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Comparative analysis of best practices in e-Government implementation and use of this experience by developing countries

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Abstract: *A comparative analysis of the practice of implementing e-government in different countries gives an opportunity to identify the advantages and disadvantages of existing information systems, find ways to optimize and improve the efficiency of public administration. The purpose of this study was to identify the leading countries in e-Government development for comparison with Ukraine, and to apply their positive experience in implementing e-portals, creating the necessary regulatory framework, disseminating the Internet, and attracting citizens to participate in the processes of forming the information society. The article explores the dynamics of E-Government Development Index (EGDI) and E-Participation Index (EPI), analyzes the achievements of developed countries in e-government, and identifies leading countries such as the United Kingdom, France and Spain whose experience is useful for its application in Ukraine. The qualitative analysis of the achievements of different countries was based on the UN e-Government knowledgebase and the United Nations E-Government Survey from 2003 to 2018, information from e-Governance research articles, government website data, newsletters, and research findings. The study of e-government practice in leading countries and in Ukraine shows that the development of public information space has many similarities and the process of e-government formation in developing countries in many spheres follows the path of developed countries, preserving their own national features. The authors of the article have identified the main common components of this process, outlined aspects of improving the practice of e-government in the direction of building an effective system of public administration.*

Keywords: *information and communication technologies, implementation and development of e-government, E-Government Development Index, E-Participation Index, public services, web portal.*

JEL: I28, M15, L32, O11

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Introduction

At the present stage of the development of information and communication technologies, digitization is essential for the growth of economy, improvement of society and the state. Digitalization involves the transition to the communication method then data is recorded and transmitted using digital devices. Developed countries systematically carry out transformational changes, including in management structures, in order to convert previously obtained data into digital form and further work with all information in this form.

E-Government is the application of Information and Communication Technologies to government functions based on the use of the latest achievements in the field of digitization, creation of the latest tools for the development of the information society, and ensuring the efficiency, openness and transparency of the activity of public authorities. To build an effective, and most importantly, a working electronic control system, full coverage of all processes of the state's functioning is required, since any missing amount of data in digital form will entail a simple distortion or inability to implement a specific task.

Currently, there are two models of e-government in the world: e-government 1.0 and e-government 2.0. Model version 1.0 is seen as the basis for the development of e-government. It is based on the provision of electronic services to citizens through official websites of government agencies at various levels. An important clarification in this aspect is no single portal that concentrates the whole range of possible services for citizens. E-government 2.0 involves focusing government efforts on creating a single open source platform for the provision of electronic services. This model of e-government envisages the need to "hand over power to the citizens" (Harper, 2013).

E-government is in various stages of its implementation in different countries of the world. Developed countries have more opportunities to implement new e-government components and more sophisticated information technologies than developing countries. However, experience has shown that the skillful use of the achievements of the leading countries in the field of e-government and the purposeful activity of the state related to the development of the information society allows the developing countries to create high-tech information systems and achieve high results in the development of e-government. For example, Estonia, despite being one of the post-Soviet countries, has achieved great results in this process (e-Government in Estonia, 2016). Among the post-Soviet countries is also Ukraine, which in 2014 made its choice regarding European values. Therefore, the development of public administration in Ukraine, taking into account the experience of European countries and the improvement of e-government, is relevant.

In this context, the purpose of this study is to identify the leading countries in e-Government development for comparison with Ukraine, and to apply their positive experience in implementing e-portals, creating the necessary regulatory framework, disseminating the Internet, and attracting citizens to participate in the processes of forming the information society.

1. Literature review

The problems of e-government research in the various countries are quite different and depend on the specific environment in which the information society is developing and on the circumstances associated with the historical development of each particular country. E-government research in developing countries is relevant because of the need to increase the effectiveness of public administration. An important issue is the elimination of bureaucratic procedures to improve access to information (Nistor and Adela, 2014) and the need to evaluate e-government implementation using modern methods (Choi et al., 2016). Important for these countries is the perception of e-government by citizens and civil servants (Muhammad et al., 2017; Pauhofova et al., 2018), the efficiency of e-services provision and the enhancement of the role of information technology in the fight against corruption (Bhuiyan, 2011).An analysis of user satisfaction has made it possible to identify the benefits of e-government, such as reducing time spent on work, introducing new services and improving existing ones, increasing the quality of services (Mahmoodi and Nojedeh, 2016; Borocki et al., 2019). The introduction of e-government allows to expand the field of its activities to cross-border cooperation, contributes to the achievement of common goals and inter-agency trust, increases efficiency and accountability (Chen et al., 2019). Researchers pay attention to environmental e-government (Yu 2015), issues of public value of e-government (Twizeyimana and Andersson, 2019; Becerra-Alonso et al, 2016).

Research in newly developed countries shows the significance of IT innovation in public administration (Linders et al., 2015), increasing trust in the Internet (Kurfalı et al., 2017; Ciobanu et al., 2019). Jin Sangki (2018) explores the importance of maturity of e-government systems and future prospects of e-government development in South Korea. The author argues that the change in the social paradigm caused by new information technologies has offered a new model of e-government development. This model includes two aspects, such as the level of social maturity based on e-democracy and the level of maturity of civil society. Authors have studied the use of innovative technologies in e-government (Meijer, 2015), cloud infrastructure (Dash and Pani, 2016), e-governance in the social context (Kompella, 2017; Snellen et al., 2012; Haseeb et al. 2019). These studies confirm that e-government systems in these countries need further improvement in order to increase the satisfaction of e-services consumers, increase the efficiency of functioning of the public administration system through the introduction of modern Internet technologies, solving social and environmental problems.

In developed countries, e-government studies concern the political and state modernization of the public sector, the motivation of the public sector, and the intergovernmental approach to e-government. The paper Morten Meyerhoff Nielsen (2019) focuses on three key factors of the Danish approach: governance, intergovernmental cooperation and the realization of benefits. Comparing the achievements of different countries and the use of experience is one way of exploring the benefits of e-government. Studies of the actions of government

agencies in Australia and New Zealand have shown that Australian agencies do not perform as well as their New Zealand counterparts (Gauld et al. 2009). The results of the analysis allow public authorities to improve e-government activities in both countries. The authors of a study on the functioning of electronic services in Sweden (Söderström at al. 2018) examine the different theoretical views applied to the internal coordination of electronic services in a government agency and offer effective ways of organizing a heterogeneous and fragmented landscape of electronic services. A cross-cultural comparison of electronic government adoption in Spain and the USA (Rufín et al. 2018; Siekelova et al., 2017) allowed authors to examine the effects of perceived ease of use, perceived usefulness, compatibility and trust on intentions to use e-government services. The results indicate differences in e-government adoption in both countries and the benefits of e-government in the United States.Article by Irene Bernhard (2014) examines the implementation of municipal contact centers as an initiative of e-government at the local level from the perspective of public institutions and citizens in Sweden.

Researches in Ukraine relate to the study of e-government as a form of government (Arkhypova, 2015; Grabovets, 2016). The authors explore its institutional aspects (Roschuk, 2017; Miskevich, 2015; Tamulevičienė, Androniceanu, 2020). There are scientific works devoted to mechanisms of public administration in the context of e-governance (Konoval, 2016; Medynska, 2016), implementation of administrative services (Emelyanov and Bersan. 2016). Other authors have studied the principles of e-government functioning (Marchenko, 2017; Parafiynik, 2016; Matveichuk, 2016; Nicolescu et al., 2020). Important are studies of the application of the experience of other countries (Volik et al. 2019; Vasile, Androniceanu, 2018). Important for Ukraine is the implementation of the state policy of information society development and e-democracy (Goncharuk, 2008; Mura et al., 2017).

The analysis of publications on the implementation and development of e-government in different countries shows that the problems that researchers study are predominantly dictated by economic, political and social factors. If in developed countries scientists are interested in problems of modernization and motivation of the public sector, coordination of e-services, diversity of e-services, improvement of e-government at the local level, then in developing countries it is about improving the efficiency of public administration, eliminating bureaucratic procedures, perception of e-government the fight against corruption. The researches in Ukraine are related to theoretical and methodological issues of e-government, mechanisms of public administration in terms of implementation and development of e-government, principles of its functioning. A number of researchers are conducting comparative analysis of e-governance in different countries, which allows taking into account the advantages and disadvantages of existing systems and to avoid mistakes in the future.

2. Methodology

Researchers used scientific articles on e-government, data from government websites, newsletters, and research to gather the necessary information to conduct a qualitative analysis of e-government in different countries. Research has shown that e-Government processes in several countries share common features with similar processes in Ukraine and this country can use such experience to improve and develop e-Government. The study used data from UN e-Government knowledgebase and the United Nations E-Government Survey from 2003 to 2018 to compare indicators of e-governance in different countries of the world. The comparison was made using the E-Government Development Index (EGDI), which is based on the weighted average of three normalized indices of most important aspects of e-government: the volume and quality of online services, the state of development of telecommunications infrastructure, and the human capital assessment. UN e-Government knowledgebase also uses the E-Participation Index (EPI), which includes three components: e-information - availability of online information; e-consultation - online public consultation and e-decision-making - directly involving citizens in decision processes. An analysis of both the EGDI and EPI indices, as well as the countries ranking, allowed us to identify the countries for comparison.

The first phase of the study identified the leading countries, according to EGDI and EPI ratings, which met the criteria for stability in the top 10 and belonging to the European region.

In the second stage, we examined the data of the countries we selected in the first phase of the study, such as: sub region, income, income and population. As a result, we have received the most relevant countries to compare and whose experience may be useful for improving e-government in Ukraine.

In the third stage, we studied the functioning of e-Government components of these countries and the possibilities of their implementation in Ukraine.

3. Results

Table 1 shows the values of the E-Government Development Index (EGDI) for leading countries in e-government development based on United Nations E-Government Surveys research from 2008 to 2018.Table 2 includes e-participation (EPI) indicators for the same period. The ranks of countries in both tables correspond to the results of studies for 2018. Some countries from this list did not get into the top 10 in different years. Those index values for countries that were not in the top ten are highlighted in darker color.

Table 1. The values of the E-Government Development Index (EGDI) for leading countriesfrom 2008 to 2018

Rank	Country Name	Region	2008	2010	2012	2014	2016	2018
1	Denmark	Europe	0.9134	0.7872	0.8889	0.8162	0.8510	0.9150
2	Australia	Oceania	0.8108	0.7863	0.8390	0.9103	0.9143	0.9053
3	Republic of Korea	Asia	0.8317	0.8785	0.9283	0.9462	0.8915	0.9010
4	United Kingdom	Europe	0.7872	0.8147	0.8960	0.8695	0.9193	0.8999
5	Sweden	Europe	0.9157	0.7474	0.8599	0.8225	0.8704	0.8882
6	Finland	Europe	0.7488	0.6967	0.8505	0.8449	0.8817	0.8815
7	Singapore	Asia	0.7009	0.7476	0,8474	0.9076	0.8828	0.8812
8	New Zealand	Oceania	0.7392	0.7311	0.8381	0.8644	0.8653	0.8806
9	France	Europe	0.8038	0.7510	0.8635	0.8938	0.8456	0.8790
10	Japan	Asia	0.7703	0.7152	0.8019	0.8874	0.8440	0.8783
11	United States of America	America	0.8644	0.8510	0.8687	0.8748	0.8420	0.8769
82	Ukraine	Europe	0.5728	0.5181	0.5653	0.5032	0.6076	0.6165

(*Source:* Own study based on United Nations E-Government Surveys from 2008 to 2018)

The greatest stability in getting into the top 10 is shown by Republic of Korea, United Kingdom and France. Denmark and Australia once came out of the top ten. Sweden, Finland, Singapore and United States of America twice went beyond the top 10 for the period under review. New Zealand and Japan have worse results in this ranking, Ukraine ranks 82nd in 2018.

Table 2. The values of the E-Participation Index (EPI) for leading countries from 2008 to 2018

Rank	Country Name	Region	2008	2010	2012	2014	2016	2018
1	Republic of Korea	Asia	0.9773	1.000	1.000	1.000	0.9661	1.0000
2	Denmark	Europe	0.9318	0.6429	0.5526	0.5490	0.8136	1.0000
3	Finland	Europe	0.2727	0.4343	0.7368	0.7059	0.9153	1.0000
4	Netherlands	Europe	0.7872	0.6000	1.0000	1.0000	0.9492	0.9888
5	Japan	Asia	0.6136	0.7571	0.7368	0.9608	0.9831	0.9831
6	New Zealand	Oceania	0.7655	0.7714	0.5789	0.7843	0.9492	0.9831
7	Australia	Oceania	0.8864	0.9143	0.7632	0.9412	0.9831	0.9831
8	Spain	Europe	0.3636	0.8286	0.5000	0.7843	0.9322	0.9831
9	United Kingdom	Europe	0.4318	0.7714	0.9211	0.9608	1.000	0.9831
10	United States of America	Americas	1.000	0.7571	0.9211	0.9216	0.8983	0.9831
13	France	Europe	0.9318	0.6000	0.5789	0.9608	0.8983	0.9663
75	Ukraine	Europe	0.5682	0.2571	0.1579	0.4314	0.7458	0.6854

(*Source:* Own study based on United Nations E-Government Surveys from 2008 to 2018)

Best E-Participation Index (EPI) stability in Republic of Korea, Australia, and United Kingdom.The Netherlands and the United States demonstrate slightly worse stability. Some countries with high e-government index rankings, such as Denmark, Finland and France, have worse E-Participation Index ratings. Ukraine was ranked 75th in 2018.

Regional differentiation of the global economy, international division of labor leads to differences in public administration systems (Castells, 2010). In order to identify countries that should be used as an example for Ukraine, it is necessary to analyze their main characteristics. First of all, this is location. It is advisable to choose countries in the European continent that have much in common in terms of historical development, culture and economic models. An important factor is the size of the population that determines the scale of the e-government system. Another important characteristic is Income Value, which determines a country's financial capacity to implement e-government. Table 3 shows basic data for these countries.

Table 3. Country Data

Country	Sub-Region	Income *	Income Value, USD, GNI per capita	Population, million
Denmark	Northern Europe	High income	55,220	5,688,695
United Kingdom	Northern Europe	High income	40,530	65,397,080
Sweden	Northern Europe	High income	52,590	9,763,565
Finland	Northern Europe	High income	44,580	5,481,966
France	Western Europe	High income	37,970	64,457,201
Netherlands	Western Europe	High income	46,180	16,938,499
Spain	Southern Europe	High income	27,180	46,397,664
Norway	Northern Europe	High income	75,990	5,199,836
Ukraine	Eastern Europe	Lower middle income	2,388	44,657,704

* Income data refer to World Bank classification
(*Source:* Own study based on the UN e-Government knowledge base(2019)

The comparison shows that all countries except Ukraine have high income according to the World Bank classification. Ukraine has a lower average income, which indicates major constraints on e-government development. The population in Ukraine is comparable only to the population of Great Britain, France and Spain. Thus the criterion of population size becomes decisive. The "sub-region" characteristic reflects the geographical location of the country. However, in our view, belonging to a sub-region within Europe is not a significant characteristic that can affect the conditions of e-government development.

Thus, the analysis shows that among the leading nations according to the United Nations E-Government Surveys, the most similar to Ukraine in terms of geography, population and belonging to European civilization are the United Kingdom, France and Spain.

These countries have shown high ratings both according to E-Government Development Index and rating by E-Participation Index (Table 4 and Table 5). The UK has always been in the top 10 for the study period, except according to EPI in 2008. France was in the top 10 according to EGDI, but only in 2008 and 2014 according to E-Participation Index. Spain had a high rating on both indices in 2010 and high E-Participation Index ranks in 2016 and 2018. Ukraine has only once shown a rather high 14th place in the E-Participation Index in 2008, other years significantly behind the other three countries.

Table 4. E-Government Development Index rankingfrom 2008 to 2018

EGDI Rank	2018	2016	2014	2012	2010	2008
United Kingdom	4	1	8	3	4	10
France	9	10	4	6	10	9
Spain	17	17	12	23	9	20
Ukraine	82	62	87	68	54	41

(*Source:* Own study based on United Nations E-Government Surveys from 2008 to 2018)

Table 5. E-Participation Index rankingfrom 2008 to 2018

EPI Rank	2018	2016	2014	2012	2010	2008
United Kingdom	5	1	4	5	4	25
France	13	12	4	25	15	3
Spain	5	7	19	31	3	34
Ukraine	75	32	77	83	48	14

(*Source:* Own study based on United Nations E-Government Surveys from 2008 to 2018)

Each of the selected countries has its own socio-political system and system of public authority. The United Kingdom is a country of parliamentary democracy operating under a constitutionalist monarchy. The monarch is the head of state and the Prime Minister appointed by the monarch is, in practice, the political leader of the United Kingdom and acts as the head of Her Majesty's Government. However, in reality, the king is only a nominal head of state. The royal powers are in the hands of the executive - the cabinet. There is no constitution in the country in the form of a single written basic law. Legislative acts approved by parliament and judicial precedents are of constitutional importance. The legislature is the bicameral Parliament, which includes the House of Commons and the House of Lords. The UK consists of four countries (home nations) - England, Scotland, Wales and Northern Ireland, each with its own administrative system. The United Kingdom has a strong tradition of self-government within the unitary system of administrative and public administration (https://www.gov.uk/).

France is a presidential-parliamentary republic. The official name is the French Republic. The head of state is the President. Legislative power belongs to the parliament, which consists of the National Assembly (the lower house) and the Senate (the upper house). Both houses have similar powers. The country has a

multi-party system with many different political parties. The supreme constitutional body is the Constitutional Council. Executive power is exercised by the President and the Council of Ministers (government). The President appoints the Prime Minister and, at his request, the Ministers. A Member of Parliament cannot be a member of the Government at the same time. The government does not need a vote of confidence, but it can be sacked due to a no-confidence vote declared by a majority in the National Assembly. The Council of Ministers (Government) is headed by the Prime Minister (Expatica, 2019).

Spain is a parliamentary monarchy. The country has a constitution approved by a national referendum in 1978. The head of state is the King of Spain. Legislative power is exercised by the Cortes Generales, who develop and pass laws that are subject to king approval, and control government activity. Cortes consists of two chambers: the Congress of Deputies (Congreso de los Diputados) and the Senate (Senado). The Congress of Deputies shall be elected by direct and secret ballot by a system of proportional representation. The Senate is a chamber of territorial representation, elected by free, direct and secret ballot. The executive power is exercised by a government headed by the head of government. The head of government is appointed by the king after consultation with political parties and the heads of both houses of parliament, and then the nomination of the chairman must be approved by an absolute majority of votes of the Congress of Deputies. The Prime Minister has virtually presidential powers (https://www. britannica.com/).

Ukraine is a unitary parliamentary-presidential state. The only legislative body in Ukraine is the Parliament – the VerkhovnaRada of Ukraine. The constitutional composition of the VerkhovnaRada of Ukraine is four hundred and fifty People's Deputies of Ukraine, who are elected on the basis of universal, equal and direct suffrage by secret ballot for a term of five years. The President of Ukraine is the Head of State and acts on its behalf, is the guarantor of state sovereignty, territorial integrity of Ukraine, observance of the Constitution of Ukraine, human and citizen rights and freedoms. The Cabinet of Ministers of Ukraine is the supreme body in the system of executive bodies. The Cabinet of Ministers of Ukraine is responsible to the President of Ukraine and the VerkhovnaRada of Ukraine, under the control and accountability of the VerkhovnaRada of Ukraine within the limits provided by the Constitution. The Cabinet of Ministers of Ukraine includes ministers, ministers. The Prime Minister of Ukraine is appointed by the VerkhovnaRada of Ukraine upon the submission of the President of Ukraine (Constitution of Ukraine, Revision on February 21, 2019)

Until 2014, a centralized political system was operating in Ukraine, with a dualism of the executive branch and an unclear distribution of responsibilities at the local level. Decentralization, which has been going on since 2014, aims to reduce the influence of the central government and transfer responsibility for everyday life issues to elected local authorities. This should make more responsible not only local officials but also citizens, and thus contribute to the democratic

development of Ukraine (Democracy in Ukraine: Four Years after the Euromaidan, 2017).

Advantages and disadvantages of e-government formation in the leading countries allow to impartially evaluating possible options for its further development in Ukraine.The UK was a leader in standardizing e-governance deployment solutions and approaches as of 2016 according to the UN E-Government Survey 2016. It should be noted that until 2013 in the UK there was no single portal of public services. Thus, each authority had its own website, which was significantly different from the web resources of other authorities. At the moment, this situation persists in Ukraine. As part of the deployment and full implementation of the e-Government 2.0 concept (platform code GOV.UK is available in open access on GitHub), in the UK there was a single portal of public services – gov.uk. (https://github.com/ alphagov) this was facilitated by the creation of Government Digital Service. In Ukraine, a similar body – The Agency for e-governance (forms policy and is responsible for the development of e-governance).

As for deploying a single entry point gov.uk, the project took less than a year to complete. At the moment, the optimization of the system continues, since its architecture consisted of more than 700 components (Government Digital Service https://gds.blog.gov.uk/about/). At the same time, they were supported and accompanied by third-party developers, which complicated the implementation of the task. Now GDS has the possibility of Autonomous support and development gov.uk without resorting to outsourcing services.In General, Ukraine can take advantage of the technical experience of the UK in the development of a single portal for the provision of public services.

At the core Gov.uk there is a content management system that implements the ability to publish and manage content posted on the portal. The system with the help of API provides an opportunity for each body to place the necessary content in a sufficiently flexible form. The GOV.UK Verify platform allows the system to check users for the most complex services, such as taxation, pensions (https://www.gov.uk). To use simple services, it is enough to confirm your passport number, driver's license or tax number. An interesting practice is that the state has partially delegated the verification function to non-governmental organizations. Each applicant organization must meet the requirements of state certification. There are seven certified verifier organizations in the UK. After successfully passing the verification of compliance with the state certification, the company receives the right of access to some state registers to determine the identity of the citizen who applied for a state service. Since September 2018, the process of integrating the Verify system with similar verification systems in countries such as Belgium, Denmark, Germany, the Netherlands, Iceland and Spain has begun. Another interesting element of e-government in The UK is a notification platform GOV.UK Notify (https://www.notifications.service.gov.uk). Based on templates, the platform is used by all authorities to notify citizens about the need to pay taxes or the current status of ordered public services.

Of course, it is impossible to simply use the technical solutions of the UK and apply them in Ukraine, despite the fact that they are available on GitHub (https://github.com/alphagov). The main reason is a completely different system of building relations between the state and the citizen, as well as the traditions of public administration. Comparing approaches to the implementation of e-governance in the UK and Ukraine, it is worth noting that in the first case there is a liberal legislation that works on the principle of "what is not prohibited is allowed" (Modernising Government White Paper, 1999). In the case of Ukraine, there is some redundancy in regulating e-government development processes, for example in legal acts concerning digital signature, administrative services, information security, etc. (Presidential Decree No. 928/2000).

If the UK has demonstrated successful e-governance results, France, by contrast, has shown an extremely conservative approach not only in implementation but also in plans. However, the country is among the developed countries, so this case is also extremely useful for Ukraine. Officially, the process of deploying e-government in France began on 18 January 1998, when it was designated as a priority in the government action program. The adopted document focuses on the creation of closer contact between the population and business with the state. The government began by improving computer literacy, both of the population and officials. In addition, the package of measures provided for the introduction of appropriate adjustments to the training program of officials in higher education institutions. It was assumed that the basis for state reforms will be the program of use of information and telecommunication technologies by the government. Under the implementation was a special Fund with a budget of 130 billion francs. In addition, an interdepartmental Committee on technical support for the development of information and communication technologies in government services has been established for government services software (e-Government in France, 2015).

The priority of the deployment of e-government in France is to provide e-services to the public and business through the use of the Internet. However, it is worth noting that not enough attention is paid directly to the aspects of e-governance, including opportunities to expand civil participation in political processes. Thus, the type of e-government in France is e-services. Within the program, the websites of the French Parliament and the Senate were created, providing basic information that is of interest to the public, including access to archival materials. A rather interesting project within the program was the Legifrance Government web portal, a site providing legal assistance to the French (https://www.legifrance.gouv.fr)

The largest project in the framework of the deployment of e-government was a single portal for the provision of electronic services Service-public.fr, which combines additional functionality (for example, a section with news). Mission Service-public.fr it consists in informing the user and then sending it to the desired service. Service-public.fr is the official website of the French administration, a single portal for administrative information and access to online services, created in

cooperation with national and local administrations. At the moment, it should be noted that France, unlike the UK, does not set out to deploy a fully electronic government. Considering the qualitative aspect of the provision of public services, it is important to note that France is inferior to the United States, Britain and several European countries. Nevertheless, the final estimates of France are quite high and there is a good groundwork for further growth.

The Spanish Government has implemented two major strategies: the Third National Action Plan of Spain 2017-2019 of The Open Government Partnership (2017) which provides for the establishment of an open government and the National Security Strategy 2017 for cybersecurity measures to promote the safe and secure cyberspace. In 2018, the Law on Protection of Personal Data and guarantee of digital rights was adopted. The Official Journal of the European Union had published a notice on DNIe (electronic Spanish National ID) as a Spanish identification system in accordance with the eIDAS (electronic IDentification, Authentication and trust Services). Only six countries have reported a similar authentication system: Germany, Italy, Estonia, Luxembourg, Croatia and Spain.

Royal Decree 863/2018 approves the core structure of the Ministry of Territorial Policy and Public Affairs, which oversees: the Digital Administration; the coordination of the process of rationalization of ICT; the promotion of e-Government through the shared provision of the Common Information and Communication Systems Service. Among the eGovernment services in Spain are important: the electronic prescription system, which provides electronic recipes; pensions management system "Régimen de ClasesPasivas del Estado" which provids to civilians and military officials. The use of these systems has made it possible to significantly improve electronic document management systems (e-Government in Spain, 2018).

4. Discussion

The introduction of e-government in developed countries has encountered a number of problems that are characteristic of other countries as well: the desire of regional state authorities to maintain "institutional" independence from the center; opposition to integration processes in a single centralized management environment; budgeting for e-government implementation (Kondakov, 2016). In view of the problems of e-governance in Ukraine and the problems of its implementation in other countries, on September 2, 2019, it was decided to create a Ministry of Digital Transformation of Ukraine, which set a number of ambitious goals by 2024 (https://thedigital.gov.ua / ministry). These include: 100% public services available to citizens and businesses online; 95% of the transport infrastructure, settlements and their social facilities must have access to high-speed Internet; 6 million Ukrainian citizens should be involved in the Digital Skills Development Program; 10% share of IT in the country's GDP.

At present, the main obstacles to the full implementation of e-government are: insufficient computer literacy of local officials, problems with Internet access in villages and small towns, a high degree of bureaucratization of the management system, sabotage of local officials. The government states that the transfer of state administrative services to electronic format will make it possible to receive any service from any place with an Internet connection. In this context, it is necessary to note the problem of inequality, which must be addressed through the provision of Internet access in all parts of the country, as this is a prerequisite for interaction with the state. Otherwise, the state excludes the part of the population that will not be able to receive a particular service in electronic form as quickly, conveniently and, perhaps, free of charge, or for less money than with the physical presence in an administrative center or a certain body of state administration.

Work is currently underway on the www.kmu.gov.ua web portal, which is the "single window" for providing electronic services. There are 120 e-services for citizens. It should be noted that the provision of administrative services is also carried out on a single state portal of administrative services my.gov.ua, a link to which is available on the website www.kmu.gov.ua in the services section.

The experience of setting up government portals in developed countries shows that they have to function in three dimensions: providing information; transactions within a separate government agency; transactions that require integration between multiple government entities. The experience of the UK proves the need to create fully integrated portals to enable various transactions with individuals and businesses to be implemented and to implement a user-based model of key human life events or business activities.

The portal my.gov.ua is managed by the Ministry of Economic Development and Trade of Ukraine and was implemented by InfoPlus. This company is a Ukrainian software developer whose main areas of activity are the development and implementation of software solutions in the field of business automation, management and other processes, as well as the provision of consulting services in the field of information technology. The project initially works in an information mode and provides comprehensive information regarding: administrative service; lists, templates and sample documents required to receive services; contact information and service locations. The provision of services in electronic form allows: to consistently implement services in electronic form; expand methods of identifying service recipients; implement payment mechanisms. The government plans to include another 50 in the list of electronic services in 2019, which will amount to 170 services. It should be noted that in the implementation of a single plan for the provision of services, the pan-European experience was applied, and the project was carried out under the leadership of European structures.

The project www.kmu.gov.ua was implemented with the assistance of In Eastern Europe and the State Agency for Electronic Governance in Ukraine within the framework of the international technical assistance program "Electronic Accountability and Participation Management" (EGAP) with financial support

from the Swiss Agency for Development and Cooperation. The technical part was implemented by the Ukrainian company Kitsoft, which develops and implements digital technologies for government agencies and commercial organizations. This company is also indicated as the technical developer of the new project www.e.gov.ua.

The most valuable experience in implementing e-services portals for Ukraine is the UK experience. Only a single access point and the ability to use modern authentication methods are at the heart of the successful implementation of such systems. Ukraine should take into account Spain's experience in electronic identification, authentication and open government. Measures are also important to coordinate the process of streamlining ICTs and promoting e-Government.The experience of France is very useful for Ukraine in solving the problems of computer literacy of the population and officials. Government experience in using information technology is also important. An essential aspect of the implementation of e-government in Ukraine is the development and implementation of a state program of interaction between central state institutions, non-governmental organizations and public authorities at the state and local levels. As much as in Ukraine there is a problem of psychological distrust and resistance of certain categories of citizens and public servants on the newest forms of interaction and management in the state, this kind of program will help to improve the state of e-government.

Human rights and freedoms in Ukraine are enshrined in section 2 of the Constitution of Ukraine "Rights, freedoms and duties of man and citizen". At the same time, article 24 States that a Citizen of Ukraine has all rights and freedoms on its territory and bears equal duties provided for by the Constitution of Ukraine.Creating an effective e-services system promotes openness, time saving, and anti-corruption effects. The state Agency for e-governance of Ukraine together with other public authorities and international partners contribute to the introduction of e-services in many areas of the economy: construction, land services, ecology, business registration, and registration of subsidies, state aid and the like.

Developed countries have experience of using crowdsourcing as a form of information product creation. In Ukraine, volunteers established the iGov project, which was later transferred to the state domain * gov.ua and is now available on the website igov.gov.ua. However, iGov remained at the level of alfa-version and now does not carry any functional load, only performs information tasks and provides information copied from official websites. In fact, the iGov project has lost its relevance, given the availability of a complete single window of electronic services already deployed with the support of European partners at www.kmu.gov.ua.

Research into the processes of forming e-Government components that are based on the experience of EU countries shows that Ukraine applies a modern approach to the development of the information society. However, due to significant political problems, the imperfection of the education system for citizens

and civil servants, the poor quality of public service delivery, the e-government system is still unable to function effectively. At the same time, it is important to note the significant progress in the implementation of e-Government development programs in Ukraine and significant future prospects.

5. Conclusions

A comparative analysis of the leading countries in the development of e-government has shown that these are countries with high levels of political, social and economic relations and high income. European countries with common historical, geographical, political and demographic backgrounds are of the highest value in terms of using e-Government experience in Ukraine. An analysis of the dynamics of the e-government development index and the e-participation index and comparison of political systems led to the conclusion that the UK, France and Spain have the most suitable e-government experience for Ukraine. These countries are highly successful in establishing e-government, implementing e-services portals, creating the necessary regulatory framework, disseminating the Internet, and engaging citizens and civil servants in the information society.

Among the common problems that hamper the development of e-government are: the desire for independence of regional state authorities from the center; opposing to integration processes in a single management environment, difficulties in financing informatization projects. In Ukraine, these problems are exacerbated by digital inequality, low levels of computer literacy among some sections of the population, uneven internet access, especially in rural areas. An analysis of the implementation of e-government in Ukraine shows that many projects have been implemented with the participation of developed countries and using their positive experience. Ukraine draws on UK experience in implementing electronic portals projects, draws on Spain's experience in electronic identification, authentication and open government, and takes into account France's experience in improving computer literacy.

Considering the experience of developed countries, Ukraine should improve the System of electronic interaction of executive authorities and the Integrated System of Statistical Information; launch a single state-owned cloud platform for service delivery. Shared use programs should be implemented in various government departments based on cloud technologies that support process monitoring and management, and job virtualization. Regional public authorities should be able to receive electronic services from public cloud resources, which will allow the integration of state information systems into a common resource for data storage and processing.

The topic of further research in this area could be an analysis of European practices in the provision of public electronic services and the state of implementation of electronic services in Ukraine.

Authors Contributions

Conceptualization, Serhiy Shkarlet; Data curation, Igor Oliychenko, Vladimir Zhovtok; Formal analysis, Maksym Dubyna and Maryna Ditkovska; Methodology, Serhiy Shkarlet, Igor Oliychenko; Writing – original draft, Igor Oliychenko, Maryna Ditkovska and Vladimir Zhovtok.

References

Arkhypova, E. (2015). Electronic governance as a form of public administration. *Public administration: improvement and development*. Advance online publication. Retrieved from http://www.dy.nayka.com.ua/?op=1&z=855.

Becerra-Alonso, D., Androniceanu, A. & Georgescu, I., (2016). Sensitivity and vulnerability of European countries in time of crisis based on a new approach to data clustering and curvilinear analysis. *Administratie si Management Public*, 27, 46-61.

Bernhard, I. (2014) Local e-government in Sweden: Municipal contact centre implementation with focus on public administrators and citizens, *The Journal of Community Informatics*, 10(1), 1-15

Bhuiyan, S. H. (2011). Modernizing Bangladesh public administration through e-governance: Benefits and challenges.*Government Information Quarterly*, 28 (1), 54-65.

Borocki, J., Radisic, M., Sroka, W., Greblikaite, J. & Androniceanu, A. (2019). Methodology for strategic posture determination of SMEs - the case from a developing country, *Inžinerinė Ekonomika-Engineering Economics*, *30*(3), 265-277.

Castells, M., 2010. *The Information Age: Economy, Society and Culture Volume 1: The Rise of the Network Society*. 2nd ed. Oxford: Wiley Blackwell.

Chen, Y.C., Hu, L.T., Tseng, K.C., Juang, W.J., Chang, C.K. (2019) Cross-boundary e-government systems: Determinants of performance, *Government Information Quarterly*, 36(3), 449-459.

Choi, H., Park, M.J., Rho, J.j., Zo, H. (2016) Rethinking the assessment of e-government implementation in developing countries from the perspective of the design – reality gap: Applications in the Indonesian e-procurement system, *Telecommunications Policy*, 40 (7), 644-660

Ciobanu, A, Androniceanu, A & Lazaroiu, G. (2019). An integrated psycho-sociological perspective on public employees' motivation and performance. *Frontiers in Psychology*, 10:36. Doi: 10.3389/fpsyg.2019.00036

Constitution of Ukraine, Revision from 02/21/2019, Retrieved from https://zakon.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80

Dash, S., Pani S.K. (2016) E-Governance Paradigm Using Cloud Infrastructure: Benefits and Challenges. *Procedia Computer Science*, 85, 843-55.

Democracy in Ukraine: Four Years after the Euromaidan (2017) Retrieved from https://www.wilsoncenter.org/blog-post/democracy-ukraine-four-years-after-the-euromaidan

e-Government in France (2015) European Commission Report, Edition 18.0, Retrieved from https://joinup.ec.europa.eu/

e-Government in Spain (2018) Retrieved from European Commission https://joinup.ec.europa.eu/sites/default/files/inline-files/eGovernment_in_Spain_December_2018_v2.00.pdf

Emelyanov, V., Bersan, E. (2016). Problems and prospects of development e-government in ukraine. *Scientific works. Scientific and methodical journal "Public Administration"*, 269(281), 11-17.

Expatica (2019) The French political system, Retrieved from https://www.expatica.com/fr/about/gov-law-admin/the-french-political-system-107814

Gauld, R., Gray, A., McComb, S (2009) How Responsive is E-Government? Evidence from Australia and New Zealand, *Government Information Quarterly*, 26(1), 69-74.

Goncharuk, I.I. (2008). Implementation of e-Governance in Ukraine: present and future. Retrieved from http://www.pdaa.edu.ua/np/pdf5/3.pdf.

Grabovets, I.V. (2016). E-government as a means of developing democracy.*Social technologies: actual problems of theory and practice*, 69-70, 110-117.

Harper, L. (2013) Gov 2.0 Rises to the Next Level: Open Data in Action.Open Source.

Haseeb, M., Hussai, H. I., Kot, S., Androniceanu, A. & Jermsittiparsert, K. (2019). Role of Social and Technological Challenges in Achieving a Sustainable Competitive Advantage and Sustainable Business Performance. *Sustainability*, 11(14), Article Number: 3811

Kompella, L. (2017). E-Governance systems as socio-technical transitions using multi-level perspective with case studies.*Technological Forecasting and Social Change*, 123, 80-94.

Kondakov, K.G. (2016) The feasibility of introducing the experience of e-governance in foreign countries in Ukraine. States and Regions, 4(56), 46-49.

Konoval, V. A. (2016). The organizational and legal mechanisms for implementation e-government in Kyiv.*State and regions*,4(56), 50-7.

Kurfalı, M., Arifoğlu, A., Tokdemir, G., Paçin, Y. (2017) Adoption of e-government services in Turkey, *Computers in Human Behavior*, 66, 168-178.

Linders, D., Liao, C. Z.P., Wang, C.M. (2015, September). Proactive e-Governance: Flipping the service delivery model from pull to push in Taiwan. *Government Information Quarterly*, 35(4), 68-76.

Mahmoodi, R.K., Nojedeh, S.H. (2016) Investigating the Effectiveness of E-government Establishment in Government Organizations, *Procedia - Social and Behavioral Sciences*, 230, 136-141

Marchenko, V. (2017). Modernization of the mechanism of egovernment in ukrainian executive bodies. *Bulletin of the penitentiary association of ukraine*, 1, 39-47.

Matveichuk, L.O. (2016). Electronic Governance: Legal Aspect. *Investments: Practice and Experiences*, 9, 85-88.

Medynska, G.A. (2016). Analysis of e-government implementation in the activity of bodies of state power of the Kherson region.*Theory and Practice of Public Administration and Local Self-Government*, 1.Retrieved from http://el-zbirn-du.at.ua/2016_1/9.pdf.

Meijer, A. (2015). E-governance innovation: Barriers and strategies. *Government Information Quarterly*, 32(2), 198-206.

Miskevich, T. (2015).Overcoming information inequality as a prerequisite for the development of an information society in Ukraine.*Social Communications Research Center*. Retrieved from http://nbuviap.gov.ua/index.php?option=com_content &view= article&id=1898:podolannya-informatsijnoji-nerivnosti-3&catid=71& Itemid=382.

Modernising Government White Paper, March 1999 on the Official-Documents.gov.uk, Retrieved from https://uk.practicallaw.thomsonreuters.com/2-106-4778?Transition Type=Default&contextData= (sc.Default)

Muhammad Z. I. Lallmahomed, NaguibLallmahomed, Gias M. Lallmahomed (2017) Factors influencing the adoption of e-Government services in Mauritius, Telematics and Informatics, 34 (4), 57-72.

Mura, L., Ključnikov, A., Tvaronavičienė, M. & Androniceanu, A. (2017). Development Trends in Human Resource Management in Small and Medium Enterprises in the Visegrad Group, *Acta Polytechnica Hungarica*, *14* (7), 105-122.

Nicolescu, L., Tudorache, F.G. & Androniceanu, A. (2020). Performance risk analysis on mutual funds versus stock exchanges in young financial markets *Journal of International Studies*, *13*(1), 279-294. Doi:10.14254/2071-8330.2020/13- 1/18

Nielsen, M.M. (2019) Governance lessons from Denmark's digital transformation: *Proceedings of the 20th Annual International Conference on Digital Government Research*, June 18 - 20, 2019, United Arab Emirates, Dubai, 20, 456-461.

Nistor, C. S., Adela, D. (2014). Romanian Public Sector Transparency Approached by e-governance. *Procedia Economics and Finance* ,15, 414-20.

Parafiynik, N.I. (2016). Latest information and communication technologies as the basis of the functioning of e-governance. *Humanitarian magazine*, 1, 97-102.

Pauhofova, I., Stehlikova, B, Kljucnikov, A. & Androniceanu, A. (2018). Spatial and sectoral conditionality of the average monthly nominal wage in the Slovak Republic, *Transformations in Business & Economics*, 17(3), pp.155-168.

Presidential Decree No. 928/2000 (2000) On Measures to Develop a National Component of the Global Internet Information Network and Provide Wide Access to this Network in Ukraine

Roschuk, M.V. (2017). State Agency for Electronic Government of Ukraine in the *Public Administration System.Legal Bulletin. Air and Space Law*, 1, 80-85.

Rufín, R., Bélanger, F., Molina, C.M., Carter, L., Figueroa, J.C.S. (2018) *A cross-cultural comparison of electronic government adoption in Spain and the USA*, in book Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications, IGI Global, 476-49.

Sangki, J. (2018) Vision of future e-government via new e-government maturity model: Based on Korea's e-government practices, *Telecommunications Policy*, 42(10), 860-871.

Siekelova, A.,Kliestik, T.Svabova, L., Androniceanu, A. & Schönfeld, J. (2017). Receivables management: The importance of financial indicators in assessing the creditworthiness. *Polish Journal of Management Studies,15*(2), 217-228.

Snellen, I.Th.M., Thaens, M., Donk, V.D. (2012). *Public Administration in the Information Age: Revisited.* Amsterdam, Berlin: IOS Press.

Söderström, F., Melin, U., Lindgren, I., Galzie, Z. (2018) Coordinating Public E-services-Investigating Mechanisms and Practices in a Government Agency: *Proceedings of*

the 17th IFIP WG 8.5 International Conference on Electronic Government, September
3-5, 2018, Austria, Krems Springer, Cham, 85-97.

Tamulevičienė, D., Androniceanu, A. (2020.) Selection of the indicators to measure an enterprise's value and its changes in the controlling system for medium-sized enterprises. *Entrepreneurship and Sustainability Issues, 7*(3), 1440-1458. Doi: https://doi.org/10.9770/jesi.2020.7.3(1)

Third National Action Plan of Spain 2017-2019 of The Open Government Partnership (2017) Retrieved from https://transparencia.gob.es/transparencia/dam/jcr:cfc2ac4b-a5bb-4fc2-857d-4fbf61864122/2017_07_26_SPA-ENG_III_Plan_OGP_vf-1.pdf

Twizeyimana, J.D., Andersson, A. (2019) The public value of E-Government – A literature review, *Government Information Quarterly*, 36(2), 167-178.

Vasile, O., Androniceanu, A. (2018). An overview of the Romanian asylum policies. *Sustainability* 10(5), 1461; p. 1-22. https://doi.org/10.3390/su10051461

Volik, V., Lozhmets, Y., Davydova, O., Sprynchuk, S., Shvets D. (2019) Electronic Governance in Ukraine and Estonia Current Situation and Prospective, *Journal of Legal, Ethical and Regulatory Issues*, 22(2S)

Yu, Y. (2015). An empirical analysis of the relationship between environmental performance and sustainable e-governance in China.*Technological Forecasting and Social Change*, 96, 71-78.