Introduction

The public value approach is gaining status as a dominant theory behind the next wave of public management reform. According to the UNDP, there are three main public administration models: Old Public Administration, New Public Management and New Public Service [1]. Many countries approve, and apply new strategies and vision for middle and long term transformation towards the New Public Service model: Government Transformation Strategy and Government Technology Innovation Strategy of the United Kingdom, Vision of innovative civil service of Singapore, Abu Dhabi Strategy 2030, National Strategy for Advanced Innovation of UAE, etc.

One of the strategic approaches to government innovation is emerging technologies. Therefore along with the Strategy they adopted a Guide to Using IT in the Public Sector that helps everyone in government work better and smarter [2].

In 2018 the UAE government approved the National Strategy for Advanced Innovation that aims to: establish a national platform for innovation, communication and learning;
encourage the community to take the spirit of initiative; try out new models of government for serving society; test advanced economic patterns and lay the groundwork to create new sectors [3].

Citizens tend to expect increasingly better and faster service from the public sector. Changes of traditional management procedures inevitably entail qualitative and quantitative transformations. This is a reboot process. Thus, many advanced countries are shifting focus of value creation not only by adopting new innovative strategies but rethinking the philosophy of information technologies and digitalization programs.

The successful adoption of new technologies helps governments achieve efficiency in their implementation and delivery of public services to citizens. The objective behind various e-government initiatives has shifted in recent years towards establishing services that cater more to citizens’ needs and offer greater accessibility. As a result, the e-government became the most important tool for the creation of the information society, and an intermediary in the relations between the state and population. In this regard, the e-government portal provides various possibilities to deliver electronic public services to the population and business by increasing transparency and accountability of state bodies.

To provide e-government initiatives, both national and regional governments have made serious investments in terms of resources, personnel, and time with the belief that it would improve the quality of services of the government for citizens. The initiatives aimed to allow citizens to access a public service electronically; to enable citizens to navigate through several public services and agencies electronically and allow them to access the most current information on services regulations, procedures, forms, etc. [4, p. 120].

According to Burgelman et al. (2005), the present focus of e-government is on using information technology to try and bring better efficiency and greater quality in public services [5, p. 1490]. The delivery of public services will also face diverse challenges. At the same time, technology will play an even more pervasive role in citizens’ lives, changing their expectations of e-government services. Thus, we may need to broaden the paradigm of thinking with regards to how governments look at new ways to deliver these services.

The scholars stress that examining the needs of citizens has so far been neglected and argue that governments must better address public demand. However, failure to assess such demand has remained a major weakness in e-government programs due to the voluntary nature of citizen participation. Moreover, even with the successful implementation of e-government initiatives, many countries face low levels of user acceptance of e-services are recognized as an endemic problem for government policy makers, agencies, and e-government services providers.

Since 2006, Kazakhstan has passed through three stages in e-government development (informational, interactive, and transactional) and is now in the fourth phase of its development. And at that time Kazakhstani e-government portal became a crucial moment of the country’s transition to the fourth stage “creating Information Society”. The objective of this stage is to create a well-developed ICT environment and conditions for effective and fast interaction between citizens and government.

Kazakhstani e-government initiatives have demonstrated the positive implication effect, that assertion is supported by UN E-government surveys. According to UN Annual reports, Kazakhstan placed the 29th position among 193 countries in 2020. The E-Participation index of Kazakhstan has grown too (26th place) [6]. This indicator is determined by citizens’ capabilities of online communication with the government.

The government has made the development of digital information technologies a national priority. Since independence, there were several implemented national agendas in terms of ICT and e-government. The “Digital Kazakhstan” State Program has created a suitable environment for the utilization of information technologies to deliver e-services. However, it is more likely that the government focused only on technological and economic (productivity) aspects. To break
down this negative trend, the study aims to analyze citizens’ perspective of e-government portal adoption thru analysis of main factors (driving forces) affecting that intention.

Therefore, the study aims to develop a well-founded theoretical framework to identify the driving forces of citizens’ intention to adopt the e-government portal from a users’ viewpoint.

To reach the target the study is addressing the following questions: What are the driving forces that influence on the citizens’ intention to adopt the e-government from citizen-centric viewpoint? How to encourage Kazakhstan citizens to use e-government portal?

According to the research questions and goals of this paper, the study objectives were chosen as follows:
– understand and explore e-government service delivery attributes from the citizen-centric perspective;
– develop most appropriate measurement tool of the e-government adoption;
– determine the success factors of citizens’ intention to accept e-government portals by analyzing the case of Kazakhstan.

The main research tools are content analysis based on literature review, interview and survey, as well as factor analysis by using SPSS software.

As a result, it is expected to identify key factors of citizens’ adoption of e-government portal, which allows developing concrete policy decisions. The main findings are described in appropriate part of the article.

Methodology

Based on the literature review and considering the limitations of previous works, the conceptual model is proposed to answer for first research question of this study. The dimensions of the model have been adapted from several relevant previous types of research. Particularly, as was found in the Literature review stage, there are 22 measurement items (dimensions) that

Figure 1 – Conceptual framework (developed by author)
characterize the e-government portal adoption by citizens. Therefore, the next stage is to build the research framework. To do this, the 22 dimensions were combined into 7 factors based on the theoretical studies, as well as on the results of interview conducted. To test the proposed model, a researcher examines the relationship between variables linked in the model (Figure 1).

As a basic hypothesis this research assumes that a Group of individuals (personal), citizen-centric factors will have a more significant effect compared to group of factors characterized the objective (technological, economic, operational) aspects of e-government. To support the basic hypothesis, several secondary hypotheses are proposed. The hypotheses related to the constructs built on the evidence of literature review and interview outputs:

H1a. E-government portal availability will positively influence on citizens’ Intention to accept the e-government portal.

H1b. E-government portal quality will increase citizens’ intention to accept e-government.

H1c. Perceived benefits will have a positive effect on citizens’ intention to accept the e-government portal.

H2a. Personal attitude is positively related to citizens’ e-government readiness.

H3a. High level e-government ready citizens are more likely to have a positive personal attitude towards acceptance of the e-government portal.


H3b. Citizens with a high level of e-government readiness are more likely to trust to e-government portal.

H4. Citizens’ e-government readiness is positively related to citizens’ intention to accept the e-government portal.

The adoption construct has technological, economic, and behavioral perspectives. Therefore, this research assumes both dependence of citizens’ e-government acceptance intention to a group of objective aspects (technological, economic, operational) of e-government portal, as well as to group of individuals (personal) characteristics of e-government portal users.

The study applies judgment sampling as a common nonprobability method to proceed with survey questionnaire pre-test (including interview). The interviewees were selected by the researcher’s judgment. However, to achieve truly representativeness of the target population, the selective features were generalized:

- interviewees should represent different parts of population (means various occupation, such as students, public officials, private sector employees, scholars, researcher, etc.);
- interviewees should have ICT and/or public administration study and/or work background;
- interviewees should be familiar with the Kazakhstani e-government portal.

Besides this, to achieve reliability and validity of the measures used, the study aims to cover a large representative sample during the main survey. The target population of the study can be identified as follows: “Kazakhstani citizens, who have ever experienced the e-government portal”. The survey questionnaire consists of five sections preceded by a covering letter explaining a purpose of the questionnaire and guidelines for respondents. Thus, the first section includes questions for pre-screening. The next section consists of two parts and aims to identify specific information about respondent’s usage of Internet and the Kazakhstani e-government portal. The third section indicates to what extent a respondent agrees or disagrees with the listed statements. The next section captures demographic data of respondents. And, the last section is optional, where the respondent can leave any additional comments or proposals about the e-government issue.

Survey and interview professionals must protect each participant’s wellbeing to prevent harm and to get accurate information [7]. To ensure compliance with ethical principles the researcher successfully completed the Protecting Human Research Participants course (NIH Office of Extramural Research) by receiving the appropriate certificate.

Moreover, to ensure the voluntary participation and protection of individual data the researcher mentioned the appropriate notes in covering letters both of interview and survey, as...
well as in the Interview consent form and Survey guidelines for respondents. Furthermore, to protect the identity of individual participants the author uses aggregated data without disclosure any personal information.

The survey was left open during January - February 2019. In that period 500 paper-based questionnaires were distributed and 440 questionnaires were returned. As required by this study, all participants have experienced internet and Kazakhstani e-government portal. However, of the 440 responses, only 422 questionnaires were valid, and 18 questionnaires were not accepted for further analysis due to lack of answers for some questions (approximately, 20-50%) and duplication of the same answers.

Thus, the final response set was composed of 422 responses with the response rate of 84.4%.

Discussion

Nowadays, the public services delivery through the adoption of ICT and e-government has become very popular not only in developed, but also in developing countries. The universal shift toward e-services has caused governments and public sector organizations around the globe to take notice of the e-government phenomenon. The benefits of e-government adoption can be diverse, but commonly a number of scholars, as well as public officials argue about less corruption, transparency, effective delivery of government services to citizens, greater convenience, citizen empowerment through access to information, growth of revenues, cost reductions, and more efficient government management, and so on.

However, the success of these efforts depends to a great extent on how well the citizens make use of them. In that case, many critics claim that the development of e-government has until now been primarily guided by supply side factors and that technological possibilities rather than citizens’ needs [8, p. 491; 9, p. 615]. The main aims of this approach were to expand a portfolio and to improve a design of e-services. In reaction to this, the plea for more citizen-centered e-government strategies becomes more prominent. The focus shifted towards (new) paradigms such as “user-centered e-government” and “multichannel government”.

Many scholars argue that “citizen-centered” e-government suggests that governments will provide services and resources tailored to the actual service and resource needs of users [10, p. 321; 11, p. 295]. Particularly, Bertot J. (2005) considered the “citizen-centered” e-government as a specific condition when governments know what citizens want from e-government [12, p. 36].

However, during the last decade many countries (especially developing countries) were focused on building efficient and effective e-government, which implies that governments will gain economies of scale, reduce costs, and provide technology-enabled user services.

But, there is a dilemma: How to develop citizen-oriented e-government that will be both focused on achieving cost savings and understanding citizens’ expectations and needs? Moreover: How engage citizenry to adopt e-government? These dilemmas became a critical issue during the last several years. To solve that problem, many researchers and scholars tried to understand what kind of factors are included in the “black box” of citizens’ attraction to use e-government services.

There is number of strategies to increase citizens’ adoption of e-government services. Different theoretical frameworks on people’s adoption of new information technologies and e-services have been arising during the last decades. Literature in the field has mentioned different reasons for the adoption of ICT. Consequently, theories on information technology adoption are relevant to understand the acceptance of e-government, and, particularly, e-government web sites. Generally, these theories take one of three possible approaches:

- focus on technological factors;
- on citizens’ behavior, and
- hybrid studies.

In this study, the researcher considered approximately 50 various articles, research and study papers, official reports and identified about 80 different measurement items of citizens’ adoption of ICT and e-government. This situation of independent variables surplus
negatively affected on clear understanding of the
exact group of driving forces to accept e-services,
which entails to issues and consequences in
public policy decision-making. Therefore, this
study will try to examine the appropriate number
of factors influencing on citizens’ adoption of
e-government by reviewing the main theories of
every above mentioned groups.

1) Techno-centric theories. This group of
theories mainly based more on technological or
“e” aspects and the latter on “citizen’s needs”. They are only focused on how to technically
establish Websites that allow citizens appropriate
access to government information and accept new
information technology. From this view-point
e-government is considered as special website
that provides public access via the Internet to
information about all the public services offered
by government; and enabling the public to
conduct and conclude transactions for all those
services. The major representative theories of
this group are Technology Acceptance Models
(TAM and TAM2) and Theory of Diffusion of
Innovations [10, p. 330].

2) Theories based on citizens’ behavior. This
group of studies explores the key success factors
of e-government adoption through the behavioral
perspectives of the end users. Commonly,
these theories argue that overall satisfaction,
specifically explained by perceived usefulness
and information accuracy of the technology or
e-government website, most significantly affect
their intention to adopt them. Also, increasing
the relevant knowledge and skill of the users
effectively enhances their intention and the actual
usage as well.

The various studies, such as Theory of
Reasoned Action, Theory of Planned Behavior,
Unified theory of Acceptance and Use of
Technology evaluate technology or e-government
acceptance, especially from the behavioral
perspectives of the end users, are critical for its
continuing usage [11, p. 296].

3) Hybrid theories. This group of theories on
e-services and e-government adoption combines
the previous two approaches without any clear
separation or distinguishing among them. They
were tested during the last decade on example
of developed as well as developing countries
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of case studies. For example, a comprehensive
theoretical model of e-government services
acceptance based on the TPB, an Integrated model
in the case of Malaysia, Integrated model in the
case of the Netherlands, e-government adoption
model, Conceptual model of citizen adoption of
e-government, etc. [13, p. 101; 14, p. 15].

There is no doubt that an extensive study
of the needs and expectations of citizens as
e-government users is essential. Although there
is an “ocean” of the factors which scholars tried
to analyze and incorporate in their conceptual
models, the results of existing literature on ICT
and e-government adoption by citizens showed
that most of the approaches are mainly conceptual.
Extensive empirical studies among the actual
users to validate and generalize the models
are absent. Most of those who have attempted
to validate their models did not rigorously
review the literature and integrate discourses
from technical, as well as from citizen-centric
perspectives. Through an extensive literature
review of e-government methodologically these
models are not grounded on a strong theoretical
framework. While developing those models of
adoption, the generalization aspect is heavily
ignored [14, p. 16].

To compose the comprehensive research
framework, the author tried to select the most
appropriate constructors. Various stakeholders
may require different criteria to measure
each constructor, hence there is a necessary to
customize a set of measures of e-government
adoption by choosing variables of both objective
(technological, economic, operational, etc.)
aspects of e-government (including e-government
portal) and individual, personal characteristics of
citizens (attitude, behavior, trust, etc.).

Results

The proportion of gender of participants
close to being equal: female – 58.8% and male –
41.2%. Most of them are between 21-30 years of
age (45.0%), have a bachelor’s degree (62.8%).
According to the occupation proportion, they
equally represent each segment of population:
students – 27.5%, government employees – 25.6%, private sector employees – 24.4%, state enterprises employee – 22.5%.

The respondents experienced the internet for more than 5 years (91.5%). Besides this, they use to access to the internet 4-7 hours daily (52.2%) from PC (95%) at home (89.1%). The main purpose of internet usage is searching the information (97.2%) and communication (67.1%).

Moreover, the average statistical respondent has been informed about the Kazakhstan e-government portal from the Internet (78.8%). And had to use the portal more than one year (72.5%) for search/enquire information (84.1%), receive e-government services (34.1%), complain (20.3%).

To establish the internal consistency of the measurement instruments, reliability analysis was conducted. All of the items are found to be reliable, since the values are above the recommended level of 0.7. The highest Cronbach’s alpha lies to variables of Personal characteristics group of items, such as Personal attitude (.893) and Trust in e-government portal (.866). All of the items showed a good internal consistency of the scales.

During evaluation of both measurement and structural models, the researcher must assess overall fits for the model in order to judge whether the model sufficiently represents the set of causal relationships. This is done through assessing goodness of fit measures [15]. Besides Chi-square and P-value three types of goodness of fit measures are used: Absolute, Incremental, and Parsimonious fit measures (Table 1).

From the structural equation analysis, we found that citizen-centric research approach is supported by the empirical data. Thus, the Basic hypothesis, which assumed that a group of individual, the citizen-centric factors will have more significant effect compare to group of factors characterized the objective (technological, economic, operational) aspects of e-government is proved. The summarization of data analysis

### Table 1

<table>
<thead>
<tr>
<th>Indices</th>
<th>Structural model (with all constructs)</th>
<th>Final proposed research model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square</td>
<td>418.264</td>
<td>50.716</td>
</tr>
<tr>
<td>P-value</td>
<td>Significant</td>
<td>Significant</td>
</tr>
<tr>
<td>Absolute fit measures:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodness-of-fit index (GFI)</td>
<td>.920</td>
<td>.977</td>
</tr>
<tr>
<td>Root mean square error of approximation (RMSEA)</td>
<td>.052</td>
<td>.039</td>
</tr>
<tr>
<td>Incremental fit measures:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tucker –Lewis index (TLI)</td>
<td>.936</td>
<td>.986</td>
</tr>
<tr>
<td>Adjusted goodness-of-fit index (AGFI)</td>
<td>.897</td>
<td>.959</td>
</tr>
<tr>
<td>Comparative fit index (CFI)</td>
<td>.920</td>
<td>.991</td>
</tr>
<tr>
<td>Incremental fit index (IFI)</td>
<td>.946</td>
<td>.991</td>
</tr>
<tr>
<td>Parsimonious fit measures:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normed chi-square (CMIN/DF)</td>
<td>2.123</td>
<td>1.636</td>
</tr>
</tbody>
</table>

Note: developed by the author based on a survey
results and final proposed research model are shown in Table 2.

Conclusion

The theoretical findings of this study are fourfold.

First, this study proposed a comprehensive theoretical framework to identify determinants of e-government portal acceptance intention from citizens’ viewpoint.

Second, the sample group was real e-government portal users. Thus, the validity of the findings is not limited. Moreover, the descriptive statistics analysis tools, such as mean, standard deviations, skewness, and kurtosis values, proved the normal distribution of the dataset. Besides this, the model fit measures are higher than required mean. And explanatory power of constructed model is 71.8%.

Third, by comparing the combined model and citizen-centric approach, this study confirmed that the final framework has better model fit, as well as significant relationship among independent variables, mediator and dependent variable. Besides the above mentioned, the study has performed rigorous statistical analysis to validate the proposed model of e-government portal adoption. It is clearly observed from the findings that the viewpoint of the prime stakeholder, i.e., citizens, is crucial in selecting the critical factors for the adoption model. Academicians, practitioners, researchers, and policymakers can be benefited from this research and successive findings.

The policymakers should focus on following enlarged managerial suggestion, such as:
- strategies in encouraging more citizens to use e-government portal (i);
- increase the confidence of citizens to use e-government portal in future (ii);
- imposing a barrier to e-government adoption (iii);

Table 2

<table>
<thead>
<tr>
<th>Summary of the hypotheses’ status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
</tr>
<tr>
<td>Empirical support</td>
</tr>
<tr>
<td>H1a. E-government portal availability positively influences on Citizens’ intention to accept e-government portal</td>
</tr>
<tr>
<td>H1b. E-government portal quality increases Citizens’ intention to accept e-government portal</td>
</tr>
<tr>
<td>H1c. Perceived benefits have a positive effect on Citizens’ intention to accept e-government portal.</td>
</tr>
<tr>
<td>Citizen-centric approach:</td>
</tr>
<tr>
<td>H2a. Personal attitude is positively related to Citizens’ e-government readiness</td>
</tr>
<tr>
<td>H2b. Trust in e-government positively influences on Citizens’ e-government readiness</td>
</tr>
<tr>
<td>H3a. Citizens with a high level of e-government readiness are more likely to have positive personal attitude towards Intention to accept e-government portal</td>
</tr>
<tr>
<td>H3b. Citizens with a high level of e-government readiness more likely to trust and positively accept e-government portal</td>
</tr>
<tr>
<td>H4. Citizens’ e-government readiness is positively related to Intention to accept e-government portal</td>
</tr>
</tbody>
</table>

Note: developed by the author based on a survey
increase citizens’ actual participation in the usage of e-government (iv).

As the study results a legislative recognition of Kazakhstani citizens’ rights to participate thru e-government portal in public discussion of draft standards for public services delivery (i), summary reports of ministers, chairmen of agencies, local government executives on the annual results of the quality of public services delivery (ii), by filing a complaint on decisions, actions and omissions of public officials, and quality of delivered public services (iii) were included in appropriate legislative acts.

Secondly, the researcher developed the special Guidelines on public discussion of summary reports of ministers, chairmen of agencies, local government executives of the annual results of the quality of public services delivery. These Guidelines were presented and distributed among public officials, non-governmental organizations, deputies, and ordinary citizens during the “Improvement of Public Services Delivery System in the light of the Law “On Public Services” International conference, which was held on behalf of UNDP Central Asia.

Furthermore, in order to implement the citizen-centric approach of public services delivery, the researcher proposed several suggestions to the project on designing a Life Cycle Service Delivery Strategy for Kazakhstan.

This study at least has two main limitations:

1) threats to external validity of this investigation in Kazakhstan cannot be avoided. Future research could expand the sample size to include e-government services users with various occupations and from different regions of the country;

2) the questionnaire approach is not free from subjectivity in the respondent and was taken at one point in time. The user’s reactions change in time and may depend on the environment.

The citizens are the prime users of e-government. However, business organizations are also important stakeholders. The study did not include business organizations, because individual behavior and organizational behavior should be analyzed considering different aspects. Therefore, future research could separately explore the adoption criteria of business organizations.

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Қазақстан Республикасы Президентінің жанындағы Мемлекеттік басқару академиясы, Қазақстан Республикасының Мемлекеттік қызмет істері агенттігі, Нұр-Сұлтан, Қазақстан

Қазақстандың инновациялық мемлекеттік қызметті шенберінде электрондық үкіметтін еңізінді трансформациялау

Аннотация. Осы мақалада баяндалған эмпирикалық зерттеу электрондық үкімет порталын пайдалану факторлары туралы азаматтардың қозгасын Қазақстандағы инновациялық мемлекеттік қызмет призмасы арқылы ашып көрсетуге бағытталған. Мақала зерттеу сипатына ие. Бұл зерттеудің электрондық үкіметті еңізінді трансформациялау әдісін есептелген. Осы факторлардың жалпы зерттеу нәтижелері білінген. Сауалнама, ұшырым, сакула, ізірілігі, отырыстық факторлардың өзінің әсері баянылады.

Түйін сөздер: электрондық үкімет, клиентке бағдарлану, трансформация, мемлекеттік қызметтер, Қазақстан.
опрос и факторный анализ. С точки зрения граждан Казахстана, факторы «Личного отношения» и «До верия» к порталу электронного правительства с учетом их готовности оказывают существенное влияние на стремление пользоваться данным порталом. В связи с этим автор пришел к выводу, что в мотивации граждан факторы клиентоориентированности более важны по сравнению с техническими факторами. В целом, результаты исследования позволят сфокусировать работу правительства на ключевых «точках роста» цифровизации.

**Ключевые слова:** инновационная государственная служба, электронное правительство, клиентоориентированность, трансформация, оказание государственных услуг, Казахстан.

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