination (1), lack of legal framework (2), and lack of a unified organization for electronic communication (3). Let us now take a look at a case study.

Case Study: Digital Signature

The analysis of documents revealed that they were mostly of a regulatory nature, because of the weakness of the legal framework for e-government. The adoption and enforcement of the Law on Information Transparency and Right to Information and the Law on Electronic Signatures in Mongolia is currently the legal basis for the digitization of public services and activities.

The «List of public services to be connected to the state electronic information exchange system» was established by Appendix 1 of Government Resolution No. 259 of 2018. This includes a list of 176 services from 33 government agencies. The «List

of public services to be provided in electronic form using the state electronic information exchange system» was presented in the Annex 2 of Government Resolution No. 259 of 2018. In addition, a list of 320 services from 38 government agencies is included. The «Regulations on the exchange of information, creation and use of databases by government organizations with government and other organizations in electronic form» was issued in the Annex to Government Resolution No. 220 of 2019 to provide public services to citizens and organizations in electronic form.

Today, digital signatures are a possible way to make e-government implementation more accessible. In Mongolia, digital signatures are currently used in a few limited sectors, such as electronic letterheads and government services. A total of 38,000 legal entities received digital signatures.

The authority to distribute digital signatures is given to 5 entities:

- TRIDUM KEY LLC, MONPASS SA LLC, NEWCOMPASS SA LLC, VIESEM SA LLC, NATIONAL DATA CENTER (issues only to government officials).

The main reasons for using digital signatures include:

- 50% — participation in the bidding
- 7% — official correspondence
- 13% — government service
- 30% — for civil servants, but it is not clear what to use it for.

The reason why digital signatures are not common in society is due to the services of government agencies. As of today, digital signatures are accepted by 981 local governments in the capital city only in official letters. This is also due to the use of different systems. For example, digital signature-based systems include eDoc and Smart Office electronic exchange systems. These systems are used only in the capital city and cover more than 1,700 public and private organizations.

The very low use of technology and public services is a major disadvantage of e-government. This is because the active use of digital signatures will reduce paperwork and reduce the workload of physical services. We believe that there is a difficulty in the legal environment for the simple use of digital signatures in Mongolia.

Mongolia's adoption of the Law on Electronic Signatures in 2011 was a significant step forward in the country's digital transition, especially in the digitalization of public services. However, consumers are skeptical that the law does not specify whether government agencies will consider or accept digitally signed documents as originals, or whether they will be accepted by the judiciary as evidence.

If law enforcement agencies, such as the judiciary, prosecutors, police, and archives, consider these electronic documents as original to be evidence, it could significantly increase consumption by the government, businesses, and citizens. We also see the potential for digital signature-based systems.

The use of digital signatures is not well established, making it impossible to provide any services remotely, and the current digital transformation is not well established. In the future, it will be a priority to ensure that digital signatures are immediately issued to citizens and legal entities and that any electronic communication used by them is recognized by the government and the private sector.

In addition, the security of personal information has become an issue due to the digital transformation, and it is considered safe to encrypt information using a digital signature private key to protect electronic documents from forgery or alteration and therefore, legal environment needs to be revised.

In Mongolia, public services should be provided using digital signatures as in the following ways:

- Recognition of digital signatures by courts, prosecutors and police
- Require and use digital signatures to access all government systems
- The exchange of information between government agencies (other than state secrets) should be digitally signed only
- Connect digital signature web services to government systems
- Recognition of digitally signed contracts
- Provide digitally signed contract verification services within the framework of e-Notary
- Recognition of digital signatures in the banking and financial sector
- Link digital signature to citizen ID card
- Establishment of electronic archives, procedures for electronic and paper storage of digitally signed documents by all archival institutions.

By making the above arrangements, citizens will be able to receive services without having to visit to government offices, at least during a pandemic.

Conclusion

The research results show that in the current situation main characteristics of citizens' participation in electronic government activities are:

- The purpose of e-government is to establish communication and share information
- E-government services are usually based on mgov.mn or a single portal
- The technology is provided by the national data center or the government
- Decision-making initiatives belong only to government professionals and civil servants
- Citizens are just participants in this e-government.

A citizen is a subject who, on the one hand, controls the state and, on the other hand, receives services. This is not the case in today's e-government system.

The study concludes that the use of ICTs in information services is at the level of creating an electronic database for public services (E-Information), which is a mistake in addressing regulatory issues on how to use it properly.

The United Nations describes the development stage of e-government as follows.

- Emerging: An official government online presence is established through a few independent official sites. Information is limited, basic and static.
- Enhanced: Government sites increase; information becomes more dynamic. Content and information is updated with greater regularity.
- Interactive: Users can download forms, e-mail officials, interact through the web and make appointments and requests.
- Transactional: Users can actually pay for services or conduct financial transactions online.
- e-functions and services across administrative and departmental boundaries.

According to the E-governance development stages developed by the UN, it is possible to view that Mongolia is on the second stage or the Enhanced stage that includes the concept of creating and improving the electronic environment.

Digital signatures may not be widely used due to weak interconnection of systems. As a result, there is no access or exchange between the systems. Currently, the following independent systems are in service:

- 559 services of 56 organizations are connected to the E-Mongolia system. 750k app downloads, 4.9 million services provided. A total of 1.7 million users.
- 74 public and 189 private organizations and public services are integrated into the «Khur» public information exchange system.
- The number of organizations connected to the «DAN» authentication system is 92, and the total number of users is 1,141,853.

If all of the above systems have a digital signature that can be accessed from each other, a system upgrade will be necessary.

Finally, the inadequate implementation of e-government policies and regulations at the development stage does not increase the efficiency and effectiveness of public services, for example, allowing end users to access only one type of public service online and thus its efficiency is not trickle down to other services (Sandra Roosna, 2021).

In addition, the analysis of policy documents shows that the e-government policy has been implemented in the last 30 years without the concept of managing the policy and depending on the will of the current management, and continues to be so.

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